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GENERAL ADVICE

*Original work by Jessica Volk and Neha Jeurkar. Updated most recently by the Class of 2019.*

**Electronic Residency Application Service (ERAS) application**

- Plan to submit your application at the latest by the day ERAS applications are released to programs in September. Due to website delays in prior years, as of 2018-2019 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 as soon as 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 (see “LOR Policy for Letter Writers” on Student Portal).

- 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: Penn SOM Portal → Student Affairs
  - AAMC Careers in Medicine
  - American Medical Association FREIDA: Database with basic information on each program
  - 2017 Interview Guide: Includes sample interview questions

**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 if possible. In the 2018-19 season interviews were offered through email, 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.

- 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.
- See the 2017 Interview Guide on the Student Portal for a list of potential interview questions. These 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), and Catherine Mezzacappa (Medicine–Pediatrics). Recently updated by Jonathan Villanueva (Anesthesiology) and Connor Barnhart (Psychiatry) (2019)

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 away rotations 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.

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.

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
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. 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. It does not need to be a focus of the conversation if your interviewer does not have any questions or thoughts to share on the topic.

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.

**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</td>
<td>Program E</td>
</tr>
<tr>
<td></td>
<td>(East coast)</td>
<td>(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>

**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)

**NOTE:** For couples who are unable to officially couples match (e.g. one partner is applying into a specialty with early match) and have questions, contact 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).
ANESTHESIOLOGY

Original work by Jon Wanderer. Updated most recently by Mark Meisarah (2019).

**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)

**Rotations Required**

- **Anesthesia 300:** This is the senior anesthesiology elective on which you rotate through general anesthesia as well as subspecialties in regional, cardiothoracic, OB, and neuro anesthesia. Pain, critical care, and pediatrics can be taken as separate electives.
  - **Structure:** You will be paired with two residents for the first two weeks in the main ORs and then rotate in the subspecialties with an assigned attending during the second two weeks. Attendings change almost daily, but your resident will be the constant. As a result, it is not the easiest rotation to form a relationship with an attending and get a letter of recommendation; however, if there is someone you want to work more with, you can talk with the course director and try to arrange it. It is as much as you want to make it to be, so be proactive and go around asking to place IVs, perform intubations, set up the room, draw meds, ultrasound, etc. Try to be as much of a pretend resident as possible and you'll get a lot out of the rotation.
  - **Objectives:** 1) Networking for letters, mentorship, research, future advocates, etc., 2) appreciating the specialty and determining if anesthesiology is right for you, 3) collecting patient stories and cases you can talk about on your application and during interviews, 4) if you’re a research person, coming up with a research project for your scholarly pursuit and also to talk about on your application and during interviews, and, of course, 5) learn anesthesia!
  - **Timing:** The earlier the better, often by July so you can have the grade on your transcript and obtain letter of recommendations. August rotations are usually the last to make it onto your transcript for ERAS.
  - **Preparing:** A book chapter will be provided prior to the rotation. You should review it and develop a working knowledge of pharmacology and physiology, as well as procedural skills such as IV placement, ultrasound, and vent and airway management. Don’t worry if you don’t have time to prepare, the residents and attendings are amazing and will teach you all of this!
  - **Letters and Mentorship:** The course director will write your departmental letter on behalf of the chair. If possible, try to obtain a letter from another anesthesiology attending with whom you have worked. If you can’t get a second or third letter during this rotation, don’t worry! You can consider another elective on which you may work more closely with one attending for an extended period of time, such as pediatric anesthesia, pain, SICU, or CT SICU.
  - **Chair meeting:** Your rotation will conclude with a meeting with the Chair of the department, at which point you will discuss your background and intentions on applying into anesthesiology. He is a phenomenal resource to medical students and his mentorship and guidance through the application process is highly regarded every year by applicants.

- **Sub-Internship:** It was previously recommended that applicants complete a sub-internship in internal medicine, especially if applying for categorical positions. However, many of us have applied having completed subinternships in pediatrics or emergency medicine without any problems. The advice often given is you should complete a subinternship in whatever you are interested in and will do your best in, which one exactly doesn’t matter. You should check with specific programs if you are concerned about this. Note, that if you’re planning to apply to internal medicine preliminary or transitional year programs, an internal medicine subinternship...
would likely be necessary to be competitive. Also, this is another opportunity for a letter of recommendation!

- **Critical Care:** Some programs require a month of critical care as a senior medical student prior to residency. However, this is not true of all programs. Some people have applied and interviewed without any problems not having completed an ICU rotation. That being said, it has been advised that you complete one month of critical care as it is an essential part of anesthesiology and can demonstrate a thoughtful interest in the specialty. Speak with Dr. Baranov or Dr. Fleisher for more information regarding this if you have any concerns.

**Suggested**

- **SICU:** This is a helpful rotation for anyone to take but is especially good for budding anesthesiologists as it exposes you to the non-operative (and more interdisciplinary) side of anesthesia. Additionally, it provides context for what you do in the OR, as how you take care of patients in the OR can impact a patient’s post-op course in the ICU. Having an ICU month under your belt as a medical student is helpful and breeds confidence. In order to get the most out of this rotation, you need to put in a lot of effort to follow specific patients and make it known that you are interested in taking a leadership role in the care of your patients. You do not need to take this rotation to get a good residency spot, but it is an extremely rewarding and educational experience and the course director, Dr. Horak, is fantastic! Pro-Tip: Finding the team with an anesthesiologist attending can be a great way to obtain a letter of recommendation! You’ll get pimed anesthesiology/physiology style rather than general surgery style on rounds.

- **CT-SICU:** This is a “by permission” course only, but it is highly recommended. The unit is run primarily by the CT anesthesiologists and critical care nurse practitioners. It is a unique opportunity to learn to work with other advanced practitioners (versus primarily residents elsewhere in the hospital). You are given the opportunity to spend time in the OR doing cardiac anesthesia as well as on the unit. The patients on this unit are often the sickest of the sick and require mechanical support such as ECMO, VADs, Balloon Pumps, and Impellas. Being able to manage these patients will confer upon you great confidence in managing truly challenging physiologies! You will work with general surgery residents and critical care fellows, and the opportunity to do procedures is ample. If you are proactive, you will get the opportunity for difficult IVs, arterial lines, bronchoscopy, cardioversion, bedside echos and floor intubations. Dr. Bonnie Milas, the course director and CT anesthesiologist, is wonderful and a great person to get to know. Pro-tip: Know your vasoactive agents and vent management as a baseline. Pocket Anesthesia has some reading common CT surgeries and complications related to them you can read about.

- **Pain Medicine:** Great, laid-back rotation. You get exposure to the acute pain service at HUP, the chronic pain clinic, the spinal blocks, and the palliative care service. You can spend as much or as little time in each of these areas. The pain attendings and fellows are fantastic teachers and enjoy having medical students.

- **Pediatric Anesthesia:** A highly rated rotation. The first two weeks will consist of time working with one attending and one fellow, and the second two weeks will be within subspecialties. Be proactive and you will surprise yourself with how much you will be given an opportunity to do. There are lots of opportunities to do IVs and intubations. Ample teaching time with fellows to learn about pediatric physiology and how we manage them differently than adults. You might also get the opportunity to run simple cases when you’re working with an attending.

- **Keep in mind:** The only rotations you need to do are the ANE300 rotation and the sub-I (with the possible addition of a critical care month, as discussed above). If you want to do the above-suggested rotations, great, but if you want to do pathology and ophthalmology, go for it. You honestly do not need to do any of these. However, if you express interest in a particular subspecialty, it would be useful to have done the actual rotation. If you ask attendings within the department, all of them will say to do whatever rotations you are most interested in and explore specialties you might not get a chance to experience again should you decide to pursue a residency in anesthesiology. The above rotations, however, do provide a great way to get letters of recommendation from anesthesiologists because it can be difficult to work with one attending long enough to get a letter on the ANE300 rotation.
Other

- Rotations in Internal Medicine such as CCU, cardiology, and pulmonary are also very useful for general medicine knowledge pertinent to both critical care and anesthesia in the OR. You will gain more exposure to ventilator management, vaspressors, and echocardiograms, which are highly relevant to anesthesia.

Away rotations

- Talk to Dr. Fleisher or Dr. Baranov if you have any thoughts of an away rotation.
- Doing aways tend to be an exception than the norm, as it can hurt you. The exceptions tend to be 1) interest in a geographic location (i.e. West Coast), but note that people haven’t had problems getting interviews even without an away, 2) you’re an average candidate who wants to go to a particular competitive program (programs like known variables) and believe you wouldn’t get an interview at that program otherwise, or 3) you’re genuinely interested in experiencing another practice setting and just dying to rotate at another institution.
- Be honest with yourself – if you have a winning personality, superior fund of knowledge, and strong work ethic, an away rotation can help. However, if you lean towards the awkward, low EQ, or “acquired taste” side, an away may be detrimental to your chances.
- Applications for aways tend to be due early, so you’ll have to apply for them ASAP to get a good spot. Helene can help guide you with logistics on how to apply via AAMC’s VSLO system. Some programs do not use this system. Check individual program sites for details. Also note that they may require a Step 1 score, since traditional 2+2 curriculum students would already have a score. Some programs require a letter of recommendation for aways as well. You should also complete your ANE300 rotation at Penn before embarking on any away rotations.

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 known to have an open door policy that welcomes students and residents. They take a strong interest in the success of medical students and are most 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 anyway 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, practice interviewing, how to make your rank list, how your personal statement reads, etc. Often times, these are letter writers or research mentors. Dr. Walls, who you will get to know well during your 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, someone you worked on research with extensively, 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 write your letter and 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. Documents including your CV, transcript/grades, and personal statement as well as a conversation can help him write the best letter!
● **General advice:**
  ○ Polish 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. Since you do not see the letter before it is submitted, knowing that it will be strong is important. 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 does a great job of providing 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 tip: 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 even 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, you should try to meet with Dr. Roderic Eckenhoff and Dr. Max Kelz, who are both heavily involved with the research program here at Penn and 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 (where you 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 with competing applicant 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 are "from" (where your parents are from). 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 internship, while tough, is a good backup to have. They often have open spots.
  ○ Pro-tip: You pay ERAS a fixed amount to apply up to 20 programs in one specialty. After 20, you pay for each additional program. You shouldn’t need to apply to more than 20 to land yourself a prelim position, so 20 is a good max number of applications for prelims. Just be careful to not wear yourself out on the interview trail doing prelim interviews. They can also be good practice interviews. Also, general surgery prelims tend to interview via skype (except NYC programs), so that can help with travel.
  ○ You will need a separate personal statement for prelim programs. Usually, people just change the last paragraph or 2 to address why they are doing 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. So unless you exclusively rank categorical programs, you need to apply to preliminary programs at the same time as you apply for your residency programs. If you are confused, it’s ok…you will figure it out over time.
● 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
  ○ Drs. Baranov and Fleisher will give you personalized advice on how many programs you should apply to. Do not hesitate to reach out early, as they are very receptive to fitting a meeting into their schedule!
  ○ Schedule ANE300 as early as possible. During this rotation, you will have a lot of contact with Dr. Baranov. As you start to have more concrete plans about applying in Anesthesia, you should make an appointment with Dr. Fleisher to develop a mentorship relationship with him as well.
  ○ Get your CV and personal statements perfect.
  ○ Get your letters in before the first day applications are accepted.
● Applying
Submit your applications on the first day they are accepted!
ERAS can be tricky and 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
- Meet with mentor
- ANE300 elective
- 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 scholarly pursuit as well. 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 then sending an email. 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. Dr. Baranov can also help point you in the right direction. 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. There are also ample opportunities to participate in clinical and health policy research. 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.

June to September
- Schedule meeting with JoMo about Medical Student Performance Evaluation (MSPE, a.k.a. Dean’s Letter)
- Start working on personal statement
- Write MSPE Unique Characteristics paragraphs
- 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.
- Read about the program before you go (their website is a great resource). Always have at least 3 program-specific questions to ask that demonstrate that 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 and afterward go to lunch with Dr. Fleisher, Dr. Baranov, and/or Dr. Gordon. As a group, they will comment on what each applicant did well and how each can improve. This is a great experience and unique to the Penn department. If interested, you are welcome to attend a pre-interview dinner at a future date to get additional time with the Penn residents.
  ● Be on your absolute best behavior during interviews! You never know who is watching/listening!
  ● At the end of your interview season, you will have an “exit” interview with Dr. Fleisher during which you will tell him your final 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 underestimate 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: Mark Meisarah (meisarah@gmail.com, texting preferred 562-761-3710)
DERMATOLOGY

Original work by Camille Intracaso and Adam Lipworth
Updated most recently by William Fix, Dave Hashemi, Carolyn Kushner, and Michael Stephens (2019).

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.

Dermatology electives

Dermatology. An additional dermatology elective is strongly recommended to seek a letter of recommendation but not absolutely necessary. The four-week rotation is most appropriate for students who will be applying into dermatology.

- Broad introduction to dermatology, mostly shadowing different attendings every day. Try to get a letter from your consult week attending (usually Dr. Rosenbach or Dr. Micheletti), but this may not always be possible. If you do not think you can get a letter from this rotation, do the pediatric dermatology elective which is a much better rotation for getting a letter.
- We suggest doing the DER300 rotation as early as possible as it is a great way to get to know residents and faculty and get involved in research.
- You see a lot of interesting pathology on this rotation, especially on consults, so it is definitely possible to get a case report out of the rotation. Feel free to reach out to fourth year students if you would like advice on how to publish case reports!

Pediatric dermatology. Excellent rotation with fantastic faculty mentors (Castelo, Jen, McMahon, Jen, Perman, Streicher, Treat, Yan).

- You can independently see patients in clinic and consults at CHOP. Each day is roughly divided into morning clinic and afternoon consults with about 1-2 consults per day. This rotation is a great opportunity to practice presenting dermatologic cases because, if you take the initiative, you can present upwards of 5-10 patients per day to the attendings.
- Many of the consults are complex and challenging cases which may similarly be amenable to publication as case reports. Dr. Castelo is a great point-person if interested in pursuing any publications within the realm of pediatric dermatology.
- You are expected to give a short 5-10 minute presentation on a topic of your choice during one of the pediatric dermatology faculty conferences, which is very low stress. We recommend identifying your topic earlier on in the rotation and discussing with Dr. Perman and Dr. McMahon (the course directors) for guidance about how to put this together.
- This rotation may cap. If there are no available spots for the course, we recommend reaching out to Helene Weinberg to inquire if a second student could be added for a given month. This rotation should be prioritized over other non-dermatology rotations.
- Many students get a letter from this rotation because you will be working longitudinally with a limited number of faculty members who will thus grow to know you well during the month-long rotation.

Dermatopathology. Great opportunity to learn some basic dermatopathology in preparation for residency.

- You may be able to get a letter if you write up a case report with an attending. Otherwise, it is hard to make an impression since you spend most of your time observing at the microscope.
• Do not feel obligated to take this rotation, as the DER300 and Pediatric Dermatology electives are far more important.
• Faculty may also tell you that it is unfavorable to take all three rotations since you can use your elective time to explore other areas.

Away electives. Away electives are not required but can be helpful in certain situations (eg, if you are very interested in a specific program or if you want to open up new geographic regions for your application).
• An away elective has the potential to harm a good student if you happen to rub a person the wrong way or do not shine on your rotation, so keep this in mind.
• On the other hand, it can also give you a distinct and real advantage for a specific program if you perform well. It is also an awesome opportunity to learn the “truth” about a program you are considering.
• Depending on timing, no record of an away rotation may show up on your transcript, so these are best used as “auditions” for specific programs rather than to express interest in relocating to a certain region (eg, West Coast).
• Nevertheless, do not expect an automatic interview invitation just because you rotated at a program, as very few programs automatically interview away rotators. Many programs will only invite a select few rotators back for their interview day (eg, Stanford, UCSF, Harvard, Vanderbilt. Some will actually interview you during your time on their rotation (eg, Emory, Baylor).
• That said, some programs — especially those that place an emphasis on an applicant’s perceived interest or “ties” to the program/region — will interview rotators at a much higher rate, and some will actually interview you during your time on their rotation (eg Emory, Baylor). Away rotations at these schools may help generate a couple of guaranteed interview invites.
• Dermatology is certainly not a field in which away electives are required, and if you choose not to do any away electives this should not hurt you in any way.
• Most Penn students do not do away electives. Away electives are also probably more helpful for those applying straight through without a year out, but again are not required even in this scenario.

Non-dermatology electives

Medicine sub-internship. Great opportunity to get a letter of recommendation. It is a good idea to do this rotation early because a letter will be useful not only for Dermatology, but also for your preliminary/transitional program applications. The grade received on your sub-internship is still relevant even if this is not a core clerkship.

Pediatric sub-internship. While a medicine sub-internship is highly recommended for all Dermatology applicants, those interested in pediatric dermatology and a Pediatrics preliminary year can do a pediatric sub-internship instead.

Medicine: Hematology/Oncology. The HUP rotation offers exposure to interdisciplinary pigmented lesion clinic. The VA rotation is a mix of oncology and hematology with a relatively robust consult service; it will not provide as much exposure to melanoma, but you will see many cutaneous manifestations of oncology and hematologic diseases.

Medicine: Rheumatology. Great elective with lots of dermatology overlap. The faculty are committed to teaching and as a student you see a wide breadth of diseases, many of which have cutaneous manifestations. The four-week rotation is divided into an outpatient half that is largely shadowing and an inpatient half on the consult service.
**Medicine: Infectious Disease.** Great at any of the sites (especially Pennsylvania Hospital). Dermatology and ID have a lot of overlap, so this is a great way to continue to get some dermatology exposure in an elective.

Other elective considerations include surgery (eg, Plastic Surgery, ENT), Surgical Pathology, and pediatric subspecialties, depending on interests within dermatology.

**Independent research.** Since Dermatology is competitive, it may be much more worthwhile to take a month and do some research early on in the year before ERAS is due in September. It may be better to have a paper on the books rather than doing 4 weeks of an elective. If you have minimal to no dermatology research, you should consider taking a year out.

**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 Leslie Castelo-Soccio (clinical pediatric dermatology). 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.

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
- Basic science research: Rook, Seykora, Cotsarelis, Payne
- Epidemiology research: Gelfand, Margolis, Ming
- Teledermatology/global health: Kavarik
- 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 (eg, Drs. Rosenbach, Steele, Micheletti, or Samimi) can be very helpful in providing an honest assessment of whether one would be helpful or necessary in your situation.

**USMLE Step 2 CK/CS**

During this past application cycle (2018-2019), only a few schools required Step 2 scores prior to ranking applicants in March of the application cycle (eg, 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 (ie, 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 (eg, 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 (e.g., 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 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 2018-2019 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, 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, 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.

• 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.

• DermInterest.org will have a skeleton schedule of interview days indicated by program directors. It is very helpful to know these dates, because you often need to schedule interviews as soon as 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 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 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.

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 “2018 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 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 (i.e. Penn, NYU, Yale, UCSF, Stanford, and Northwestern), 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.

Do this as soon as you are sure about your number one, but do not tell more than one program that they are your number one as dermatology is a small field and programs do talk.

**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 2018-2019 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)
- Topical Podcast from Harvard Dermatology

**Questions**

Michael Stephens (2019), mkestephens914@gmail.com
EMERGENCY MEDICINE

Original work by member of class of ’07. Updated most recently by Tony Spadaro (2019). Reviewed by Dr. Kevin Scott (2019).

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.

Rotations

Required

- Sub-Internship in Emergency Medicine (HUP/Presbyterian): One of your letters of recommendation (your SLOE – see below) will be compiled from this rotation.
- Away sub-I in EM (see below)

Suggested

- Other than the EM sub-I, there truly are NO required electives. We treat a diverse group of patients, and almost any elective will be educational. To quote Francis DeRoos (Penn’s former Program Director): “If you do 7 months of derm, people will wonder, but beyond that it really doesn’t matter. Do what you’re interested in.”
- Unit month (MICU/CCU/SICU): great idea and strongly recommended. It can certainly be a time-intensive rotation, but you will learn a ton about critical care and likely do some procedures as well. As an ED resident, you will do at least one month in each of those units and manage ICU-level patients that board in the ED, so it is a great chance to learn about ICU care and shadow (or do!) some procedures.
- Ultrasound elective: Very useful. Another time-intensive rotation (50 hours per week) with constant scanning during shifts. There is a steep learning curve but you will be so comfortable with ultrasound by the end of your month. In fact, you will be so comfortable that you might be teaching the interns and can get paid later on in your 4th year to teach 1st year med students here at Penn.
- Sub-Internship in Medicine: Not necessary, either for your application or for your graduation requirements. Many people choose not to do one and end up doing just as well as those who do. Do it if you want some ward experience for your own education. It is a great learning experience and probably the medical school rotation in which you will have the opportunity to take the most ownership over patients.
- Radiology 300: Highly recommended—it is a terrific course, and you’ll be reading many of your own films soon.
- Pediatric Emergency Medicine: Highly recommended. Great to start learning about kids (they’re not just tiny adults!). Work with Pediatrics and EM residents, and the Pediatric EM fellows are terrific. You are treated like an intern—you carry your own patients, call consultants, etc. and the fellows are good about allowing you to do procedures. Friday mornings have simulation conference in the trauma bay, and teaching conferences are also great.
- Other electives: Almost anything will be relevant, e.g., Trauma Surgery, ID, Cardiology, ECG Reading, Sports Medicine, Anesthesia, Ophthalmology, ENT, Dermatology or an international rotation. (Keep in mind that it is often possible to arrange to do a 2-week elective as pass/fail, which can be a great way to gain some exposure to a particular area.)
- An away rotation (or 2) – see below.

Away rotations

- Should I do an away elective? Yes. In fact, it is required to apply into EM.
- There is an annual information session on away rotations in January of third year, so look out for this or ask a classmate or MS4 for slides.
- Some people believe that an away elective is more likely to hurt you than to help you, and that you should only do an away elective if there is a specific program that you are strongly interested in. While this advice may be appropriate for some specialties, EM is different from other specialties in many ways. First, it is required to do an away rotation, unlike other specialties.
An away elective in EM can be an incredibly valuable experience. Not all EM is practiced the way it is at Penn, which is considered an academic program. There are many different types of EM residency programs (see “basic program types” below) and a rotation at a good county, rural, or community ED may help you determine what type of program you want for residency.

- Some away rotations require your Step 1 score in order to consider your application; the sooner you take the exam the sooner you may apply for away. In general, rotating on an away rotation earlier rather than later will give you more options, but you should rotate on the Penn EM sub-I first to make sure you have some experience before you leave the mothership.

- Ask your residents and attendings for their opinions on this and start planning early so that you can do an away in May–August and get a letter. Dr. DeRoos has said September is the latest time you can do an away with the expectation of a SLOE, but we recommend earlier. For ideas on what programs might be a good fit for you, talk to residents or MS4s. Check out program websites or Visiting Student Application Service (VSAS, through which many, but not all, programs manage the away rotation application process) for requirements. Many programs start taking applications in February so start this sooner rather than later; some rotations request a letter of recommendation and/or paperwork from student health, and may require applications to be submitted several months in advance. Many rotations operate on a first-come first-serve basis. That said, some electives will open up at the last minute, so if you do get a late start or do not get the one you want initially, don’t lose hope!

- You will use VSAS to see and apply to most programs. If you are really serious about a particular program though, do not hesitate to reach out personally even before VSAS opens. Certain locations fill up months in advance during the first week (programs like USC-LAC, Denver Health). Not all programs use VSAS, so if there is a program you are particularly interested and do not see them listed on VSAS check out their website.

- When choosing an away rotation, consider geography and program type. Rotating in a geographic area can help demonstrate interest in training in that region and result in more interviews in that region down the road. This is especially true in popular areas of the country that have lots of medical schools and applicants (West Coast, NYC). While you are in the area, you can drop in on the journal clubs of other area programs to get a sense for their program and show your interest. Rotating at different types of programs can help applicants get a sense of what type of residency training they want. Since Penn is an academic institution, some Penn students choose to rotate at a county or community site to gain exposure to those types of training. There is no one ‘right’ place to do an away, so decision should be more about what you want and need (desire for a geographic location, program type, chance to explore, wanting to stay close to home, cost and logistical concerns etc.)

- You must do at least one away sub-I, and most Penn students only do one. However it is not uncommon for EM applicants to do two or more away sub-Is, which can help expose you to different types of programs or provide more letters for your application. If you want a different experience, many programs also offer other types of away rotations—toxicology, ultrasound, wilderness medicine, etc.

**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.
Mentorship
The Office of Student Affairs will set you up with an advisor if you say you have an interest in EM. 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 great 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 are typically 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 do so accordingly. See the [NRMP program director’s survey](http://emadvisor.blogspot.com/p/applying-letters-of-recommendation.html) (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 best 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 volume, 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 a 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/MBGH, 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.

**Standardized Video Interview**

- EM programs now require the Standardized Video Interview that must be submitted by **late July**. Make sure this is at least on your radar in the summer when you will likely be thinking about other things like away, Subls, etc. This involves recording your answers to a series of 6 questions with your computer's webcam. The format is simple: you get a prompt regarding professionalism for 30 seconds, you then record an answer for 3 minutes, rinse and repeat. A combination of human and computer graders put you on a percentile. Program directors still have no idea what to do with this information, so we would not worry too much about it. The AAMC has information available on their website as well as example questions and a simulated interview feature. Although frustrating because it is another thing you have to do, think of it as a reason to practice answering interview questions early (real in person interviews are much more conversational than the SVI). Dr. Conlon is the best resource for gaining a better understanding of how these scores are being used in the residency application process.
- You can ask suite 100 for access to a quite location to record the interview, although there is no need to look as formal as the interview, you should at least look professional from the waist up and make sure there isn’t a lot of distracting noises in the background.

**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.
- 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/) 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.


Questions: Tony Spadaro (2019), tspadaro50@gmail.com
FAMILY MEDICINE


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 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.

Rotations
Required
- Sub-Internship in Family Medicine or Internal Medicine
  - The Family Medicine sub-I will give you a sense of what inpatient adult medicine with family physicians is like and a chance to better get to know the family medicine residents. However, it will not hurt your application to do the Internal Medicine sub-I as long as you do the family medicine externship and/or another advanced family medicine elective as well. If you are not completely set on Family Medicine by the time you are selecting your sub-I, you may want to do the Internal Medicine sub-I instead in order to keep your options open.
  - If you want extra preparation for internship (which is mostly inpatient), feel free to do both a Family Medicine and Internal Medicine sub-I, but this is by no means required or encouraged.
  - Penn Family Care is a great experience for a Family Medicine sub-I, but you should feel free to arrange an away sub-I at a program that you are particularly interested in.
  - Aim to do your sub-I before August so you can get a letter of recommendation from it.
- The Sub-Internship in Pediatrics would be beneficial as well, but is not essential.

Suggested
- A family medicine outpatient elective is a good way of spending more time with attendings who you want to write a letter of recommendation for you. If you are hoping to get an LoR from a particular attending, make sure to tell the course director so that they can make sure you have multiple sessions with that person.
- The rest of the Family Medicine electives are pretty awesome too (including Sports Medicine with Dr. Dhanota, Maternal-Child Health, Community Medicine at Prevention Point, and the LGBT elective with Dr. Allison Myers)
- Pediatric Emergency Medicine, Dermatology, and Radiology are very common electives.
- Almost any other Medicine, Pediatrics, Psychiatry, or OB/GYN elective(s) would all be worthwhile, based on your interests.
- The Botswana elective is a great experience, but do NOT schedule it between November and January as it will be very hard to schedule interviews to accommodate this.
- Do what you are interested in! For example, one student did a Healthcare for the Homeless elective through the University of Massachusetts while another did an away rotation with the Indian Health Service in Arizona. Both had great experiences and were asked about it on several interviews.
Away rotations
- Some students in the past have done 2-week electives at programs away from Penn to
  experience family medicine in an environment with a wider scope of practice, and this has been
  influential in their residency rankings/decisions. While the experience at Penn is a good one,
  realize that the scope and mindset of family medicine can be very different elsewhere. A rotation
  at an unopposed program (one with no other residencies other than Family Med, such as
  Lancaster) or on the West Coast will give a very different flavor. However, “audition” rotations are
  not essential the way they are in some other specialties.
- Spring of your third year is an ideal time to do away electives since students at most other
  schools are completing their core clerkships or graduating, which dramatically reduces
  competition for available spots.

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
  - At unopposed 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 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
  - 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:
  - 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.

- 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://rhotedi.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:
  - How many deliveries do residents graduate with?
  - How many of those are continuity deliveries from clinic?
  - Do you follow your clinic patients when they are admitted?
  - What are the demographics of the clinic sites (% adults vs. pediatrics vs. OB)?
  - Where do graduates end up practicing, what percentage of them have hospital privileges, practice OB, etc.?
  - 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. Margo for more information.

**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. You will probably be a very competitive applicant coming from Penn, so applying to 15 programs and interviewing at 8-10 is adequate, although ask Dr. DeMarco and Dr. Baylson 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.).
• 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.

**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.

- 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.

- 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 was especially helpful in sending a letter of intent (to the first-ranked program), and before that, she was willing to write numerous 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)
- Obstetrics and Women’s Health in Family Medicine: Allie Johnson (alj527@gmail.com), Lauren Nadler (laurenenadler1@gmail.com), Emily Brown (embrow13@gmail.com), Billy Maes (billymaes93@gmail.com)
- Family Medicine for Global Health: Joanna Stephans (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
INTERNAL MEDICINE


Point people for application: You can choose to primarily work with Dr. Kogan or Dr. Hamilton 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 the spring before applications as well.

There is a meeting for all students who might be interested in internal medicine (categorical, physician scientist, primary care, Medicine-Pediatrics), in the fall of your third year.

Rotations
Required

- At least two Medicine electives, in addition to the sub-internship, by the time you submit your application (end of September). Many people try to do one elective prior to and at the same site as their sub-I, especially if they are unfamiliar with that site. This is especially helpful if your sub-I is at the VA and you have never used CPRS before (but, if you can’t manage to do this, that’s fine too – you will pick up CPRS in a few days). There are good (and not-so-good) electives at each site, so try to talk to people ahead of you and Helene to figure out where you want to rank.

- Sub-Internship in Medicine: The most important Module 5 component of your residency application (additionally, all of the core clerkships are also highly weighted by residency program directors)
  - Prerequisite: For students who received a non-honors grade (high pass or below) in the medicine clerkship, a prerequisite is required before beginning a medicine sub-I. Possible prerequisites include an inpatient medicine consult elective month (see below), a peds or ER sub-I, or a SICU externship.
  - Timing: The Medicine sub-I is offered from February through September and assigned via lottery held the prior October/November. It is feasible to apply in Internal Medicine even with a late (August) sub-I. For August sub-I, Drs. Kogan or Hamilton will make sure your evaluations and department letter (more on that below) are submitted without holding up your residency application. September sub-I may vary depending on when the month ends; if the rotation ends in the third week of September, there may be a few days delay in the department letter. Some students assigned to an early (February or March) sub-I delay taking Step 1 in favor of getting 1 or 2 inpatient electives under their belt first. The benefits of this order include that you get better accustomed to the responsibilities of a sub-I and you can refresh some of the logistical components of working in a hospital that are required as part of your sub-I (e.g. how to communicate with other hospital staff, how to handle consults). The downside to this is really minimal: taking Step 1 later than the majority of your classmates and having to study after your sub-I. Ultimately you only have so much control over when you do your sub-I so either order is absolutely feasible.
  - Prep Day: There is a REQUIRED day-long “Sub-I Prep Day” held at the end of every month January through July, covering logistics, how to sign out, common medication dosages, cross-cover issues, etc. It is excellent. If you have a conflict for your scheduled prep day, you can email Ann Marie and attend one of the earlier Prep Days, but you’ll get the most benefit if you go to the session closest to your Sub-I start date.
  - Location: If applying in medicine, it is best to do your sub-I at HUP, Presbyterian, or the VA (versus Pennsylvania Hospital), as these sites are staffed by the same cohort of Penn residents and the environment will most closely mimic the programs to which most Penn students apply. Students applying in medicine can let Ann Marie, Dr. Kogan,
and/or Dr. Hamilton know that they are going into Internal Medicine, but they cannot promise site location. Ultimately, where you do your Sub-I does not affect your competitiveness for applying in Internal Medicine. At HUP, Presby, and Pennsy, you will be supervised by a resident and will act as an additional intern on the team, meaning you will have your own patients and cross-cover your co-interns’ patients when they are not in the hospital. At the VA, you will be supervised by a resident but will be on a team with another sub-intern (no interns on your team), and will also have your own patients. Each of these locations differs in how call is handled; as of 2019, the VA and Presby have overnight calls while HUP and Pennsy have night float systems. This is subject to change and really will not drastically change your experience. People have enjoyed sub-Is at all the locations and any will get you great training. Once you are assigned a site you can always reach out to an upperclassman to ask questions and get advice.

Suggested

- Unit month (MICU or CCU): A rotation in an intensive care setting is recommended before starting internship, but definitely not required before interviews. Dr. Kogan and Dr. Hamilton encourage a unit month for students who received non-Honors grades in the medicine clerkship or sub-I, as doing well in an ICU month is a great way to prove to program directors that you are capable of the rigors of an Internal Medicine residency. A unit month also provides an additional opportunity to experience overnight call. However, there are some students who have struggled in their clerkship or sub-I, and struggling again in a unit rotation would hurt rather than help their application. Any student with questions can meet with Drs. Kogan or Hamilton. ICU months (especially the MICU at HUP) are popular, so not everyone will get a chance to do one before applications are due. Also, a completed sub-I is a prerequisite for a unit month. It is also common for students who do not get a spring/summer MICU/CCU slot to sign up for a 2- or 4-week rotation between January and March (after applications/interviews), just for the experience. The VA MICU is lower acuity than HUP but is still a good learning experience with no overnight or weekend call. Most students really enjoy the ICU, and you can get a lot out of it no matter when or where it happens.

- Ambulatory month: The externship in outpatient medicine is not required but is recommended, especially if you are considering applying to primary care residencies. It is particularly helpful to get a better appreciation of what your time in the outpatient setting will look like as an Internal Medicine resident. This is important since you will have an outpatient continuity practice as a resident. This is another elective that could be done post-interviews, just for the experience, although if you are applying in primary care it would be wise to do this rotation prior to interviews so that you are prepared to answer "why primary care" with specific examples. Ambulatory experience is also available in several subspecialties including geriatrics, endocrinology, rheumatology, allergy, HIV, and oncology.

- Consult electives: Consult electives are great for a number of reasons. You get to focus on a single specialty for the entire month, you will get lots of practice examining and presenting patients, and you get to work very closely with fellows and attendings. Ask other students for their thoughts on electives since sites can be variable. (Our favorites: Gastroenterology at HUP/Presby, Nephrology at HUP/Presby, Infectious Disease at HUP/Pennsy/VA, Pulmonary Disease at HUP/VA, Cardiology at Presby/HUP, Hematology/Oncology at HUP, Palliative Medicine at HUP). On electives, you may end up sharing duties with another medical student, 1 or 2 medicine residents (they do electives, too!), and a fellow who is typically supervisory. When prioritizing electives, know that it can be helpful to take some of the more high-yield electives (Nephrology, Cardiology, ID) to help prepare you for the sub-I. In fact, if you received a non-honors grade in the Medicine clerkship (high pass or lower), you are required to do a prerequisite before your sub-I, and an inpatient medicine consult elective month can count as this prerequisite (see above sub-internship details). Additionally, a consult elective month can be a good place to get a letter; it can be particularly helpful if the elective is done in one of your (potential) fields of interest as it can provide some helpful continuity between your elective, letter, and interviewer (as
programs often try to pair you with interviewers in your field of interest). These electives can also be a good way to find a mentor for your scholarly pursuit project.

- Non-Medicine electives: Dermatology is a fascinating, well-run, fairly relaxed elective that is high-yield for a future internist. Radiology is also recommended for practice with reading chest films and building differential diagnoses based on imaging. Sports Medicine is a fun elective that is highly relevant to outpatient primary care. The 2-week EKG elective is also a great, low-key way to gain some more comfort reading EKGs. The bedside ultrasound elective run by the Emergency Medicine Department is also a great idea.

- A note on electives: If you have clinical responsibilities to fulfill post interviews, it is really up to you to decide what you are looking to get out of those clinical experiences. If you have other responsibilities (research, travel, etc.) and you are looking for a more relaxed elective—totally okay. If you are looking for high-yield electives that may help you prepare for your intern year (i.e. MICU, general medicine nights, etc.)—also totally okay. Ask your classmates about their experiences to help shape your fourth-year elective time.

Away rotations

- Away electives: These are NOT necessary nor recommended for medicine. However, there may be extenuating circumstances that might warrant an away rotation, so anyone considering an away should meet with Drs. Kogan or Hamilton to discuss it.

- International electives: Botswana is a fantastic opportunity to have some hands-on experience in a resource-limited setting, to explore a new country and culture, and to learn how medicine is practiced in a very different environment. If you go during the August/September block, it will require working on and submitting your ERAS from abroad (this has not been a problem in recent years). The September/October block will require scheduling interviews from abroad, which may be a bit trickier. In Botswana, WiFi is usually decent but can be spotty, and there is no WiFi in the hospitals (though you can get a SIM card with data); this is something you might want to keep in mind if you are going to be picky about interview dates. Although programs generally offer more than enough interview slots for those who are invited, you may need to act quickly to respond to the email invite to secure an interview date that works best for you. One option is to enlist a trusted person back home to handle interview sign-ups for you. If you go to Botswana in January, you will just need to wrap up interviews by then; but, given that Internal Medicine residency programs typically have tons of interview dates, this should not be a problem to arrange. Feel free to talk to your advisor if you have questions about the scheduling of your Botswana rotation.

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. Drs. Kogan and Hamilton 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”). Drs. Kogan or Hamilton 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 to 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, Drs. Kogan or Hamilton will recommend against asking for a letter from your 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 Drs. Kogan or Hamilton. 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 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, Helene, and/or Drs. Kogan or Hamilton will 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 from a second research mentor (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 <230, Drs. Kogan and Hamilton 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 Drs. Kogan or Hamilton.

- 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 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 Drs. Kogan or Hamilton 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, Drs. Kogan or Hamilton 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 wider 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 Drs. Kogan or Hamilton 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 (<230), Pass or Fail in any clerkship, leaves of absence, or other issues that might affect your application, you should meet with Drs. Kogan or Hamilton 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 2018–2019 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 Drs. Kogan or Hamilton 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 UPHS 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, Drs. Kogan and Hamilton 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 (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”) and/or people who trained at Penn. You will 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 (Drs. Kogan and Hamilton 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
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 Drs. Kogan or Hamilton 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 troubled 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 Drs. Kogan or Hamilton 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@uphs.upenn.edu), who is happy to speak to any Penn medical student interested in primary care programs. Drs. Kogan and Hamilton 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 are 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 (Mount Sinai) 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-visit 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)
- Primary care track: Jessica Dong (jessica.p.dong@gmail.com)
- Physician-scientist track: Jonathan Kotzin (jonathankotzin@gmail.com), Zandra Walton (zandrawalton@gmail.com)
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 as 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 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 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).
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 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
- Electives in Internal Medicine and Pediatrics to:
  - Help decide if Internal Medicine vs. Pediatrics vs. Med-Peds is right for you
  - Gain experiences to talk about in your personal statement and interviews
  - Explore potential career interests and goals
- Examples of electives that may be of particular interest to Med-Peds applicants
  - Transitions from Pediatric to Adult Care ***highly recommended by applicants this year***
  - Adolescent Medicine
  - Outpatient Medicine, Pediatrics, or Family Medicine
  - Away elective in a Med-Peds continuity clinic
  - 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.
- Penn Med-Peds faculty are great and easily accessible.
- The Med-Peds Chief Resident is a great resource. The 2019–2020 Chief is Micaela Bowers.

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.
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 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), 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.
- 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, Brown, University of Miami, Baylor, Case Western/Rainbow Babies, University of Rochester, University of Cincinnati, UCLA, UCSD, Maryland, University of Chicago
  - Transitional care: Penn, UCLA, Brown, Baylor, 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), 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, 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).

**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. 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)
- Shelia 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):

- 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: Derek MacMath (dtmacmath@gmail.com), Jessica Eby (jeby126@gmail.com)
NEUROLOGY

Original work by Brian Edlow. Updated most recently by Daniel Gratch and Alex Morrison with help from Hoameng Ung (2019). Reviewed by Dr. Amy Pruitt (2019).

Electives

Required

- The Neuro “sub-internship” (NEU300) can be completed before or after your Medicine sub-internship. Most popular months are between March and August, and scheduling is VERY tight (2-3 students/month), so be sure to express interest to Dr. Pruitt as early as you can (i.e. NOW) and suggest a couple of months to her (not a lottery so you can schedule any time). She will usually offer to meet with you to discuss the kind of experience you want so that she can schedule your month accordingly. Most people do the consult service at HUP, although Presby consults or HUP inpatient on the stroke or general ward service are possible.
- If you are interested in outpatient experiences, talk to Dr. Pruitt about setting up an elective tailored for you (tends to involve working with a different attending each morning/afternoon between various sites, including PCAM and Pennsy).
- Sub-Internship in Medicine is strongly recommended, as opposed to the medicine externship, especially as it is required for most preliminary year programs (the IM year you do before your Neurology residency). If you think you want to stay at Penn but do not want to do your Internal Medicine year at HUP, you may want to talk with Ann Marie about doing a Pennsy Medicine sub-I so the attendings and residents there know you.
- Try to take a Neurology elective in the spring/summer so that you can get a letter of recommendation from a Neurology faculty member. If your Neuro sub-I is outpatient only, try to arrange multiple days with the same attending so he/she gets to know you well enough to write a letter.
- It is helpful to contact Dr. Pruitt or Dr. Price early during third year so that you are on their radar and so that they can help you choose electives. MD/PhDs should additionally talk with Dr. Aguirre.

Highly Recommended

Any upper level Neurology rotation: Pediatric Neurology, Neurocritical Care, Neuroradiology, Psychiatry, Rehabilitation Medicine, or any Medicine elective. Neuro-Ophthalmology with Dr. Grant Liu is popular among both neurology and ophthalmology applicants and will likely fill up fast.

Away Rotations

Rotations at other institutions are not necessary and are generally not recommended. If there is a particular program or place you really want to be (and if you’re confident that you would make a good enough impression to improve your chances of matching there), away rotations can be arranged. Harvard Partners and UCSF have been popular sites for away rotations in the past. Of note, NYU has many former Penn faculty.

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 unfortunately 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, Partners). 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 and, for many programs, 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. 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.

- [http://www.uphs.upenn.edu/neuro/faculty/](http://www.uphs.upenn.edu/neuro/faculty/) is a great resource to see what research projects faculty members are working on – send an email if anything looks interesting!

**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. 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 promote their R25 and support research training. Beth Israel is working towards stronger research and experimented this past year with inviting R25-interested applicants back for a research-focused day. Wash U has probably the strongest research support and most lenient clinical schedule. Partners is not entirely honest to the R25 and will give you two blocks of 3 months of divided research time with up to 3 afternoons/week of clinic. Stanford did not renew its R25 but has an internal process by which you secure the same structure; however, unlike the R25, it cannot be transferred to any other institution. NYU and Cornell do not have the strongest research backing

**Application Timeline**

- [http://www.aan.com/go/education/students/medical/step](http://www.aan.com/go/education/students/medical/step) 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

**June through August**

- Schedule your MSPE meeting with JoMo and write your MSPE intro paragraph (more on this from JoMo and Suite 100)
- Start working on your Personal Statement
- Update your CV
- 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. Kogan or Dr. Hamilton if you need a letter from the Department of Medicine. A few
preliminary year programs may require or recommend a department letter, but most do not, and it is sufficient to have a letter from any Medicine faculty member. If you need to meet with Dr. Kogan or Dr. Hamilton, have a few documents ready (Step 1 score, Medicine 200 and sub-1 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, Helene will let you know the dates). Most programs require that you have scores from these before they will rank you.
- Register for NRMP
- 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.
  - 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:** Alexander Morrison (alexhmorrison1@gmail.com), Daniel Gratch (dangratch@gmail.com), and Hoameng Ung (MD-PhD applicant, hoameng.ung@gmail.com).
NEUROSURGERY

Original work by David Krieger, Ryan Grant, and Brandon Gabel. Most recently updated by Yohannes Ghenbot and John Arena (2019).

- Neurosurgery is NRMP match and the intern year is included in the residency. All Residencies are 7 years.
- Meet with the Chairman (Dr. Grady) ASAP. He will give you straightforward advice.

Electives
If you have not yet done your core surgery block, opt for two weeks on Neurosurgery. Try to do the two weeks at HUP or Pennsy, as you will work with the chiefs and PGY2s that will be the same for your sub-I, as well as Dr. Grady. Some friendly advice, while on the service, do not be obnoxious, but make sure the service knows you are interested. They will make more of an effort to include you in the OR and procedures. As with all surgical services, practice knot tying and suturing beforehand. If you can demonstrate competency with easier procedures, the residents will let you do more.

Required
- Neurosurgery sub-internship at HUP
  - We recommend completing the home sub-internship by June. Rotating before June allows you to work with outgoing chiefs and PGY2’s, which typically means you are more involved (applies to other institutions as well), and allows you to do away rotations earlier
  - When at HUP, spend time in Dr. Grady’s OR when he operates. Opportunity should be divided equally between yourself and your co-subl’s. Spend one day in clinic with Dr. Grady. After the sub-I, schedule a meeting with Dr. Grady to both ask for a LOR and his impressions of places that you plan to apply to. His recommendations are invaluable.

- Neurosurgery away sub-internship: 2, More is not recommended
  - Timing: Penn’s schedule gives you the advantage of being able to do away Sub-Is early in the year. Earlier rotations reduce competition from other students for a finite number of positions and allow you to get LORs earlier for ERAS. Start thinking about them in January, as securing an away rotation takes time. You can find most of the information on the hospital’s neurosurgery website (e.g. google Hopkins neurosurgery away rotation/visiting student) but you can also call/e-mail residency program coordinators or their secretaries, not the registrar. You will still need to fulfill the registrar requirements, but you are offered the position through the department. Not all programs use VSAS (the away rotation online service), and many ask for a LOR from a neurosurgeon in the department and CV.
  - Which program? Think about geography, program culture, and the balance between operative volume and research experience. Most of this information is attained through word of mouth, so use residents and upperclassmen as a resource.
    - Geography: On the interview trail, people will commonly ask why you chose to rotate at specific programs. If you are geographically flexible, consider demonstrating this by your away Sub-I choices. For example, if you have not done a west coast sub-I, you will be asked why you are interested in a west coast program during interviews. If you only do east coast rotations, you may limit the number of interview offers from the west coast. This is not a reason to do a sub-I on the west coast, but just have a rationale in mind if you get asked why you would want to relocate for residency during interviews.
    - Operative/Research Balance: is this program an operative-heavy, research-heavy, or balanced program? It’s helpful to know what you are looking for in residency, but also worthwhile to diversify and do sub-Is at programs with different training models. If your sub-Is are too similar (say two academic-heavy programs), you may be somewhat pigeonholed on the interview trail.
You will likely be asked what you liked about a specific program you rotated at on the interview trail. It is worth noting that many if not a majority of applicants across the country end up ranking and matching at either their home program or a program that they did an away rotation at. Certain programs favor away rotators.

- While there are many strategies and other factors to consider when selecting away sub-internship destinations, perhaps the most important is choosing programs you foresee yourself ranking very high on your eventual list, although this can be difficult to predict and likely to change during the interview process. Performing well on a sub-internship certainly provides an advantage at that program. Some programs show a very strong preference for their home students and away rotators. Rotating somewhere makes you a known entity. This goes both ways. It also gives you the best insights into that program, which can be difficult to ascertain on a standard interview day.

  - Where have students gone recently? Johns Hopkins, Duke, Columbia, MGH, Barrow, Michigan, Iowa, Stanford, NYU, Pittsburgh, UCSF, UCLA, Miami, UWash - Seattle, Mayo.
  - Many programs will interview their away rotating students at the end of the rotation, instead of inviting them back for an interview during the normal interview season. The idea is to save applicants the time and expense of returning a few months later. Be prepared to potentially interview during your away Sub-I.
  - Most programs will expect you to give a short presentation to the entire department at some point during your rotation. Almost always this focuses on some aspect of your research. If you haven’t done much research, consider interesting case presentations.
  - Will away improve my match chances? It can go either way depending on what they thought of you. However, if it goes well, it gives you a leg up because the program knows so much more about your character compared to other applicants who are only there for the interview. You become a known entity. Honestly, it can sometimes mean more than your resume if you make a good impression.
  - These electives should be done before October so that you can get recommendations from them, but do your Penn sub-I first so you have some experience going in. *We would recommend doing your Penn sub-I in March–May, then your two away in June–August. This gives you time to settle back into a routine before submitting applications in September and to get your letters in order.* That is ideal but not necessary.
  - You can request a letter from the chairman by setting up a meeting at the end of the rotation. Schedule this early by calling the secretary (schedules fill quickly). If you worked closely with another faculty member during the rotation, consider asking him/her to co-write a letter with the chairman. It never hurts to do a clinic day with someone you may consider asking for a letter. Chairmen and programs expect to provide letters to away rotators. Interviewers will infer where you rotated based on your ERAS LOR. If you rotated somewhere but did not obtain a LOR, many perceive this as a red flag.
  - Ask for advice! Residents, attendings (Dr. Grady again) and other students are all willing to help. It can be a little confusing to arrange because Penn students don’t go away often, but we’re here to help.

**Suggested**

- Pediatric Neurosurgery elective. The neurosurgeons at CHOP are incredible and will prep you for Sub-Is, but remember that they have a say in residency choices as well, so work hard!
- Neuro ICU is a great rotation, would do before Sub-Is (this is highly recommended but definitely not necessary). Also think about Neurorads or ER Sub-I. A medicine Sub-I is not necessary (some of us have done it and liked it), but remember your Sub-Is here and away are stressful enough. Consider IR or other surgical/critical care electives.
- Neuropathology can be another fun, informal elective
Letters of Recommendation

- Recommenders want an updated CV and will sometimes “interview” you before you leave the rotation.
- One recommendation will come from Dr. Grady
- 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 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. Most people on the interview trail will not have taken it, but you obviously can if you want to.
- (2) Research and papers – very helpful, but not necessary to be published. People understand it takes a while to publish. 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, but it will not make or break you, just be ready to be able to speak about one or two of your projects. 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. Neursurgery 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

- 225 positions offered in the 2018 match. (86.4% matched in 2018). Each program typically offers between 1-4 positions each year.
- Attendings will tell you that almost all programs (with a few exceptions) offer good training.
- 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 30–40 programs with the aim of interviewing at 15, unless you have a special situation (couples matching, strong geographic preferences).

**Interviews**

• To be safe, interview at 15 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 especially Dr. Grady 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 weaknes 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 ~10 years)? Penn (~7), Cornell (2), MGH, NYU, Cleveland Clinic, Case Western, Emory, Iowa, Jefferson, University of Washington (2), Yale, UCSD, USC, UCSF, UCLA, NYU, Cincinnati, Pitt, Vanderbilt, Duke, Stanford, Mount Sinai.

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.

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OBSTETRICS AND GYNECOLOGY

Original work by Molly Carey. Updated most recently by Elise Wilson, Hannah Ryles, and Amanda Labora (2019).

Electives

Away Rotations

- Traditionally, away rotations are NOT recommended for OB/GYN, especially since HUP has all the subspecialties. Away rotations are like a one-month interview and you could be exposing yourself to unnecessary risk by choosing this option.
- This is slightly changing since OB/GYN is becoming more competitive every year, as with most specialties. Nevertheless, on a whole they are still NOT recommended for Penn Students. You should reach out to your mentors and consider doing one if:
  o 1. You have a specific location/program in mind and want to increase chances at interviewing at specific program or in a specific area.
  o 2. You perform clinically better than your grades indicate and want to demonstrate this.
  o 3. You’re not the most competitive as an applicant and want to increase your chances of staying in a certain area-going to a certain type of program.

Required Electives

- Take at least one elective (preferably 2) in OB/GYN. At least one elective should be taken at HUP.
- Traditionally, the teaching has been that most programs expect you to do either Maternal Fetal Medicine or Gynecologic Oncology at HUP as your OB/GYN “sub-internship.” Dr. Salva, the PD at HUP, does not agree with this. As long as you received Honors on your OB/GYN clerkship, you really only need to do one other elective of your choosing. This could be Urogyn, REI, Family Planning, MFM, Gyn Onc, etc.
  o The MFM and Gyn Onc “sub-I’s” are the best representations of what it is like to be an OB/GYN resident. If you want to experience this (or use it to make sure this field is right choice for you), absolutely go for it, but you don’t have to do either as was traditionally taught.

HUP Electives

- Maternal Fetal Medicine: Dr. Eileen Wang is the course director and is great. This is where you get the most exposure to residents and attendings, the most time to show off what you can do, and the most hands-on experience. You spend time on the inpatient antepartum service, outpatient MFM and high risk ob clinics, and some time on L&D. There is one 24-hour call each week (usually Tuesday night). It is a tough month in terms of time commitment and the expectations are high, so it is probably best to do it once you are sure you want to apply into OB/GYN. If you do this rotation, Dr. Wang expects to write a letter for you. You are expected to do a patient case presentation at the end of your 4 weeks during Wednesday MFM conference. This is a really important presentation as it will be in front of all the attendings, so start working on it as early as you can. It is better to choose a case you know well rather than a “interesting” one that you don’t know as well. You should aim to do this elective in the spring of the year you are applying (i.e. January-June of your 3rd year if you’re applying that Fall). You can do it in August and still get a letter but be upfront with Dr. Wang about this when you first start, so that she knows and can get the letter done in time for ERAS. MFM isn’t offered in July when new residents/fellows start. Dr. Wang does individual teaching with you once a week.
- Gyn Onc: Dr. Nawar Latif is the current course director and is also great. Long hours, but great experience, and expectations are reasonable. Excellent surgical exposure and you work closely with the residents and fellow on the service. You spend time in the OR as well as helping the intern with floor tasks. Recommended if you are more surgically inclined as
you will spend a lot of time in the OR (lots of exposure helping with closures in particular). You are expected to present at the Gyn Onc meeting at the end of your 4 weeks on a topic/research paper. There are weekly educational conferences.

- **Gynecologic Urology (Urogyn):** You work directly with Dr. Lily Arya, who is a phenomenal surgeon, hilarious person, and great mentor. You may also work with Dr. Uduak Andy for robotic cases and some clinic days (she’s also amazing). You interact mostly with fellows and less with residents, but this a great opportunity to really get to know a faculty member (*hint letter writer*). Nice combination of outpatient and surgical experiences. You get a very comprehensive understanding of incontinence, pelvic organ prolapse, and pelvic anatomy. OR cases are interesting but can be challenging to get a lot of hands on experience due to space constraints between the patient’s legs. Clinic, on the other hand, is very hands on and you get a lot of autonomy.

- **Infertility/Endocrinology (REI):** Largely outpatient, doing initial histories on women with infertility and also women with menstrual irregularities. You mostly shadow with the attending during return patients visits. 1 to 2 days in the OR at 3737 Market St, no inpatient time, very little to no interaction with residents, so also probably not the best rotation if you want to get a good sense of HUP’s residency program. The elective student will have less hands-on experience on this rotation compared with others.

- **Family Planning:** A very rewarding rotation. Drs. Courtney Schreiber and Sarita Sonalkar have high expectations that may be difficult to gauge, so if you are very interested in family planning, then you may want to consider doing this elective in the spring after you have already applied for residency. The amount of autonomy and experience that you get with counseling patients in the clinic as well as with OR procedures is very fellow-dependent. Potential opportunities for hands-on experience with D&Es, IUD placement, and ultrasound. One OR day per week in PCAM. You will give an hour-long presentation at the end of your elective that is taken very seriously

**Pennsy Electives**

- **High Risk Obstetrics (MFM):** Long hours, part of the inpatient MFM service along with lots of time on the labor floor delivering resident clinic patients as well as experience presenting in high-risk neonatal conference. Probably a better choice if you are interested in but not sure about OB/GYN.

- **Multi-Specialty Gynecologic Surgery:** You will rotate with an REI surgeon (Dr. Scott Edwards) and two Urogyn attendings (Drs. Pam Levin and Heidi Harvie) for two weeks and then spend two weeks on the Gyn Onc service. Dr. Levin runs this elective and is super flexible in making it what you want (i.e. can do 2 weeks of Urogyn and 2 weeks of REI and no Gyn Onc if desired). This elective is a great opportunity for broad exposure to GYN surgery, but it may be challenging to get a good letter out of this rotation as you work with so many different attendings. This elective is the most “sub-I”-like of the Pennsy electives because the residents will treat you more like an intern with regard to pre-rounding and OR responsibilities (closing port sites almost always under your purview).

- **Ambulatory Gynecology:** Spend the most time in resident clinic seeing patients on your own and presenting to resident prior to presenting to attending. Autonomy will vary depending on comfort level. Also spend some days in ultrasound clinic, in colposcopy clinic (one day a week), and in Latina clinic (one day a week). Covers bread and butter of both gynecology and prenatal care.

**Other Rotation Notes**

- Most students will take the Sub-Internship in Medicine (**strongly recommended**) although a Family Medicine sub-I will also qualify. Plan to get a medicine sub-I letter for your application.

- **Taking an elective in spring or early summer of your third year is key so that you can get a letter from an OB/GYN faculty other than your Chair’s letter.** The latest rotation you can reasonably ask for a letter from is July (potentially August if you are in a bind and ask early).
Suggested

- Numerous OB/GYN faculty have said that doing electives outside of OB/GYN is great as this is your last chance! It’s also good to have at least one non-OB/GYN letter for your application.
- Consider:
  - Any medicine elective (ID and Endocrinology have been mentioned as particularly useful)
  - Electives with specialties you will interact with a lot, e.g. Anesthesia, NICU. They tend to be more relaxed (especially if you opt for a 2 week course), and residents/attendings (especially on Anesthesia) may be flattered that you want to know more about what happens on the “other side of the curtain” and very eager to teach.
  - Adolescent Medicine (lots of GYN and pregnancy option counseling opportunities). Highly recommended. Dr. Ginsburg will help make it a mostly GYN experience and adolescent clinic is nearly all cases of: AUB, contraception counseling and prescriptions (won’t get to place LARCs but can see lots of IUD/Nexplanon insertions), amenorrhea, PCOS, hormonal therapy, and gender clinic. You also get to rotate at Covenant House which is an amazing experience to get to work with homeless youth.
  - Emergency Medicine
  - SICU
  - Breast Surgery: This is an apprenticeship model general surgery rotation with Dr. Julia Tchou. Dr. Tchou is an incredible surgeon and will give you LOTS of hands-on training with very concrete feedback for your technical skills. She lets you do a ton in the OR and is amazing to work with. She is also great in clinic, where you will learn important and relevant skills/information about women’s health/breast cancer. Highly recommend.

Letters of Recommendation

- The required number varies from program to program, but most request at least 3 and will accept up to 4 (including Dr. Deborah Driscoll’s Chair letter).
  - 1 Chair letter (see below)
  - At least 1 from an OB/GYN (other than the one Dr. Driscoll writes).
  - At least 1 should be from a non-OB/GYN (usually people get these from their medicine 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. Driscoll is wonderful and writes everyone a chair letter. You meet with her individually and you can ask her for advice on where to apply etc. Bring with you to the meeting your CV and a list of programs you are applying to.
  - Schedule meeting with Dr. Driscoll in early spring (March-May).
  - It’s also a great idea to meet with Dr. Driscoll as soon as you know (or even think) you’re interested in OB/GYN. She’s a great resource and will help you find research opportunities, etc.

Mentors

- If you were not assigned one when you told the Office of Academic Programs your specialty interests, talk to Helene. Choose a person from her 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 Dr. Driscoll! You should not be afraid to ask her questions about other programs, she has incredible integrity and will not penalize you or damage your chances of matching at Penn if you are interested in other programs. She will also offer feedback on your personal statement if you want her 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. Dr. Driscoll can help if you are struggling, but 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 setup a time to meet with her after you have decided to apply in OB/GYN.** Set up a meeting with Roz before your Dr. Driscoll meeting (or around the same time). 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/)
  - Doximity provides a mostly useful rankings approximation tool, but keep in mind that the rankings are not perfectly accurate, and they rely heavily on subjective survey data.

- **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. Most applicants I met on the trail applied to ~40-60. I (Hannah) applied to 43 and felt like this was a good number for me (especially since you can’t predict how many interviews you will get).

- Here is a list of recent Penn grads and where they went for residency. These are just the most recent local people, so ask Dr. Driscoll 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>
</tr>
</thead>
<tbody>
<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>
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<tr>
<td>Clyatt</td>
<td>Kylee</td>
<td>Temple Univ Hosp-PA</td>
<td>2017</td>
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<tr>
<td>Irizarry</td>
<td>Olga Corazon</td>
<td>Hosp of the Univ of PA</td>
<td>2017</td>
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<td>Jeffers</td>
<td>Shanaye</td>
<td>Thomas Jefferson Univ-PA</td>
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<tr>
<td>Lee</td>
<td>Iris</td>
<td>Hosp of the Univ of PA</td>
<td>2017</td>
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<tr>
<td>Schwartz</td>
<td>Rebecca</td>
<td>UC San Francisco-CA</td>
<td>2017</td>
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<td>Huepenbecker</td>
<td>Sarah</td>
<td>Barnes-Jewish Hosp-MO</td>
<td>2016</td>
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<tr>
<td>Shapiro</td>
<td>Maren</td>
<td>Brigham &amp; Womens Hosp/MGH-MA</td>
<td>2016</td>
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<tr>
<td>Weinblatt</td>
<td>Rachel</td>
<td>Barnes-Jewish Hosp-MO</td>
<td>2016</td>
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<tr>
<td>Aparicio</td>
<td>Juan</td>
<td>Northwestern McGaw/NMH/VA-IL</td>
<td>2015</td>
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<td>Barberio</td>
<td>Andrea</td>
<td>NYP Hosp-Weill Cornell Med Ctr-NY</td>
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<td>Butz</td>
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<td>Riverside Reg Med Ctr-VA</td>
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<td>Cavens</td>
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<td>Miller</td>
<td>Carrie</td>
<td>Hosp of the Univ of PA</td>
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<td>Onwuzurike</td>
<td>Chiamaka</td>
<td>Northwestern McGaw/NMH/VA-IL</td>
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<td>Snider</td>
<td>Malorie</td>
<td>Johns Hopkins Hosp-MD</td>
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<td>Degaiffier</td>
<td>Nathalie</td>
<td>Thomas Jefferson Univ-PA</td>
<td>2014</td>
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<tr>
<td>Fisher</td>
<td>Andrew</td>
<td>Barnes-Jewish Hosp-MO</td>
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<td>Gilstrop</td>
<td>Marisa</td>
<td>Christiana Care-DE</td>
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<td>Holder</td>
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<td>Insogna</td>
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<td>Limaye</td>
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<td>Einstein/Montefiore Med Ctr-NY</td>
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<td>Penn</td>
<td>Courtney</td>
<td>U Michigan Hosps-Ann Arbor</td>
<td>2014</td>
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<tr>
<td>Traylor</td>
<td>Jessica</td>
<td>Hosp of the Univ of PA</td>
<td>2014</td>
</tr>
</tbody>
</table>
• Get a feeling for what type of program you might like: community vs. academic, fellowships available, elective research, international opportunities, abortion training offered?
  ○ 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).
  ○ 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 department for community applications but don’t let that discourage you if that’s where you heart is - there are great programs out there.
• 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.

Step 2 Planning

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 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
• Sign up for this EARLY, ASAP! 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. Driscoll! Email either Dr. Driscoll directly or her assistant, Julianne Harris
• Meet with OB/GYN mentor
• Take at least one OB/GYN elective
• Ask for letters of recommendation
• Plan scholarly pursuit
• Start work on personal statement
• Update CV
• Schedule Step 2 CS
• Write Medical Student Performance Evaluation (MSPE a.k.a. Dean’s Letter) Unique Characteristics Paragraphs (you will get emailed about this).
**June, July, 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**, by September 15 *at the latest* when ERAS applications are released to residency programs. Some programs start offering interviews before the MSPE is out on October 1st (between September ~15th and October 1st). These spaces will fill up! Also, if you wait until the last minute, programs can tell that you are not as interested and might not offer you an interview.
  - 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
  - In general, start to come in early October (some come late September) and roll through November
  - 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!** Competitive programs in particular offer more interviews than they actually have spots, so you need to respond as fast as you possibly can—some places fill for your desired date with minutes. Be prepared to check your email frequently during interview season. Sign up for elaborate alerts on your phone and keep it off silent as long as programs are sending invites.
  - 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 to 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 and the amount of ancillary/NP/PA assistance vary. The
number of hospitals your 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. Driscoll, 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 Dr. Driscoll 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 end of February.

- OB/GYN does not depend on the “phone call” as much as Dr. Morris will have you believe. Dr.
Driscoll 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 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 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/1uU309kS6g3cwoEwF0GkODsSVSd3yBX4hm7ZTjcTc_f8
/edit#gid=0

Questions:

If you have any questions about applying, please feel free to reach out to us!

Elise Wilson (elisemariexplained@gmail.com), Hannah Ryles (hannahryles@gmail.com), and Amanda Labora
(amanda.labora@gmail.com)
OPHTHALMOLOGY

Original work by Joshua Udote. Updated most recently by Makayla McCoskey and Tom Liu (2019).

**Point person for application:** Dr. Prithvi Sankar (Prithvi.Sankar@uphs.upenn.edu)
- Dr. Sankar is always available and very knowledgeable about any application questions or interest in ophthalmology. You can meet with him any time if you are interested in applying in ophthalmology. Ask him questions early and often. He does not mind and would prefer lots of questions to none.

**Resources:** A 2018 applicant made a website [www.pre-optho.com](http://www.pre-optho.com), which lists good resources for students to use during electives and while applying.

**Rotations**

*Required*
- Ophthalmology 300: Great rotation to learn whether or not ophtho is for you. Not the best rotation to get a LOR from (though possible), as you spend most of the time shadowing with many different physicians. In fact, if you do not expect to receive a letter from this rotation, you have the freedom to bounce around and gain exposure to many subspecialty clinics.
- Pediatric Ophthalmology or Neuro-ophthalmology or Adult Oculoplastics or Pediatric Oculoplastics: Your choice (one of the four)
  - Pediatric Ophthalmology: Great rotation and opportunity for a LOR – you get to do a lot in clinics and in the OR, and you work closely with great attendings who love teaching. Dr. Monte Mills heads up the rotation for students, but all the attendings really like to teach. Try to work with one or two attendings consistently during the month so you feel comfortable asking for a letter from at least one attending by the end of the rotation. There’s a topic presentation at the end.
  - Pediatric Oculoplastics: Dr. Bill Katowitz heads up the rotation. He has a really fun OR, where you’re given lots of responsibility. In clinic, you learn to independently manage common conditions like chalazia, and also see rare conditions (e.g., orbital expansion for microphthalmia). Finally, there’s a topic presentation at the end, and it’s a great opportunity for a LOR.
  - Adult Oculoplastics: Dr. Sonul Mehta leads this rotation, and you work extensively with her and Dr. Cesar Briceno, along with Dr. Karen Revere (who splits her time between CHOP and Scheie). All three love teaching and each is a possible LOR writer. In clinic, you will do a mix of shadowing and seeing patients independently, depending on the attending and the flow of clinic. In the OR, you will see a variety of oculoplastics cases, ranging from cosmetic blephs and ptosis surgery to complex orbital tumor resections. Again, how much you get to do in the OR will depend on the attending, your level of comfort/interest, and how many bodies are in the OR (ie. residents/fellows). There is no final presentation.
  - Neuro-ophthalmology: This rotation was recently revived (after several years of being combined with adult oculoplastics). You will work with Dr. Grant Liu, Dr. Madhura Tamhankar, Dr. Kenneth Shindler, Dr. Ahmara Ross, Dr. Robert Avery, and Dr. Ali Hamedani across Scheie and CHOP. Most of your time will be spent in clinic, where you will do some mix of shadowing and seeing patients independently. Additionally, there is some OR time with Dr. Tamhankar, who performs adult strabismus surgery. Details of the rotation can be found on the Penn neuro-op website, www.upno.org.

- Ideally finish both OP300 and one subspecialty elective by April or May so you can have an LOR from your subspecialty elective and time to start your scholarly pursuit to get an LOR from your research mentor/advisor.

*Suggested*
- Neuroradiology, Dermatology, Rheumatology, Neurology, Plastic Surgery, Otolaryngology, Sub-I
**Away rotations**
- You will get mixed advice on this. The away rotation is an audition and you can either shine or really hurt yourself as some people are better on paper than in person. If you are absolutely sure about where you want to go, then do it, but otherwise exercise caution. It will give you the flavor of other ophtho programs and it could also be a source for your second ophtho letter. Note that most people from other med schools do an away rotation in ophtho. In contrast, most students from Penn do not do away.

**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 advisor is ideal. For those interested in basic science research (particularly those who are taking a year out to do research, Dr. Joshua Duniaief 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 also review your app, list of schools to apply to, and do a practice interview with you, which is very valuable.
- 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. She came from UCSF where she was the main mentor for all medical students interested in ophthalmology, so she has extensive experience with guiding students into the field. She is very accessible and easy to get in contact with, which is exceptional for a chair and really demonstrates her dedication to medical students. She is more than willing to talk with you in person or over the phone regarding what type of ophthalmology program would best fit your individual career goals. As chair, she has unique insight into other programs from all over the country. Dr. O’Brien remains your strong advocate throughout the entire application, interview, and match process to ensure that you are set up for the best possible future. 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 a large space heater. Yes, this happened.
- We are also fortunate to have John Dempsey as a program coordinator. He has been at Scheie for a while and knows the residency application process very well. He is an endless source of advice and has helped edit personal statements in the past.
- Again, for those interested in basic research, Dr. Joshua Duniaief 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 researchers at many 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” to your writers.
- 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. Keep in mind
that the CAS (sfmatch.org) 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.

- 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 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.
- As with ERAS, you can no longer have anyone check your LORs before they are submitted, so make sure that you ask for letters from faculty who think highly of you. You can ask for more letters than you need; you do not have to submit all of the letters that you receive.
- For your internship (ERAS) application, you need 3-4 letters.
- If you decide to do a preliminary medicine year, you should note that some preliminary medicine programs require a Departmental Letter from the Department of Medicine, so you'll get an email from Ann Marie and then you can choose to schedule a meeting with Dr. Bennett or Dr. Hamilton if you are applying to any of these programs (though most programs DO NOT require this letter). However, if you do get this letter, you can go ahead and use it in place of a medicine LOR.

Prelim Years
- 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.
- 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.
- Some programs have added integrated years so that the prelim/TY is part of their residency, often with up to 4-5 months of ophtho in the first intern year. Iowa, Northwestern, Utah, and WashU are among these. You do not need to apply separately to their integrated year. If you match to one of these programs and confirm your intern year spot, feel free to gleefully cancel all remaining TY/prelim interviews.
- 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 and a journal called
Ophthalmology Times, as well as Doximity. People debate on how accurate these rankings are, with more weight given to Ophthalmology Times 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 (AS ALWAYS!). 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, 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) and where you would like to match for fellowship if you are thinking of pursuing one. Less important are elective research time, international opportunities, cushion vs. hard-core.
- There has been an effort to collect surgical volume data on places people interviewed, it can be found on the ophtho facebook group, please keep this in the PennMed circle and don’t distribute!
- 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 graduate degrees, and your letters matter a lot as well. Drs. Sankar, Tapino, and O’Brien can 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! One of the nice things about ophtho is that 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 on your application, but it’s not necessarily 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 M STP programs have been selected against by these clinical programs. Research does not necessarily need to be in ophtho, but it is better if it is. Research also does not need 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! In 2014, 13 of 13 Penn students matched, at programs all across the country, including programs in New York, Pennsylvania, Missouri, Illinois, Florida, and California (including every single UC school). Try to attend as many interviews as possible, not only to increase your chances at matching, but also to see for yourself how each program works, as every program is very different.
- Watch out for programs that require supplemental applications/documents before offering
interviews (i.e.: UCSD, UCLA EyeSTAR, Tufts, Georgetown, WashU, Utah, Loma Linda, Kentucky, etc). 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.

- The ophth section of Student Doctor was somewhat helpful when it came to knowing which programs had sent out invites (few programs ever end up sending rejections, so you either get an invite, or never hear anything). SDN was unhelpful for pretty much anything else besides rumors.
- Another great resource is the famous 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 do 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 preliminary or transitional year 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.

**Scheduling interviews**

- Interviews are usually mid- October to mid-December
- 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 to contact the program on your behalf before invites go out. Do this early (as soon as you hear that interviews have gone out on SDN).
- Interview days will overlap! It is very helpful to know interview dates, because you often 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).
- Organization is key! **Download the excel file of programs from SFMatch which lists interview dates** then lay them out on your paper calendar to minimize conflicts. Saving a draft template email to the coordinator of each program with spaces to enter your top three day preferences seems a bit overboard, but is one helpful way to be able to immediately respond from your phone when invited. Other people have also recruited someone to “man their phone” while at interviews, 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).

**Application Timeline**

*January—April*

- Step 1
- Complete at least one ophth 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)
- Consider registering for Step 2CS at a date after your Sub-I as spots can fill quickly

*May—July*
- Away rotation (if you’re doing it)
- Write Dean’s Letter Intro Paragraph, schedule Dean’s Letter meeting, verify that LORs are in
- Register with CAS and ERAS - I would also have Dr. Sankar read over your application before you submit it. As mentioned above, John Dempsey has also made himself available in the past to look over personal statements.

**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.
- Start ERAS application for preliminary year programs.
- 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!
- Meet with Dr. Bennett/Hamilton if you want a letter from 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 – you can always reschedule later if you need to. Each program will offer 2-3 dates for interviews. You can find out what these dates will be ahead of time by looking at the directory of programs on the SF match website or the individual program websites. Try to make a calendar for yourself with all possible dates for interviews ahead of time - this will help you strategize in terms of picking dates that have less potential conflicts later.
- If you have time, definitely 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 early-mid December, ask for application status updates and even request interviews from TY/prelim program coordinators in cities you plan to rank at the top of your list. Because, remember, asking after your ophtho match may be too late for internal medicine prelim programs.

**January–March**
- Submit your rank list to SF Match in early January, match results will be available one week later.
- Submit your rank list for intern year programs in mid-late February. Match results will be released on match day in mid-late March.

**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.
- Know the programs before you go in!
- Be excited about the program! Know a little about the city the program is in. If you have personal connections to the city (ex: fiance 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 10 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, 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.
- 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 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.

At the interviews, pay special attention to the PGY-2s. They will be your seniors when you start, and the only residents you meet who will actively contribute to your work environment.

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 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: Makayla McCoskey (Makayla.Mccoskey@pennmedicine.upenn.edu), Tom Liu (Tianyu.Liu@pennmedicine.upenn.edu)
Electives

- Home orthopedic rotations: Do two at Penn in whatever Orthopedic fields interest you. It is strongly recommended to do 2, because (1) your chairman letters draw heavily on your performance on home rotations, (2) chances at securing an outstanding or better letter are higher with more chances, and (3) more exposure helps you to get to know faculty who will advocate for you here and elsewhere. Remember that there is a reason why students without home programs don’t do as well...

- All the rotations are excellent, but Trauma (at Presbyterian), adult reconstruction (at Presby), and Pediatric Orthopedics (at CHOP) are particularly good for students. On trauma, you will get exposure to Dr. Ahn, who is well-known nationally and an important player in the residency program. On adult reconstruction, you will get face time with the program director, Dr. Israelite. Trauma may be the highest yield home rotation in terms of preparing you for away rotations. As part of the trauma rotation, you will learn how to describe fractures, become familiar with common surgical approaches, and learn how to position and prep patients. You may experience the steepest learning curve and work the hardest/hardest hours during this month, but you will feel better equipped when you are asked anatomy and basic classification questions on your aways. If you need another option to quench your ortho thirst, consider either the “general” rotation at Pennsylvania Hospital (where you will be exposed to multiple services) or a more preceptor-based rotation in Sports, Hand, Foot & Ankle, Spine, Onc etc.

- Non-ortho rotations: Primary Care Sports medicine and MSK radiology (can take for two or four weeks) are also good courses to take at Penn prior to your away rotations if you have the time. You may also choose to take them after interview season. Advanced anatomy (listed as CDB 300) with Dr. Curci is an awesome course that you may want to take after interviews. You get to dissect your own cadaver for 4 weeks alone with Dr. Curci, who will tailor the experience to your future specialty. Email Helene (Beth McNeely) and Dr. Curci in the fall of your final year to try to get approval and schedule the course.

Aways

- Most people do three. You may meet applicants along the way from other schools who do four, but that likely crosses the line of diminishing returns (if you are too tired to make a good impression, you’re making an impression you don’t want). They can be exhausting, so do not over-schedule them as you do not want to be tired during your aways. Doing three in a row is particularly challenging; consider doing back-to-back aways and—if you are doing a third—taking 2–4 weeks off before the third rotation.

- Away rotations are the most important part of the application process. If you have a top choice, this is an excellent way to show interest in the program and let them get to know you. You can also use your aways as opportunities to try out different program styles or locations. Choose your aways carefully, because performing well will almost guarantee you an interview. Some think that one’s best odds of matching will always be at programs where you rotated, although rotator preference varies by program. Talk with senior students and the ortho student interest group (LLOS) leaders if you’d like to discuss the merits of different away rotations.

- Letters of Recommendation from away elective attendings are NOT required, they can be used to (1) show programs that you have been liked beyond your home institution and/or (2) show that program that you rotated there and were well liked. If you need a letter from
one of your away rotations, keep in mind the structure of the rotation as on several rotations you may be on a different service each week (i.e. Duke does 4 1 week rotations, while many other programs have all 4 weeks on 1 service). Preparation here, like everything else in medicine, is key.

- Read up on topics (especially anatomy) relevant to your rotation but also get to know other relating things such as the town/area, current faculty/department history.
- Be friendly, personable, and upbeat during away, but be wary of being too enthusiastic or talkative- many residents have said the major mistake rotators make is being overly friendly with residents. It’s a weird space to try to live in, but remember someone is usually evaluating you at all times so always be on your best behavior.
- Make sure to take time to explore the area on your weekends off, because you want to make sure its somewhere you would want to potentially live for 5 years.

- Applying to aways: The procedure varies by program; try to apply for spots as soon as possible. Begin looking up the programs you would like rotate in January or February. At the same time, go to student health and get immunization titers (costs somewhere in the range of $50–100). It is not uncommon for certain titers to be equivocal; if that happens, you will need to get revaccinated and take new titers one month later! Refer to program websites for information, application requirements, immunization/titer requirements, and application due dates. If not stated, March is a good time to reach out. The away application process is handled by the AAMC Visiting Student Learning Opportunities program. Helene will update you on how to use this program. Most programs require some combination of a background check, immunization records, a letter of rec, and your Step 1 scores. Get started early on the immunization records!
  ○ Reminder: Take care to read program requirements carefully. Some places just do things differently. For example, NYU hasn’t used VSAS in the past and has required the applicant to snail-mail documents. Harvard has its own application process online outside of the AAMC websites. WashU requires the applicant to email a coordinator early in the year to get approval for the rotation…only later is an approved student scheduled through the AAMC website. If you try to apply to WashU through the AAMC website in March or April, you may have already missed the real application process. Duke requires a LOR, so keep that in mind and find a mentor to write you one in Jan/Feb if you are considering Duke.
- Sub-Internship vs. externship: Do NOT feel the need to do a Medicine or Pediatrics sub-I unless you really want to, because programs will NOT care one way or another. Most Penn students applying in Orthopedics do the Sub-Internship in Emergency Medicine with the two most common sites chosen being Pennsy and Presby. Seriously, life is way easier on an EM Sub-I.

**Advising**

- Fellow applicants
  ○ These 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
- 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.

**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. 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. 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 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 he writes your letter. In fact, home students must 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. When you meet with Dr. Levin, compile a list of attendings and residents at Penn that you have worked closely with. This will help his team compile the best letter for you. 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.

• We recommend meeting with Dr. Ahn as well, as he is a phenomenal medical student advisor and advocate.

• When requesting a letter, you may email or give your letter-writer a packet with the following:
  o Cover/thank you letter
  o Current CV
  o Personal statement (not always required by faculty)
  o A single AAMC Letter Request Form.
  o AOA SLOR- see below
  o For this application cycle, many programs use the standardized letter for recommendation form from the AOA. When you send this form to an attending, you should fill out your name, their name, and your ERAS letter 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.
  o 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
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 2018, 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, also look at interview dates on the Google Doc as many programs keep similar days (i.e. same Saturday & Friday of that month).

**Interviews**

- Your interviews will come out later than your friends applying in other specialties, so don’t fret. The earliest programs send out invites mid-October, you should expect to begin hearing from most programs in November. If you have not heard positive from more than a few by mid-November, don’t panic; but, do get in touch with a trusted advisor to discuss. If you have trouble communicating with your advisor or just need another sounding board, you may always contact Dr. Ahn.
- Dinner the night before: Go if you can, as this is a great place to get info about a program and chat to many residents who can provide insight that you will otherwise miss on the day of the interview, as well as an opportunity to meet and befriend the other candidates and your future colleagues. 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 2018 this included suturing a pig’s foot. Again, this type of interview structure is rare.
- 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.

- **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, 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 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.
- Most programs do not call to tell you where you stand (HSS 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. Israelite
Other Important People: Dr. Ahn

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

**Questions:** Nick Talathi (nstalathi@gmail.com)
OTOLARYNGOLOGY


Penn Electives

- MUST take OTO300A (HUP) the year you’re applying. If you’re planning on taking a gap year, don’t take OTO300A during MS3 year. Take it either during your gap year or as an MS4 otherwise you’ll have to do the rotation again as an MS4.
  - Have to write a paper to receive “Honors”; this could be a literature review on a topic of interest, original research you did in the department, or interesting case you saw while on your rotation. Typically short (3-4 pages double spaced). Discuss topic with Dr. Douglas Bigelow if you would like. Due within 1 month of finishing the rotation (4 weeks after the last day of the rotation).
  - You will spend 2 weeks on Sinus/Oto (less busy) and 2 weeks on Head and Neck (very busy).
  - Call for Penn students is not well-defined; most take 1 overnight call during the month. This is a great opportunity to show you are a team player and can really perform when things get hectic. Check with the chiefs on service early in the rotation to get a sense of what they expect. Keep in mind, some away rotators will do more, so adjust as necessary to show you’re interested and not lazy. The department will usually tell you not to take call so as not to miss any cases on your post-call day. Regardless, aim to take call(s) on Friday so your post-call day falls on Saturday.
  - Some Thursdays after Grand Rounds, Dr. Bert O’Malley (chair) will hold Chairman’s Rounds. This consists of each medical student on the service presenting one of O’Malley’s patients who was operated on the prior day and then he asks the team questions about the differential diagnosis, pathophysiology, presentation, and prognosis for each different case. Make sure you read up the night before—residents will let you know which cases to prepare for. It can be helpful to coordinate with the other medical students on service so you know which cases will be presented and can prepare accordingly.
  - Can be difficult to get to know one attending really well for a letter of recommendation—plan to get one from Pennsy/VA attendings unless you know them well for other reasons.
  - Dr. Ruckenstein (program director) will talk to you about applying during your clerkship. Set up a meeting with him early on in the clerkship and make sure he knows you’re interested and has a copy of your CV. Also, be sure to meet with Dr. O’Malley (chair) before you apply. He will not play as vital a role in your match process, but he likes to know who is interested and it is always good to get some face time with him.

- Other rotations:
  - Pennsylvania Hospital (OTO300D): Great faculty; more “bread & butter” ORL due to more general ENT faculty; can get very busy, especially because the team is smaller than HUP and they do a decent amount of cancer resections and reconstructions—great opportunity to shine. Fewer attendings, so can get more face time with them and provides opportunities for getting letters. You also participate in Chairman’s Rounds on Thursdays (though you don’t always present) so make sure and ask what O’Malley’s cases were. Ask your residents in advance if you’ll have to present and coordinate with the medical students on the HUP rotation to find out the potential cases that will be presented/you might be quizzed on. FYI the assistant program director is an attending at Pennsy (Dr. Kearney). Pennsy is a great rotation to do prior to the HUP rotation to be more prepared and get your feet wet.
  - VA (OTO300B): More ‘bread and butter’ like Pennsy, but much less busy, good rotation to try out ENT. More clinic-heavy than Pennsy and HUP (clinic on Tues and Thurs), but
great opportunity to show your knowledge base with the attendings. Also great chance to familiarize yourself with the fiberoptic camera. Good LOR opportunity as you work with a smaller team and spend more downtime with them.

- CHOP (OTO301): A little more hands-off than other rotations but you can get involved in the OR later in the rotation if you show interest, and it is a great way to get to know CHOP faculty. More difficult to get a letter of recommendation because there are so many Peds ENT faculty members (more than 20!) and you work with a new person almost every day so there’s less continuity. Great opportunity to get to know the residents and make a good impression though if you’re helpful because CHOP is a notoriously busy rotation for the residents and they appreciate even the slightest help.

- Plastic Surgery: Great hands on OR experience. Dr. Low is great and sets his sub-I up a preceptorship model with less emphasis on inpatient care and more on OR skills (although this has changed in recent years so the rotation may be very different going forward); as is Dr. Serletti and Dr. Bartlett (craniofacial at CHOP).

- Others: General Surgery (EOS with Fraker), Anesthesia (learning how to intubate, approaching airway protection), Neuroradiology (try to spend time with Dr. Loenvner, consider making only two-week rotation as can get long), Advanced Head/Neck Anatomy (Dr. Curci), SICU

- Some have found it very helpful to take Neuroradiology the month before the OTO300 sub-I. A month to review common ORL pathology is great

- Spending time in Advanced Anatomy with Dr. Curci is also very valuable. Great way to review the complicated Head and Neck Anatomy with your own cadaver and one-on-one instruction.

- Electives (ORL in particular) are all about getting glowing letters of recommendation.

- Resources for rotation:
  - Most use “ENT Secrets” now in the 4ed. by Scholes and Ramakrishnan. Written for med student level of knowledge. Helpful to have a digital version to read up on cases/possible pimpping questions between cases. The organization of this book makes it a little difficult to read as a quick reference source and is better read when you have some time e.g. after the day is over and you’re at home learning about cases for tomorrow read through the relevant chapter.
  - Pasha “Otolaryngology Head and Neck Surgery: A Clinical Reference guide” is good but expensive ($80), but almost all the residents use this as their guide so if you are sure on ENT you will probably buy it eventually. Written in an easier method to quickly reference, especially if you have the digital version. Can be helpful to search for the term and read the bullet points in between cases. Written for resident level of knowledge so can be a bit more higher level/assume you know more than you do so just beware of that.
  - Cummings Otolaryngology is the ENT bible. It’s available for free on the Biomed Library website via clinical key.
  - Operative Techniques in Otolaryngology – Head and Neck Surgery edited by David Goldberg. Critical resource for quick guides on operative procedures. Can search by operation e.g. tonsillectomy, neck dissection and you get a 4-6 page journal article often with pictures of relevant anatomy and a discussion of different considerations for each surgery. Also available for free on the Biomed Library website via clinical key.
  - The Iowa Protocols - a wiki full of ENT resources including procedure videos, instructions and step by step guide: https://wiki.uiowa.edu/display/protocols/Home
  - HeadNeckBrainSpine: great for reviewing radiology (http://headneckbrainspine.com/)
  - UTMB Grand Rounds Archive: http://www.utmb.edu/otoref/Grnds/GrndsIndex.html
  - Baylor Grand Rounds Archive: http://www.bcm.edu/oto/grand/grand.html

Away Rotations
- Most people recommend 1–2, some say do not do them. If considering, we recommend 1 away elective at a program you really want to go to—most programs will take at least one if not more away rotators for residency. It can be a good opportunity to see what a program outside of Penn
looks like prior to interviewing. Some programs will have many away rotators at the same
time—be sure to ask around to get a feel for what away rotations are like at different institutions.

- Remember that these can help just as much as they can hurt—daily pressure to work hard and
impress \textit{(away rotation = month long interview)}.
- The Penn Department generally suggests doing away rotations only if you have a compelling
reason to apply to a given program (i.e. location, partner etc.).
- Best time for away rotations is July/August/September. \textbf{Apply early} to ensure a spot
(most applications available in March) and to give ample time to find housing.

\section*{Research}

- \textbf{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 for a lot too!
- 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 generally required, but is looked favorably upon. An increasing number
of candidates are taking time out for basic science or clinical research and it can be a
competitive disadvantage at some programs to not have publications in this realm.
- 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 is also beneficial.

\section*{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 late fourth
year (most take in winter of graduating year)
    - Of note, some programs (e.g. UCSF) 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.

\section*{Applications}

- OtoMatch: online forum for ENT applicants, find all your juicy gossip here (\url{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, but start working on your application in
July/August.
- Programs may 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. Some applicants still submitted program-specific
paragraphs for the majority of programs they applied to, regardless of mandatory status though
most of us did not or only submitted paragraphs for programs we were particularly interested in.
If you do plan on doing the individual program-specific paragraphs, start early, it is surprisingly
time-consuming.
- In 2016, they also started requiring a recorded phone interview, though word is it’s not actively
used in the process and is more for research for now (behavioral-type questions, see
\url{https://www.ncbi.nlm.nih.gov/pubmed/20979099}). They got rid of this in 2018 but keep in mind
in case they bring it back, although this seems unlikely.
• Earliest application due September 31, most due in October/November. Interviews offered on a rolling basis so submit asap so you do not miss out on interviews just because of this. Plan to have your ERAS application all together by September 15th (or whatever date JoMo suggests).
• 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, but some can get obsessed so take it all with a grain of salt. Interview invitations really start to pick up around early-mid November and come as late as December.
• You can look at individual programs through FREIDA on the Penn student page or use Penn student evaluations or the OtoMatch spreadsheet.
• 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)
• 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. 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.
• Talk to Dr. Ruckenstein/ORL mentor about how many programs to apply to. It should be at least around 30 from Penn 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-year spot, not both, so make sure it is what you want.
• 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. You can also call/email programs to find out interview dates in October to minimize potential conflicts. All programs have more than one interview day however, 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 sort of try to more 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 especially because interview slots fill up on a first come first served basis.
• 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 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. Ask around for recommendations on how to best approach the interview invite season.

- Interview preparation: Know yourself, 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)
- 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 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 Interest Group Advisor)
- Websites: www.otomatch.com (message board for medical students/applicants), www.ama-assn.org/go/freida (listing of residency programs and contact info)

**Questions:**

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 Lisa Smith, Jeff Kubiak, and Jeff Nirschl (2019).

Program Directors:
Nicole Aqui, MD (Program Director)
Lauren Schwartz, MD (Assistant PD in Anatomic Pathology)
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 (blood bank), transfusion medicine, 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. 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), 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.
• 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.
  • 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.
• 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.
Medical School Pathology Rotations

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<tr>
<th>Course #</th>
<th>Course Title</th>
<th>Course Director</th>
<th>Location</th>
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<td>PAT300</td>
<td>Surgical Pathology</td>
<td>(AP) Dr. Emma Furth</td>
<td>HUP</td>
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<tr>
<td>PAT301</td>
<td>Clinical Pathology</td>
<td>(CP) Dr. Irving Nachamkin</td>
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<tr>
<td>PAT302</td>
<td>Autopsy Pathology</td>
<td>(AP) Dr. Carolyn Cambor</td>
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<td>Forensic Pathology</td>
<td>(AP) Dr. Carolyn Cambor</td>
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<td>Surg Autopsy Pathology</td>
<td>(AP) Dr. John Brooks</td>
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<td>Pediatric Pathology</td>
<td>(AP) Dr. Portia Kreiger</td>
<td>CHOP</td>
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<td>PAT323</td>
<td>Transfusion Medicine</td>
<td>(CP) Dr. Donald Siegel</td>
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<td>PAT336</td>
<td>Hematopathology</td>
<td>(AP/CP) Dr. Gabriel Caponetti</td>
<td>HUP</td>
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“Required” Pathology Rotations

- Unlike many other fields that want to see a lot of clinical experience in that area, pathology programs understand that pathology rotations are not part of the core clinical clerkships and therefore many students will have very little experience in pathology before applying. It is completely acceptable to have done only one rotation in pathology before applying.
  - That being said, at Penn you have the benefit of 6 additional months of elective time prior to applying and doing more than one rotation can definitely help solidify your own interest in pathology and strengthen your application.
- We strongly recommend doing Surgical Pathology (PAT300), unless you are certain you will be applying CP-only. If you are applying AP-only or AP/CP, surgpath is what residents spend a majority of their time doing and learning, so this is an important rotation to be exposed to. It will show programs that to some extent you know what you are getting into.
- If you are applying CP-only, consider the Clinical Pathology (PAT301) rotation and Transfusion Medicine (PAT323). Don Siegel is an excellent teacher and pathology residents and medical students alike have given good feedback about this rotation.
- Other excellent rotations if you are considering AP or AP/CP include Autopsy (PAT302), during which you will have the opportunity to own your own case and write up your own report, and cytopathology (PAT335).
- If you are interested in pediatric pathology (a whole other world!), PAT305 is a great rotation.
- If you are interested in medico-legal issues, take the forensic pathology course. On this rotation, you get a lot of autopsy experience and you also have the opportunity to go to court and on death scene investigations.

Away rotations

- The common advice regarding away rotations at Penn Med seems to be “don’t risk it”. However, that does not necessarily apply in pathology. Students who have done away rotations in pathology have had positive experiences and it is an excellent way to check out a department that you are interested in.
- If there is somewhere you are specifically interested in training at, there can be value in doing a rotation there, as programs prefer applicants that they know well and like. That being said, the residents will definitely be judging whether or not they like working with you, so you should expect to work hard, play nice, and be friendly. Most pathology programs put a lot of stock in what their residents think about interviewees and rotators.
- All in all, away rotations are definitely NOT NECESSARY. Having done two or more path rotations at Penn will impress most of your interviewers. Only do an away rotation if you’re really dying to check out another department or city and remember to be your best self!
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 Lauren Schwartz 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 letter from a pathology attending, although two is better. 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 generally 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 (gyne surg path) 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. Most programs offer some arrangement whereby research funding (T32 grant) is guaranteed for 1-3 years either during or after residency, with the aim of helping you get a K award or other types of junior investigator funding. If this is what you want, then doing straight AP or straight CP is the way to go. Some programs even require you to choose AP-only or CP-only if you apply for the

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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. If you are an MD/PhD who doesn't want to be near a lab ever again, be honest with yourself. Many programs still want to attract top-notch applicants with research experience--there are many opportunities for pathologists to be involved in other scientists’ work, or to do translational and clinical research within the department without having to compete for R-01 grants.

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. Your list may be very different if you are applying to AP/CP versus AP-only or CP-only programs.
- 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, University Chicago, Baylor, etc.) This is by no means an exhaustive list and changes in program directors/department chairs/program policies can change the strength 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 are fairly low-stress and are more “getting-to-know-you” occasions for both parties. Expect few, if any, curveball questions; just be ready to talk about anything included in your application and your passion for pathology!
- Board scores: We have only heard of one program having a “cut-off” (217 for UVA). Overall, I would not worry too much about it as long as you passed and the rest of your application is strong.

Questions: Lisa Smith (lisasmith560@gmail.com) and Jeff Kubiak (kubiak.jeff@gmail.com)
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.

Rotations
Required
- Sub-Internship in Pediatrics: We recommend trying to schedule this by July. It is possible to do it in August, but letter writers will be hard pressed to get letters done on time, and you will have to remind the Office of Student Affairs to addend comments from evaluations after July to your Medical Student Performance Evaluation (MSPE a.k.a. Dean’s Letter).
- Some students find it helpful to do both Medicine and Pediatrics sub-Is, but it is really not necessary and will have no effect on how programs will view you as a candidate.

Suggested
- There is a comprehensive list of Pediatrics electives in the online course catalog on the medical school website. If you are interested in a less frequently completed elective, you can ask Helene to put you in touch with someone who has done it before.
- It is possible to arrange an outpatient pediatric primary care elective through Dawn. If you are interested, ask Dawn as early as possible before your desired rotation month.
- Some of the Pediatrics electives are more participatory than others. Talk to MS4s about which electives are primarily shadowing and which allow you to be more active.
- Below are some popular Pediatrics electives. Do not limit yourself to this list! It is totally fine to do some electives outside of Pediatrics e.g. Radiology (adult), Botswana, etc.
  - Adolescent Medicine
  - Child Abuse
  - NICU (Pennsylvania Hospital or HUP): Great for ICU experience, with resuscitations at deliveries and procedures. CHOP residents rotate through the HUP NICU, while Pennsy is staffed primarily by nurse practitioners and physician assistants. Since orders are placed by the NPs and PAs at Pennsy, the HUP elective can feel a bit more like a full sub-I experience (with slightly longer hours), but student responsibilities are otherwise fairly similar between the two sites. Some opt to combine 2 weeks in the Well-Baby Nursery with 2 weeks in the NICU.
  - Pediatric Dermatology: Listed under Dermatology instead of Pediatrics.
  - Pediatric Endocrinology
  - Pediatric Emergency Medicine: Great preparation for sub-I or as a reintroduction to clinical medicine before intern year.
  - Pediatric Hematology
  - Pediatric Infectious Disease: Great way to re-learn/learn antibiotics and general pediatrics topics prior to sub-I or residency. Common source of letters of recommendation.
  - Pediatric Rheumatology

Away rotations
- Not necessary for applying in Pediatrics
● General advice: Consider an away elective only if you feel really strongly about needing to see a particular program firsthand
● Pros: Can be helpful in the residency application process, for example to demonstrate interest in a particular geographical region; some programs give automatic interviews to visiting students. Seeing how a non-CHOP program works could be a valuable experience in its own right.
● Cons: As JoMo says, “it’s hard to be at your best when you’re trying to learn a new system” and “an away elective is like a month-long residency interview.” It is highly unlikely that you will need to “prove” yourself after having done rotations at CHOP. Most Penn applicants will get interview invites from the West Coast programs even without any previous West Coast ties.
● If you are thinking about an away elective at an institution, speak with someone who has done one there!

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.
● 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 but will accept four, with your Chair Letter counting as one letter. 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 on interviews.

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 December 31st, 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. 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 you want (and get to take it in Philly). It takes about 12 weeks for CS scores to become available, so schedule CS earlier than CK.

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-driven,” 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. For example, CHOP is piloting 24-hour calls for the “E” interns every Sunday.
- 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)
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. Gemé 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.

You will likely have a contact with Dr. Ronan, the CHOP residency program director, in January or February about an advocacy call. Due to recent changes in program leadership, the exact schedule of such a contact may change, but Dr. Pete Devon and Dr. Rose will keep you apprised of the new process.

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. 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 how 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!

PHYSICAL MEDICINE AND REHABILITATION

Original work by Mously Almoza. Updated most recently by Tawnee Sparling (2017). Introduction adapted from “Roadmap to Physical Medicine & Rehabilitation: Answers to Medical Student Questions about the Field.”

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.

How is PM&R residency structured?
PGY1 - medicine prelim, transitional, peds prelim, surgery prelim (at this point, doesn’t really matter, although medicine prelim will best prepare you for your inpatient PM&R rotations)
+ 3yrs PM&R training
Some PM&R programs have a categorical PGY1 year that is more tailored to a PM&R residency. Becoming more popular for programs to offer to a few of their residents (RIC, 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, research your programs well because this is difficult at many of them due to insurance and coverage issues.

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

**Medical student electives**

**Required**
- At least one PM&R elective. Recommended to do one inpatient and one outpatient.
- There are 4 electives at Penn including Neuro-rehab (Dr. Lenrow), Musculoskeletal rehab (Dr. Lenrow), Pediatric Rehab (Dr. Kim), and Sports and Spine (Dr. Plastaras). All 4 of these are fantastic and have been regarded highly by students.
- If possible, try to also take an elective in the spring or June so that you can get a letter of recommendation from a Physiatry faculty member- will definitely need an LOR from PM&R.
- Especially coming from Penn, where PM&R exposure is low, programs want to see your commitment to taking electives and seeing different parts of the field.
- Away rotations not required, but definitely helpful to see what a big rehab hospital is like. Moss (Temple) and Magee (Jeff) are both in the city. Other big ones nearby are Kessler (Rutgers), New York Presbyterian, NYU, and Spaulding (Harvard).

**Suggested**
- Neurology, Rheumatology, Ortho, Family Sports Medicine
- Medicine Sub-I
- While research is not required for PM&R programs, it is valued by program directors (though perhaps less than in other specialties). If you are interested in PM&R research, contact Dr. Dillingham (Chair) or Dr. Christopher Plastaras (Sports and Spine).

**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. Plastaras, Dr. Lenrow, Heakyung Kim and Dr. Wenneker are great mentors.
- 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
- 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

Resources
- Association of Academic Physiatrists: http://www.physiatry.org/

Questions: Tawnee Sparling tlsparling@me.com Happy to help with any questions!
Electives

**Required**

- Plastic Surgery sub-internship: Unlike most of the places you will do your aways at (see below), Penn organizes its sub-internship as a preceptorship. Each sub-internship will be with 2 attendings, and you will spend about 2 weeks with each attending on their service. Regardless of which rotation you pick, you work a lot with the residents as a team (this goes for all the sub-internships). They are a great group of people and friendly, so work hard to be helpful where you can, learn as much as you can as early as you can. As long as you are kind, humble, enthusiastic, that goes a long way.

- Dr. Serletti/Phuong Nguyen: high priority, provides opportunity to work with Dr. Serletti and have him get to know you, valuable especially because you will need a letter of recommendation from him. Would consider doing after at least one other plastic surgery rotation so that you look good on service. Serletti’s rotation is mostly microsurgery breast reconstruction, as well as top surgeries for transgender patients. It includes going offsite on Tuesdays when he's out on the Main Line at Lankenau or Bryn Mawr hospitals. Dr. Nguyen does a variety of pediatric plastic surgery cases, including facial reanimation, as well as adult craniofacial trauma and transgender facial feminization surgeries.

- Dr. Low/Oksana Jackson: It’s a fantastic rotation, and exclusively in pediatric plastic surgery. DLow is an outstanding teacher, and draws out each procedure for you beforehand. Dr. Jackson is also a great teacher, super nice and wonderful to work with. You will see a mix of cleft repairs, vascular malformations, and learn basic principles of flap design and wound management.

- Dr. Bartlett/Dr. Kanchwala: Dr. Bartlett does almost exclusively pediatric craniofacial cases (craniosynostosis repair, orthognathic cases, variety of distraction osteogenesis procedures), each Friday he has an adult clinic practice that is a mix of cosmetic and reconstructive (ex. nose reconstruction after Mohs surgery). You spend a lot of time with the craniofacial fellow and chiefs as well. He’s a senior attending/nationally-known name, so a letter from him is essentially equal to a JMS letter in terms of stature. Dr. Kanchwala operates mostly at Pennsy, mostly microsurgery breast reconstruction.

- Dr. Taylor/Dr. Wu: Dr. Taylor is currently the chief of plastic surgery at CHOP. Like Dr. Bartlett, he does mostly pediatric craniofacial cases. Also a nationally-known name, and someone to ask for letter of recommendation. Dr. Wu does mostly microsurgery breast reconstruction, at HUP, a nationally-known name as well.

- Dr. Kovach/Dr. Fisher: Almost exclusively adult microsurgery reconstruction, including breast reconstruction, lower extremity reconstruction and hernia repair.

**Highly suggested**

- A second plastics sub-I at Penn
- One General Surgery elective (e.g. JoMo’s service)
- At least one away rotation, most people do two aways. See details below. Be aware that most have very early application deadlines—you need to start scheduling in February/March of your 3rd year. Beware that cancelling a Sub-I or withdrawing an application means you may not receive an interview invitation.

Away rotations

- Pretty much everyone does at least two. As with the home sub-I, being a hardworking, kind and humble team member goes a long way! Doing an away can feel daunting, but they are genuinely a fun and exciting experience, you will learn a lot, meet amazing people and get in-depth knowledge of a program. Even though it may not feel like it, you are auditioning the program as much as they are auditioning you.
● Caveats: (1) Away rotations can help or hurt you, and (2) plastics is a very small community – your reputation spreads quickly (whether it's good or bad).
● Timing: as soon as you’re thinking plastic surgery, look at the dates and application processes for away rotations. I applied to several in March of my 3rd year, and a few places were already booked full for the entire season. Send in your applications early! Applications usually involve forms, fees, transcripts, and immunization records. Take note that some places go through VSAS, while others have their own separate application system.
● You have to find housing on your own—plan as early as you can.
● Would think about whether or not you need a letter from an away rotation. Some places where you rotate through many hospitals, making it more difficult to get a good letter since you spend little time with the same attendings.
● Below is a SMALL selection of places (in no particular order) that can be good for away rotations. Most programs accept rotators, so if you have a geographic preference you should try to get into a place in that area.
  ○ University Washington: Powerhouse program. Accepts a good number of rotators, and tends to accept people who rotated there. Similar to NYU in terms of volume (tons of craniofacial as well as really strong hand and microsurgery), but a much more laidback dynamic. Every week you rotate at a different site. The residents are incredibly welcoming and very in tune to how it can tough to be rotating in a new place, and do their best to orient you and help you be part of the team. Expect to work long hours but it is a lot of fun and you get to know a good majority of the faculty and residents during your rotation. No required sub-I presentation!
  ○ Stanford: Very strong program, and accepts lots of rotators. This can be a bad thing, though (esp if you end up on service with 3 other sub-I’s). You rotate at 4 different hospitals, spending one week at each, so it’s a lot of driving and changing places, but you get to meet almost all the faculty. Two of the weeks are pretty chill, the other two are more intense (Kaiser and the University hospital). Dr. Lee (PD) is a great guy but will definitely pimp you in the OR – be prepared for every case.
  ○ NYU: Powerhouse program, more on the old-school end of the training spectrum, this is a “come early, stay late” sub-I. While you’re in the hospital you don’t have tons of responsibilities per se, but don’t plan to party in NYC throughout your month there. Expect to operate a LOT. You spend 2 weeks at Tisch (the university hospital) and 2 weeks at Bellevue, one of which is on the hand service. NYU tends to match “known quantities”: people from their rotator pool and/or current NYU students.
  ○ Harvard: what you might expect: plan to work your butt off all day, every day. They use away rotations as a way to weed out (and also select) people from their applicant pool. Perhaps more so than other places, it’s a four-week-long interview.
  ○ USC: Strong program, consider if you want to be on the west coast. Expect to work long days for the whole month.
  ○ UCSF: Expect to work hard, but it has the reputation of being a really good place to work (really nice people).
  ○ Pitt: Powerhouse program, expect to work really hard. There’s lots of research (more basic science stuff) here and they favor people with those interests. The PD/chair there, Dr. Losee, is very close friends with Dr. Serletti (JMS was his mentor at Rochester, Dr. Losee is the godfather of JMS’s kids etc.).
  ○ Hopkins: Strong program, Dr. Lee recently left his position as chief to be dean of UT Southwestern, so the program is going through a transition. The culture is more formal and traditional than Penn. All sub-interns are expected to give a grand rounds presentation, and your evaluation is based in large part on it.
  ○ Wherever you rotate, you need to get a LOR from the chair, program director or other nationally-known faculty member. Plan to meet with him/her in the last week of your rotation, but set up the meeting with his/her secretary during your first week. For most places you should plan to wear either a suit or business clothes, bring a hard copy of your updated CV, and make sure you know what’s on it! Treat the meeting like an
interview—if it is less formal than that you can relax, but be prepared for it to be that important.

Letters of recommendation
- Keep your CV up to date—your letter writers will request a copy.
- You have to send 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.
- 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, Mount Sinai, 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.
- 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, 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 (NESPS) 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, have him read over your personal statement.
- 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
- Interview invites sent out November-January

Interviews
Apply broadly—send your ERAS app to basically everywhere you’d ever consider going. A lot of people
Lastly, meet your future co-agues! You're feeling tired, to look forward to reuniting with some friends at the interview day. You definitely will be feeling 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 get to 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 convidence 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.** 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!

**Questions:** Rosaline Zhang ([rosalineSzhang@gmail.com](mailto:rosalineSzhang@gmail.com)) - make sure to include the “S”!
Rotations

Required
- Psychiatry 300 ("sub-internship"/"externship"): 4 weeks. Inpatient options are Pennsylvania Hospital Spruce 6 (primarily mood or personality disorders with a sprinkling of psychosis and geriatric psych) and the VA. In recent years, most students who do their sub-I at the VA work with Dr. Matt Jarrett, who is a fantastic teacher. For diversity of experience, it’s suggested to do your sub-I at the site you did not do your core clerkship. You should definitely get a letter from your sub-I attending.
- Your Penn-required sub-internship can be in Medicine, Family Medicine, or Pediatrics. Pediatrics is an option if you are considering child/adolescent psychiatry or debating applying in pediatrics or triple board, otherwise one of the adult options may be better preparation for intern year. The adolescent service at CHOP is a particularly strong pediatric sub-I option, with lots of medical-behavioral considerations; some Penn psychiatry residents rotate on this service.

Suggested
- Medicine electives: Will help give you breadth of knowledge and confidence for internship year.
- Psych electives: Only need 1-2 more at Penn (no strict requirement). The following are some impressions from electives:
  - **HUP Consults**: a very busy service with an incredible variety of patient presentations ranging from delirium, chemical dependency complications, and capacity assessments to catatonia, somatization, and post-ictal psychosis. A good rotation for getting a letter, as there are 2-3 attendings that you work with repeatedly, so you will get to know each of them well and vice versa.
  - **Child and Adolescent Psych**: 2 or 4 week options. For 4 weeks, you do 2 weeks inpatient consults @ CHOP, and 2 weeks outpatient with rotating half days in various clinics. For 2 week rotations, you do inpatient consults for 2 weeks. You may see patients and write notes during inpatient, but outpatient is nearly entirely shadowing. In my experience, not the best rotation for a letter, as you work with a number of attendings over a short period of time.
  - **Addiction/Alcoholism**: 4 week rotation. 2 weeks shadowing Dr. Kampman as he does VA outpatient addictions clinic and enrolls research subjects at the Charles O’Brien Center. He will give you a ton of literature to read every day (but doesn’t check if you read it). During the VA clinic portion, you typically see patients with residents; they will let you lead the interview if you like, but you won’t present or write notes. 2 weeks on the acute detox unit - Wright-Saunders 4 @ Presby. You will likely do a few intakes and can see some consults in the hospital if you want, but otherwise you are free to engage with the patients, hang out on the unit, and leave when you want. Good exposure to addiction psychiatry, but not a good rotation for a letter, as you don’t do much in terms of performance on this rotation.
  - Other options at Penn include Community Psych (mix of community and emergency psych) and PAH consults.
- Endocrinology, HIV, Palliative Care, Adolescent Medicine (includes eating disorders, HIV, and shelter-based medicine and psych clinics), CHOP ED (lots of behavioral CC’s), neurology consults, the IMPACT CHW teaching service, or other specific populations you’d like to explore working with. An additional month of family medicine can also be a good learning experience and useful for better understanding rapidly expanding integrated behavioral health models.
- Seriously, do the electives you want to do. There are not many required electives for psychiatry, so live it up.

Away rotations
In the past, the general advice has been that doing an away rotation is not required or expected. However, the majority of applicants I met on the interview trail had done at least 1 away rotation, and I was asked about why I hadn't done away on my interviews. I don't think it is entirely necessary, but if there are geographic preferences (especially West Coast), or specific schools that you are highly interested in for whatever reason, then I would consider doing an away rotation at one of those schools (or a program in the region to demonstrate a regional preference). Keep in mind, standard caveats for away rotations apply - doing well on an away can give you a leg up for that particular institution, but that comes with the inherent pressure of excelling clinically and interpersonally in a new environment.

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.
- Let Dr. Campbell know, after completing interviews, if you want to stay at Penn.

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 2019 with strong board scores and grades applied to 15 top-tier programs and was given interview invites to 9 programs; 9 programs is sufficient but comfort-wise, this student would have preferred more programs to rank. Given the JoMo preference for having 10-12 interviews to insure a match, we recommend applying to ~20 programs, if that is financially feasible for you.
  - Couples matching may require more applications depending on geographic limitations and your partner’s opportunities. Please review the couples matching section for more info. Multiple people applying into psychiatry this year participate in the couples match, including Connor Barnhart and Vanessa Neal, so feel free to contact them for more specific information.
- 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 2018-2019 spreadsheet:
https://docs.google.com/spreadsheets/d/1nY-5Y4lkmyY5mzGXYF7PPvlkX3tSHhK_zUqME1jEA-kc/edit#gid=617331436

- 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.
- 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 (Oct-Feb is nice for being able to travel to interviews as well as having active research to talk about)
  - Write Dean’s Letter Intro Paragraphs (Unique Characteristics)
- 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 overshare 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 pursuitStart ERAS application
Interviews

- 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.
- 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?), electronic medical records vs paper charts.
  - 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 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 be honored to train at your program”, “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 chemotherapy, 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 is a very competitive specialty. Although recent years have a slight dip in competitiveness after several recent years of increasing competitiveness and 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).
**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, 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. 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. Lastly, with increasing experience and success in using immune modulators to treat a variety of
malignancies, there has been substantial interest in finding ways to combine radiotherapy with immunotherapy to enhance the effectiveness of both treatments.

**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.

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.”

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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

Questions: Trisha Santos (santosp@upenn.edu)
RADIOLOGY

Original work by Tessa Sundaram and Alicia Levin. Updated most recently by Raghav Mattay (2016) and Chris Yu (2019).

Radiology Electives: Take RAD 300 (prerequisite for most other rads electives) and at least one additional radiology elective. (*Courses that can be taken without the RADS 300 elective)

- **RAD 300:** Great course, nice overview of plain film radiology. It’s VERY IMPORTANT that you take this course early (i.e. in Mar/April/May), as it is a pre-requisite to all other Radiology subspecialty electives other than Interventional Radiology. Get to know the course director, he has offered to write letters of recommendation in the past.
- **GI Rads:** The previous course director (Dr. Levine), who was also an advisory dean recently retired. This was the most popular radiology elective and highly recommended because of the mentorship from Dr. Levine. You will see both inpatient and outpatient studies being done. All your time will be in the fluoroscopy suite seeing barium/gastrograffin swallows and enema studies. Occasionally, you will also see GU studies being done.
- **IR:** Great course and excellent teaching. This course has recently become increasingly popular and fills very quickly. You can participate in lots of procedures depending on level of interest. Only requirement is a low-key presentation at the end of the month with course director. Great opportunities for research as well. Nice faculty. NOTE: Most programs now have a separate residency application process for a integrated DR/IR residency. If you are interested in applying for those residencies, you must take this elective and get a letter of recommendation.
- **Neurorads:** As of 2013, Dr. Loevner (who was a very popular letter writer for students applying into radiology) is no longer the course director. This elective now has a new course director, Dr. Mamourian, who is a full professor of Radiology and a very enthusiastic and an excellent teacher. This is a very educational course and also highly recommended. If you have a specific interest within Neuroradiology (Neuro IR, Head and Neck imaging, or cancer imaging), Dr. Mamourian can help tailor your month to receive more time in that specific area. He generally still likes you to see the whole gamut (inpatient, outpatient, and advanced oncologic imaging) in the first 2 weeks. He will have you work with some other great educators such as Dr. Loevner and Dr. Mohan in particular. You will have a small presentation at the last week’s Neuroradiology morning conference with all the fellows and faculty on a topic/case that Dr. Mamourian will help you choose. Dr. Mamourian will also periodically give you benchmarks for what he wants you to know and will go over/quiz you on cases approximately every week. Dr. Mamourian is definitely willing to write letters of recommendations. Hours are generally 9 am to 5 pm, with earlier days for weekly conference and tumor board.
- **Musculoskeletal Rads:** Great course. You focus on plain film in this rotation – so the imaging is easy to follow. The faculty member you work with changes at lunch time each day, so you have to be a bit more proactive for them to get to know you so that you’re comfortable asking for a letter of recommendation.
- **MRI:** May be difficult to follow if you don’t have a background in MR, but great chance to demonstrate your interest. Dr. Siegelman, the course director, is a master in the field and wrote a textbook on the topic. He also is the director of the residency selection committee for Penn Radiology. If Penn Radiology is high on your list for Residency I would be careful about taking this course, and potentially not impressing him. Most students in the past who match at Penn or radiology in general have not taken this course.
- **Cardiovascular Rads:** Difficult for students without some background in imaging; good potential for research, nice faculty, relaxed schedule compared to other electives.
- **Nuclear Med:** Unstructured. This rotation is pretty much a research elective done in the course director’s office/lab, with several hours per day of watching outpatient studies read if you prefer. NOTE: The course director has been known to sometimes only give honors if you continue to do research with him after the elective.
- **Peds Rads:** Many conferences; spend your days in different sections; mostly shadowing.
● *Breast Imaging*: Great Elective if you have an interest in women’s imaging. The faculty are also excellent teachers. This elective is far more patient-oriented and you will get to see many procedures. Focuses on Mammo/Breast MR/Breast biopsies. Some students have been able to get great letters of recommendations from Dr. Conant.

● *Away Electives*: Differing opinions on this, but I (and most of the faculty) would say that unless you are particularly interested in a certain program or want to move to a region to which you have no ties (i.e. Philly for life, want to move to Cali), away electives are not all too helpful and many people see them as month-long interviews. Looking disinterested (which is easy on a diagnostic radiology rotation) can hurt your chances. On the other hand, letting the program see you before you formally apply can be a huge advantage for you when it comes to getting an interview. Within the past few years those who have strongly wanted to go to another institution have often done an away in Interventional Radiology, where there is more of a role for the medical student and a better chance of impressing the faculty. For those interested in applying into the new IR/DR residency at another institution, this would still be very helpful. However, I am not sure if this would still benefit those interested applying only in Diagnostic Radiology.

**Keep in mind that Radiology electives are different from other medicine rotations because you generally have an observing role. Asking appropriate questions, making timely observations & keeping up with your reading for when you are ‘pimped’ are all good ways for the faculty to get a positive impression of you on a rotation. What you don’t want to happen is for you to end up sitting back in the shadows, saying nothing for the entire month of the rotations. You also don’t want to constantly interrupt the attendings because they’re busy—try to find a right balance.**

**Structuring 3rd/4th Year:**

- Take Radiology 300 as early as possible. Then take at least another radiology subspecialty elective before September. I think it would be good to get two radiology letters of recommendation, but I was able to get most interviews by only using 1 of letters I had requested. Also if you want to generate a letter from your Sub-I or a particular clinical elective take this before September as well.

  You shouldn’t worry about taking all radiology electives. General advice going around is that you will have all of residency and your career to learn radiology. Thus, you should take non-radiology electives that will build a better background for radiology, especially electives you will likely never experience again.

**Non-Radiology Electives:**

- Sub-I: In previous iterations of this guide, the only Sub-I mentioned was medicine, but is by no means required at any Radiology program. The EM Sub-I is a great alternative that is less time-intensive and has a more fair grading structure. Additionally, one could argue it is also a better exposure to how images are ordered acutely. However, you may get a more meaningful/personal letter from a medicine Sub-I, where you will work with the same attending and team for at least 2 weeks at a time, compared to the EM Sub-I where you will be working with a different attending each shift.

- Do/finish your sub-I by August at the latest if want it to generate a letter.

- Medicine electives are always good; remember that you’ll have to do a prelim or transitional year before rads. NOTE: if you are planning to apply for HIGHLY ranked academic internal medicine prelims, make sure to get a department of medicine letter sometime in the summer after your medicine sub-I. Many top academic programs do not grant internal medicine prelim interviews without this letter. However, these years are HARD and most Radiology residents do either community based preliminary internal medicine programs or transitional years, NONE of which require a letter from Medicine.

- Surgery electives, though the hours may not be optimal, are a way to review anatomy, especially if you’re interested in a particular subspecialty of radiology.

- Alternative (and less demanding) opportunities for anatomy review include taking an
Advanced Gross Anatomy elective, being a TA for Gross Anatomy, or taking an elective in Surgical Pathology or Autopsy. These are excellent electives to do during interview season, if you need to take anything during that time.

**Mentors:** Talk to Nancy Murphy 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. 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. From my personal experience, I was still able to get many coveted transitional and even preliminary medicine year interviews without a letter from Medicine. No one to date has asked me why I didn’t get a letter from medicine. 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.
4th Letter: Ideally will be from a research mentor of yours, ideally which is imaging related. 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 v/s 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, Optho, 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. Personally, I was offered invites to a couple places where I was unable to schedule an interview because I wasn’t quick enough to my e-mail. 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. Being quick to schedule your invites will also 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 v/s other attending interviewers v/s 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!
- 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. This is not often asked, but be prepared for it.
- 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.
- Phone calls: This is very important: tell your top choice that it is your #1 program. If your #1 choice is not Penn, you definitely should 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.

Finally:

● If you must look at applicant message boards (www.auntminnie.com), 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.

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INTERVENTIONAL RADIOLOGY


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 October 2018, there are 83 programs approved for the integrated IR/DR pathway, so there are more positions in the 2018-2019 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 slots, 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 can 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 earn 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 as 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/wordpressinstall/ir-residency-a-new-training-paradigm/](http://rfs.sirweb.org/wordpressinstall/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.

**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.

**Clerkship year**

Always strive for honors in everything, but really try to honors medicine and surgery as these two are valued most by programs. You can do just fine with a high pass in one (Penn applicants have matched to top places with this over the past two years), but with the field getting more competitive getting honors in these two will probably get more important (the rest certainly can’t hurt).

**Third and Fourth Year Electives**

Many of the relevant electives are described in detail in the radiology section, so refer to that for more specific details. What follows are the personal thoughts of a (for now) small number of people on what makes a well-balanced IR applicant with the right letters of recommendation.

**RAD 300:** The intro radiology course is run by Dr. Nachiappan and is necessary prior to taking any other radiology electives (except IR, although it is useful and recommended), so DO THIS ONE EARLY. Dr. Nachiappan has become the faculty advisor for the radiology interest group and is extremely dedicated to getting students involved in radiology. He is primarily focused on diagnostic radiology, but is a great ally for those entering IR. Take this course for honors and do well in it. Always go to the reading room for the “optional” clinical time, especially when assigned to “chest” and when Dr. Nachiappan is reading studies, this will show him you are legitimately interested and will help you get honors. Also attend a few of the morning teaching sessions for the residents, especially if Dr. Nachiappan or an IR attending is giving one. He has not run the course for long, but he is willing to write letters of recommendation for dedicated students entering radiology, so do well and get him on your side.

**RAD 320 (IR):** You can take this any time after clerkship year. Don’t feel the need to take a different radiology elective before IR to “learn more radiology/anatomy and prepare yourself.” It won’t really help or matter, as you’re not expected to read any scans, and you will learn the relevant anatomy quickly when doing cases. The key to doing well in this elective is getting there on time for all morning teaching sessions, aggressively pursuing cases, and being as helpful as you can to the fellows and attendings you are doing cases with. During board rounds in the morning, you can present the cases that you did the prior day (clear this with the fellow you did the case with beforehand if they are there). This means you have to know the patients and how they are doing post-procedure. During procedures, you should run the table, keep the catheters flushed, organize the wires, and have everything ready for the fellow when they need it. This will help you learn the equipment and gain the trust of the fellows. If you can do that then they quickly start having you gain vascular access and doing some of the smaller procedures yourself while they run the table. By two or three weeks in, you can be placing PICCs, ports, and drains with the help of the fellow while first-assisting in the larger cases. The attendings are great and usually come in at the end/key portions of procedures, at which point you should go back to running the table until they get you back involved (which they will). Try to do some cases with Greg Nadolski and Jonas Redmond, as they are the program directors and with Deepak Sudheendra, who runs the elective. You do a presentation during board rounds at the end of the elective. Try to identify someone within the department
who will write you a letter of recommendation

Other radiology electives: Although it’s not absolutely necessary, you should take one (and really only one) additional radiology elective. After all, you will be spending multiple years in a DR program as part of the IR residency. You could use this elective to get a letter of recommendation from a DR if you didn’t get one during RAD 300. This is a good strategy as you will get to know individual DR attendings much better through an elective than through RAD 300. Two good options are RAD 315 (GI Radiology) and RAD 324 (MRI Radiology). Refer to the radiology section for a description of the rest of the radiology electives. Take one you’re interested in, sit there, pay attention, give a good final presentation, and get honors.

RAD 315: Dr. Levine (world-renown) used to run this course, but unfortunately retired this year. It’s also a good elective because it’s fluoroscopy, so you are not sitting around all day. Unfortunately, you can’t really do much (true of all radiology electives except IR), and there is some uncertainty around who will write your letter (Dr. Rubesin, also known in the field, is a possibility).

RAD 325: Dr. Siegelman is one of the most respected abdominal radiologists in the county. He literally wrote the textbook that nearly every resident uses to learn abdominal MRI. He is also the chair of the selection committee for the DR residency and an incredible person to have on your side. As with any radiology elective, this mostly involves sitting behind residents/fellows while they read scans, but you should be able to find some residents and fellows who let you take initiative and take a stab at some cases if you prove that you are attentive and ask good questions. Your final presentation is a noon conference lecture for the residents and body imaging attendings, which is high-pressure, but also a great opportunity.

Away electives: Do not do a DR away elective. As far as IR away electives go, there are many schools of thought. Penn has one of the best IR programs in the country, so there is certainly no need for you to do an away elective to get more exposure to the field. For now, you also don’t “need” to do away electives like in other fields (ortho, emergency, etc.) to apply in IR. However, there seems to be some movement in this direction, particularly from some Midwest and West Coast programs (Northwestern jump to mind). If this happens, it’s going to change quickly, so be sure to ask about this when you do your IR rotation. Greg and Jonas go to the program directors’ meetings, so they’ll be able to get the pulse on this. Just anecdotally from the interview trail this year, most applicants seemed to have at least 1 away rotation.

Two good reasons not to do an away. One – It is time consuming and expensive to apply, move somewhere, and basically spend a month interviewing at a program. Two – the advice from a Penn IR, “you have the rest of your life to do IR, this is your last chance to go learn something else [by taking a different elective at Penn].” Still, if you would like to see a different way of doing things, an away elective is an excellent way to do that. You will encounter lots of people on the interview trail who did multiple away electives and found it valuable.

Two cases where an away rotation might be necessary. One – you have a single program you know you want to go to. If you are 100% certain you want to end up at a program, do an away there. It will increase your chances of getting an interview. However, if you have a few programs you will be happy at and aren’t sure which one would be your number one, don’t just pick one and decide to do an away there. Its’s probably not worth it. Two - you are trying to go to a specific region where you have no prior ties. West-coast programs are notorious in all fields for not granting East-coast students interviews unless they have done something to show they want to move. An away can show that, but many of West-coast programs are willing to interview Penn students regardless. This was certainly born out in 2018-2019 where interview invitations did not appear to depend on if an away rotation was done in a particular region.
Non-radiology electives:

**Sub-I:** A medicine Sub-I is recommended, but an EM one is OK as well. If you do EM, you should try to take one of the more serious surgery electives and get a letter. As IR is becoming more patient-management focused, this is going to be more and more preferred. It's a hard month but you really do learn a ton and it's a good way to get a letter of recommendation. It is hard to get honors so work hard, you want to get honors in all your electives. The EM Sub-I is easier from a time perspective, and that is certainly an option. However, note that it is also now difficult to obtain an Honors from the EM Sub-I given the new course director's grading system (as of 2018-2019).

Programs don't necessarily care what sub-I you do, but they really want to see that you hold up well and impress in a challenging environment with lots of responsibility.

**Surgery electives:** If you want to do a surgery intern year (as most programs are either requiring or strongly recommending) you should probably do one surgery elective. Vascular surgery is a good way to get some endovascular experience. You should take whatever surgery elective you would enjoy and could get a strong letter of recommendation from.

**Medicine electives:** Medicine electives are always good. If you need a medicine letter (and didn't get one from sub-I) this is a good option. If you are planning on doing a medicine intern year at a prestigious program you may need a medicine department letter, so keep that in mind.

**ICU elective:** Programs like to see these, but they are not absolutely necessary as they are for some other specialties. If you have the schedule space to do this before applying, it is a good option. Otherwise, you should do it in the spring of MS4 if you want the experience before intern year.

**Schedule:** Two sample schedules are below used to illustrate options on electives and letters of recommendation:

**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 if 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, Elliot Stein (elliotstein@gmail.com), John Choi (jochnmchoi@gmail.com) Shawn Ma (ma.shawn.11@gmail.com)
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. Cary Aarons
- 2018 Student President: Chris Corbett (christopher.corbett@uphs.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’ve included 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. 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://cuttinginsights.uphs.upenn.edu/ (Penn Wifi or VPN required)
- Log in with your Penn username and password
- Useful links:
  - Service guide, Goals, and Contacts: https://cuttinginsights.uphs.upenn.edu/informations/H3A5euK2DWWgvrpTb
  - Enhanced Recovery After Surgery (ERAS) & Patient Care: https://cuttinginsights.uphs.upenn.edu/pathways/H3A5euK2DWWgvrpTb
  - Common Operations & Helpful Review Articles: https://cuttinginsights.uphs.upenn.edu/cat/R8drqHBy7Pam5Ni4K

**Choosing your Surgery Sub-Is**

This is an important strategic decision for you. The academic Surgery community is a small world, and many surgeons at Penn are nationally/internationally known and respected for their work. For the residency application process, it will behoove you to get to know at least one of these Penn surgeon leaders personally and obtain your letters from them.

- **Strongly recommended**

  **HUP Colorectal:**
  The Colorectal service at HUP is shared between two wonderful attendings, Dr. Aarons and Dr. Mahmoud (chief of the colorectal division). This is one of the busiest services in the department, and due to its breadth of pathology, is an awesome learning experience. It’s also an important opportunity for you to get to know the Penn Surgery Program Director.
  The service has been split in two: one team led by the PD, Dr. Aarons and a 3rd year resident, and the other led by Dr. Mahmoud and the chief of the team. You will likely alternate weeks between the two teams:
  1. Dr. Aarons is very nice and has a dry sense of humor, but beware: he holds students to a high standard and will expect you to be reading consistently throughout the rotation. He likes to meet with sub-Is one-on-one for two rather intimidating PIMP sessions during the course of the rotation (don’t worry if you bomb ‘em, most of us did, too).
  2. Dr. Mahmoud, on the other hand, has a subtler style. She will take some time to get to know you and then give you more attention/responsibility as you prove yourself trustworthy. She also likes to be in charge during her surgeries, so you may not get to do as much during those cases, except retract… Be prepared to operate until 10pm some nights with Dr. Mahmoud.

  **Fraker:**
  Dr. Fraker is a leader in his field and with a national reputation. He does a lot of thyroids and parathyroids with the occasional lap adrenal, Whipple, and sarcoma excision thrown in. He has...
historically been one of the busiest surgeons in the hospital, which can make clinic days a bit chaotic. His rotation is a perennial student favorite due to his big personality and irreverent sense of humor. He loves to do teaching rounds, and some days will pause rounding, sit with his whole team, and do some teaching by pimping both residents and attendings (not to worry, he makes the experience more fun than you would expect). Note that his opinion of you is highly valued by Penn and other programs during the application and interview process; however, because he is so busy, it may feel like he has barely gotten to know you. Do not worry, his letters of recommendation tend to be glowing. You might just have to nag him a few times to get the letter submitted before the ERAS due date.

Dempsey:
Dr. Dempsey's service, GI Blue, is the closest thing we have at HUP to a real general surgery month. You will see a mix of cases focusing on the foregut, with an emphasis on minimally invasive techniques. When Dr. Dempsey is busy with his administrative duties, you will also get to scrub with Dr. Williams (bariatrics) and Dr. Raper (hernias, ex laps, fistulas). Dr. Dempsey expects that you will round on all his patients twice daily and communicate any treatment decisions about these patients to him before you leave the hospital. As the rotation progresses, he'll start asking what you think about the decisions reached during afternoon rounds. He is a very patient and knowledgeable teacher, and values the progress you make on the rotation in terms of your clinical judgment and how your work with his team. This is a terrific experience because you are acting more as a functional intern than almost any other general surgery rotation. You should definitely try to get a letter from Dr. Dempsey out of this rotation.

GI Gold:
This rotation will give you an opportunity to spend part of your week operating with and going to clinic with JoMo. Not only is JoMo a great teacher and fun to work with, but he is also the former PD for the residency program at Penn, and has a national reputation. This service is a good opportunity to become comfortable with "bread and butter" general surgery (hernias, lap choles) and get some hands-on experience in the operating room. When JoMo has academic days, you spend time in Dr. Dumon's OR (mostly bariatrics), where you'll participate notably less. Overall, this service is noticeably less busy than others at HUP because many surgeries are performed in the outpatient surgicenter.

Notes:
* GI Gold may be absorbed into other GI services since its volume is getting lower and lower as JoMo takes on more and more med school admin duties.
* As of spring 2019, Dr. DeMatteo is still not taking sub-Is on his service. If/when he does, this will likely become a "must do" rotation.

• Suggested:

1. Roses:
An amazing opportunity to experience cadillac Surgical Oncology cases with one of the most talented guys in the department. While a bit nerdy, Dr. Roses enjoys working with med students and takes pride in the Penn program. He is an excellent teacher. In the OR, he likes to talk through what he is seeing/doing, so even if you're in cases that are complicated or can't see much, they are excellent learning experiences. While on this service, you will see liver, pancreas, stomach, other GI tumors… and once in a while, a crazy angiosarcoma or huge splenectomy.

Breast:
A relaxed and fun elective. You will primarily work with Dr. Tchou, who is high-energy, funny, and super positive/encouraging. She enjoys teaching med students, and the best part about this elective is that she will help you advance to the next step in your sewing skills. Clinic is pretty laid back; Dr. Tchou will show you how she likes things to be done. It is highly unlikely that you will have to come in for weekend call.
ESS:
A challenging yet rewarding elective. You’ll see a mix of acute surgical cases as well as chronic wounds, and the social determinants of health will be front and center. While on this service, you’ll learn about managing very sick patients in the SICU and chronic wounds, and you get to really “manage the floor.” For some of us, this was the rotation where we learned the most: the busier the service gets, the more the sub-I can become involved (especially in the OR) and, like in Dr. Dempsey’s service, really take on the role of an intern. Dr. Braslow is a student favorite and is often on service. He’s a full professor now, so he’s another person to consider for letters of recommendation. Dr. Holena is another wonderful ESS attending.

Presbyterian General (Harbison):
This service is a perennial student favorite because of Dr. Harbison’s unique interest in med student teaching. His service covers a broad range of pathology and is therefore a great learning experience. Of note, Dr. Harbison will let you do things in the OR that other attendings will not. He expects you to approach this rotation as a real “preceptorship” and so you should demonstrate thinking more like a future surgeon than a prospective intern. You will definitely get more hands-on responsibilities than almost any other rotation at Penn. In addition to buying you coffee almost every day, he provides a great deal of mentorship and advice about surgery in general. Awesome person to have behind you as you apply to residency.

- Supplemental/Interest-specific

1. Karakousis:
A fun and low-key version of Surgical Oncology. "GK" loves working with trainees and will let you get a lot of great sewing in once he gets to know and trust you. He does a lot of melanoma, occasional gastric cases, sarcomas, and—uniquely—HIPEC. He also has lots of small research projects that he is often willing to delegate to interested students.

Thoracic:
Pneumonectomies, lobectomies, thymectomies, esophagectomies etc. An opportunity to work with Dr. Kucharczuk, one of the busiest thoracic surgeons in the region. Note: this is a fellow-run service.

Plastics:
Dr. Low encourages precision, does a lot of teaching, and will bring you along technically. Dr. Bartlett is very happy to mentor students but more hands off. Both have a mix of pediatric and adult cases. People tend to love this rotation.

Transplant:
Lots of anatomy, especially on donors. Interesting, complicated surgery. Lots of medicine. You will be very busy and take a lot of call. Highly integrated approach to patient care (psychiatry, nephrology, hepatology, cardiology, endocrine, surgery, ID). This is a rotation with pretty high expectations and not a lot of continuity with faculty members. A previous student was told to follow 5-6 complex patients daily on their Sub-I.

Vascular:
You will learn a lot about managing these very sick, chronically ill patients, and the surgery is high end. You will probably love it or hate it.

Trauma:
You will learn a ton. The attendings and fellows never stop teaching and there is a great team dynamic. The sub-I is responsible for primary and secondary surveys in the trauma bay at a minimum, so you will get very comfortable with this role. You will also get a great primer for reading
radiology because they review all of their films/CTs in real time in the bay. When the pager sirens, you run with the team. The expectations are not explicit on this rotation. To shine, you’ll want to supplement what you see with your own reading and demonstrate your thinking at morning conference (eg: you see an ED thoracotomy for a great vessel injury, read about it on your own, then reason through the surgical decision making when you present the case). The more you put yourself out there to take on management of the TSICU patients and assist in everything that comes through the trauma bay, the better you’ll do.

Pediatric:
Great variety of abdominal and thoracic cases, with opportunities to round in the NICU as well. Lots of great surgeons to learn from and as the sub-I you will get to see all of the best cases.

Cardiac:
A no-scrt elective. Essentially all OR time, no patient responsibility. Again, very high end surgery. It is also something you will not get much exposure to in most General Surgery residency programs anymore. This will be a very hands-off rotation.

Choosing your Other Rotations
Round out your 4th year and fulfill the school’s graduation requirements.

- **Sub-internship**

  1. **Sub-Internship in Medicine:**
     JoMo and many MS4s will tell you not to do a medicine sub-I so as to not torture yourself. However, others in the Surgery department will recommend a Medicine sub-I because it is the only real chance that you will have to take call and “manage your own patients” prior to starting residency—a great confidence builder and learning experience. If you decide to do it, consider trying to get your placement at Presbyterian, Pennsylvania Hospital, or the VA as these sites will be less intense than HUP (Martin service).

  **Sub-Internship in Emergency Medicine:**
  Many surgery applicants will do the EM sub-I and enjoy the opportunity for a fair amount of autonomy and the opportunity to do some procedures at the same time. Requires 16 shifts over the course of the month. This rotation can provide a needed respite if you schedule it between your ultra-busy Surgery sub-Is. The more easy-going rotation is at Pennsylvania Hospital, but some of us have found the HUP-Presbyterian rotation to be more interesting, since you can follow patients into the trauma bay during your Presbyterian shifts.

- **Relevant Non-surgical Electives**

  1. **SICU:**
     Take a deep dive into the management of post-op general surgery patients and develop your knowledge of complex physiology. There is a well-defined student role here, which makes for a pleasant and meaningful experience. The rotation director is Dr. Horak. He’s really invested in your education and your experience in the rotation. You’re supposed to take 24-hour call once a week, preferably with the same resident. When you take call, you’ll have the post-call day and the day after off. However, if there’s nothing going on or there’s an unusually low census, Dr. Horak will sometimes tell you to go home and skip call. Your opportunity to do procedures depends on your interests, dedication, and how comfortable the fellows and residents feel about your skills.
Radiology:
A surgeon should be able to read his/her own imaging. The general radiology course is terrific and requires relatively minimal effort. You can also consider a specialized radiology elective (2 or 4 weeks) if you have a specific interest in breast cancer or GI.

• Away rotations
Unlike for some of the surgical subspecialties, away rotations are absolutely not required for General Surgery. However, you may want to consider an away elective, especially if you are seriously interested in moving to another part of the country (and haven’t lived there before or don’t have family ties to that area) or have a specific program that you love. You will get an insider perspective and will let the program know that you are seriously interested. You will also have the chance to see how things are done somewhere else.

That said, JoMo often recommends against away rotations for those applying into General Surgery because you can inadvertently leave a less-than-glowing impression of yourself. There are a lot of factors out of your control (bad resident, new EMR, etc) that can make it difficult to shine from the start. However, if you were successful in your Penn surgical sub-Is, you’ll probably be able to impress on an away too. This can be a really important chance to check out a different program, and show you a different practice pattern.

If you decide to do an away elective, you must plan months ahead of time (there is an application that you need to contact Helene for access to the portal, lots of paperwork, sometimes a letter of recommendation is needed). This is a month-long interview and can work for or against you.

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.

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. He'll make sure it's taken care of.

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 Student Doctor Network for 2018-2019 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.

- **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?”
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 do 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: Isabella Guajardo (isabellitagr@gmail.com) and Hattie Huston-Paterson (hattiehuston@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 on their sub-I and prior to the application season. The residents are always happy to sit down and 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.

Rotations

Required

Urology Sub-I: The focus of this rotation is to expose you to all aspects of urology. In addition, you will also have the opportunity to get to know the residents and attendings. You will get a sense of the personality of those who work in urology – very bright individuals with a great sense of humor and work ethic – and make important connections for the future.

Suggested

Pediatric Urology at CHOP (Dr. Kolon is the course director) is a great rotation that is strongly suggested. Very few other urology applicants in the country have the opportunity for a month rotation/sub-I of entirely pediatric urology, let alone at a top institution like CHOP. In addition to the diverse clinical exposure, earning a letter from the Chair, Dr. Canning, and/or getting plugged into some of their many research projects can be substantial additions to your application.

Away Rotations

Most applicants do two away rotations unless coming from an institution with a particularly impressive urology department (such as Penn). Because Penn’s urology faculty is extremely strong, students are encouraged to do at least one away. It may be worthwhile to do two aways: one at a top-tier “reach” and another at a middle tier program with better odds of matching there. Since urology is such a small field, programs may give considerable weight to a good impression made during the rotation. Even if one decides that the program isn’t a good fit, a letter from a well-known Chair outside of Penn can be a substantial addition to an application. Furthermore, an away rotation is a great way to truly get to know the program from the inside as well as to get exposure to the structure and personalities of programs outside of Penn. Conversely, an away rotation is also an opportunity to make a bad impression. Ultimately, each applicant must weigh the decision against the backdrop of their application. If you talk with the Penn faculty about your interests (regional location, possible career goals, research), they can help you to identify programs
that may prove useful for you to visit in an away rotation. Away rotations are conducted through VSAS and often given on a first-come first-serve basis. Generally, people apply from February to early March.

**Mentorship**
You will likely find a good mentor while doing your urology sub-I. Otherwise, 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 a great opportunity to get to know people in the department and to get a good letter of recommendation. 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.

**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).
- 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
  - The additional letters may be from your research mentor, Chair at CHOP (Dr. Canning), and the Chair at your away site.
  - In addition, 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.

**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, and the subsequent 4 years devoted to urology. Within some 5-year programs, a research rotation of 3-4 months will be offered. While a few 6-year programs include 2 years of general surgery training, most consist of 1 year of general surgery, 4 years of urology, and 1 year of laboratory or clinical research.
- Among applicants, residents, and attendings there continues to be a debate regarding the “best” length and structure of a urology residency training program. At Penn, the consensus is that the best clinical product is produced with a 5-year program. However, other institutions strongly support a different training structure. Regardless of the type of program you choose, you will ultimately become a highly trained physician and surgeon. Therefore, the “best” program has to be placed in the context of your goals: Do I enjoy research? Will I conduct research in my future career? Will I want to pursue fellowship training (typically 2 additional years of training and necessary to enter academics)? Will I want to enter private practice?

**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 applying to all 128 programs.

- **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.
  - 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 mid-October through mid-December.
- **Interviews** at as many programs as you can make! Do your best to reply to interview offers ASAP as most programs only offer 2-3 dates and the best dates can go very, very fast (sometimes within minutes).
- **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 1-2 years 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 pimpling 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, 2018-19 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](http://www.auanet.org). The best informal source of information is at [www.urologymatch.com](http://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.

**Questions:** 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 (morrisjc89@gmail.com) who matched at Colorado in 2017.
VASCULAR SURGERY

Original work by Christy Marcaccio (2017), updated by Armin Farazdaghi (2019)

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). 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 about 59 of these programs across the country, with about 70 residency positions annually (most programs match 1 resident per year, some match 2 residents). Due to limited spots, many applicants also apply to general surgery residency programs.

Rotations
Required
- Vascular surgery sub-internship HUP: The Division of Vascular and Endovascular Surgery at HUP is among the top in the nation and manages a broad range of vascular conditions, particularly complex cases. A few comments on the rotation:
  - The vascular surgery service at HUP is usually VERY busy, but in a good way! You will see a large variety of basic and complex cases during your time on service with a good balance of open and endovascular surgery. You will also learn how to manage sick patients on the inpatient service and gain experience with preoperative and post-operative evaluations in the outpatient clinic. I recommend planning to go to clinic 1 day a week, as it is a great learning experience and gives you an opportunity to have some more direct face time with attendings, particularly Drs. Ron Fairman and Ben Jackson (see below). The residents, fellows, and attendings will increasingly let you actively participate in cases and patient management as they get to know you.
  - Vascular surgery residency programs often look for at least one strong letter of recommendation from you home institution, so it is very important to rotate on the vascular surgery service at HUP and get to know the attending surgeons well. Aside from getting a letter of recommendation, Dr. Ron Fairman (Division Chief) and Dr. Ben
Strongly recommended

- Away rotation in vascular surgery: You should definitely consider an away elective in vascular surgery, even if you think you want to stay at Penn for residency. Though an away elective is not technically “required,” it is standard practice among vascular surgery applicants to do an away rotation, and most applicants do 2-3 rotations (similar to orthopedic surgery and other competitive surgical subspecialties).
  - There are numerous reasons to do an away rotation in vascular:
    - If you’re seriously considering another part of the country or have a specific program that you love, an away rotation will give you an insider perspective and will let the program know that you are seriously interested and committed to vascular surgery. Generally, applicants have a much better chance of matching at programs where they have rotated, so choose your away rotations carefully (see below for discussion of programs).
    - You’ll have the chance to see how things are done somewhere else.
    - You will have the chance to get to know faculty and trainees at another institution. Vascular surgery is a relatively small field, so networking early is very beneficial in the long run.
    - You will have the opportunity to get a letter of recommendation from a vascular surgeon at a different program, which helps your credibility in the application cycle (in other words, programs are impressed when they can see that you were able to do well while rotating at an unfamiliar institution/new environment).
      **Note: in order to get a letter of recommendation in time to submit with your residency application, you should try to do your away rotation before September.**
  - Proceed with caution: If you decide to do an away elective, you must plan months ahead of time (there is an application, lots of paperwork, sometimes a letter of recommendation is needed). This is a month-long interview and can work for or against you. You should definitely do a vascular surgery sub-internship at HUP before going to do an away rotation in vascular so that you are prepared to shine.
- General surgery sub-internship(s): As mentioned, many vascular surgery applicants also apply in general surgery. As such, it is important to have 1-2 letters from general surgery rotations for your general surgery applications (in addition to vascular surgery letters). Further, you often get to operate more on the general surgery services, and gaining exposure to these areas will be helpful during your time on non-vascular surgery services in residency. Please see the section on applying in general surgery for more information about options for general surgery sub-internships.
- Surgical ICU rotation: Vascular surgery patients are among the sickest in the hospital. You will spend a fair amount of time rotating in surgical ICUs during residency to learn how to manage complex and critically ill patients, so it is good to gain some experience in medical school.
- General surgery SICU is management of post-op general surgery patients. This service has a more constant flow of medical students, so there is a well-defined student role. You should take call weekly, preferably with the same resident. Your opportunity to do procedures depends on your interests, dedication, and how comfortable the fellows and residents feel about your skills.
- CT SICU: less defined student role as compared to General Surgery SICU. Students on this rotation have felt that their ability to provide value to the team is limited because of NP presence. However, this rotation is still a great learning opportunity—few hospitals in the nation have a CT SICU with the same patient acuity and complexity of disease. If you are committed, there is opportunity to do procedures; you’ll also be very comfortable with pressors, diuretics, intra-aortic balloon pumping, VADs, ECMO, and management of patients with thoracic aortic disease. You
can also go down to OR when it’s slow or go on heart/lung harvests for transplant. **Note: This rotation requires permission, so you should initiate contact sooner rather than later to secure a spot when you want it.

- Sub-Internship in Medicine: Dr. Morris and many MS4s will tell you to do the externship so as not to torture yourself; however, others in the surgery department will recommend a sub-I because it is the only real chance that you will have to take call and manage your own patients—a great confidence builder. Consider doing a medicine Sub-I at Presbyterian or the VA, as this will be less intense than HUP but will also allow you to gain confidence in managing patients. Your surgical intern year will be mostly floor work, so learning to manage medical issues will be of great use to you. Also, vascular surgery involves caring for very sick patients and, as a result, involves significantly more medical management of patients than most other fields in surgery.

**Suggested: (if you have time…)**

- Sub-specialty surgery electives: The following rotations also provide opportunity to get letters of recommendations outside of vascular surgery and provide a good foundation for vascular surgery residency:
  - Cardiac surgery: A no scut elective. Essentially all OR time, no patient responsibility. Very high end surgery.
  - Plastic surgery: Dr. Low encourages precision, does a lot of teaching, and will bring you along technically. Dr. Bartlett is very happy to mentor students but more hands off. Both have a mix of pediatric and adult cases.
  - Trauma: You will learn a ton. Those guys never stop teaching and there is a great team dynamic. You will definitely know your role as a medical student and take part in many cases. When the pager sirens, you run with the team.
  - Endocrine Oncology Surgery - Lots of open neck and abdominal cases depending on which service you are on. Great to get time learning surgical anatomy and operating skills in a high volume service.

- ED Sub-I: Many surgery applicants will do the ED sub-I and enjoy the opportunity for a fair amount of autonomy and the opportunity to do some procedures at the same time.
- Medicine electives: Cardiology and Nephrology are most relevant to vascular. If you don’t like consult months – MICU/CCU.

**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).

**Letters of recommendation**

- You will want 4 letters:
  - 3 letters from vascular surgeons (including Penn). It is best to have letter 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.
  - 1 letter from the Chair of Surgery at Penn ("Chairman’s letter")
- 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.
- Consider what your ideal ratio of endovascular vs open cases would be – there are significant differences between numbers in some of the West coast programs vs the Midwest programs.
- List of programs: It is helpful to get as much advice as possible on this. Dr. Fairman is the best person to talk to about vascular surgery residency programs, as he has a national reputation and knows other leaders 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 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 3rd year 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, and Paul Foley 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.
- In general, people apply to about 20–40 vascular surgery programs. You should try to meet with Dr. Fairman or Dr. Jackson to go over programs that you are considering, and they 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
Interviews

- Meet with Dr. Fairman when you are close to submitting your rank order list (preferably 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. Fairman or Dr. Jackson to plan the year
- Apply for away rotations
- Ask for letters of rec
- Start writing your personal statement and updating your CV
- Start thinking about possible scholarly pursuit projects.

June, July, August
- Schedule Dean’s Letter meeting
- Meet with Dr. Fairman/Jackson
- Intro paragraphs for dean’s letter
- ERAS, register for NRMP
- Ask for letters of rec 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.

November to February
- Dean’s letter mailed
- Interviews (many programs interview on the same dates – you can find the interview dates on the program’s websites, or on studentdoctor.com and figure out which dates to schedule to minimize potential conflicts)
- Be prepared to respond to a request to interview IMMEDIATELY UPON RECEIVING AN EMAIL. Multiple people as recently as the 2016 application cycle have been unable to interview at a school on a given date because they did not respond within 30 MINUTES of receiving an interview invite.

**Interviews**

- Go to 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, for example do not ask the chair about residency life or why a rotation schedule is a certain way.
- Figure out some way to keep the different programs straight: take notes, 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: chair, PD, and any interviewers you really 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 chair and/or PD stating your intent to place them at the top of your list. Ask Dr. Fairman 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: Armin Farazdaghi (armin.farazdaghi@gmail.com)
MEDICINE-DERMATOLOGY

Original work by Alexandra Chorrow (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

Requirements
A strong academic career consistent with the requirements for a Dermatology applicant; 2 medicine letters (including 1 letter from the Chair of Medicine), 2 dermatology letters, research experience (preferably in fields related to Med-Derm).

Electives
SUB-INTERNSHIP IN MEDICINE, DERMATOLOGY 300 ELECTIVE. Because the application requires 2 medicine letters and 2 dermatology letters, it is best to rotate through medicine electives and additional dermatology electives either away or at Penn. See Dermatology and Internal Medicine sections for details regarding the Medicine Sub-I and Derm 300 rotation.
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 pursing 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.

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