Perelman School of Medicine
Office of Student Affairs
&
The Class of 2018
Present

CAREER NIGHT
2018
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GENERAL ADVICE

Original work by Jessica Volk and Neha Jeurkar. Updated most recently by the Class of 2018.

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 2017 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 2016-17 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). Updated recently updated by Alan Workman (Otolaryngology), Annie Duckles (Internal Medicine–Primary Care), and Catherine Mezzacappa (Medicine–Pediatrics) (2018).

Preparing
Start thinking as soon as possible about which programs you may be interested in and discuss this with your partner. Start planning for away rotations if they are required by your specialty(ies) and think about whether both partners should do aways at the same institution. It can also be helpful to both meet with the program directors of each of your respective programs, to establish a connection early on and discuss couples match goals.

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. For example, some programs ask that you state in your personal statement that you are couples matching.

Interviewing
When you receive an invitation to interview, it can be helpful to send a polite email saying 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!” 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. So do not be discouraged if you reach out and receive a sort of neutral response; it is just the way some programs handle requests.
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 you should let your interviewer know that you are couples matching. 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. After the interview, it can be helpful for two respective program directors to talk if you let them know that you are interested and that both of you interviewed at their institution or in the area.

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. 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). Here is an example:
<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 A</td>
<td>No match</td>
</tr>
<tr>
<td>9</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)

**NOTE:** For couples who are unable to officially couples match (e.g. one partner is applying into a specialty with early match), contact Alycia So (general surgery, so.alycia@gmail.com) and/or Rupak Bhuyan (Ophthalmology, bhuyanr54@gmail.com) with questions.
ANESTHESIOLOGY

Original work by Jon Wanderer. Updated most recently by Michael McDonald (2018).

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

IMPORTANT NOTE: The leadership of the Department of Anesthesia has recently changed (the former PD left in August 2016) so while the advice here holds mostly true, please take it with a grain of salt. Please be sure to meet with Dr. Baranov or Dr. Fleisher who should clarify all application questions for you.

Rotations

Required

- Anesthesia 300: You should take ANE300 sooner rather than later to see if the specialty is for you as the “week of anesthesia” during your surgery rotation is just not able do the specialty justice. Definitely complete it by July so that you can get a letter of recommendation in time. Even if you have only the slightest interest in anesthesia, this rotation is worthwhile as an excellent learning experience with applicability to all medical fields. It is as much as you want to make it to be, so be proactive and go around asking to place IVs and perform intubations. You will be paired with two residents for the first two weeks in the main ORs and then rotate amongst the subspecialties. Therefore, 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 coordinator, Dr. Jason Walls, and try to arrange it. During your month, you will have a private meeting with the Chair, Dr. Lee Fleisher, at which point you will discuss your background and intentions to apply into anesthesiology.

- Sub-Internship in Medicine

Suggested

- SICU: This is a helpful rotation for anyone to take but is especially good for budding anesthesiologists as it exposes you to a non-operative (and more collaborative) side of anesthesia. 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!

- 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. You will work with general surgery residents, and the opportunity to do procedures is ample. If you are proactive, you will get the opportunity for difficult IVs, arterial lines, bronchoscopy, cardioversion, and floor intubations. Dr. Bonnie Milas, the course director and CT anesthesiologist, is wonderful and a great person to get to know.

- Pain: 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. Spend some time with Dr. Dell Burkey for some interesting conversations.

- Palliative Care: Learn how to dose and titrate opioids, etc. Learn a lot in a relaxed rotation. Two weeks would be ideal for this rotation as it can get repetitive.
- 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.
- **Keep in mind:** The only rotations you need to do are the ANE300 rotation and the Medicine 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. If you ask attending 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.
- Rotations in Internal Medicine such as CCU 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, vasopressors, 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. In general, do not do an away as it can only hurt you. The exceptions tend to be interest in a geographic location (i.e. West Coast) that you have never lived in before, so you can “prove” to programs there that you are serious about moving out there. Common wisdom is to think about doing an away rotation at a West Coast institution if there is one single West Coast program you are desperate to match at, but not to worry about it if there are several possibilities you would be happy at.

**Mentorship**

If you were not assigned a mentor when you told the Office of Academic Programs your specialty interests, talk to Suite 100. Choose a person from the list and make an appointment to meet with that person to discuss your application in the early spring. If you were matched up with someone who does not share your same perspective/interests, it is okay to talk with someone else on the faculty. The best advice will come from Dr. Baranov and Dr. Fleisher, so do not hesitate to schedule meetings with either of them. They are both VERY available and willing to help, and they know the process the best.

**Letters of Recommendation**

- 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.
- Number of letters: Aim for four letters: Departmental (Walls/Fleisher), Anesthesia attending, Medicine sub-I attending, other. Quality of letter is more important than who it is from (in other words, an excellent letter from a non-Anesthesia attending is superior to a mediocre letter from an Anesthesia attending.)
- 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.

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.
- Dr. Fleisher may have specific suggestions if you have particular interests such as research. 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
- This is often a confusing topic for students as they begin to apply. You can fulfil the requirements of the first year (PGY1) by doing a Medicine-Preliminary, Surgery-Preliminary, or transitional year.
- 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.
- You have the option of doing an “advanced” or “categorical” Anesthesia program. “Advanced” program means that you find your own transitional/preliminary (prelim) year, after which you will join up with your Anesthesia residency training program. For example, you can do a transitional year at Crozer Hospital in Philly and then move to Chicago for three years of Anesthesia residency.
The other option is a “categorical” program, in which the PGY1 year is built into the Anesthesia residency curriculum. Penn is moving towards the categorical route so that the majority of residents do their PGY1 year in the Penn system. This can be a great opportunity to start to get to know your co-residents before your clinical anesthesia years.

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. Ann Pfeifer, the residency program coordinator, is really nice and can explain it to you.

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, and JoMo as the program director is quick to offer Penn students an interview.

**Application Process**

- 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 coalthologyncrete plans about applying in Anesthesia, you should make an appointment with Dr. Fleisher to develop a mentorship relationship with him as well.

**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. **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 August**

- 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 application
- Verify that letters of recommendation are submitted
Register for NRMP October to February
- Step 2: Most programs do not have specific requirements, but the school requires you to take the exams by December 31st
- Interviews

Interviews
- Schedule 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 question you’ll get is, “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 (“Do you have an opportunity to teach medical students?” “What research opportunities are available to residents?,” “What motivates you to come to work here every day?,” etc.).
- **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.
- 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: Michael McDonald (mdmcdonald34@gmail.com)
DERMATOLOGY

Original work by Camille Intracaso & Adam Lipworth. Updated most recently by Hovik Ashchyan, Kim Shao, and Nina Ran (2018).

In General
Very competitive specialty, but coming from Penn is an advantage since our faculty are very well-known and well-connected.

Electives
MUST DO DERMATOLOGY 300. An additional dermatology elective is strongly recommended to seek a letter of recommendation but not absolutely necessary.

- Dermatology 300: Broad introduction to dermatology, mostly shadowing different attendings every day. You should try to get a letter from your consult week attending (usually Dr. Rosenbach or Dr. Michelelli), 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 (Drs. Perman, McMahon, Yan, Jen, Castelo, Streicher, and of course Dr. Treat). You can independently see patients in clinic and consults at CHOP. 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. Many students get a letter from this 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 (e.g. 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 (e.g. 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 (e.g. Stanford, UCSF, Harvard, Vanderbilt, etc.). Some will actually interview you during your time on their rotation (e.g. Emory, Baylor). 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.

- Non-Dermatology electives
- Sub-Internship in Medicine: 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.
- Sub-Internship in Pediatrics: While a medicine sub-I is highly recommended for all Dermatology applicants, those interested in pediatric dermatology and a Pediatrics preliminary year can do a pediatric sub-I instead.
- Hematology/Oncology: HUP rotation offers exposure to interdisciplinary pigmented lesion clinic.
- Rheumatology: Great elective with lots of dermatology overlap.
- Infectious Disease: Great at any of the sites (especially Pennsy!). Dermatology and ID have a lot of overlap, so this is a great way to continue to get some dermatology exposure in an elective.
- Surgery (e.g. Plastic Surgery, ENT), Surgical Pathology, and pediatric subspecialties: Depending on interests within dermatology.
- Independent study/research months: 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 Dr. Victoria Werth (clinical and basic science/autoimmune diseases), Dr. Alain Rook or Dr. Ellen Kim (basic science/cutaneous T-cell lymphoma), and Dr. Leslie Castelo-Soccio (clinical pediatric dermatology).

**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: Dr. Werth, Dr. Rosenbach
- Basic science research: Dr. Rook, Dr. Seykora, Dr. Cotsarelis, Dr. Payne
- Epidemiology research: Dr. Gelfand, Dr. Margolis, Dr. Ming
- Teledermatology/global health: Dr. Kovarik
- Pediatric dermatology: Dr. Yan, Dr. Castelo
- Surgical Mohs: Dr. 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.)

The trend at Penn for most Dermatology applicants is to take a year out for research. A year out is almost always a huge help for your application. This is because you get publications, get to know the faculty, and also (this cannot be emphasized enough) get much stronger letters of recommendation. Letters are a VERY important part of your application. A year out pretty much guarantees that you will have much stronger letters as long as you work hard and are productive during your year out. Dermatology is a small field and everyone knows the Penn faculty, so strong letters from our faculty can be a huge asset to your application.

**USMLE Step 2**
During this past application cycle (2017-2018), only a few schools required Step 2 scores prior to ranking applicants (e.g. UCSF, Tufts, Cooper). The trend at Penn has been to delay Step 2 if you scored well on Step 1 (>250). 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.

The application
- ERAS opens on July 1. Applications are released to residency programs on September 15, but they can start being submitted a week 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! Harvard’s and UCSF’s deadlines were October 1, for example. A full list of Dermatology programs is available through FREIDA, but you will have to visit each program’s website to get specific due dates and any application requirements unique to the program (e.g. number of LORs, Step 2 requirements, etc.).
- 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 (i.e. 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-I or a departmental letter), so be sure to check specific program requirements.
- 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.).
- Watch out for programs that require special personal statements or additional questions (e.g. UT Southwestern, Mayo, Boston University, University of Connecticut, Indiana, and Utah). 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.

Scheduling interviews
- Most Dermatology programs send out interviews in November (around Thanksgiving), so try to RELAX! You may hear as late as Christmas. 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! 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!** Some programs will also call you to invite for an interview (i.e. Yale and UCSF), so pick up these calls since they schedule you for your interview during the call.

- **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!
- **Interview at as many programs as you can within reason, aiming for 12+ interviews.** See the NRMP’s “2016 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.

**The interview**

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.
- Be excited about the program. Enthusiasm is really important!
- Be excited about your plans within dermatology and have an idea of where you see yourself in 10 years with respect to your career.
- Be familiar with the faculty members (especially the PD and chairperson) and have good questions prepared for them.
- 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 Dr. Samimi and some of the Penn dermatology residents during which you will learn more about commonly asked questions).
- 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 sound like a robot…)
- 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!
- Try to take notes on the interview day about things that matter to you. It is whirlwind process, so it can be hard to recall later when you’re making your rank lists.

**After interviews**

- 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 don’t have to. Most programs rank applicants right after the interviews, so thank you notes probably make no difference in the end.
- 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.

- 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.

**Final thoughts**

Be wary of the infamous Student Doctor Network spreadsheet; it is crazy and often incredibly (and even intentionally at times) misleading. There have been many scenarios of people purposefully posting inaccurate/fake information. Derminterest.org is a much better 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’s a stressful and crazy process and we’re all willing to help. GOOD LUCK!

**Other resources**

- Desai, Samir and Katta, Rajani. The Successful Match: Getting into Dermatology. An interview with Dr. James (Penn Vice Chair and PD) [https://www.studentdoctor.net/2009/10/the-successful-match-getting-into-dermatology/](https://www.studentdoctor.net/2009/10/the-successful-match-getting-into-dermatology/)

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EMERGENCY MEDICINE

Original work by member of class of ‘07. Updated most recently by Mike MacGillivray, Michael Loesche, and Caitlin Azzo (2018). Reviewed by Dr. Kevin Scott (2018).

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 thefellows 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.
- Dr. Scott holds 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 aways. 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).

- 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.

- 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 good source of advice since they are heavily involved in the application process. The person you do research with can also be a great source of advice.

Letters of Recommendation

- Programs require 3 to 4 letters; send no more than 4 letters. Two of these 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 be able to do so accordingly. See the NRMP program director’s survey (page 31) for concrete information concerning this.
  - Home rotation SLOE/ED Departmental letter: A SLOE will be written based on your performance on your EM sub-I by Dr. Lee. Residency program leadership and the department chair will also review and sign your SLOE.
  - Away rotation SLOE: The place(s) you do an away rotation can each write you a SLOE. In fact, the programs to which you apply will expect a SLOE from your away site. This letter can be sent to every program you apply to (no bad politics here). Make sure to tell your sub-I director at your away at the beginning of the rotation that you are hoping for a SLOE.
- One additional letter from another EM physician or other faculty/rotations: If you have done research or worked closely with an individual EM physician, you should consider asking him/her for a letter. Alternatively, a letter from someone you worked with on your Medicine sub-I, ICU, Trauma, research, or really any elective rotation you do would work, as long as it is someone who knows you well enough to write a strong letter.
- It is generally better to submit 3 letters rather than 4 if the 4th letter doesn’t add anything different or substantive to your application.

Residency Programs

- There is no single 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/MGH, Northwestern.
- County: Typically high patient volume; lots of trauma, medically ill patients, infectious disease, and social issues. Ancillary services and teaching on off-service rotations may be lacking, more resident autonomy. Many of these programs have affiliations with universities, and there are plenty of academic county programs out there. Examples: Jacobi/Montefiore, Emory, Denver, Highland, UCLA-Harbor, Temple, BU/Boston Medical Center.
- Community: Less emphasis on research; typically does not have either the resources of a large university hospital or the exposure of a county hospital, but often provides the most experience with the ‘bread-and-butter’ patient complaints that comprise much of emergency medicine. Examples: York, Lehigh Valley, Christiana

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

Application process

Application

- Personal statement: The basics—why you chose EM, why you are well-suited for the specialty, your past experiences, and your future career goals. Keep it simple and direct. Get feedback from others—your EM adviser, Advisory Deans, EM faculty, friends, family, etc. Also the EM residents are willing to read personal statements and give feedback if you ask them early.
- Applications have increased in recent years and the specialty is getting more competitive. Applicants should have strong clinical performance and average to above-average board scores. Publications within the field are helpful but certainly not necessary.
- Penn students typically apply to a minimum of 20–25 programs. It may make sense for some students to apply to more if they have any weaknesses in their application or are applying to highly competitive programs. If you have any doubts about how many programs to apply to, ask Dr. Conlon or Dr. Scott to review your application.
- Aim to interview at 10–12 programs. Going on 10+ interviews results in a >95% chance of matching, and statistically there is not much benefit to going on more than 12 interviews unless you are couples matching.
Most programs do not care when you take Step 2, although some states require it earlier (e.g. California). Step 2 is generally not needed to obtain interviews if your Step 1 score is good, but check program websites or email program coordinators if you are unsure about specific programs’ policies. Some programs may not include applicants on certified rank lists if they have not posted a passing Step 2 score. This prevents programs from matching a student who failed Step 2 and is unable to start residency right away.

EM programs now require the Standardized Video Interview that must be submitted by late July. 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. Dr. Conlon is the best resource for gaining a better understanding of how these scores are being used in the residency application process.

**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/](http://www.uphs.upenn.edu/em/)) to learn more about faculty research interests. There are many opportunities for scholarly work in other areas of EM (ultrasound, education, toxicology, etc.). Start this process early—finding a mentor and getting scholarly pursuits/other projects up and running can take a while!
● 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: Mike MacGillivray (michael.macgillivray@uphs.upenn.edu), Michael Loesche (loesche@pennmedicine.upenn.edu), Caitlin Azzo (caitlin.k.azzo@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.
  ○ Both Penn Family Care and Lancaster are great experiences 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. Rahul Kapur, 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 just after finishing an elective (or on the last day) and remind them mid-to-late summer if needed.

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 Washington/GroupHealth, 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, and of course, Penn.

- In general, goodness of fit with the program is more important than opposed vs. unopposed.

University vs. community

- 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, 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 abortion 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/GroupHealth, 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)

- 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 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: [http://depts.washington.edu/fammed/education/programs/advising/apply/assess/competitiveness](http://depts.washington.edu/fammed/education/programs/advising/apply/assess/competitiveness)
- 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.).
• The number of interviews you schedule depends on how certain you are about what you are looking for. Aim for about 8 to 12. It is worth it to go on a few extra interviews to truly get a sense of what type of program you want.

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

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

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

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

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 does not seem necessary for Dr. Morris to make an advocacy call, though you could have a faculty member in Family Medicine call for you if you would like.

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 (aj527@gmail.com), Roseann Day (roseannday@gmail.com), Harrison Kalodimos (hkalodimos@gmail.com)
● Obstetrics and Women’s Health in Family Medicine: Allie Johnson (aj527@gmail.com), Lauren Nadler (laurenenedler1@gmail.com), Emily Brown (embrow13@gmail.com)
● Family Medicine for Global Health: Joanna Stephans (joannapstephens@gmail.com)
● Family Medicine and Public Health: Jessica Zha (jamjes@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. 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)
  ○ 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 or September) sub-I. For August sub-Is, Dr. 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-Is 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 is 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.
  ○ 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; some locations (as of 2017, the VA and Presby) have overnight calls while others do not. This is subject to change and really will not drastically change your experience. People have enjoyed sub-Is at all of 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 encourages 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. 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 Dr. 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. Most students really enjoy the ICU, and you can get a lot out of it no matter when 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 another elective that could be done post-interviews, just for the experience. 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 very closely with fellows and attendings. Ask other students for their thoughts on electives since sites can be variable. (Our favorites: Gastroenterology at HUP, Nephrology at HUP/Presby, Infectious Disease at HUP/Pennsy, Pulmonary Disease at HUP/VA, Cardiology at Presby/HUP, Hematology/Oncolongy 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, you are required to do a prerequisite that can be a consult elective month before your sub-I; see here for more details: [http://www.med.upenn.edu/student/faq.html](http://www.med.upenn.edu/student/faq.html). 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 EKG elective is also a great, low-key way to gain some more comfort reading EKGs.

- **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 or recommended for medicine. However, there may be extenuating circumstances that might warrant an away rotation, so anyone considering an away should meet with Dr. 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, and the September/October block will require scheduling interviews from abroad. 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. 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 as you want, but can only submit 3 to 4 (really only 3 that you solicit yourself, because the Department letter counts as one).
- You should try to have a 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 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 strong letter..."). Follow up afterwards with an email that contains your personal statement, CV, and the letter upload request from ERAS (this request can also be 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 October 1 (preferably earlier by early-mid September), which is when the Medical Student Performance Evaluation (MSPE a.k.a. Dean’s Letter) is released, 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 now 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!

**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 or Hamilton suggest meeting with you in the spring rather than waiting till 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 students traditionally match at highly-regarded programs, definitely look beyond only the "best ranked" programs. You never know which programs will surprise you on the interview day—do not get attached to a single "dream" program this early in the game!
● 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.
● 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 wide net at the outset and be more selective later on. 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 now 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; 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), though some students do submit later (ideally still before October 1, when the MSPE is released). You are able to—and should—release your ERAS application even if all your letters of recommendation are not yet uploaded! In fact, your Department letter probably will not be ready until very late 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 you 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 2017–2018 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. 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, 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).

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.

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.

Some people find it useful to have one or two “warm-up” interviews in October or November at places lower on their list, then do the programs they are really interested in later on in the season. 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, Dr. Kogan recommends 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. Other great resources are current Penn fellows who have come from outside residency programs that you may be interested in.
- 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 (no jeans), 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.
- 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.
- 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.
- 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 interview. Programs tend to blend together after the first few, and even though you think you will never forget certain details about this specific program, it becomes tricky after 10 or so interviews!
- Thank-you notes are not necessary and some programs will tell you their post-interview communication policies on interview day (some will actively discourage you from sending emails). Increasingly, in Internal Medicine, programs are adopting a policy of not reaching out to applicants following the interview. However, you should always feel free to reach out to them if you have any questions—see below for more information on this. Some students still err on the side of sending thank you notes; if you do, email is preferred. Do not feel pressure to send these, however, as many students do not. Drs. Kogan and Hamilton will tell you that thank you notes typically end up in the trashcan (real or virtual).

After interviews

- You get to tell ONE program that they are your number 1. It is NOT required that you do this, but the general feeling is that it can only help (assuming you are being honest). Not sending an email telling a program you are ranking them #1 does NOT mean you have less of a chance of matching there. Do not do this until you are absolutely certain. 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. The ideal time for this sort of advocacy is at end of January or beginning of February, 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, and 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.

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

To apply for fast track, if it is on ERAS as an option, check the box. If it is not, your application should make it implicit that you interested in a research-oriented career. (Of note, not all ABIM pathway residents actually “fast-track,” but it is rather an indicator of a desired career outcome. You can be in the research pathway in some places and still do three years of Internal Medicine). No one forces you to enter fellowship after two years; it’s an ongoing discussion between you and the program.
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 generally not felt to be 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 list potential people at their institution that you are interested in meeting. Either as researchers in your field of interest or labs that you may want to join. In some 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, some people are more broad 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 (Penn, 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 have to “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 zillions of categorical track applicants. Some places will reach out to you about re-visits to meet with labs and principal investigators. Do it for you; if you need more exposure, go back. If not, do not. Always respond to these emails. Again, every program has different protocols and ways of handling its research applicants.

This is a fantastic pathway and the interview trail is really great.

Questions
- Categorical track: Nora Chen (nora.chen108@gmail.com)
- Primary care track: Jessica Zuo (jessicaxzuo@gmail.com), Anne Duckles (anne.duckles@gmail.com)
MED-PEDS

(Combined Internal Medicine-Pediatrics Residency)

Why Med-Peds?
- Consider Med/Peds if you are excited about incorporating elements of both IM and Peds into your future career. Med/Peds offers a lot of variety between caring for kids and adults (different types of patient interactions, disease processes, and patient complexity), and even more diverse career tracks than those possible in IM and Peds separately.
- Some examples of career tracks for Med-Peds physicians include:
  - Primary care
  - Global health
  - Underserved medicine (broad training for communities in low-resource settings)
  - Adolescent medicine
  - Hospitalist medicine
  - Transitional care (for patients with congenital or chronic conditions, e.g. congenital heart disease, cystic fibrosis, inflammatory bowel disease, Down syndrome, sickle cell, survivors of childhood cancer)
  - Subspecialty care (combined fellowships are expanding in fields where adult and pediatric training is useful, e.g. rheumatology, allergy/immunology, endocrine, HIV/infectious disease, GI, nephrology, hematlogy/oncology)
  - Other interesting career paths (e.g. child and elder abuse, primary care for ex-premies, teaching, advocacy, policy, public health, research)
- One important reason NOT to do Med-Peds: You do not particularly love or hate either field, or you could not decide between the two, so you decide to do them both.

What is the difference between Med-Peds and Family Medicine?
- Due to more inpatient and ICU time, Med-Peds residencies have more in-depth training in Internal Medicine and Pediatrics, and all fellowships for both categorical programs are open to Med-Peds residents.
- Family Medicine offers a greater breadth of training, including Surgery and OB/GYN, and has some different fellowship opportunities.
- 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. There are also combined fellowships available in ID, rheumatology, endocrine, pulmonology, critical care, allergy/immunology, GI, and nephrology.
- Generally, residents arrange combined fellowships with institutions on an individual basis, although some hospitals have already established fellowships (e.g. Brown has a combined ID fellowship which is four years, instead of the six 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 two years total in each specialty. There is (usually) one intern year, two years as a junior resident, and one year as a senior resident. How can you do this? First of all, there is a lot of overlapping pathophysiology between Internal Medicine and Pediatrics; your
knowledge in one enhances your understanding of the other. You have fewer electives than your
categorical colleagues as a Med-Peds resident, but you also escape some of the low-yield rotations they
might suffer through. The American Board of Internal Medicine and American Board of Pediatrics recently
revised the guidelines for Med-Peds programs so the content of training is very uniform across different
programs now. You switch between the two specialties every 3–4 months at most residencies, so you
don’t feel rusty in any one area. (At some programs, your first switch takes place after a month or two, so
you are exposed to the steep learning curves of both specialties’ internship early on, and so you don’t
miss out on early categorical intern bonding). Also, most programs have a combined Med/Peds continuity
clinic so that you see children and adults in the same clinic day.

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)
- Laura Robinson, Sheila Quinn, Nikki Jaffe: Core faculty, primary care education

Rotations
Required
- Sub-Internship in Medicine
- Sub-Internship in Pediatrics
Suggested
- Reasons to take electives
  - Help decide your career path/which residency to apply to
  - Experiences to talk about in your personal statement/interviews
  - Letters of recommendation
  - Career interests/goals
- Examples of electives that may be of particular interest to med-peds
  - Global health elective
  - An outpatient elective in Medicine, Pediatrics, or Family Medicine
  - Away elective in a Med-Peds continuity clinic
  - Global health
  - Adolescent medicine
- 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 PD role to general advising for students
interested in Med-Peds. She may be able to point you in the direction of faculty with similar
interests.
- The faculty are great and easily accessible. See the list at the end of this section.
- The Med-Peds Chief Resident is also a great resource and would love to hear from students
  interested in Med-Peds. The Chief for 2018–2019 will be Emily Watkins.

Letters of recommendation
- A departmental letter from Internal Medicine
- A departmental letter from Pediatrics
- Two faculty letters, from either department, from people who know you well and can speak to
  your clinical skills

Residency programs
Med-Peds programs are ranked on Doximity. However, the general consensus among Med-Peds faculty
encountered on the interview trail is that Med-Peds programs are small, unique niches within their larger
institutions and can be strong in ways that categorical programs at the same institution may or may not be, and so 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. There are more programs in the Northeast, Southeast, and Midwest.
- **Many long-established, strong programs are not at centers you might have thought about as stereotypically prestigious (e.g. University of Rochester, UNC, University Cincinnati, Bay State).** Ask Med-Peds residents and faculty about this.
- **Setting:** Do you see yourself in an academic/university or community/private practice setting? Nearly all Med/Peds programs are at large, well-respected academic centers.
- **Strength of categorical components:** Is one categorical side significantly weaker than the other? Consult faculty advisors on the Internal Medicine and Pediatrics sides 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.
- **Continuity clinic:** Most programs consider a combined Med-Peds clinic to be the status quo. Some have separate clinics, and some transition from separate clinics to combined clinics in the latter two years of the residency. Separate clinics ensure 50/50 division between adult and pediatrics patients, and combined clinics do their best to achieve that balance (ACGME requirements will make it such that no clinic experience can be too far off). If you are planning to do primary care in the future, a combined clinic may provide an example practice model. Programs with combined clinics have usually set them up specifically for their residency program, so they show some level of dedication to your ambulatory training experience, as well as enough Med-Peds faculty to precept residents in clinic.
- **Age of program:** Some programs are relatively new (UT Southwestern matched its first class in 2016), while others have been around for decades. Do you want to be at a well-established program with a strong Med-Peds identity? Or be at a newer program where you may have more influence on the direction of the program, but risk experiencing growing pains of the program first hand?
- **Internship length:** Most programs have 12-month internships, but some extend this to 16-month internships (i.e. 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 Cincinnati, UCLA, UCSD, Maryland, University of Chicago
  - Transitional care: Penn, UCLA, Brown, Baylor, Harvard, University of Michigan, University of Cincinnati
  - Adolescent medicine: Penn, Harvard, Baylor, University of Pittsburgh, Hopkins, USC (Children’s Hospital of Los Angeles)
  - Subspecialty care (i.e. adult congenital): Penn, Harvard, UCLA, Duke, Baylor, University of Cincinnati (think large, academic centers)

**Application process**

*ERAS application*
- Apply directly to combined Med-Peds programs (not separately to Medicine and Peds programs) through ERAS. These programs are also listed in FREIDA. There are currently 79 programs.
- How competitive is Med-Peds?
  - Med-Peds is about as competitive as Medicine, and more competitive than Pediatrics. In recent years, numbers of Med-Peds applicants have been increasing. While it used to be true that there were more Med-Peds spots than U.S. seniors applying in Med-Peds, this is no longer the case.
- 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 (the Penn program director) 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. There are fewer Med-Peds residencies on the West Coast where Family Medicine programs are more well-established. For instance, there are no Med-Peds residency programs in northern California, Oregon, or Washington.
- 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).
- Some programs have a one-day interview, while others 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 why you chose Med-Peds (have a better answer than “I liked both”).
- 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 fascinating 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/emphases of the 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): 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.
• Penn/CHOP’s Med-Peds program (started 2004) can be found at http://www.uphs.upenn.edu/internal-medicine-residency/our_program/tracks_med_peds.html

Med/Peds-trained faculty at Penn/CHOP
• Dava Szalda (Program Director at Penn, pediatric hematology/oncology and cancer survivorship, 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
• Yuli Kim (Internal Medicine trained, director of adult congenital heart disease)
• Emily Ruckdeschel (adult congenital heart disease) ruckdesche@email.chop.edu
• Ben D’Souza (adult cardiology at Penn, Med-Peds mentor)
• Thomas Conlon (CHOP PICU, Med-Peds mentor)
• Shreya Kangovi (Director of Penn Center for Community Health Workers, adult primary care, health disparities research) shreya.kangovi@uphs.upenn.edu
• Alexandra Vinograd (pediatric emergency medicine at CHOP, global health, Med-Peds mentor) vinograda@email.chop.edu
• Jennifer Heimall (allergy/immunology at CHOP)
• Laura Dingfield (adult palliative care at Penn, Med-Peds mentor)
• Carol Ford (adolescent medicine Division Chief at CHOP): fordc@gmail.chop.edu
• Jennifer Chuang (adolescent medicine at CHOP)
• Roy Kim (pediatric endocrinology at CHOP): kimr@email.chop.edu
• Carol McLaughlin (adult ID at the VA): carolmc@upenn.edu
• Phillip Green (adult ID at Penn): pagreen@mail.med.upenn.edu
• Meeta Prasad (adult critical care at Penn): prasadm@uphs.upenn.edu
• Chadwick Johr (adult rheumatology at Penn): chadwick.johr@uphs.upenn.edu

Recent Penn Med grads that have gone into Med/Peds (Penn grad year in parentheses, followed by residency location):
• 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
• 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: Catherine Mezzacappa (catherine.mezzacappa@gmail.com)
NEUROLOGY

Original work by Brian Edlow. Updated most recently by Eva Klinman and Denise Xu (2018). Reviewed by Dr. Amy Pruitt (2018).

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 will return as an elective in July and is likely to 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 programs that are technically advanced programs will guarantee a Medicine internship year at their institution if you rank their prelim program (e.g. NYU, Hopkins). 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.

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.
- 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 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, Harvard Partners (Brigham and Women’s and MGH), Harvard Beth Israel, Hopkins, Columbia, WashU, Stanford, NYU, Cornell, Yale.
- For MD/PhDs: Research programs to ensure they have R25 funding or something similar. R25 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. UCSF, Penn, and Hopkins promote their R25 and support research training. Beth Israel is working towards stronger research. Wash U has probably the strongest research support and most lenient clinical schedule. 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.
- 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-I grades, personal statement, CV, etc.).
- Verify that letters of recommendation are in

**September through November**

- Take Step 2 CK/CS (preferably by mid-November). 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 (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: Eva Klinman (eklinman@gmail.com) and Denise Xu (dxu489@gmail.com)
NEUROSURGERY

Original work by David Krieger, Ryan Grant, and Brandon Gabel. Most recently updated by Arka Mallela and Alex Suarez (2018).

- Neurosurgery is NRMP match and the intern year is included in the residency. All Residencies are now 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 surgery services, practice tying and suturing beforehand. If you can demonstrate facility with easier procedures, the residents will let you do more.

Required
- Neurosurgery sub-internship at HUP
- Neurosurgery away sub-internship: 1 or 2. More is not recommended
  - Penn’s schedule gives you the advantage of being able to do away Sub-Is early in the year. Highly recommended to avoid competition from other students and get letters early. Also, rotating before June means you get to work with outgoing chiefs and PGY2’s, which usually means that you are more involved. Start thinking about them in March and looking in April or May. You can find most of the information on the hospital’s neurosurgery website (i.e. google Hopkins neurosurgery away rotation/visiting student) but you can also call/e-mail residency program coordinators or their secretaries, not the registrar! You definitely need to know and fulfill the registrar requirements, but the way to get in is through the department. Not all programs use VSAS (the away rotation online service), but some do.
  - Where? Think about geography, where you might want to go for residency, and whom (specifically which chairmen) you would like to receive recommendations from. On the interview trail, people will commonly ask why you chose to rotate at those specific programs. If you are geographically flexible, consider demonstrating this by your away Sub-I choice(s). Ex. 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 just have a rationale in mind if you get asked why you would want to relocate for residency during interviews. Also consider the program type (heavy clinical vs. heavy academic) when making your choices. ASK THE RESIDENTS! They’ve been through it and know if their friends at other programs are actually enjoying it.
  - Other factors to consider – 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 it is worthwhile to diversify and do sub-Is at programs with different vibes. If your sub-Is are too similar (say two academic-heavy programs), you may be somewhat pigeonholed 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. Some programs tend to Match students who do an Away rotation with them so be aware of that.
  - Where have students gone recently? Johns Hopkins, Columbia, MGH, Barrow, Michigan, Iowa, Stanford, NYU, Pittsburgh, UCSF, UCLA, Miami, UWash - Seattle, Mayo.

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Will it help me to match? 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 reliability than other applicants who are only there for the interview. Honestly, it can sometimes mean more than your resume if you make a good impression.

Programs to consider out west? The following programs have Penn alums as residents or attendings - U Washington- Seattle, Stanford, UCSF (Penn Alum), USC, UCLA (Penn Alum), Barrow, and UCSD (Penn alum)

Mid-West or the South? Duke, U Michigan, Mayo, Emory, Vanderbilt (Penn alum), Cleveland Clinic, Iowa, Washington U in St. Louis, Ohio State, U Florida, Miami, Northwestern

North-East? Dartmouth (Penn alum), Columbia, Cornell (Penn alum), NYU (Penn alum), Yale (Penn alum), Hopkins, MGH (Penn alum), Brigham, Rochester (Penn alum), Penn State Hershey (Penn alum), Pitt (Penn alum), Mount Sinai

These electives should be done before October so that you can get recommendations from them, but try to 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 aways 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. You should also do this during your Penn Sub-I with Dr. Grady.

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 2011 matched applicant was 239). Many programs have a cut off during the first round of applications before offering interviews, but once you get an interview it is sort of like the playing fields level out. It is very rare that a program requires Step 2 (mean score for matched applicant in 2011 was 241) before rank lists are due, but more are starting to (be sure to ask). If you did well on Step 1 there isn’t any 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. Neurosurgery is a small community. Getting a strong letter from a well known, senior neurosurgeon can go a long way, or really any neurosurgeon who can write you a letter that is not "cookie cutter" and who knows you well will stand out.

(4) Grades, AOA helps but definitely not a necessity. Only 25.3% of applicants who matched in 2011 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
- Approximately 105 in the country, 201 positions in 2015 match. (81% matched in 2015)
- 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 goals are (attending at academic institution—you should say this regardless at your interviews—or private practice). 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.
- Most programs have 2–3 residents per year (range 1–4/yr; Penn is 3/year)
- If matching at Penn is a priority then you should attend as many Thursday conferences 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 come residency decisions. 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 10–15, unless you have a special situation (couples matching, strong geographic preferences)

Interviews
- To be safe, interview at about 10–15 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 17 programs in 2015 resulted in a greater than 90% match, but 10–15 is a good range.
- You will meet people on the trail interviewing at far more (25+) without particular reason. In general, we recommend against this. Interviews are already time-consuming, tiring, and expensive, and interviewing at that many programs does not confer any real advantage (and you may in fact hurt yourself now and in the future if you interview poorly).
The vast majority of interviews are benign. You will get the normal "why neurosurgery" question, strengths and weakness 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 ie. 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.

Afterwards follow up with programs you plan to rank highly. 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 will fall on both rank lists and may not match.

You can send thank yous 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!

You can consider doing second looks but these are by no means necessary (at most places, few exceptions e.g. Pitt). Only do them at programs that you did NOT rotate 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 ~7 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.

Questions: Mike Spadola (mspadola@gmail.com) | Arka Mallela (amallela15@gmail.com) | Alex Suarez (alexanderdanielsuarez@gmail.com)
Electives

Required

- Away rotations are NOT recommended for OB/GYN especially since we have all the subspecialties available here. Away rotations are like a one-month interview and you could be exposing yourself to unnecessary risk by choosing this option.
- Take at least one elective (preferably 2) in OB/GYN. At least one elective should be taken at HUP. Most programs expect you to do either Maternal Fetal Medicine or Gynecologic Oncology at HUP as your OB/GYN “sub-internship.”
- 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 clinics, and a little bit on labor & delivery. There is one 24-hour call each week. 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 in OB/GYN. If you do this rotation, Dr. Wang expects to write a letter for you.
  - Gyn Onc: Long hours, but great experience, and expectations are reasonable. Great surgical exposure and you work closely with a lot of the residents on the service.
  - Gynecologic Urology: 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. 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: 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 with 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.
- Pennsylvania Hospital 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 the two urogyn attendings (Dr. Pam Levin and Dr. Heidi Harvie) that operate at Pennsy for two weeks and then spend two weeks on the Gyn Onc service. 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 since you work with so many different surgeons. 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

- Most students will take the Sub-Internship in Medicine (strongly recommended) although a Family Medicine sub-I will also qualify. You should 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!
- Any Medicine elective (ID was mentioned by a number of faculty as recommended, Endocrinology was also 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)
- Emergency Medicine
- SICU
- Breast Surgery: This is in the general surgery department, but Dr. Julia Tchou is an incredible surgeon, who will give you LOTS of hands-on training with very concrete feedback for your technical skills. Highly recommend.

Letters of recommendation

- Polish CV, work on Personal Statement (start working on this now!!).
- 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 letter).
  - At least 1 from an OB/GYN (other than the one Dr. Driscoll writes).
  - At least 1 should be from 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.
- 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 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 a with Dr. Driscoll through Sharon McDermott (SMcDermott@obgyn.upenn.edu) in early spring!**

- 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.

- If you were matched up with someone that does not share your same perspective/interests it is okay to talk with someone else on the faculty. If you do not vibe with the person with whom you have been meeting, then consider talking to someone that 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 they are usually eager to have medical students involved. For residency applications, research is 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. The Family Planning division and the REI division both do a lot of research (as do all the others!).

- 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.

### 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/)

- **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 the level of competition for residency seats. Consider discussing your program list with folks 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.

- These are just the most recent local people, ask Dr. Driscoll about where people have gone in the recent past!
  - Here is the list of Penn grads who are currently residents:
<table>
<thead>
<tr>
<th>Last Name</th>
<th>First Name</th>
<th>Institution Name</th>
<th>Match Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clyatt</td>
<td>Kylee</td>
<td>Temple Univ Hosp-PA</td>
<td>2017</td>
</tr>
<tr>
<td>Irizarry</td>
<td>Olga Corazon</td>
<td>Hosp of the Univ of PA</td>
<td>2017</td>
</tr>
<tr>
<td>Jeffers</td>
<td>Shanaye</td>
<td>Thomas Jefferson Univ-PA</td>
<td>2017</td>
</tr>
<tr>
<td>Lee</td>
<td>Iris</td>
<td>Hosp of the Univ of PA</td>
<td>2017</td>
</tr>
<tr>
<td>Schwartz</td>
<td>Rebecca</td>
<td>UC San Francisco-CA</td>
<td>2017</td>
</tr>
<tr>
<td>Huepenbecker</td>
<td>Sarah</td>
<td>Barnes-Jewish Hosp-MO</td>
<td>2016</td>
</tr>
<tr>
<td>Shapiro</td>
<td>Maren</td>
<td>Brigham &amp; Womens Hosp/MGH-MA</td>
<td>2016</td>
</tr>
<tr>
<td>Weinblatt</td>
<td>Rachel</td>
<td>Barnes-Jewish Hosp-MO</td>
<td>2016</td>
</tr>
<tr>
<td>Aparicio</td>
<td>Juan</td>
<td>Northwestern McGaw/NMH/VA-IL</td>
<td>2015</td>
</tr>
<tr>
<td>Barberio</td>
<td>Andrea</td>
<td>NYP Hosp-Weill Cornell Med Ctr-NY</td>
<td>2015</td>
</tr>
<tr>
<td>Butz</td>
<td>Anh</td>
<td>Riverside Reg Med Ctr-VA</td>
<td>2015</td>
</tr>
<tr>
<td>Cavens</td>
<td>Arjeme</td>
<td>Northwestern McGaw/NMH/VA-IL</td>
<td>2015</td>
</tr>
<tr>
<td>Miller</td>
<td>Carrie</td>
<td>Hosp of the Univ of PA</td>
<td>2015</td>
</tr>
<tr>
<td>Onwuzurike</td>
<td>Chiamaka</td>
<td>Northwestern McGaw/NMH/VA-IL</td>
<td>2015</td>
</tr>
<tr>
<td>Snider</td>
<td>Malorie</td>
<td>Johns Hopkins Hosp-MD</td>
<td>2015</td>
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<tr>
<td>Degaiffier</td>
<td>Nathalie</td>
<td>Thomas Jefferson Univ-PA</td>
<td>2014</td>
</tr>
<tr>
<td>Fisher</td>
<td>Andrew</td>
<td>Barnes-Jewish Hosp-MO</td>
<td>2014</td>
</tr>
<tr>
<td>Gilstrop</td>
<td>Marisa</td>
<td>Christiana Care-DE</td>
<td>2014</td>
</tr>
<tr>
<td>Holder</td>
<td>Sevelle</td>
<td>Hosp of the Univ of PA</td>
<td>2014</td>
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<tr>
<td>Insogna</td>
<td>Iris</td>
<td>Brigham &amp; Womens Hosp-MA</td>
<td>2014</td>
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<tr>
<td>Limaye</td>
<td>Meghana</td>
<td>Einstein/Montefiore Med Ctr-NY</td>
<td>2014</td>
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<tr>
<td>Penn</td>
<td>Courtney</td>
<td>U Michigan Hosps-Ann Arbor</td>
<td>2014</td>
</tr>
<tr>
<td>Traylor</td>
<td>Jessica</td>
<td>Hosp of the Univ of PA</td>
<td>2014</td>
</tr>
<tr>
<td>Vance</td>
<td>Ashley</td>
<td>UC San Francisco-CA</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 is somewhat 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 (e.g. 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.

Applying Timeline

March to June
• Meet with Dr. Driscoll! Email Dr. Driscoll directly or Sharon McDermott
• Meet with mentor
• 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
• 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)

June, July, August
• Schedule Medical Student Performance Evaluation (MSPE a.k.a. Dean’s Letter) meeting with JoMo
• Schedule Chair Letter meeting with Dr. Driscoll (it is helpful to have your personal statement done before then, but not necessary, so she can read it when she writes your letter)
• Write MSPE Unique Characteristics paragraphs
• Start ERAS application

September & October
• Complete application and submit
  ○ Apply as early as possible, ideally by September 15 when ERAS applications are released to residency programs. Most places start offering interviews before the MSPE is out. These spaces will fill up! Also, if you wait until the last minute, programs can tell that you are not that interested and might not offer an interview.
  ○ Verify letters of recommendation are in on ERAS.
• Register for NRMP
• Check status of applications at every program through ERAS (make sure you send scores, essay, 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 there are usually a few dates in January.
October to February

- MSPE mailed: Make sure you read and edit it before it is sent out (Office of Student Affairs will send this to you). Mistakes are made, so read it carefully.
- Interviews
  - November and December are the big interview months in OB/GYN with some programs offering a few dates in October and January
  - Schedule as soon as you get an invitation to interview (competitive programs in particular offer more interviews than they actually have for spots, so you need to respond as soon as you possible can). Be prepared to check your email frequently during interview season.
  - Most 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. Brigham 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 though, and gives you more to talk about at your interview
  - 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 freak out 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 or Dr. Driscoll will call on your behalf.
- 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 in 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.
- Also don’t forget to take Step 2 CK and CS
- More and more OB/GYN programs are asking for your score prior to submitting their rank list so be prepared!

Questions:
Joey Bahng (jtbahng@gmail.com), Christine Blauvelt (cablauvelt@gmail.com), Camille McCallister (camillejmcc@gmail.com)
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.

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/Oculoplastics or Pediatric Oculoplastics: Your choice (one of the three)
  - 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.
  - Neuro-ophthalmology/Oculoplastics: Dr. Sonul Mehta leads up the rotation, but you work extensively with Drs. Tamhankar and Briceno. You will spend about 60% of time in clinic and 40% in the OR, with most of the OR time coming from plastics. Your time is split roughly 50/50 between neuro-op and oculoplastics. In clinic, you will see patients both independently (Tamhankar/Briceno) and shadowing (Mehta). In the OR, your responsibilities vary wildly depending on the attending, with Briceno giving you the most to do and Tamhankar not allowing you to scrub in. You have no presentations to give, but have the potential to receive two LORs, one from neuro-op and one from one of the oculoplastics attendings.
- 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 advisor.
- Resources: A 2018 applicant made a website www.pre-ophtho.com, which lists good resources for students to use during electives.

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 aways.

**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 Dunaief is a great investigator to get in touch with (jdunaief@pennmedicine.upenn.edu).

**Mentorship**

- Dr. Sankar is very approachable and loves teaching and helping medical students through this process. He should be the first person that you contact with your interest and use as a resource in this process. His goal is to be the central mentor to each applicant and truly has the best interest of medical students at heart. He will 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 Dunaief is very approachable and one of the most caring mentors and faculty members in the department. He is a professor of ophthalmology who specializes in iron-related retinal diseases. He also is very well connected to other 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, cush 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 MSTP 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 ophtho 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 date 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 ophtho elective, preferably two (Oph 300 and an elective)

• Meet with Dr. Sankar to form a plan

• Start work on personal statement, update CV, gather LORs

• Plan scholarly pursuit so that it can appear on your application

• Consider setting up an away rotation (see above)

• 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)!
• 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: Julia Hudson (Julia.hudson116@gmail.com), Rupak Bhuyan (bhuyanr@pennmedicine.upenn.edu)
Electives

- Home orthopedic rotations: Do one or two at Penn in whatever Orthopedic fields interest you. However, it is strongly recommended to do 2, because (1) your chairman letters draws 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 and Dr. Mehta, who are well-known nationally and important players in the residency program. On adult reconstruction, you will get face time with the program director, Dr. Israelite. Some Penn students have in the past squeezed in a rotation with the chairman, Dr. Levin, but this is not required (he has dedicated residents and fellows, and the service does a lot of flaps); do not feel like this is something you have to do. Further, it was not offered in 2017 and likely will not be offered going forward. 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/longest 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: Sports medicine with Dr. Kapur 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.

- Away electives: Two are recommended, but many 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 perhaps 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. Although 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. 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.

- 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 and April are generally good times to reach out. In the past, most programs used the Visiting Students Application Service (VSAS) through the AAMC to handle away scheduling. HOWEVER, as of January 22, 2018, this process will be 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.

- 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.

### 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.

- 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.

- When requesting a letter, you may email or give your letter-writer a packet with the following:
  - Cover/thank you letter
  - Current CV
  - Personal statement
  - AAMC Letter Request Forms (2—one for letter alone and one for letter plus supplemental form—make sure you specify which is which) including upload instructions
  - Some places (i.e. Vanderbilt, Brown, Wash U, University of Washington, Yale, Mt. Sinai, Dell-UT Austin) require the CORD/AOA supplemental evaluation form so have them ready and explain to letter writers the need to upload two separate files to ERAS—1) letter alone, 2. letter + supplemental—you do not want to have to send the supplemental form to programs that don’t require it
  - 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.
- Step 2 CK is not needed for applications, unless your Step 1 score needs improvement. Lately, a few programs (specifically, those in Northern California, Duke, Northwestern, and Michigan) have mandated that you have your Step 2 CK and CS passed by the time they make their rank list (early February), so it would be a good idea to have that completed by New Years as January is a BUSY month with interviews (check the NBME reporting schedule as sometimes score reporting can be delayed). Penn requires you to take both CS and CK before December 31, so this should no longer be an issue. Many past students have taken it in November/December and none mentioned any difficulty balancing early interviews and studying.
- Personal statement is not a big issue in orthopedic applications. Better to be safe and vanilla than risk standing out too much.
- AOA is not necessary but definitely helpful; this is mainly due to the fact that you are at Penn.
- You should definitely have at least one research project, but more are encouraged because many places will specifically ask you about your research. Try to organize your scholarly pursuit around this time as you can have a project going during the interview season to talk about in great detail, which will impress at a lot of programs. Having publications in any field should be listed and is sufficient; having orthopaedic publications is a bonus.
- Some programs will have special requirements (NYU and OHSU want unique personal statements; UCLA wants MCAT scores, Iowa requires a separate paragraph of interest). Again, review the programs’ websites and make a spreadsheet to keep track of the requirements.
- If you have a connection to a region that is otherwise not apparent in your application (e.g., family ties), some students have emailed the program coordinator and/or program director highlighting this information. This may or may not change whether you are offered an interview but it is unlikely to hurt.
Consider location, size, culture, fellowship placement, operative experience, and research opportunities. It is definitely not necessary to go to “best ranked” program to be well trained and get great fellowship/job opportunities.

Statistics/reputation/word-of-mouth are NOT a substitute for rotating and seeing for yourself.

Do NOT believe anything you read online (e.g. orthogate.com) about programs unless you have verified it from another source. Believe what you see on an away over what people outside a program say.

Ask mentors and/or residents to look over your list, as it can be hard to know much about programs at this stage.

Most programs have interview/rank preferences for people who rotated there (e.g. NYU). It is hard to know about every program and their nuances, but asking around definitely helps.

Remember there are many different types and sizes of Orthopaedic programs, pick what is best for you.

Some programs (including Penn) offer special 6-year tracks for research minded residents. You have to choose to apply to these (should see option to apply to “6-year research” or “5-year categorical” on ERAS). You can apply to both or just one if you aren’t interested in a research year.

Timeline

Applications should be completed and submitted as soon as possible after ERAS opens (this means submit by September 15 or whatever the opening date is that year). In 2017, 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 before this.

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).

This has become more important than in previous years with so many people having smartphones. If you have a smart phone, place your email retrieval on PUSH. If you do not have a smart phone, GET ONE as this can be the difference between having 10–12 versus 13–15 interviews. When you have to be away, assign somebody else to be on email 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 Orthogate 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, if you choose to do so.** 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, Dr. Mehta

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

Questions: Chris DeFrancesco (chris.defrancesco@gmail.com), Tiffany Liu (liu.tiffanyc@gmail.com), Drake LeBrun (drake.lebrun@gmail.com), Ariana Lott (ariana.lott@gmail.com), Greg Pereira (Gregory.Pereira@uphs.upenn.edu), Hiren Patel (hiren.patel@uphs.upenn.edu), Victor Qi (victor.qi@uphs.upenn.edu)
Penn Electives
- MUST take OTO300A (HUP)
  - Have to write a paper to receive “Honors”; this could be a literature review on a topic of interest or original research you did in the department. Discuss topic with Dr. Douglas Bigelow.
  - 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 calls on Friday so your post-call day falls on Saturday.
  - Most 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.
  - 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 of 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; can get very busy, especially because the team is smaller than HUP—great opportunity to shine. Generally more chill than the HUP rotation but has become more involved in recent years. 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. FYI, assistant-PD is attending here (Dr. Kearney). Can be a good rotation to do prior to the HUP rotation to be a bit more prepared, but previous applicants have been successful doing the rotations in any order.
  - VA (OTO300B): Same as Pennsy, but probably 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.
  - 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.
○ Plastic Surgery: Great hands on OR experience. Dr. Low is great and sets his sub-I up as a preceptorship model with less emphasis on inpatient care and more on OR skills; as is Dr. Serletti and Dr. Bartlett (craniofacial at CHOP).
○ Others: General Surgery (EOS with Fraker), Anesthesia, Neuroradiology (try to spend time with Dr. Loevner, 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 invaluable.
○ 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. Not listed in the course catalogue, so if interested contact Dr. Curci directly and he will sign you up.
● 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.
  ○ 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
  ○ Cummings Otolaryngology is the ENT bible. It’s available for free on the Biomed Library website.
  ○ The Iowa Protocols - an wiki full of ENT resources including procedure videos and instructions: 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 (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. Apply early to ensure a spot (most applications available in March) and to give ample time to find housing.

Research
● Research is huge; NOT having any research can prevent you from getting interviews at programs.
● In general, you want to have some research experience before applying. You can aim to have 1 or 2 publications by the time you submit your application; the more the better.
● 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 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.

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.

Applications
• Otomatch: online forum for ENT applicants, find all your juicy gossip here (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 early 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 it was optional. It seems that many applicants still submitted program-specific paragraphs for the majority of programs they applied to, regardless of mandatory status. 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 https://www.ncbi.nlm.nih.gov/pubmed/20979099).
• 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.
• 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.
• You can look at individual programs through FREIDA on Penn student page or use Penn student evaluations.
• Programs are interested in USMLE Step 1 scores, letters of recommendation, research, interest; sometimes course grades, AOA
• 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
• Personal statement: Not terribly important; need to have multiple versions to tailor to particular program/geography/interests given the new paragraph requirement in the personal statement. 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.
• Talk to Dr. Ruckenstein/ORL mentor about how many programs to apply to. It should be at least 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.

Programs to consider
• Cleveland Clinic
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 October to February with most in December and January; Interview invitations generally start in October.
- Many programs interview on the same days, so look on Oto<atch for dates. You can also call/email programs to find out interview dates in October to minimize potential conflicts
- Interview preparation: Know yourself, know the program, be on your absolute best behavior, look over FAQ before interviews
- 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: Alan Workman (alanworkman8@gmail.com), David Lerner (david.k.lerner.14@gmail.com)
PATHOLOGY AND LABORATORY MEDICINE

Original work by Rebecca King. Updated most recently by Esther Baranov (2018).

Program Directors:
Kathleen Montone, MD (Program Director)
Lauren Schwartz, MD (Assistant PD in Anatomic Pathology)
Chris Watt, MD, PhD (Assistant PD in Clinical Pathology)

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.
  - NB: 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. Montone 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.
  - NB: 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. Montone 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, Hemopath, 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, 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
Course #    Course Title               Course Director      Location
PAT300     Surgical Pathology (AP) Dr. Emma Furth     HUP
PAT301     Clinical Pathology (CP) Dr. Irving Nachamkin HUP
PAT302     Autopsy Pathology (AP) Dr. Carolyn Cambor HUP
PAT304D    Surg Autopsy Pathology (AP) Dr. John Brooks Pennsy
PAT305     Pediatric Pathology (AP) Dr. Portia Kreiger CHOP
PAT322     General Pathology (AP) Dr. Roseann Wu        HUP
PAT323     Transfusion Medicine (CP) Dr. Donald Siegel HUP
PAT325     Neuropathology (AP) Dr. Zissimos Mourelatos HUP
PAT334     GI and Hepatobiliary (AP) Dr. Emma Furth HUP
PAT335     Cytopathology (AP) Dr. Roseann Wu HUP
PAT336     Hematopathology (AP/CP) Dr. Rachel Sargent HUP

"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.

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. Carolyn Cambor and Rose Wu are the main advisors 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 and Lauren Schwartz and Kathy Montone 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 pathology research, bioinformatics, and quality assurance, so do not feel pressured to pursue basic science research.
- You DO NOT need to have done a PhD, or have been published in Nature, or have presented at a scientific conference to be a competitive applicant in Pathology. Even a small amount of research experience (e.g. your summer project from first year, scholarly pursuit, etc.) can show your passion for pathology.
- If you have absolutely NO research experience and have NO interest in ever doing any, there are still LOTS of great opportunities for clinical research within pathology- smaller projects that are less basic science-oriented and focus more on education or clinical data.
- Once you know you are interested in pursuing pathology reach out to an attending in the department that does what you find to be interesting research and ask if they have any projects you could work on.
  - There are tons of opportunities for pathology-related research at Penn. Some attendings you could consider approaching include Dr. Feldman (breast/head and neck surg path, bioinformatics), Dr. Bagg (hemepath), Dr. Zhang (breast or soft tissue surg path), Dr. Montone (head and neck), Dr. Furth (GI/liver surg path), Dr. Siegel (transfusion medicine), Dr. Schwartz (gyn surg path) 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. 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 (attending 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: Esther Baranov (esther.baranov@gmail.com)
PEDIATRICS

Original work by Marah Gotcsik. Updated most recently by Gia Yannakis, Lawrence Chang, and Jerome Molloston (2018). Reviewed by Dr. Jeanine Ronan, Dr. Erin Pete Devon, and Dr. Rebecca Tenney-Soeiro (2018).

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, Dr. Jeanine Ronan, or Dr. Rebecca Tenney-Soeiro) 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 Dr. Pete Devon, Dr. Ronan, or Dr. Tenney-Soeiro, 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, Dr. Ronan, and Dr. Tenney-Soeiro 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, Dr. Ronan, or Dr. Tenney-Soeiro 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, Dr. Ronan, and Dr. Tenney-Soeiro 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, Dr. Ronan, or Dr. Tenney-Soeiro then Dr. St. Geme about Chair Letter
  - Collect letters with the goal of having all of them uploaded to ERAS by September 1st
  - Work on ERAS, CV and Personal Statement
  - Meet with JoMo about MSPE
  - Write MSPE Unique Characteristics paragraphs
- **September–October**
  - Submit ERAS applications starting (and ideally on) September 15th
  - MSPEs are released to programs on October 1st
  - Start receiving interview invitations. Pediatrics interviews seem to be earlier than other specialties, with many invites sent even before the MSPE is sent out. If you have not received interview invitations by mid-October you should start asking questions and reach out to your advising point person. Rejection letters can go out as early as mid-October, so if you want to contact a specific program you should do it earlier rather than later.
  - Attend residency interview information sessions held by the medical school, including an interview skills workshop and a program director panel event. Keep these in mind when scheduling interviews.
- **Late October–Early January**
  - Attend interviews
  - National Resident Matching Program (NRMP) registration deadline at the end of November
  - Medical school deadline to take Step 2 CK/CS at the end of December
- **January–February**
Meet with your advising point person to discuss rank lists. This may be done over email.

Meet with Dr. Lisa Zaoutis ("Dr. Z," the CHOP Pediatric Residency Program Director) about your advocacy call. Email her assistant to set up a meeting, ideally by the first week of February. As of 2017, an in-person meeting is optional. She may even indicate she prefers to talk on the phone or email (she is busy!), which is totally fine.

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; this likely does not mean anything.
- 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 can just tell Dr. Z when you meet with her. Otherwise, ask her to call your #1 program to advocate on your behalf.

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

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PHYSICAL MEDICINE 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!
PLASTIC SURGERY

Original work by Vivian Hsu. Updated most recently by Alison Bae (2017).

Electives

Required

- Plastic Surgery sub-internship
- Dr. Serletti: a must-do (you need a letter from him), but preferably after at least one other plastic surgery rotation so that you look good on service. You spend most of your time with the residents, but work with JMS more directly on Tuesdays when he’s out on the Main Line at Lankenau or Bryn Mawr hospitals. The residents have a LOT of input into your evaluation, so work hard, keep your head down (don’t be annoying) and try to learn as much as you can as early as you can.
- Dr. Low: really a preceptorship (rather than a true sub-I). It’s a fantastic rotation. He splits his time about 50/50 between CHOP and HUP, so you see a wide variety of operations. DLow is also an outstanding teacher, and draws out each procedure for you beforehand.
- Dr. Bartlett: almost exclusively pediatric craniofacial cases. 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. Jackson: all peds plastics, lots of clefts. She’s junior faculty so a letter from her probably carries a little less weight, but she’s a great teacher, super nice and wonderful to work with.

Highly suggested

- A second plastics sub-I at Penn
- One General Surgery elective (e.g. JoMo’s service)
- At least one away rotation. See details below. Be aware that most have very early application deadlines—you need to start scheduling in February/March of your 3rd year. I would apply to more than one because of scheduling conflicts, but 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.
- 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.
- 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 i.e. University of Washington, make 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.
  - 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.

- 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. You have to jump through some hoops to get the rotation (they require MMR and varicella titers or something like that) but is supposed to be a really good experience. Do not interview a large number of rotators. If they like you they will invite you back, DO NOT interview when you are there even though you are offered.

- 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. You pick the specific hospital at which you want to rotate (opt for the MGH or the Brigham; faculty at the former have more say but you spend more time with faculty at the latter).

- USC: Strong program, consider if you want to be on the west coast. Expect to work long days for the whole month.

- UCSF: Probably not as strong as Stanford, but you get to be in downtown SF. 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: Very strong program, and only getting stronger. Andy Lee is the chair there and is at the forefront of composite tissue allotransplantation (CTA – read: hand and face transplants). The faculty are great. Not sure what the sub-I is like, but Hopkins is old school so know your place, keep your head down and work hard.

Wherever you rotate, you need to get a LOR from the chair(wo)man. 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, gen surg, 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 always get a letter from the chair 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
Plastics is for better or worse a numbers-driven specialty. 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.

A few places (UCSF in particular, Hopkins too, 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.

Residency Programs
- Consider applying to all of the plastics programs in the country. It’s easy to click the boxes on the ERAS application and just see what happens; you can eliminate programs after they offer you interviews.
- 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, integrated vs. combined (everywhere has to be integrated by 2015, so won’t matter much to you)- combined becoming less prominent, academic vs. private practice experience, number of spots offered (avg 2, 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 externship – no need to ‘waste’ a month on the Penn-required sub-I earlier in the year, since you can’t (really really can’t) use a letter from a non-surgeon in your application.

**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 apply to every plastics program in the country, then filter through interview offers as they come in. Plastics interview offers get sent out later than a lot of other specialties, so don’t freak out if you haven’t heard from programs in the middle of October (even though your friends applying in peds or medicine will have scheduled a dozen interviews by then). Programs will get back to you starting at the end of October, and most offers roll out in early November. The most important thing to do during those few weeks is to stay on top of your email. Check it obsessively. Every 30 seconds. Seriously. The instant you get an offer, reply with a (very polite and pleased) acceptance, even if you don’t think you’d want to go there. Express your date preference (if they have more than one day) and cross your fingers. Spots on the ‘desired’ days (ones that don’t conflict with other programs) can fill up really fast. My advice is to (initially) accept interviews everywhere, even if you know you have a conflict that day. Once all your offers have come in (usually by the end of November) you can prioritize programs and very politely email the program coordinators to cancel the ones you can’t make. Take a look at the ACAPS website to have an idea of your ideal interview schedule and reply to invitations as quickly as possible.

If you do not get an interview at a program that you want, see if Dr. Serletti or any of the other attendings will call on your behalf. This really can get you an interview (and potentially a residency spot)!

**Interview days**

Plastics is an aesthetic specialty, so it truly matters that you look your best on the interview day. Buy a suit, make sure it fits. Get it tailored if you need to. Get new shoes—if you are a girl, they should be heels, no matter how tall you are. Nothing outrageous, but heels are mandatory. Makeup, jewelry of some sort, and pantyhose are mandatory for women. Everyone should have a nice, leather portfolio and/or briefcase/bag. Carry a copy of your CV just in case someone wants it. If you do medical illustration or have multimedia something-or-other on your CV, consider bringing an iPad to show off your work if/when it comes up.

Before every interview, review your CV, focusing on the research section. If your name is on something, you MUST know the details of the paper. I never got asked for p-values or confidence intervals, but you need to be able to explain (briefly) what every paper was about and the key findings. If anything has been published, it’s totally plausible that someone on the faculty has read that article.
Most interviews are pretty laid back and conversational—just a chance for the faculty to get to know you. Some places are more intense (Harvard, USC, Johns Hopkins, some rooms at Pitt, etc.) 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. Do not pull the “family emergency” card unless it’s really, actually true. If you cancel an interview the day before because you’re tired and don’t feel like going, the program will call your home institution and will badmouth you to other programs. Like I said, it’s a small community.

**Questions:** Alison Bae (alisonbae@gmail.com)
PSYCHIATRY


Program directors: Cabrina Campbell (PD), Kristen Wesley (psychotherapy), Matt Kayser (research & neuroscience), Cecilia Livesey (curriculum)
Other helpful people: Tony Rostain, Benoit Dube

Rotations

Required

- Psychiatry 300 ("sub-internship"/"externship"): Inpatient or consult (many do both). Inpatient options are Pennsylvania Hospital Spruce 6 (primarily mood or personality disorders with a sprinkling of psychosis and geriatric psych) and the VA. For diversity of experience, it’s suggested to do your sub-I at the site you did not do your core clerkship.
- Your Penn-required sub-internship can be in Medicine, Family Medicine, or Pediatrics. Pediatricss 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. Service was previously a mess for trainees, but current service lead Dr. Gopal is widely beloved and creates an incredible learning environment.
  - Child Psych: 2 weeks inpatient consults @ CHOP, 2 weeks outpatient with rotating half days in various clinics. You may see patients and write notes during inpatient, but outpatient is nearly entirely shadowing.
  - Addiction/Alcoholism: 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). 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.
  - 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

You can do one, but this is not required or expected. 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. If you want to go out west, it may
help you show interest in order to get interviews. Many Penn students the last few years have thought risk outweighed reward and opted not.

**Mentorship**
- Get a mentor early: KEY to a successful experience. If you feel you haven’t connected with anyone, Dr. Campbell, Dr. Dube, and Dr. Rostain are very friendly and happy to help. Another good source is your sub-I attending.
- Dr. Rostain has long been a strong advocate for all medical students. He does not pressure you to come to Penn and is fully supportive of wherever you go. He will call your top school on your behalf, if requested.
- 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). Note: don’t freak out if you can’t get some esoteric required letter - e.g. UNC has a “required” psychiatry chair’s letter, but students have applied without it and still gotten an interview.
- Aim to have at least one medicine letter, preferably from your sub-I/externship. Some programs require this. (I did a Peds Sub-I and therefore had a peds letter, and that did not seem to be an impediment).
- 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
- Use websites and talk to other students or residents
  - Penn interview site has some useful information
  - Student Doctor Network forums (if you want to brave them) contain multiple threads with peoples’ rank lists, interview reviews, and other descriptions.
- 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 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. 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)

**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 pursuit
- Write Dean’s Letter Intro Paragraphs
- Start ERAS application
- Schedule Dean’s letter meeting

**September & October**
- Complete application & submit
- Verify letters of rec are all in (ideally, by end of August)
- Review Dean’s letter
- Register for NRMP
- Dean’s letter mailed Oct 1

**November to February**
- Start interviews: read up on every program
- Enter Rank List by mid-Feb

**Interviews**
- Expect 3 to 8 interviews at each program, usually ~30 minutes, but sometimes with shorter (i.e., 15 minutes) interviews with the program director.
- Expect some “interesting” interview questions, including “tell me about your childhood?” especially at more psychoanalytically oriented programs. Prepare at least one patient case. I had interviewers ask me to tell them about a “challenging patient,” an “interesting patient,” and “a patient who meant a lot” to me. These were followed up by questions such as “what did you learn about yourself?” but never by anything about management or pathophysiology.
- 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? Remember, although the dinners are “off the record,” the residents at most places are asked what they thought about the applicants after the interview day.
- 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 not to do so in the moment.
- Once you do decide on your #1, 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. That being said, I did not call my #1 until the Friday before rank day, which I was told by the Penn PDs was the absolute last day to make a call and still have it maybe be helpful for me. You should only tell one program you are ranking them #1.
- 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.
- 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.” 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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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 Internal Medicine residency (3-4 years) and Hematology/Oncology fellowship (2-3 years). 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). 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. 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. NRMP data from 2016 match reports 193 matched US seniors out of ~210 total US senior applicants for a match rate of 92%. This represented a slight dip in competitiveness after several recent years of increasing competitiveness and may be an aberration rather than a new trend. Data from 2011 “Charting Outcomes in the Match” showed the following mean scores for matched US Seniors Step 1: 240 and Step 2: 244, respectively. 31% of matched applicants were in AOA. The specialty matches the highest percentage of MD/PhDs at 22% of matched applicants, and most applicants have some if not extensive research experience (mean of 8 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 19 students matched in 2011 with 220 or less) with the majority above 230 (mean of 240 Step 1 in 2011). 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. UCSF requires a passing score to rank, and many applicants speculate that they will consider this score when they make their rank list. So the current (as of 11/2015) 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. 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.

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 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.

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. Seriously, 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 aways in
March/April/May 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 Christodoulas) 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 2011 ranked >10 programs, and so you should be aiming for ~12 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 an hour later! This is also true for many transitional year programs. You can also try swapping with other applicants using Student Doctor Network. 2012 applicant: “I was able to do this successfully to schedule two west coast interviews back to back. You just have to make sure both parties are included on the correspondences, and in my case, the
program coordinator waited for responses from both of us before making the switch to avoid any confusion."

**What are the biggest name academic programs?**

*Note: based on Student Doctor Network. 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 4:** Harvard, Memorial Sloan-Kettering, MD Anderson, **Penn**

**East:** Penn, Harvard, Memorial Sloan-Kettering, Yale, Hopkins

**Midwest:** Michigan, WashU, University of Chicago, University of Wisconsin

**West:** UCSF, Stanford

**South:** MD Anderson, Duke, Emory

**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:** James Janopaul-Naylor (jjanopaulnaylor@gmail.com)
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. As a heads-up, the previous course director who had taught the course for the past 30 years has just retired. She had a policy of not writing letters of recommendation, but the new course director may have a different policy.

- **GI Rads**: The most popular Radiology elective which tends to fill up quickly. HIGHLY RECOMMENDED THAT YOU DO THIS ONE. Contact Dr. Levine about taking the course as soon as you are considering radiology as a career and sign up for the course through the lottery. Good experience; amazing course director; split between inpatient & outpatient studies; great opportunities for research. Note: if Dr. Levine (course director) has been your advisor, he likely will not write you a letter unless you take his elective and/or work with him on a research project. Note: Dr. Levine's letter carries a lot of weight in the application process. For example, a quick call from Dr. Levine can get you interviews at places that you have not yet heard from. If you end up not taking this elective, make sure you still introduce yourself to Dr. Levine, as he likes to know all of the radiology applicants from Penn.

- **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: Many programs have a separate residency application process for a combined DR/IR residency. If you are interested in applying for those residencies, you should certainly 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/quizz 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), aways probably 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 two subsequent Radiology subspecialty electives before September (especially if you still cannot get a letter from Radiology 300). Also if you want to generate a letter from your Sub-I or a particular clinical elective take this before September as well.

**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. Please note that the sub-I in medicine is VERY HARD, both in terms of time intensity and likelihood of getting Honors. The ER 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.
- Do your sub-I by September 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. A good letter from an ER Sub-I will do just fine.
- 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. (Note: if Dr. Levine has been your student advisor, he is a great advisor to have). 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 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). Dr. Levine (GI Radiology) is an incredible research mentor who works with many students each year. He’s a good person to consider as you begin to seek out a mentor. He can also connect you with other attendings if you want to do something other than GI Radiology research. 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.

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 elective (other than RAD 300). Ideally take 2 subspecialty electives and get them from both. Notable faculty: Dr. Levine.
- **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.
- **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. Consider a surgery letter if you’re applying for surgical prelims.**

**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!
- 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 can also help.
- 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 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.

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. 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 (NYU is notorious for this). 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.

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.

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.

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.

Questions: Raghav Mattay (mattayr@mail.med.upenn.edu)
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. The application process was highly competitive. There were 423 US applicants and 163 IMGs – a total of 586 applicants for 124 spots. If you do the math, that means 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 of the coming years but expect the specialty to be in the ENT/ortho competitiveness range for at least the time being. That being said, going to Penn is a huge advantage and our track record is excellent so far. As of February 2018, there are 75 programs approved for the integrated IR/DR pathway, so there are more residency positions in the 2017-2018 match, but the total availability is leveling out.

It is important to note that the integrated IR/DR residency is only one possible path to interventional radiology. There are currently about 225 fellowship positions and only 130 residency spots, which means about another 100 trainees in IR must come from somewhere other than the integrated residency. 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 a very good 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 January 2018, 103 programs have ESIR certification. The number of positions, and whether programs intend to use them is not public knowledge.

Three things are important to note (and should guide your questions about ESIR at various institutions). 1) Independent IR Residencies DO NOT need to accept your ESIR certification from residency even if you technically met the requirements. While this shouldn’t be much of an issue even if you change institutions, you could, in theory, get stuck having to do a two-year Independent Residency despite doing ESIR (special thank you to Dr. Nikhil Amesur at UPMC for pulling back the curtain on this). 2) Not all programs will treat their ESIR residents the same as their Integrated IR/DR residents (you may not get as many or as good cases). 3) Not all programs will be bringing their ESIR residents into their integrated 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:** There are not many independent programs and it will likely not be as popular an option as the ESIR pathway for those not matching directly into IR. The independent pathway adds an extra year to training, 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. For most programs, this is a lower priority than integrated and ESIR approval so there are only 24 as of January 2018, but since the fellowship goes away in 2020, pretty much every program that had a fellowship will have an independent residency soon.

Some resources to help explain the different training pathways:
http://irf.sirweb.org/wordpressinstall/ir-residency-a-new-training-paradigm/
Approved IR residencies:
https://www.sirweb.org/learning-center/ir-residency/integrated/

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

Approved independent pathways:

**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.

**Mentorship:** There are many great mentors within the IR department. The office of student affairs will match you with someone in IR and DR if you ask them to. Take advantage of this, especially if it is someone who you weren’t already in contact with. Most students in IR find mentors through performing research with them, so that is a good way to find one. 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 is very well known in the field and writes great letters. If he is still around, this is probably your best option, but he is retiring soon. 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).

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 programs (Michigan and 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. If they say you must do one, ignore the below.

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. It’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.

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, and that is certainly an option.
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.

- **A small 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, so it is best to avoid moving twice unless you have strong (family/SO/etc.) reasons to do so. This means a program near where you match or a program in Philadelphia. 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.**

- **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.

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

- A few programs interview on the same dates, so scheduling may get tough at some point. Do your best to avoid it, but it is possible you will have to turn down an interview because it doesn’t fit your schedule.
- If you have a top choice going into the interview season, it’s best not to schedule this as one of your first interviews. Try to schedule it for the middle of your interview trail (i.e. late November or December), allowing you to get your feet wet with other interviews but also not get too burned out from the process (which is very known to happen come January). This also gives you some perspective on how other programs are set up, so you can more objectively evaluate your top choice and ask more useful questions. People have often said the “sweet spot” is around interview 6-8, but don’t fret because you cannot control your interview schedule that precisely. That number is also for DR, so it isn’t clear what it should be for IR.
- Some programs only interview on a limited number of days. If there are programs you are really interested in, check their websites and save the dates into your calendar in advance to avoid scheduling conflicts.
- Feel free to call 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 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).
- 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 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! 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 (or MPH or MTR or other year-out) fit with IR?

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, Michigan, Mallinckrodt (Wash U), UCSF, Stanford. This is in no way a complete list (especially lacking west-coast programs), and there are plenty of other good programs throughout the country, but these ones come to mind.

**Questions:** Dan DePietro ([depietro213@gmail.com](mailto:depietro213@gmail.com)), Tim Carlon ([tim.carlon91@gmail.com](mailto:tim.carlon91@gmail.com))
GENERAL SURGERY

Original work by Landy Parish. Updated most recently by Sara Ginzberg and Cimarron Sharon (2018).

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, as one of the longest, most grueling residency programs out there, the General Surgery path should be chosen only after deep reflection and careful deliberation with loved ones. With a national attrition rate of nearly 20%, General Surgery can turn out to be the wrong choice even for people who love the OR. Check out this little online guide from the American College of Surgeons to see some advice from national leaders: https://www.facs.org/education/resources/residency-search. Now, if you still think General Surgery is right for you, 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
- Typically, students applying into General Surgery will complete 3–4 “sub-internships” in the Department of Surgery at Penn. 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.
- 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, log in to the UPHS intranet → in the sidebar on the right, find “Penn Medicine On Call” → scroll down to “On Call Schedule Search” → find your service on the list → 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 are 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. For example, on ESS, sub-Is are usually responsible for “getting numbers” (a.k.a. writing I/Os on the list next to each patient’s labs) and printing copies of the list for the entire team, but sub-Is are not expected to pre-round or present on individual patients. In contrast, services like EOS and GI Blue expect sub-Is 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 day or two 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). Since
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; you should round, offer to help write notes (you most likely won’t get the chance to do notes on weekdays), and pull drains/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. 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 (false!). Remember that in Surgery, everyone talks, and Penn attendings highly value the feedback of their residents when evaluating your performance.

- Treatment pathways: Some services have clearly defined treatment pathways for 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. Ask the NP/PAs on service about these pathways.

- Didactics: In 2017, the Department introduced a really fun and educational lecture series for sub-Is focused on surgical decision-making, which runs approximately April–August. The lectures typically take place on Friday mornings, though the time/location is subject to change. There’s usually a new attending and topic each week with coffee/snacks. Make sure that Dr. Aarons knows about your interest in General Surgery so that you get the email updates about these lectures!!!

- Study Resources: There is a treasure trove of online resources available to you through the Penn Biomed Library. Go to the library website → scroll down to the “Key databases & tools” section → select “Clinical Key” → register for an account. Through Clinical Key, you can find numerous illustrated surgical atlases as well as the classic textbooks available for download/print by chapter. We personally found Cameron’s Current Surgical Therapy to be manageable and useful. We also like Acland’s Video Atlas of Human Anatomy for reviewing basic anatomical relationships.

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
  o **HUP Colorectal**: The Colorectal service at HUP is shared between two wonderful attendings, Dr. Aarons and Dr. Mahmoud. 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. 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). Dr. Mahmoud, on the other hand, has a more subtle style; she will take some time to get to know you and then give you more attention/responsibility as you prove yourself trustworthy. Be prepared to operate until 10pm some nights with Dr. Mahmoud…
  o **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. 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 Drs. Williams (bariatrics) and 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. This is a terrific experience because you are acting more as a functional intern than almost any other general surgery rotation, and you should try to get a letter from Dr. Dempsey out of this rotation.

- **GI Gold:** This rotation will give you an opportunity to spend the better 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 with a national reputation. This service is a good opportunity to become comfortable with “bread and butter” general surgery (hernias, lap choles) and to get that craved hands-on experience in the operating room. When JoMo has academic days, you can spend time in Dr. Dumon’s OR (mostly bariatrics). Overall, this service is noticeably less busy than others at HUP because many surgeries are performed in the outpatient surgicenter. So, lots of operating and very minimal floor work.

- **Note:** as of spring 2018, Dr. DeMatteo is not yet taking sub-Is on his service. If/when he does, this will likely become a “must do” rotation.

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### Suggested

- **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. You will see liver, pancreas, stomach…once in a while a crazy angiosarcoma…

- **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. You really learn how to manage wounds on this service, and you get to really “manage the floor.” Dr. Braslow is a student favorite and is often on service; 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 (think carefully about this; it is a double-edged sword). 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.

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### Supplemental/Interest-specific

- **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).

**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. 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. The sub-I is responsible for primary and secondary surveys in the trauma bay, 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. Very few clinic requirements and a lot of down time on overnights to get work/reading/research/Netflix done.

**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-scut 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**
  - **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. This rotation can provide a needed respite if you schedule it between your ultra busy Surgery sub-Is.

- **Relevant Non-surgical Electives**
  - **SICU:** Take a deep dive into the management of post-op general surgery and trauma patients and develop your knowledge of complex physiology. There is a well-defined student role here, which makes for a pleasant and meaningful experience. You should take 24 hour call, 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.
  - **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 subspecialities, 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 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 (most places offer courtesy interviews to all students who did away rotations there). 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 could hurt your chances of performing at your best.

- 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.

Mentorship

- 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 (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. Do not be afraid to reach out to someone a few times in a row or to multiple people.
- 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-I, and help you with the application process. All you need to do is reach out!
- 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).
- 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 important to start planning as soon as possible!
- 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.
- Many applicants will choose to obtain 1 letter from the Chairman (some programs require this) + 2 or 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.
- Try to have your letter writers lined up as early as possible, as there are inevitably delays. We recommend setting up a time to chat with your attending at the end of each rotation; most of them will be expecting you to ask.
- You should give your letter writers a copy of your CV and personal statement to help guide their work. Ideally, this means that you should have a good draft of your personal statement by June.
- As the ERAS submission date approaches, do not be afraid to send gentle reminders to your writers if they have not yet posted your letters. If things are really getting down to the wire, ask JoMo for help.

Residency programs

- 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. Then use your own geographical criteria to narrow down the list.
- 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.
Most Penn students apply to 15–20 programs. 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 is a 2017–2018 General Surgery application thread on Student Doctor Network where you can find last year’s 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.
- 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 do not 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

- 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 ‘grow up’?,” “what is the culture like at this institution?”
- The interviews themselves are generally pretty benign. Typically you will meet with 3—8 interviewers for 15–30 minutes each. Some programs will give you one-on-one time with the Chair and PD. You will get lots of questions like “where you see yourself in 10 years?”, “what will your career look like?” , “why surgery?”, “what fellowship/research are you interested in?” You should pick one or two potential fellowships to say you are considering even you have no idea.
- 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, etc.
- Figure out some way to keep the different programs straight (e.g. take notes, create a ranking system, debrief with your mom or best friend).
- If you have a reason to be at a specific program or in a specific region of the country (e.g. sibling, significant other, etc), make sure to verbalize this to the program during your interview day.

After Interviews

- Send thank you emails to all programs: chair, PD, and any interviewers you really hit it off with.
- 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.
- 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 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.

Conclusion: Best of luck, and don’t hesitate to reach out and ask questions! Sara Ginzberg

(sarandipity811@gmail.com)

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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. 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 at least 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 one away. However, 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 a good 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.

**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 typically submit 3-4 letters:
  - 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 general surgery with 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 2017, there were 436 rank lists submitted for 314 spots with an overall match rate of 78%, although the match rate is slightly higher for graduating US seniors. 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. The number of programs people apply to has been increasing, with an average of around 60-65 this last cycle in 2017-18, 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:** A very small number of programs require that you complete Step 2CK by the end of December, so 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.
- Interview 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 (although your matched program may ask you to submit a rank list in the regular NRMP Match as a formality).

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

**After interviews**
In general, 2017-18 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:** Esther Nivasch ([enivasch@gmail.com](mailto:enivasch@gmail.com)) who matched at Penn in 2018, Jeff Morrison ([morrisjc89@gmail.com](mailto:morrisjc89@gmail.com)) who matched at Colorado in 2017, and Alex Skokan ([alekskokan@gmail.com](mailto:alekskokan@gmail.com)) who matched at Penn in 2014.
VASCULAR SURGERY

Original work by Christy Marcaccio (2017).

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 24 months of general surgery rotations and 36 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 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 45 of these programs across the country, with about 60 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
Jackson (Residency Program Director) will be strong advocates for you in the application process if you have taken the time to get to know them and demonstrate your commitment to vascular surgery. As such, try to spend as much time as possible going to cases or clinic with these attendings. (Beyond getting to know them, they’re also both great teachers, and Dr. Jackson in particular will often let you do a fair amount in the OR once he gets to know you!)

**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.
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.

- 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.
• 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.

• 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.

**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 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 a rough sense of what he thinks. 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.

• In general, people apply to about 20–30 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).

• 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: Massachusetts and California programs require Step 2 scores before matching.

**Application Timeline**

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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?”
- 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 ase, any issues intraoperatively, and what you learned from the experience.
- Also be prepared to ask questions about each program!
- 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.
- 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 within one day. 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: Christy Marcaccio (christy.marc12@gmail.com)
MEDICINE-DERMATOLOGY

Original work by Alexandra Charrow (2014).

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

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

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

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

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.

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

-THE END-