Perelman School of Medicine
Office of Student Affairs
&
The Class of 2017
Present

CAREER NIGHT
2017
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GENERAL ADVICE
By Jessica Volk and Neha Jeurkar; most recently updated by the Class of 2017.

ERAS APPLICATION

● Plan to submit your application the day ERAS opens in September (though don’t be alarmed by website delays that morning). Some programs offer interviews on a rolling basis as soon as they begin receiving applications, and a delay of just several days may mean the difference between an interview at your top program and being placed on the waitlist. You don’t have to have all of your letters of recommendation in to submit the 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’s 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’re requesting the letter so that your writer can remember specific details to add. There is little harm in asking for more letters than you end up using so don’t wait until you’ve finished 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’s never too early to begin thinking about scholarly pursuit. In general, you don’t need to complete your research project by the time of your application (see specialty specific information) but it’s nice to either have started something or to have a definite plan in place so that you can write it in your 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
  o AAMC Careers in Medicine
  o AMA Freida – database with basic information on each program
  o Residency Review Program – reviews of programs from Penn students
  o 2017 Interview Guide – includes sample interview questions

INTERVIEWS

Before the Interview

● Try to respond to invitations to interview as soon as possible in order to get your desired dates. For some specialties, interview slots may fill up within hours of 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 scheduler, and an app called “Thalamus”. It may be helpful to download any necessary apps and know your log-in information before invites are sent out.
● Consider the social hour a mandatory part of the interview and schedule travel accordingly.
● Be aware that you may receive calls or emails from programs before the interview day.
● When 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 decided 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, 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 polite 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 med students, residents, your advisor, and alumni as you try to figure out your rankings. Look at the previous year’s Penn Med match list to find alumni who are now at programs you are considering; they may have helpful insights and be able to draw comparisons between Penn and their current program.
- Once you've decided on your first choice, you should let that program know you'll be ranking them first, either by sending an email yourself or having an advisor in the field do it. Do not 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), most recently updated by Iris Lee (OB/GYN 2017)*

**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 away at the same institution.

**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 program, and we appreciate you help with this process!” You can send it to either the program coordinator, PD, or both. 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.

**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 partners’ list. If the whole list is run without finding a match, the computer will not then run the two lists separately. 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. Here is an example:

<table>
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<th>Partner 2</th>
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<tbody>
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<td>Program A</td>
<td>Program A</td>
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<tr>
<td>2</td>
<td>Program B</td>
<td>Program B</td>
</tr>
<tr>
<td>3</td>
<td>Program C</td>
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<tr>
<td>4</td>
<td>Program A</td>
<td>Program B</td>
</tr>
<tr>
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<td>Program C</td>
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<tr>
<td>6</td>
<td>Program B</td>
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</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>
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**Questions:** Iris Lee (iristlee@gmail.com); Rebecca Schwartz (schwartz.re@gmail.com); David Rudnick (darudnick@gmail.com); Neha Bansal (nehabans@mail.med.upenn.edu)
ANESTHESIOLOGY
Original work by Jon Wanderer, updated most recently by Tara Ramaswamy and Nabil Thalji (2017)

Point people for application: Dr. Baranov (program director), Dr. Gordon (associate program director) and Dr. Fleisher (chairman)

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

Rotations

Required
- Anesthesia 300 – You should take it 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. You should definitely take AE300 by July so that you can get a letter of recommendation in time. Even if you have only the slightest interest in anesthesia, you should take this rotation, as it is an excellent learning experience that has applicability to all medical fields. This rotation is as much as you want to make it to be, so be proactive and go around asking to place IVs and intubate. You’ll be paired with two residents for the first two weeks in the main ORs and then rotate amongst the subspecialties. Therefore, it’s not the easiest rotation to form a relationship with an attending and get a recommendation; however, if there’s someone you liked or wanted to work more with, you can talk with the course coordinator (Dr. Gordon) and try to arrange it.
- Medicine sub-I
- A handful of programs request a month of critical care at some point prior to graduation. It is not necessary to complete this month prior to applying. Speak with Dr. Baranov for more information regarding this.

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. 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. 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.
- Peds anesthesia – A highly rated rotation. The first two weeks will consist of a lot of watching rather than doing, but once you’ve gained some trust you’ll be amazed at the things you’ll do.

Keep in mind: The only rotations you need to do are the Anes300 rotation, and your 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 Anes300 rotation.

- **Rotations in internal medicine such as CCU and pulmonary are also very useful for general medicine knowledge pertinent to both critical care and OR anesthesia. 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 going to a geographic location (i.e. West Coast) that you have never lived in before, so you can “prove” to that program that you are serious about moving out there. The advice we’ve generally heard is to think about doing a West Coast away rotation 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 one when you told Academic Programs Office your specialty interests, talk to Nancy Murphy (murphynk@mail.med.upenn.edu). Choose a person from her list and make an appointment to meet with that person to discuss your application early spring. If you were matched up with someone who doesn’t share your same perspective/interests, it is OK to talk with someone else on the faculty. The best advice will come from Dr. Baranov and Dr. Fleisher. Do not hesitate to schedule meetings with either of them. They are both VERY available and willing to help. They know the process the best.

**Letters of Recommendation**

- **Departmental letter:** Dr. Baranov and Dr. Fleisher co-write a departmental letter for everyone going into anesthesia. During Anes300, try to spend a day working with 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.

- **Number of letters:** aim for four letters • Baranov/Fleisher, Anesthesia attending, Medicine sub-I attending, other.
  - *Quality of letter is more important than who it is from (in other words, excellent letter from non-anesthesia attending superior to mediocre letter from anesthesia attending)*

- **General advice:**
  - Polish CV/Work on 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.
  - You can ask for more than you need—you don’t have to submit all of the letters that you have received.

**Residency Programs**

- Research them before you apply and interview (websites, word of mouth, location, FRIEDA).
- The programs are not really ranked, but it would be 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, like 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’s 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, case load variety (i.e. 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 work force, others handpick interesting cases for residents to learn on 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 the 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” where the program is somewhat flexible and can tailor experiences to your career desires/needs. Overall, it is not really that big a thing within anesthesia, but if someone was very interested in research with a demonstrated track record of projects/publications already and knew they wanted to continue, this would be something to inquire about at programs. We have such a thing here (Dripps Scholar), but it’s not really advertised that heavily.
- If you are particularly interested in a research-heavy academic career, you should try to meet with Dr. Eckenhoff and Dr. Kelz (Max Kelz, not Rachel) who are both heavily involved with the research program here at Penn and can guide your selection of programs.

Transitional/Prelim Years
- This is often a confusing topic for students as they begin to apply. You can fulfill the requirements of the first year (PGY1) by doing a prelim-medicine, prelim-surgery, or transitional year.
- A transitional year consists of a few months of medicine, few months of surgery, some critical care months, ED, and a few electives. Transitional years tend to be more “cush”, and are highly competitive because you are competing against others 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/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 the next year 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, where the majority of residents do their PGY 1 year in the Penn System.
- 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 prelim/transitional programs. So unless you only rank categorical programs, you need to apply to prelim programs at the same time you apply for your residency programs. If you’re confused, it’s ok…you will figure it out over time. Ann Pfeifer, the residency coordinator, is really nice and can explain it to you.
- Medicine Prelim, Surgery Prelim, and TY programs tend to interview regionally, i.e. you’ll probably get interviews at Philly programs and programs where you’re “from” (where your parents are from). It can be quite challenging to get interviews elsewhere. Do not under-apply to prelim programs unless you apply only to residencies that offer only the 4 year categorical option. It would be a giant pain if you matched in Anesthesia some place but then had to scramble to find a spot for your intern year.

Application Process
- Drs. Baranov and Fleisher will give you personalized advice on how many programs you should apply to.
- Schedule AE300 as early as possible. During this rotation, you will have a lot of contact with Dr. Baranov. As you start to have more concrete plans about applying in anesthesia, you should make an appointment with Dr. Fleisher to develop a mentorship relationship with him as well.

Application timeline
March to June
- Meet with mentor
- Anesthesia 300 elective
- Ask for 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 scholarly pursuit 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. Baranov can always help point you in the right direction. It is helpful to have started the project by October of your MS4 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 out of the department.**

**June to August**
- Schedule Dean’s Letter meeting
- Start work on Personal Statement
- Write Dean’s Letter Intro Paragraph
- Start ERAS application
- Meet with Dr. Baranov, who is the anesthesia residency program director at Penn
- Complete application
- Verify that letters of rec are in
- Register for NRMP

**October to February**
- Dean’s letter mailed October 1st
- Step 2: most programs don’t have specific requirements, but a few want the scores by rank day (esp. CA and MA programs)
- 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 you’ve 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’ve 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 don’t get an interview at a program that you want, talk to Dr. Baranov for advice – he is an incredible resource and always willing to provide guidance!

**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. It’s a great way to get more involved, meet some interesting faculty, and get your face/name out there to Dr. Baranov and Dr. Fleisher. Co-Presidents of the AIG are funded to attend the
In General: Very competitive specialty, but don’t worry — coming from Penn is a HUGE advantage.

Electives: MUST DO DERMATOLOGY 300. Would strongly recommend doing an additional dermatology elective to seek a letter of recommendation, but not absolutely necessary.
1. Dermatology 300:
   Broad introduction to dermatology. Mostly shadowing different attendings every day. DO NOT expect a letter from this rotation, although you may be able to get a letter from Dr. Rosenbach if you write up a case report with him. Would suggest doing this rotation as early as possible as it is a great way to get to know residents/faculty and get involved in research.

2. Pediatric Dermatology:
   Excellent rotation with fantastic faculty mentors (Drs. Yan, McMahon, Jen, Perman, Costello, and Treat). Opportunity to independently see patients in clinic and consults at CHOP. Many students get a letter of recommendation from this rotation.

3. Dermatopathology:
   Great opportunity to learn some basic dermpath in preparation for residency. May be able to get a letter if you write up a case report with an attending. Otherwise, it’s hard to make an impression since you spend most of your time observing at the microscope.

4. Away Electives:
   An away elective in any specialty has the small potential to harm a good student if you rub a person the wrong way. On the other hand, it can also give you a distinct and real advantage for a specific program if you perform well. Besides, it’s an awesome opportunity to learn the “truth” about a program you are seriously considering ranking top 1-5, before sending out applications. Depending on timing, no record of an away rotation will 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 (i.e.: West Coast). Nevertheless, do not expect an automatic interview invitation just because you rotated at a program. Very few programs automatically interview away rotators. Some programs will invite a select few rotators back for their interview day (e.g. Stanford, Vanderbilt). Some will actually interview you during your time on their rotation (e.g. Emory, Baylor). Derm is certainly not a field where away electives are required, and if you choose not to do any away electives this shouldn't hurt your chances. Most Penn students do not do away electives.

5. Non-Dermatology Electives:
   Medicine sub-Internship: Great opportunity to get a letter of recommendation. It is a good idea to do this rotation early because a letter will be useful not only for dermatology, but also for your prelim/transitional applications.
   Pediatrics sub-Internship: While a medicine sub-internship is highly recommended for all dermatology applicants, those interested in pediatric dermatology and a pediatrics preliminary year can do a subs-I instead.
   Hematology-Oncology: HUP rotation offers exposure to interdisciplinary pigmented lesion clinic
   Rheumatology
   Infectious Disease: Great at any of the sites.
   Surgery (Plastics/ENT), Surgical Pathology, and Pediatric sub-specialties - depending on interests within dermatology.

6. Independent Study/Research Months: Since dermatology is quite competitive, it may be much more worthwhile to take a month and do some research early on in the year before ERAS hits in September. It may be better to have a paper on the books rather than doing 4 weeks of an elective.
Mentors: If you were not assigned a mentor through The Office of Student Affairs according to your specialty interests, talk to Nancy Murphy. Choose a person from her list and make an appointment to meet with the faculty member to discuss your application as soon as you start considering dermatology (Spring of 3rd year, if not earlier). Hopefully you can meet with your mentor several times over the year. Don’t expect a letter from your mentor unless you interact with him/her through electives or research. Recommended mentors include Dr. Werth (clinical and basic science/autoimmune diseases), Dr. Rook/Dr. Kim (basic science/cutaneous T-cell lymphoma), and Dr. Yan (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 (i.e. case reports or abstracts) so that you have longitudinal research experiences, but also have the opportunity to publish quickly. For your scholarly pursuit, do something 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 for your ERAS application.

Possible research mentors include:
● Clinical Research: Dr. Werth, Dr. Rosenbach
● Basic Science Research: Dr. Rook, Dr. Seykora, Dr. Cotsarelis, Dr. Stanley, Dr. Payne
● Epidemiology Research: Dr. Gelfand, Dr. Margolis, Dr. Ming
● Teledermatology/Global health: Dr. Kovarik
● Pediatric Dermatology: Dr. Yan, Dr. Costello

USMLE Step 2: During this past application cycle (2016-2017), 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 (>245-250). If you do well, this can be one more positive to add to your application. If you do much worse than 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.

The Application:
● ERAS opens on July 1, and applications can start being submitted on September 15. Try to submit your application as early as possible, but a few days after September 15 is not a big problem, as MSPEs are not released until October 1.
● 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 (i.e. number of LORs, Step 2 requirements, etc.).
● Have at least 1, preferably 2 or 3 letters from dermatologists (big names matter so if you can get a letter from a big name, you should do so!), and 1-2 others from faculty who know you from clinics/research. Prelim/transitional applications may require a medicine letter (i.e. from a sub-I or a departmental letter), so be sure to check specific program requirements.
● Some applicants apply to 40-50 programs. However, many applicants apply to 70-100+ programs given the competitive nature of this specialty. Therefore, program directors know you are casting a wide net, and will only interview people they expect to be serious about their programs (based on the student’s expressed interests, geography, etc.).
● Watch out for programs that require special personal statements or additional questions (e.g. UT Southwestern, Mayo, BU, UConn, Indiana, and Utah). Many programs will not send you a notification that they require supplemental materials, so make sure you check the school’s specific website! Penn has a required supplemental questionnaire on their application website.

PRELIM/TY application
Dermatology does require a prelim year or transitional year, which is a separate application process through ERAS. Most applicants aim for 6-10 prelim/TY interviews, which tend to be very relaxed, friendly and conversational. These are usually 1 or 2 15-30 minute interviews. Try to schedule your prelim/TY interviews as early as possible (November and December), as most dermatology interviews happen later
(December and January) and you don't want them to conflict.

**Scheduling Interviews:**
- Almost no dermatology programs will offer interviews until around Thanksgiving, so try to RELAX! You may hear as late as Christmas. Some programs will not inform you until early to mid-January – this 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 you have a good reason, though this has mixed levels of success.
- Most interviews are in January and 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 program you want more. Organization is key! Check out program websites, and if necessary, call program coordinators to ask for interview dates.
- 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. 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 don’t do anything controversial!
- Interview at as many programs as you can within reason, aiming for 12+ interviews. See the NRMP’s “Charting Outcomes” to get a sense of the match rate per number of interviews. You’ll 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’s not particularly important as long as you do “okay.” At each program, you should expect to have anywhere between 4 to 20 mini-interviews, each lasting 10-20 min, 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
- 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
- Know about your hobbies, your strengths/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.
- Prepare answers for “classic” interview style 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.
- Some 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!

**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 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 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. Don’t tell more than one program that they are your #1 as Dermatology is a small field and programs do talk.

Finally: Be careful of the infamous Student Doctor Network spreadsheet — it is crazy and often incredibly (and intentionally) misleading. Derminterest.org is a much better resource, but gets much less traffic. Take a deep breath and relax. It is a stressful and long process and all you can do is try your best. GOOD LUCK!

Other Resources:

Questions: Dan O’Connor(doc@upenn.edu), Jake Charny (charny@upenn.edu), Liz Messenger (LMessenger32@gmail.com)

EMERGENCY MEDICINE

Original work by member of class of ’07. Updated most recently by Ali Jaworski, Jenn Love, Jessica Balderston (2014), Kimon Ioannides (2016), Carly Blick (2017)

Program director: Lauren Conlon (previously Dr. DeRoos)
- There is a general meeting for EM applicants in the Spring of MS3 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’re 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 sub-specialties that have evolved out of EM with a variety of fellowships that one can apply to after residency: Ultrasound, Toxicology, Pediatric EM, Sports Medicine, Wilderness Medicine, International Medicine, Critical Care (as of Feb 2012 you can do residency in EM and get board certified after critical care fellowship), Resuscitation, Simulation, Hyperbaric/Environmental Medicine, ED Administration, Global Health, etc. However, a fellowship is absolutely not required if you want to be a great EM physician.

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.

### Rotations

**Required**

- EM Sub-I at HUP: 1 of your letters of recommendation (your SLOE – see below) will be compiled from this rotation.

- EM Away Sub-I (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 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’ll 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’s a great chance to learn about ICU care and shadow (or do!) some procedures.

- Ultrasound elective: very useful. Another time-intensive rotation (50hrs per week) with constant scanning during shifts. There’s a steep learning curve but you will be so comfortable with ultrasound by the end of your month. In fact, you’ll be so comfortable, that you’ll be teaching the interns.

- Medicine Sub-I: 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’s a great learning experience and probably the only med school rotation in which you’ll have the opportunity to take the most ownership over patients.

- Radiology 300: highly recommended—it’s a terrific course, and you’ll be reading many of your own films soon.

- Peds EM: highly recommended. Great to start learning about kids (they’re not just tiny adults!). Work with Peds and EM residents, and the Peds EM fellows are terrific. Treated like an intern—you carry your own patients, call consultants, etc. and the fellows are good about allowing you to do procedures. Friday AMs have simulation conference in the trauma bay and teaching conference is also great.

- Other electives: almost anything will be relevant, e.g., Trauma Surgery, ID, Cardiology, ECG Reading, Sports Medicine, Anesthesia, Ophthalmology, ENT, Derm or an international rotation. (Keep in mind that it’s 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.
Kevin Scott holds an annual information session on away rotations in January of MS3 year, so look out for this or ask a classmate or 4th year 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. 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. Additionally, most programs require a 2nd SLOE from a program other than your home institution.

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 emergency sub-I first to make sure you have some experience before you leave the mothership.

The Penn EM sub-I requires significantly less hours and allows for more responsibility than you will experience at other programs.

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 says September is the latest time you can do an away with the expectation of a SLOE. For ideas on what programs might be a good fit for you, talk to residents or 4th years. Check out program websites or VSAS (Visiting Student Application Service, through which many, but not all, programs manage the away rotation application process) for requirements. 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 don’t get the one you want initially, don’t lose hope!

You’ll probably want to do at least one away sub-I, but keep in mind that if you want to do another one or have a different experience, many programs offer other types of away rotations – toxicology, ultrasound, wilderness medicine, etc.

Note: for those interested in programs on the West Coast (especially those who don’t already have family or school ties out there) we strongly recommend rotating at a program out there to demonstrate your commitment. While you’re out there, you can drop in on the journal clubs of other area programs to get a sense for their program and show your interest. While this is particularly true for the West Coast, it holds true for any area of the country that you have a strong desire to end up but don’t have ties to already, or if there are specific programs that you’re particularly interested in.

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. 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.

- EM Program Directors care more about your Standardized Letters of Evaluation (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.
- ED Departmental letter: A SLOE will be written based on EM Sub-I by Dr. Kevin Scott (Course Director for the Sub-I)
- Away rotation SLOE: You should do an away rotation and they can 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 letter from other faulty/rotations: If you have done research or worked closely with an individual EM physician, you should consider asking him/her for a letter. **Keep this in mind when making your shift schedule for your sub-I at HUP, and ask early.** Or a letter from your MedSub-I, ICU, Trauma, research, really any elective rotation you do – someone who knows you well enough to write a strong letter. Doesn’t necessarily have to be from one of these rotations – it’s not a bad idea to ask for one from most elective rotations you do and does not have to be from EM.

- Dr. DeRoos says it is better to submit 3 letters than 4 if the 4th letter doesn’t add anything to your application.

**Residency programs**

- There is no 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’ll 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 career choices/placement, research/elective opportunities, program history, and overall ‘gut feeling.’

  - Formats include PGY1-3 and PGY1-4 (there are no more PGY2-4 + transitional year programs offered). 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’d 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 & meet your criteria—you’ll get a good feeling of what you want quickly once you start interviewing.

- Basic program types:

  - **Academic** (university based) – Typically great resources, ancillary services, teaching on off-service rotations. Research & 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 SAEM website (www.saem.org) that has info on all the residency programs in the country.

**Application process**

- 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 advisor, 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.
There has been a trend to take step 2 CK earlier in the application process so that it is included on your initial application; however, this is most important for those applicants with a lower step 1 score.

- Plan to apply to about 20 programs
- Interview at 10-15 programs max
- Most programs don’t care when you take Step 2, although some states require it earlier (CA).

**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 2nd round of invites in mid-late November.
- The season generally runs mid/late October to late January. **Be on top of your email!** Interview dates can fill up quickly so it’s best to respond as soon as you can. Accept or decline in a timely and courteous fashion. It’s okay to cancel an interview after you’ve scheduled it, but do so with plenty of warning 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 don’t 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 doesn’t make calls as much as other specialties.
- Ranking
  - 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, transitional 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 Emergency Care Policy and Research (ECPR) Center would be a great fit. Check out the Penn EM website (www.uphs.upenn.edu/em/) to learn more about faculty research interests. 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:** Kevin Gardner (kfgardner1@gmail.com); Kimon Ioannides (ikimon@mail.med.upenn.edu); Carly Blick (carly.blick@gmail.com)
Point people: Reach out to Dr. Margo, Dr. DeMarco, Dr. Betancourt, and/or Dr. Baylson if you are thinking about applying in Family Medicine, each of whom can offer a different perspective. Dr. Margo is especially important to touch base with early because she will make sure to keep you in the loop on any important information regarding applying in family medicine. Dr. Betancourt is excellent for giving personalized advice, and has experience with West Coast programs if that is an area you’re 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'll support you even if Penn's program isn't your first choice.

Dr. Margo and Dr. DeMarco usually plan an event during the spring in order to explain the application and interview process. This event is geared toward MS3s, but is open to all classes. Dr. Margo or Dr. Betancourt also hosts Family Medicine applicants at a casual meal at her home in MS3 spring to talk more about the process, meet residents, etc.

Rotations

Required
- Family Medicine or Internal Medicine Sub-Internship
  - The Family Medicine Sub-I will give you a sense of what inpatient adult medicine with family docs is like and give you a chance to better get to know the family medicine residents. However, it won't hurt your application to do the internal medicine Sub-I as long as you do the family medicine externship as well.
  - 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 it is by no means required or encouraged to do both.
  - 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're particularly interested in.
  - Aim to do your Sub-I before August so you can get a letter of recommendation from it.
- A pediatrics sub-I would be beneficial as well, but is not essential.

Suggested
- 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.
- The rest of the Family Medicine electives are pretty awesome too (especially sports med with Kapur).
- Pediatric ED, dermatology, and radiology are very common for family med applicants to do.
- Almost any other medicine, pediatric, psych, or OB/GYN elective(s) would all be worthwhile, based on your interests.
- Botswana elective is a great experience but DON’T be gone Nov-Jan as it will be very hard to schedule interviews to accommodate this.
- Do what you’re interested in! For example, one student did a Healthcare for the Homeless elective through UMass while another did an away rotation with the IHS in New Mexico. 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 where the scope is not so limited by the plethora of available specialists, 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 med is 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 of FM.

- Spring of your 3rd 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, contact Nancy Murphy or someone in the family medicine department directly.
- Meet to discuss your application early MS3 spring. If you were matched up with someone who doesn’t 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.

**Letters of Recommendation**
- Polish your CV and personal statement early as most letter writers will request these. It's okay to ask for a letter early and then send your personal statement to the letter writer later once you’ve completed it.
- Required number of letters varies from program to program, but it's usually 3 or 4. It's best to get at least 4 just in case.
- Get at least 1 letter from a family medicine attending. 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 don’t 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.
- If your sub-I is away, ask your advisor 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 list of "top programs." Rather, certain programs are a better fit 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.
- 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. Good unopposed programs to consider are Lancaster, Lawrence, Ventura, Santa Rosa, OHSU, 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. Good opposed programs to consider are UCSF, University of Washington, Boston Medical Center, Montefiore, and of course, Penn.
- In general, goodness of fit with the program is a more important than opposed vs. unopposed.

- Academic vs. community:
  - If you're 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're 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'll really take responsibility for the full spectrum of your patients' care.

- Strong OB vs. weak OB:
  - If you want to practice OB, you should aim to get 80-100 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 you want to keep that option open, look for programs where other residents share this interest and it's easy to get a high number of vaginal deliveries. A family medicine L&D service can be beneficial as family medicine OB tends to be stylistic different from OB/GYN L&D in important ways. A program having a obstetrics fellowship (or something similar) is also generally a good sign of a strong OB program.

- RHEDI vs. non RHEDI programs:
  - RHEDI programs teach abortion to family medicine residents. Other programs may not include this in their curriculum, although away electives at Planned Parenthood can be arranged to get this training.

- 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. peds 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, etc. Many of these fellowships will pay for an MPH or MSCE. If you're interested in academics, look to see if there are fellowships associated with the residency program and whether or not graduates go onto fellowships.

- If at all possible, go to the 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 PAFP are available for first-time conference attendees and based on merit.

- 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**

- FM programs are very diverse and it's worth applying to a variety to get a sense of what you're looking for. You'll probably be a very competitive applicant coming from Penn, so applying to 10 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 –

- 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're looking for – aim for about 8. 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 Sub-I
- Other relevant Medicine, Peds or OB electives
- Update CV
- Ask for letters of recommendation
- Schedule Dean’s Letter meeting
- Write Dean’s Letter Unique Characteristics Paragraphs
- Start working on Personal Statement
- Start planning scholarly pursuit – lots of good FM options, but not necessary to do research with FM faculty

June, July, August, 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’re 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’re not.
- Complete application: submit on first day, especially if applying to broad geographic range. The earlier you get your application in, the sooner you’ll get interview offers and the easier it’ll be to schedule.
- Register for NRMP.

November to February
- Interviews (interview months are a good time to do scholarly pursuit)

Step 2
- It seems as though more and more programs are using Step 2 CK in some capacity. UCSF, University of Washington, 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”.
- See the end of this booklet for more general study tips.

Interviews
- Schedule your interview as soon as you get an invitation. If you need to re-schedule the interview day in order to cluster interviews geographically, program coordinators are generally pretty accommodating. However, don't move an interview more than one time.
- Interviews start early in FM (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'll be there. The process is a little less formal than 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—ok 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 5-10 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 2-3 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 FM team and in the resident clinic. Because FM 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 3rd yr. 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’re here for you!
- Family Medicine for Underserved: Roseann Day (roseannkday@gmail.com)
- Family Medicine for Urban Underserved: Harrison Kalodimos (hkalodimos@gmail.com)
- Family Medicine for Global Health: Joanna Stephans (joannapstephens@gmail.com)
- Family Medicine and Public Health: Jessica Zha (iamjes@gmail.com)
- Others: Andrew Hoekzema (andrew.s.hoekzema@gmail.com), Jessica Ratner (jessratner@gmail.com)

INTERNAL MEDICINE

Point people for application: You will be assigned to work with Dr. Kogan, or Dr. Hamilton

There is a meeting for all students who might be interested in internal medicine, in the fall of your third year.

Rotations
---Required
- At least two medicine electives (in addition to the sub-I) 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.
- Medicine Sub-I: This is the most important clinical component of your residency application.
  0 Timing: Medicine sub-I’s are offered from January through September and are assigned via lottery held the prior October/November. It is feasible to apply in IM even with a late (Aug/Sept) sub-I: Dr. Kogan/Hamilton will make sure your evaluations and recommendation letters are submitted without holding up your residency application. Some students assigned to an early (February or March) sub-I delay taking Step 1 in favor of getting 1-2 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 (i.e. how to put in orders, how to communicate with other hospital staff, how to handle consults and how to navigate social work/disposition issues). The downside to this is really minimal, taking step 1 later than the majority of your classmates, 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–July, covering logistics, how to sign-out, common medication dosages, cross-cover issues, etc. It’s excellent.

- **Location:** If applying in medicine, it is best to do your sub-I at HUP/VA/Presby (versus Pennsy), 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/Hamilton know that they are going into IM, but they cannot promise site location. Where you do your Sub-I does not affect your competitiveness for applying in Internal Medicine. At HUP and Presby you’ll be managed 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’ll be managed 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 have overnight while others don’t. This is subject to change and really won’t drastically change your experience. People have enjoyed sub-internships 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’re capable of the rigors of a 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/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’s also common for students who don’t get a spring/summer MICU/CCU slot to sign up for a 2- or 4-week rotation in January/February/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:** An outpatient general medicine elective 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 IM resident. Make sure to talk with Dr. Kogan/Hamilton about your goals before the month, so they can place you at a site that matches with your interests. 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, rheum, 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: GI at HUP, Renal at HUP/Presby, ID at HUP/Pennsy, Pulm at HUP/VA, MICU at HUP, CCU at HUP/Presby, Cards at Presby/HUP, Oncology at HUP, Palliative Care at HUP). Keep in mind that on electives at HUP you may end up sharing duties with another med student, 1-2 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 (Renal, Cardiology, ID) to help prepare you for the sub-I (but don’t worry if you can’t arrange this, it’s not essential!). Also know that for most of
your residency interviews, the program will try to pair you with an interviewer in your field of interest (we know you have more than one, but for these purposes you have to narrow a little, to one or two if possible). 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, your letter write and your interviewer.

- **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. Primary care 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 OK. If you are looking for high-yield electives that may help you prepare for your intern year (i.e. MICU, Gen Med nights, etc)-also totally OK. Ask your classmates about their experiences to help shape your 4th year elective time.

### Away rotations

- **Away electives:** These are NOT necessary for medicine. Dr. Kogan/Hamilton will tell you to only do one if you MUST be in a certain location, and even then, they may not recommend it. *Anyone considering an away should meet with Dr. Kogan 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/submitting your ERAS from abroad, and the September/October block will require scheduling interviews from abroad, neither of which is a big deal. If you go in January, you’ll just need to wrap up interviews by then, but given that IM residency programs typically have tons of interview dates, this shouldn’t 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. Many of us have felt that the best mentors have been clinical faculty we have gotten to know on sub-internships, electives, and research months.

  - 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’ve 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. Dr. Kogan/Hamilton are great resources for the actual application process, so if your mentor only wants to talk about specialty stuff, that’s ok too.

- You don’t have to wait for (or even pursue) an assigned DOM mentor if you end up bonding with an attending on a sub-I or elective. 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 4th year.

### Letters of Recommendation

- Programs will require 3-4 LORs, one of which must be a letter from the department of medicine. Dr. Kogan/Hamilton will take care of your DOM letter as long as you’ve had your mandatory summer meeting; the rest are on you to solicit. You can ask for as many letters are you want, but can only submit 3-4 (Really only 3 that you solicit yourself, because the DOM letter counts as 1) to each program.

- You should try to have a letter from your sub-I (or MICU), although if that doesn’t work out it’s not the end of the world. If you’ve 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 or your medicine clerkship. Also keep in mind that it’s 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’re a captive audience and when you’re still fresh in their mind). Most students will ask their attending for a few minutes of feedback, and if the vibes are good, lock down the LOR then (“would you feel comfortable…”). Follow up afterwards with an email that contains your personal statement, CV, and the LOR upload request from ERAS, 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, Barb, Helene, and/or Dr. Kogan/Hamilton will help you track down attendings, but this should be a last resort.

- Ideally, all your letters should be uploaded to ERAS by Oct 1 (preferably earlier—by early-mid September), which is when the Dean’s Letter/MSPE is released, though a late letter or two will not have a negative impact on your application. Once you know that your letter has been submitted, send a thank-you note!

- Letters are now uploaded directly to the ERAS Letter of Recommendation Portal by your LOR authors. 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. An overview of the process is here: https://www.aamc.org/download/422362/data/lor-process-authors.pdf

**Step 1 and 2**

- Bottom line: Scores matter, but less in IM than in more competitive subspecialties. If you’re unhappy with your Step 1 performance, consider taking Step 2 CK earlier so programs can factor this score into interview invitation decisions. This is a decision that is best guided through discussion with your DOM advisor.

- Most IM applicants take Step 1 between February and June and take Step 2 CK between August and January. Remember that Step 2 CK tests multiple specialties (IM, surgery, pediatrics, OB/GYN, etc.). Also know that the interview season (Nov-Jan) will end up being busier than you might anticipate, and it can be very hard to carve out 2-3 weeks of dedicated study time during these months. Those students who leave this test until the last minute usually regret it!

- 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). Scores take about 3-4 weeks to come back. You’ll 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’ll want to get a spot at the Philadelphia site!

**Research**

- For internal medicine, research/published work is not necessary, but certainly helps an application. 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’re able to speak intelligently about recent advances in medical education, quality improvement, health care 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’ve participated in.
- If you’ve done significant research during medical school you should consider getting a LOR 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—never know when you might be asked about it in an interview!
- The majority of IM applicants start work 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 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. med ed, global health) etc. While Penn students traditionally match at highly-regarded programs, definitely look beyond only the “best ranked” programs (in fact, official program rankings don’t really exist). You never know which programs will surprise you on the interview day—don’t get attached to a single “dream” program this early in the game!
- You’ll have a required meeting with Dr. Kogan/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.
- IM-bound applicants generally apply to approximately 12-18 programs and go on about 8-10 interviews. Again, Dr. Kogan/Hamilton will advise you on this, but if you have any red flags in your application, are geographically restricted, or are couples matching, you’ll likely want to be on the higher end of those numbers. You don’t have to accept every interview offer you get and you don’t have to go on every interview you schedule, so it’s never a bad thing to cast a wide net at the outset and be more selective later on.

Application Process
- You will meet with Dr. Kogan/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’re not embarrassed to show by mid-August. The earlier you begin working on your personal statement, the better, especially since many of your LOR writers may ask to see it before they write your letter.
- 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 LORs as you’d like, but can only assign 3-4 of them to each program (one of which will be your required DOM letter).
- You may release your ERAS to programs on September 15th; aim to have your portions of ERAS ready to go/be submitted by this date, though some students do submit later (ideally still before Oct. 1, when the Dean’s Letter is released). You are able to (and should) release your ERAS even if all your letters of recommendation are not yet uploaded! In fact, your DOM letter probably won’t be ready until very late September so it’s OK to send off your ERAS before that’s in. You can release more letters later.
- The Dean’s Letter/MSPE is released on October 1; this is done by the Office of Student Affairs and you won’t be able to 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”. Ideally this will be the last piece of your application to be sent off, but if you have a straggling LOR or two at this stage, it’s not the end of the world. Definitely have your ERAS submitted between Sept 15-Oct 1, and aim to have all letters complete by the first week of October at the latest.
- Application deadlines and requirements (e.g. when step II 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 2016-2017 application season, interview offers were made starting mid-late September through early November. Some programs will start sending invites as soon as they receive your ERAS (Sept 15 at the earliest); others won’t begin extending offers until a few weeks after the Dean’s Letter/MSPE goes out on Oct 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 haven’t heard from a particular program doesn’t mean you never will. Also know that Dr. Kogan/Hamilton can help you determine the need/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 some programs fill their interview slots on a first-come first-served basis. Though rare, it’s possible to miss out on an interview if all the slots are filled by the time you respond to the email. A quick response is also essential if you’re trying to group interviews together based on travel plans or are coordinating with a significant other.

- Most interviews occur from late October through mid-January. 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. It won’t 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/November at places lower on their list, then do the programs they’re really interested in later on in the season. Just something to think about, especially if you’re nervous about your interview skills. Also keep in mind that you will likely be tired by January, and it’ll be tougher to put on your game face. That being said, if your dream program offers you an interview for November 1 or January 25, you’ll be fine! When you interview has absolutely no bearing on where programs will rank you; it’s how you interview that matters.

- Always try to talk to the Penn Med grads 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 dinner the night before; you should make every attempt to go but it’s not a deal-breaker if you can’t make it. 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 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. Highly recommended. The OSA will also hold a residency application/interviewing session and will give a packet with several frequently asked questions in interviews; you probably won’t end up being asked very many of these but it’s worth reading through them and creating loose frameworks for answers to the tougher questions. It’s also worth trying to recall 2-3 patients you encountered during your time in the hospital; 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 now hires to meet with small groups (15 or so ppl) at a time. She is great. She covers how to answer questions in a way that is memorable for the PD 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).
- On the interview day you’ll usually interview with 1-3 people, generally attendings matched up with your interests (you’ll be asked about your tentative interests when you receive the interview invitation – it’s better to just go with something rather than say “undecided”) and/or people who trained at Penn.
- Make sure you know your application/research/publications backwards and forwards. If it’s 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. You should definitely read the information on the program’s website the night before your interview - this is a good source of questions.
- Smile, be enthusiastic, be nice to everyone you meet, and say thank you. Be positive and excited about medicine. Do not disparage other programs or specialties. Recently, the DOM has gotten feedback that some Penn applicants have come across as arrogant in IM 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’ll never forget certain details about this specific program, it becomes tricky after 10 or so interviews!
- Thank-you notes are probably not necessary and some programs will tell you their post-interview communication policies on interview day. Increasingly, in internal medicine, programs are adopting a policy of not reaching out to applicants following the interview (though you can reach out to them - see below for more information on this). Some students still err on the side of sending thank you notes. Shocker. If you do them, email is preferred. Do not feel pressure to send these, however; many students do not

After interviews
- You get to tell ONE program that they are your number 1. It’s not required that you do this, but the general feeling is that it can only help (assuming you’re being honest). Do not do this until you are absolutely certain. Ask Dr. Kogan/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.
- Though it happens far less frequently in IM, you may be schmoozed via email or telephone during or immediately after the interview season. Be aware of phrases like “highly competitive”, “ranked to match”, “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. Don’t 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 or 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 IM Primary Care Tracks…
Most academic programs offer a separate track in primary care. 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 specialize in an outpatient-based practice, such as rheumatology, infectious disease, endocrinology etc. Different programs vary with regard to whether they are recruiting generalists only, or whether they are interested in applicants hoping to pursue outpatient specialties (like endo, etc.), as well. This is something that can be determined by reading their websites, looking at where past graduates of the primary care programs have gone, and speaking to Penn students 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 residents usually have very similar inpatient schedules to categorical residents for core rotations, but often have outpatient clinic months when categoricals have electives and, depending on the program, may have substantially more
outpatient time. They also have the advantage of being a smaller “family within a family” and as a result have close mentorship and support systems.

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. A minority of programs let you switch into the PC track once you match at the internal medicine residency. Many programs will have a separate day to interview for their primary care track (UCSF, Brigham, MGH to name a few), but for others you can interview for both the categorical program and primary care track on the same day. It is very common to apply to both primary care and categorical tracks, and programs expect (and sometimes require) that you do so. 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.

Categorical and PC residents typically rotate at the same inpatient sites. In some programs, the primary care residents simply have more outpatient and primary-care-specific didactic time, whereas in others the outpatient training takes place at a designated clinic for primary care residents. Programs vary as to the career paths of graduates. In some, half the residents may enter subspecialty training, whereas in others the graduates remain almost exclusively in primary care or general medicine. Some programs concentrate specifically on underserved populations (Montefiore, SFPC track at UCSF, Hopkins). If you are interested in pursuing another area of focus in addition to primary care, such as the special tracks many programs offer to their categorical residents 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’ll have an idea upfront about what is required to complete the various tracks and how to distribute your elective time.

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. Dr. Kogan/Hamilton are also knowledgeable about programs, as are Penn grads at the various programs.

A Word about IM Research/Fast-tracks…

Many academic programs offer an ABIM research pathway in IM. Even among those that do not formally have one at the time of applications (i.e. on ERAS), there is often an ABIM program available (Brigham, MGH, JHU, etc.). It’s really just the personal preference of the place. These programs usually have a shorter IM residency (2 years) that fulfils 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’s 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 ppl/year, max). Only one thing is uniform – every single program handles this pathway differently 😊.

To apply for fast track, if it’s on ERAS as an option, check the box. If it’s 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 IM). 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 (I 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. I 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 don’t, 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 (i.e. Cornell, Yale) have guaranteed fellowship placement after two years. Other places (Penn, Mt.Sinai) do not, and you will have to apply for fellowship in the second year of your 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 be 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 then the categorical track cohort. It’s 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/PIs. Do it for you; if you need more exposure, go back. If not, don’t. 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: Jenny Whealdon (jwhealdon0813@gmail.com), Hallie Rozansky (hallie.rozansky@gmail.com), Harry Han (hhan08@gmail.com)
- Primary care track: Hallie Rozansky (hallie.rozansky@gmail.com), Nilan Schnure (Nilan.Schnure@gmail.com)
- Fast track: Alice Zhou (zhoualic@gmail.com)

MED/PEDS
(Combined Internal Medicine/Pediatrics Residency)
Original work by member of class of ’07. Updated most recently by AC Gomez (2017)

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, CF, IBD, Down, Sickle Cell, survivors of childhood cancer)

Subspecialty care (combined fellowships are expanding in fields where adult and pediatric training is useful, e.g. rheum, allergy/immuno, endocrine, HIV/ID, GI, renal, heme/onc)

Other interesting career paths (e.g. child and elder abuse, primary care for ex-preemies, teaching, advocacy, policy, public health, research)

- One important reason NOT to do Med/Peds: You don’t particularly love or hate either field, or you couldn’t 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 IM and Peds, 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 >50% of Med/Peds grads.

**What fellowships will be open to me after residency?**

- All IM and Peds fellowships are open to Med/Peds residents. There are also combined fellowships available in ID, rheum, endocrine, pulmonary, critical care, allergy and immunology, GI, and renal.
- 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 peds ID).

**How does the residency work?**

Med/Peds residencies are four years long (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 IM and Peds; 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 ABIM & ABP 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 (szalda@email.chop.edu)
- Associate Program Director - Oana Tomescu (oana.tomescu@uphs.upenn.edu)
- Associate Program Director - Sophie Jan (sophiaj@mail.med.upenn.edu)

**Rotations**

*Required*

- Medicine Sub-I
- Pediatric Sub-I

*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, Peds, Family Medicine
    - Away in a Med/Peds continuity clinic
    - Global health
    - Adolescent medicine
  - There is a list of generally recommended electives in internal medicine and paediatrics (refer to their respective sections in this booklet)

**Mentorship**
- If you haven’t 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 Dava Szalda as well as the former program director Todd Barton would be great starting points.
- Seek out Med/Peds residents when you choose your Medicine or Pediatrics sub-I team. Or just request to meet with them and chat.
- The faculty are great and easily accessible. You may have met Chad Johr (adult rheumatology and med-peds trained), and he loves talking to students.
- The med-peds chief is also a great resource and would love to hear from students interest in med-peds. The chief for 2017-2018 will be Laura Robinson (RobinsonL3@email.chop.edu )

**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**
There is no available ranking of Med/Peds programs. Here are some factors you may want to consider:
- **Location:** There are fewer Med/Peds programs on the west coast. Many long-established, strong programs are not at centers you might have thought about as stereotypically prestigious (e.g. U Rochester, UNC, U 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 IM and Peds 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 peds 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:** Many programs focus in 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 are very close (53% adult, 47% peds). Combined clinics are more realistic if you’re planning to do primary care in the future. 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 four (Penn) to 16 (Indiana University) residents per class (most are four).

- **Special tracks/opportunities:**
  - Global health: Penn, Harvard (both programs), Duke, Brown, U Miami, Baylor, Case Western/Rainbow Babies, U Rochester, Cincinnati, Yale, Mt. Sinai, UCLA, UCSD, Maryland, U Chicago
  - Transitional care: UCLA, Brown, Baylor, Harvard, Michigan, Cincinnati, Penn
  - Adolescent medicine: Penn, Harvard, Baylor, Pittsburgh, Hopkins, USC (Children’s Hospital LA)
  - Subspecialty care: Adult Congenital Heart Disease (CHOP)

**Application process**

- 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 Peds. 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 IM or Peds?**
  - First, ask yourself why you are considering this. Are you undecided about Med/Peds? Worried about not matching? Coming from Penn Med, you shouldn’t need to apply to a backup specialty.
  - Several Penn Med students have applied to Med/Peds programs as well as one of the two categorical programs or FM 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 IM or Peds, 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’re unsure, Dava 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 FM 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, Peds, 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’ve 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, others have two-day interviews (Cincinnati, Yale).

- You will have individual interviews with faculty and/or residents from Medicine, Peds, 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 and what kind of funding is offered.

Final thoughts
Websites with additional information on Med/Peds
- National Med/Peds Residents Association (www.medpeds.org): Great first stop, where you’ll find tons of info for students.
- 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: Searchable online or via FREIDA. Penn’s Med/Peds program (started 2004) can be found at http://www.uphs.upenn.edu/medicine/education/resAppInfo/sp
- Student Doctor (www.studentdoctor.net): Look in the combined residency forum. Remember that much of what you read on Student Doctor is written by other, often anxious, med students.

Med/Peds-trained Faculty
- Charmaine Smith Wright (RWJ Fellow): smich@mail.med.upenn.edu
- Carol Ford (Adolescent Medicine Division Chief): fordc@email.chop.edu
- Roy Kim (Pediatric Endocrinology): kimr@email.chop.edu
- Carol McLaughlin (Adult ID at the VA): carolmc@upenn.edu
- Phillip Green (Adult ID): pagreen@mail.med.upenn.edu
- Meeta Prasad (Adult Critical Care): prasadm@uphs.upenn.edu
- Chadwick Johr (Adult Rheumatology): Chadwick.Johr@uphs.upenn.edu

Recent Penn Med grads that have gone into Med/Peds (Penn grad year in parentheses, followed by residency location):
- 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
- Laury Rosefort (2012) Yale

Questions: AC Gomez (alexis.gomez07@gmail.com)

NEUROLOGY

Original work by Brian Edlow. Updated most recently by Annie Douglas (2017) and Alexander Gill (2017)

Required Electives:
- Neuro Sub-Internship – take before or afterward r Medicine Sub-I. Most popular months are between March and August; scheduling is VERY tight (2 students/month) so be sure to express interest to Dr. Pruitt as early as you can (NOW) and choose a month (not lotteried so can schedule anytime, even well before the lottery). She will usually offer to meet with you to discuss what kind of experience you’re hoping to do, so that she can schedule accordingly. Choices include inpatient service (stroke, ward), HUP consult service, Presby consult service, outpatient, or a combination. Outpatient experience is somewhat new but growing very popular, and you can tailor your outpatient experience to focus more on certain subspecialties. It is also possible to mix outpatient and inpatient experiences over the four weeks if desired and if discussed far enough in advance.
- Medicine Sub-Internship strongly recommended (as opposed to medicine externship) and required for most preliminary year programs.
- 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 neuro sub-I is outpatient experience only, try to have multiple days with the same attending so they get to know you well enough.
- 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.

**Highly Recommended Electives:**

**Away Rotations**
Rotations at other institutions are not necessary and are not generally recommended. If there is a particular program or place you really want to be (and 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 rotations in the past. Of note, NYU has lots of former Penn faculty

**Preliminary Programs**
Many programs offer both advanced (neurology only, medicine internship elsewhere) and categorical (medicine internship and neurology all together). For example, the HUP categorical program application includes a medicine internship at HUP, while the HUP advanced program allows you to apply for an preliminary medicine year at Pennsy or any other stand-alone preliminary position. While most programs used to be advanced and leave you on your own for finding a preliminary position, many programs are moving toward categorical arrangements, in which you submit one application for both the medicine internship and the three years of neurology residency. Additionally, some programs are Advanced with guaranteed internship year if you rank their prelim program (e.g. NYU). This option gives you the most flexibility as it gives you to the ability rank other prelim programs first, with the guaranteed fall back of matching with their prelim program resulting in an essentially categorical program setup.

If you have personal or other reasons to be in a particular city for your internship year, you may prioritize location and 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 could prioritize categorical positions.

**Letters of Recommendation**
- Polish CV and work on Personal Statement so you can give them to your letter-writers. Aim to have a near finished draft of your Personal Statement by June-July so that you can give it to all your letter writers.
- Most programs require at least 2 letters, and ERAS allows for you to submit up to 4 (which most people take advantage of)
- At least 1 letter should come from a neurology attending, and good to have at least 1 from a medicine attending as well (those from your sub-I are a great resource). Try to choose attending who have worked with you most (this is usually more important than which department they are coming from).
- Ask early and soon after you finish your elective, as faculty members are busy and need time (and sometimes prompting) to complete the letters.
- You can ask for more letters than you need, you do not have to submit all of the letters that you receive.
- You have the option to send different letters to your stand alone preliminary year programs. You can send letters from different letter writers and/or different versions of letters from the same letter writer. Letter writers can upload versions of their letter for prelim programs and for neurology programs with just slightly changed closing paragraphs, though this requires you to provide them with two distinct letter upload forms.

**Mentors**
- The best approach is to choose a mentor from one of the attendings you have worked with on an elective rotation (or Neurology 200). Alternatively, you can be assigned a mentor by the Office of
Student Affairs. If you were not assigned one when you told The Academic Programs Office you specialty interests, talk to Nancy Murphy (murphynk@mail.med.upenn.edu). Email your mentor and meet to discuss your application in early spring. If you were matched up with someone who doesn’t share your same perspective/interests, it is OK to try someone else. **When in doubt, try asking Dr. Pruitt or Dr. Ray 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 projects are available. Even if they do not have a project for a student, they will usually suggest someone else on faculty who does.
- [http://www.uphs.upenn.edu/neuro/faculty/](http://www.uphs.upenn.edu/neuro/faculty/) is a great resource to see what research projects the faculty members are working on, although not always up-to-date — email the person to ask!

**Residency Programs**

- Research them before you apply and interview; use websites
- [https://freida.ama-assn.org/Freida/user/viewProgramSearch.do](https://freida.ama-assn.org/Freida/user/viewProgramSearch.do) lets you search for neurology programs (or any kind of residency program) by state.
- [https://residency.doximity.com/](https://residency.doximity.com/) lets you search for neurology residency program by location, program characteristics (e.g. size, urban vs. rural), research output, and “reputation”.
- Be sure to talk to the other students at your interviews! By the end of the interview trail you will probably recognize almost all of them at every interview and will 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, fellowships available, elective research, international opportunities, etc.

**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 to June**

- Meet with mentor ☞Do at least one neuro elective and/or neuro sub-I.
- Ideally, complete medicine sub-I before the end of June.
- 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
- Meet with Dr. Price, the neuro residency program director at Penn, or another neurology mentor. Dr. Price and Dr. Pruitt will hold a meeting with everyone applying in neurology.
- If you are an MD/PhD or strongly interested in research, setting up a meeting with Dr. Geoffrey Aguirre, the Associate Program Director in charge of research track residents, to discuss research during residency here at Penn is helpful.
- Complete application
- Meet with Dr. Kogan, Dr. Hamilton, or Dr. Goren if you need a letter from the Department of Medicine. Some PRELIM programs may require or recommend a letter from the department. Most do not, and it is enough to have a letter from any Department of Medicine faculty letter. You will need to get a few documents ready for this meeting (Step 1 scores, medicine rotation grades, personal statement, CV, etc.).
- Verify that letters of rec are in

**September, October, November**

- **Take Step 2 CK/CS (by mid Nov is best).** A few programs are starting to require that you have passed these in order to be allowed to match!! UCSF is one example that already requires it.
- Register for NRMP
- Set up interviews, which usually run from late October through to early January. Interviews are moving earlier and earlier each year.
- Interviews
Schedule as soon as you get an invitation to interview (spots fill up quickly!). Let the programs know if you are also hoping to interview for their preliminary internal medicine programs, since sometimes this requires coordination.

Programs are moving more and more to using online interview schedulers (interviewbroker or the new ERAS scheduler) that allow applicants to select, change, put themselves on waitlists, and withdraw from interviews instantly based on slots remaining in real time.

Read about program before you go (website is a great resource) and have a few questions prepared.

If you don’t get an interview at a program you want, see if your mentor or Dr. Morris will call on your behalf.

Interview encounters often span two days, with the first day consisting of either medicine information and interviews or neurology information sessions. Also, the neurology interview day itself tends to be longer than interview days for some other specialties, with 5-9 interviews ranging from 10 mins to half an hour.

However, neurology interviews are typically very laid back and conversational. Questions are the usual interview type, i.e. Why Neurology?, discuss your extracurricular interests, discuss your research. Basically, interviewers will pick any detail from your ERAS application that caught their eye and ask you about it.

**Questions:** Annie Douglas (agdoug@gmail.com) and Alexander Gill (alexanderjgill@gmail.com)

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**OB/GYN**

*Original work by Molly Carey, updated by most recently by Iris Lee (2017)*

**Electives**

*Required*

- Take at least one (preferably 2) elective in ob/gyn, either at HUP or at Pennsy
  - HUP electives: suggested to take either MFM or GynOnc at HUP as your Ob/Gyn “Sub-I”
    - 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 L&D. There’s one 24-hour call each week. It’s a tough month in terms of time commitment and the expectations are high, so it is probably best to do it once you’re sure you want to apply in Ob/Gyn. If you do this rotation, Dr. Wang expects to write a letter for you.
    - GynOnc: 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. The department acquired a number of new attendings 2-3 years ago, who now have settled in nicely.
    - REI: Largely outpatient, doing initial histories on women with infertility and also women with menstrual irregularities. 1-2 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.
    - Urogynecology: You work directly with Dr. Arya, who is a phenomenal surgeon, hilarious person, and great mentor. You interact mostly with fellows and less with residents, but 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 the nature of the cases. Clinic, on the other hand, is very hands on and you get a lot of autonomy.
• Family Planning: A very rewarding rotation run by Drs. Schreiber and Sonalkar. They have high expectations of students but are very invested in your education. Good opportunities for hands-on experience with D&Es, IUD placement, and sometimes ultrasound. One OR day per week in the CAM. You get a lot of autonomy and experience counselling patients about birth control, miscarriages, abortions, etc. Usually one resident is on service there, so you will interact a lot with him/her, and a lot with the fellows.

 o Pennsy:
   • Intrapartum Management (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’re interested in but not sure about OB.
   • GynOnc: Good surgical rotation. They recently hired 2 dedicated GynOnc surgeons, so they are seeing more surgical volume.
   • Ambulatory Gyn: 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.

 o Radnor:
   • Outpatient GYN: Run by Dr. Honebrink who is wonderful. Lots of exposure to normal outpatient GYN care and tons of menopause management.

- Sub-I
  o Most students will take a medicine sub-I (strongly recommended) although a family medicine sub-I will also qualify

- Taking an elective in spring or early summer 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’re in a bind and ask early).

Suggested
- Any Medicine Elective (ID was mentioned by a number of faculty as recommended, endocrine was also useful.)
- Electives with specialties you will interact with a lot—ie Anesthesia and/or NICU. They tend to be more relaxed (especially if you opt for a 2 week course) and I found residents/attendings (especially on Anesthesia) were flattered you wanted to know more about what happens on the “other side of the curtain” and very eager to teach.
- Numerous OB/GYN faculty have said that doing electives outside of OB/GYN is great as this is your last chance!
  o Adolescent medicine (lots of gyn and pregnancy option counselling opportunities)
  o ER, SICU

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. Driscoll’s letter).
  o At least 1 from an ob/gyn (other than the one Dr. Driscoll writes).
  o 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 rec writers with a CV and copy of your personal statement (if you have it, don’t stress if you don’t).
- 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!
  o Ask for more than you need - you don’t 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 schools you are applying to.

- **Schedule meeting 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 Academic Programs Office your specialty interests, talk to Nancy Murphy. Choose a person from her list and make an appointment to meet with that person to discuss your application early Spring if you’re not already in contact with someone.
- If you were matched up with someone that doesn’t share your same perspective/interests it is OK to talk with someone else on the faculty.
- Don’t be afraid to talk to Dr. Driscoll. You should not be afraid to ask her questions about other programs, she has incredible integrity and won’t 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’s 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’re 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!).

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!)
- These are just the most recent local people, ask Dr. Driscoll about where people have gone in the recent past!
  - HUP current PGY-4: Katie Dillon
  - HUP current PGY-3: Sevelle Holder, Jessica Traylor
  - HUP current PGY-2: Carrie Miller
  - WashU current resident: Sarah Huepenbecker, Rachel Weinblatt
  - NYU current resident: Jen Hillman
  - Cornell current resident: Andrea Barberio
  - Jefferson current resident: Natalie Degaiffier
- 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’re 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 don’t 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.

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 recommendations
- Plan scholarly pursuit
- Start work on Personal Statement
- Update CV
- Schedule Step 2 CS

**June, July, August**
- Schedule Dean’s Letter meeting with JoMo
- Schedule Chair Letter meeting with Dr. Driscoll (it’s helpful to have your personal statement done before then, but not necessary, so she can read it when she writes your letter)
- Write Dean’s Letters Intro Paragraphs
- Start ERAS application

**September & October**
- Complete application & Submit
  - Apply as early as possible (ERAS usually opens September 15). Most places start offering interviews before the Dean’s Letter is out. These spaces will fill up! Also, if you wait until the last minute, programs can tell that you aren’t that interested and might not offer an interview.
  - Verify letters of rec are in on ERAS.
- Apply to enough “safety” programs! OB/GYN is surprisingly competitive, especially in recent years.
- Register for NRMP
- Check status of apps at every program through ERAS (make sure you send scores, essay, recs to every program - it’s easy to miss a box and not send one piece to a program and then your application is not complete)
- Programs may start offering interviews as early as the end of September, even before the Dean’s letter is mailed out, although most will come in mid October.
- Interviews in OB/GYN are on the early side, starting mid-Oct and mostly finishing by mid-December, although there are usually a few dates in January.

**October to February**
- Dean’s letter 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
  - Nov. and Dec. are the big interview months in OB/GYN with some schools offering a few dates in Oct. and in Jan.
  - 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 don’t 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.

- Don’t 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 don’t 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 doesn’t 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 don’t worry if you don’t 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: Iris Lee (iristlee@gmail.com)

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**OPHTHALMOLOGY**

*By Joshua Udotek, most recently updated by Elaine Zhou (2017) & Enny Oyeniran (2017)*

**Point person for application:** Dr. Sankar ([Prithvi.Sankar@uphs.upenn.edu](mailto: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.
- Pediatric Ophthalmology or Neuro-ophthalmology/Oculoplastic and Orbital Surgery – your choice (one of the two) [Note: It looks like neuro and oculoplastics have been combined into one rotation. This is new.]
  - Peds Ophtho is a 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.
  - Neuro-ophthalmo/Oculoplastic and Orbital Surgery
    - Neuro-ophtho is also a great rotation and LOR opportunity. You see a lot of patients on your own. It’s a complex field, but you learn a lot. Dr. Liu runs the rotation and is an excellent teacher. Because of new restrictions on medical student notes, this part of the elective is mostly shadowing now.
    - Oculoplastics is a great rotation and excellent opportunity for LOR and publication opportunities. You get daily OR exposure at both CHOP and Scheie as well as personalized lectures and surgical skills training from Drs. James &
Bill Katowitz and their fellows. Their ORs are run smoothly and a lot of fun - you'll get very familiar with their procedures and get lots of responsibility in the OR.

- 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.

Suggested

- Neuroradiology, Dermatology, Rheumatology, Neurology, Plastic Surgery, Otolaryngology, Sub-I

Away rotations

- You’ll 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 an away rotation in ophtho.

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.

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 UPenn. 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 ophthalmology at UPenn. 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.

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 may need to schedule a meeting with Dr. Kogan if you are applying to any of these programs (though most programs DO NOT require this letter).
  - 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). 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 administrative assistant 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, before all invites have been sent.
  - Some ophthalmology residency programs will offer a prelim year spot at their institution automatically or with a skype interview if you match there for ophthalmology (even if you didn’t apply through ERAS). This is something that you can ask about during interview day. After you match in ophtho, don’t be afraid to ask for other prelim/TY interviews (even phone interviews) in the city you matched.

Residency Programs
- **Program rankings:** There are rankings in US News and World report and a journal called Ophthalmology Times, as well as Doximity. However these are not very accurate and only based on reputation. The same schools end up being in the top 10 every year with little shifts. The programs that always end up in the top are: Bascom Palmer Eye Institute in Miami, Wills eye in Philadelphia, and Mass Eye and Ear in Boston. 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 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.

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.
- 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 25-60 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, 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.op.th.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 II score before matching. However the California based schools sometimes do require Step II scores before matching. All you have to do is send your score in before match day. Dr. Sankar recommends taking Step 2 before January of match day 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.

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. Organization is key! Check out program websites, and if necessary, call program coordinators to ask for interview dates. It is very important that you make a calendar with all potential interview dates to have on hand when they receive an interview offer so you can respond within 15 min. with your interview date preference.

**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 pursuits so that it can appear on your application
- Consider setting up an away rotation (see above)

**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. Kogan 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 pursuits and can save free time for you later.

**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 (e.g., fiancé 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.

**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 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. Don’t tell more than one program that they are your #1 as Ophthalmology is a small field and programs do talk.

**Questions:** Elaine Zhou (zhouelainej@gmail.com), Enny Oyeniran (enny.oyeniran@gmail.com)

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**ORTHOPAEDICS**

*Original work by Cara Cipriano. Updated most recently by Bridget Ellsworth (2017)*

**Electives**

- **Home:** Do one or two at Penn in whatever Orthopaedic fields interest you. All the rotations are excellent, but trauma at Presby, pediatric ortho at CHOP, and adult reconstruction are particularly good for students. Some Penn students squeeze in a two-week rotation with the chairman, Dr. Levin, but this is usually LOW yield. Trauma is the highest yield in terms of preparing you for most away rotations as you will experience the steepest learning curve during this month and feel more than equipped when you are asked anatomy and basic classification questions on your aways. 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.
- **Away electives:** Two are recommended but many people do three. They are very exhausting so do not over-schedule them as you do not want to be tired during your aways. They are far and away, 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; alternatively, you can use this
opportunity to try out a different program style or location. Your best odds of matching will always be at programs that you spent time at and performed well, so choose carefully. Letters of Recommendation are NOT required from away elective attendings.

- **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. 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. Most programs use the Visiting Students Application Service (VSAS) through the AAMC. 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!

- **Sub-I vs. externship**: Do NOT feel the need to do a medicine or peds sub-I unless you really want to, because programs will NOT care one way or another. Most Penn students applying in orthopedics do the ER sub-I with the two most common sites chosen being Presby and Pennsy.

**Letters of recommendation**

- You will need at least three letters (sometimes 4) from orthopaedic surgeons that ideally 1) you have worked with, 2) know you, 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. The online input system for letters is new (2015) you may have to walk letter writers through the process. After orthopaedic away rotations, your letters are the second most important aspect of your application, so choose which ones you send where wisely. Remember, you can send different letters to different 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. It is recommended to meet with Dr. Levin before he writes your letter, so contact him before you leave for away rotations to meet in the early Spring.

- When requesting a letter, you may email or give your letter-writer a packet with the following:
  1. Cover/thank you letter
  2. Current CV
  3. Personal statement
  4. 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
  5. Some places (i.e. Vandy, Brown, Wash U, University of Washington, Yale, Mt. Sinai) require supplemental eval forms 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 don’t want to have to send the supplemental form to programs that don’t require it
  6. 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**

- 245 and above is a good goal for Step 1, although NOT a strict cut-off.
- 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 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. Penn now 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 orthopaedic applications. Better to be safe 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 wants a supplemental essay; UCLA wants official MCAT scores and breakdown). Again, review the programs’ websites and make a spreadsheet to keep track of the requirements.

Programs
- Consider location, size, culture, fellowship placement, operative experience, and research opportunities. It is definitely not necessary to go to “best ranked” program to be well trained and get great fellowship/job opportunities.
- Statistics/reputation/word-of-mouth are NOT a substitute for rotating and seeing for yourself.
- Do NOT believe anything you read online (e.g. orthogate.com) about programs unless you have verified it from another source
- 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. 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- will 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
- Each program has different deadlines, so check their websites. Most fall between Oct. 1 and Nov. 30.
- Applications should be completed and submitted as soon as possible after ERAS opens- September 15.
- 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 week 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
- Some interview dates are first-come first-serve. Always be accessible to e-mail (choice dates can be gone in less than 5 minutes)
  - This has become more important than in previous years with so many people having smart phones. If you have a smart phone, place your email retrieval on PUSH. If you don’t 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 e-mail reply duty.
- 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 Sat & Fri of that month).

Interviews
- Your interviews will come out later than your friends applying in other specialities, don’t fret. The earliest programs send out invites mid October, you should expect to begin hearing from most programs in November.
- 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.

- 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 2017 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. And even though it will get old quickly, do NOT say that you have no questions, as this is one sure-fire way to get knocked down that program’s list.

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

After the interviews

- 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.

- Some programs will want to know where they stand with you and tell you to “keep in touch.” In this situation, 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) and even if you are ranked to match you will most 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 INFLUENCED by feedback from programs. This is a very 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: Mr. Mehta, Dr. Ahn

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

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Penn Electives

- **MUST take OTO-300A (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. Bigelow.
  - You will spend 2 weeks on Sinus/Oto (less busy) and 2 weeks on Head and Neck (very busy).
  - Call for Penn students isn’t well-defined; most take 1 overnight call during the month. This is a great opportunity to show you’re 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. 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 pathophysiology, presentation, and prognosis for each different case. Make sure you read up the night before – the residents will let you know which cases to prepare for.
  - Can be difficult to get to know one attending really well for LOR - 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. Also, be sure to meet with Dr. O’Malley (chair) before you apply. He won’t play as vital of a role in your match process, but he likes to know who’s interested and it’s always good to get some face time with him.

- **Other rotations:**
  - **Pennsy (OTO-300D)** – 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. Fewer attendings, so can get more face time with them and provides opportunities for getting LORs. You also participate in Chairman’s Rounds on Thursdays (though you don’t present) so make sure and ask what O’Malley’s cases were. FYI, assistant-PD is attending here (Dr. Kearney).
  - **VA (OTO-300B)** - same as Pennsy, but probably less busy, good rotation to try out ENT. More clinic-heavy than Pennsy and HUP (clinical 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 (OTO-301)** – 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’s a great way to get to know CHOP faculty.
  - **Plastic Surgery** – great hands on OR experience. Dr. Low is great; 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 OTO-300 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 all on MD consult.

The Iowa Protocols - an wiki full of ENT resources including procedure videos and instructions: [https://wiki.uiowa.edu/display/protocols/Home](https://wiki.uiowa.edu/display/protocols/Home)


UTMB Grand Rounds Archive: [http://www.utmb.edu/otoref/Grnds/GrndsIndex.html](http://www.utmb.edu/otoref/Grnds/GrndsIndex.html)

Baylor Grand Rounds Archive: [http://www.bcm.edu/oto/grand/grand.html](http://www.bcm.edu/oto/grand/grand.html)

**Away Rotations**
- Most people recommend 1-2, some say don’t do them. If considering, 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.
- Remember that these can help just as much as they can hurt – daily pressure to work hard & 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 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 a 230, aim for 240 or higher.
- Step 2: Only take early if you scored poorly on Step 1; otherwise, take it late 4th year (most take in winter of graduating year).
  - Of note, some programs (ex. UCSF) require that Step 2 has been taken and passed prior to rank list submission. Make sure that if you plan to take Step 2 later in the year that your top programs do not have this caveat.

**Applications**
- Otomatch: online forum for ENT applicants, find all your juicy gossip here ([http://otomatch.com/](http://otomatch.com/))
- Applications are submitted via ERAS in early September, but start working on your application in July/Aug.
- Programs now require an individual program-specific paragraph at the end of the personal statement explaining your reasons for applying to that specific program. 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](https://www.ncbi.nlm.nih.gov/pubmed/20979099))
- Earliest application due Sept 31st, most due in Oct/Nov. Interviews offered on a rolling basis so submit asap so you don’t 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.

- Can look at individual programs through FREIDA on Penn student page or use Penn student evaluations.
- Programs interested in USMLE Step 1 scores, LORs, research, interest; sometimes course grades, AOA
- LORs: Shoot for 3-4 ORL LORs; ORL faculty letters are valued a lot more than other specialties (i.e. general surgery) but can use amazing non-ORL faculty LOR. LOR from away rotation institution can help or hurt – you can choose which letters go to which programs.
- Required LOR: Bert O’Malley/Ruckenstein write a combined Chairman’s Letter. Ask for this well in advance of the application due date. Aim to meet with both 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: should be at least 30 from Penn if your scores and letters are good, more if you’re borderline. Many people will apply to 60+ (esp at other schools so don’t get freaked out). Golden number for high match likelihood is 11 if you rank all of them.
- 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’s what you want.
- If you’re really not getting interviews, talk to Dr. Ruckenstein/ORL advisor and see if anyone has contacts at the schools you’re waiting to hear from. They might be able to help.

Programs to consider
- Cleveland Clinic
- Colorado
- Hopkins (FYI they have a 7-year track but you do NOT apply to this separately in ERAS like most programs, it’s decided intern year)
- Iowa
- Mayo
- Mass Eye & Ear (Harvard)
- Miami
- Michigan
- Mt. Sinai
- MUSC
- Ohio State
- OHSU
- Penn
- Pitt
- Stanford
- UCLA
- UCSF
- UNC
- Vanderbilt
- Wash U

Interviews
- Interviews make or break you; single most important factor in the application process.
- Dr. Adappa (ORL interest group advisor) likes to meet with applicants prior to interview season to discuss interview strategy
- Interviews occur from Oct to Feb with most in Dec and Jan; Interview offers generally start in Oct
- Many programs interview on the same days – look on otomatch for dates; can also call/email programs to find out interview dates in Oct 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 it 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, I guess you can do it if you want to. It won’t make any difference in the rank list, just a nice thing to do.
- Get Dr. Ruckenstein or ORL advisor to contact your #1 school; you can also write a letter/email to your top choice.
- 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 that!)
- Rank lists are due in late Feb – 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](http://www.otomatch.com) (message board for medical students/applicants), [www.ama-assn.org/go/freida](http://www.ama-assn.org/go/freida) (listing of residency programs and contact info)

**Questions:** Jennifer Douglas ([jennifer.e.douglas@gmail.com](mailto:jennifer.e.douglas@gmail.com))

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**PATHOLOGY AND LABORATORY MEDICINE**

*Original work by Rebecca King. Updated most recently by Caroline Sloan (2015) and Andrew Crabbe (2016)*

**Point person for application:** Kathleen Montone is the Program Director

**Why Pathology?**

- “Pathology is a medical specialty that provides the scientific foundation for all medical practice. The pathologist works with all other medical specialties, using the tools of laboratory medicine (histology, cytology, biochemistry, molecular biology, etc.) to provide information essential to problem solving in clinical practice. The pathologist's role in medical practice is diverse. They can serve as: consultants to the physician, consultants to the patient, directors of laboratories, leaders in administration, researchers, or educators.” - (copied from [http://www.oumedicine.com/body.cfm?id=2514](http://www.oumedicine.com/body.cfm?id=2514). This is a good website for an overview of pathology practice).

- The field of pathology/laboratory medicine is divided into two main tracks, anatomic pathology and clinical pathology. At some hospitals these belong to one department, whereas other hospitals have two departments each housing one specialty.
  - Anatomic Pathology=Surgical pathology, cytopathology, autopsy
  - Clinical Pathology= Clinical chemistry, coagulation, hematopathology, transfusion medicine, microbiology, molecular diagnostics, HLA/tissue typing etc.

- **Molecular pathology:** Modern genomic analysis by next-generation sequencing is rapidly
becoming part of routine patient care and allows pathologists to offer diagnostic and prognostic information by integrating genetic, molecular, and histopathological data. This development is changing pathology practice not so much in classical cytogenetics and molecular genetics, but in AP-dominant areas such as solid cancer diagnoses, hematopathology and CP-based microbiology. Many residency programs have therefore created a common genomics/molecular pathology curriculum for both AP and CP trainees. Expect to hear a lot more about this during your interviews.

Residency Training
- Residency training for combined AP/CP is 4 years (2.5 years of AP requirements as specified by the ACGME + 1.5 years of CP requirements). There is no preliminary year required for pathology, which means you jump straight into pathology as a first year resident.
- Training for AP-only or CP-only is 3 years. Most programs offer a very limited number of spots for AP or CP-only candidates each year. That being said, many programs are flexible once you are in the program if you decide to switch to one of these tracks.
- Other options offered at some programs are AP/Neuropath, where residency and fellowship are combined into 4 years, or AP/Hemepath which is similar.
- Most people apply for AP/CP unless they have a very definite career path in mind. The advantage of combined training is that it prepares you for a broad array of careers. Many jobs in the private sector require AP/CP training, because most private groups are in charge of a clinical lab. AP and CP-only trainees often go on to post-doctoral research fellowships or other very research oriented careers (see advice for MD/PhDs below). MANY people enter residency and change their mind about what they are interested in so you can always apply AP/CP and figure it out later.
- For clinically oriented people, most if not all will apply to combined AP/CP residency followed by fellowships of interest. Jobs opportunities in private practice seem to be limited for AP-only and CP-only residents, or for residents who have not done at least 1 fellowship.
- For research-oriented applicants, most seem to choose to do either AP-only or CP-only residency as this cuts training time by 1 year and gets you back to lab sooner. Many programs offer a research track that guarantees extensive research time either during or after residency.
- Some AP/CP programs are structured such that each year of the program is entirely AP or CP. Several programs have 2 years of AP training followed by CP rotations. Although AP is generally considered to be more intense than CP and therefore produces a very front-loaded schedule, this type of structure allows for a higher degree of flexibility during your later years of training.

Fellowship and beyond:
- These days, you essentially have to do at least one fellowship to be a practicing pathologist.
- Fellowships are available in all the major areas of path listed above, as well as subsets of those fields.
- 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 (Dermpath, Hemepath, Cytology, Neuropath, Transfusion, Molecular genetics). Dermpath is especially competitive due to the fact that you are also competing with Dermatology residents for spots. For these fellowships, it is good to get involved early in residency with research and getting to know the faculty.
- Non-ACGME-accredited fellowships (e.g. subspecialty surgpath) can be somewhat more flexible and tailored to fit your goals. For instance, certain programs may allow you to do a mini-fellowship during your last 6 months of AP training.
- If you know you have an interest in a specific field, look at programs that offer fellowships in that area. There is no fellowship match system yet (although there may be soon) and fellowship applications tend to be submitted earlier and earlier. Many people stay at their home institution because it is much easier to get fellowship positions (and eventually jobs!) as an internal/local candidate, so consider particular institutions’ subspecialty strengths and locations when making your list.

Rotations

Required
Unlike other fields which want to see a good deal of clinical experience in that area, programs understand
that pathology rotations are not part of the core clinical clerkships. Many students will have had very little experience in pathology before applying. It is completely acceptable to have done only one rotation in pathology before applying. At the same time, doing more than one rotation can definitely help strengthen your application and help you identify your interests.

- We strongly recommend doing Surgical pathology (PAT300), unless you are certain you will be applying CP-only. Surg path is what AP and AP/CP residents spend a majority of their time doing, so this is an important area to be exposed to. It will show programs that to some extent you know what you are getting into. If on the other hand you hated your surg path rotation - you may want to consider CP-only (but really only if you want to be primarily a scientist), or another specialty.
- For CP-only applicants, Lab Medicine (PAT301) or Blood Bank (PAT323) are popular electives.

Suggested
- Clinical correlation is very important in pathology, so the more clinical medicine you are exposed to the better. For example, you’ll often sit with pathologists to look at tissue while you are on GI, dermatology, hematology, or ENT electives.

Away rotations
- The common advice at Penn Med seems to be “don’t risk it”. However, those who have done away rotations in pathology have had positive experiences.
- 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. It is also good to see how other programs function (pathology departments can run very differently from place to place) and what life is like in other cities.
- That being said, away rotations are definitely NOT NECESSARY. Having done a rotation or two at Penn will impress most of your interviewers.

Mentorship
Ask for a mentor through The Academic Programs Office. Another great source of mentorship is the Pathology interest group. Carolyn Cambor is the main advisor for this group.

Letters of recommendation
- ERAS requires 3 letters and allows up to 4. You should have at least one letter from a pathology attending; two is even better. There is no departmental letter in pathology.
- A strong clinical letter, such as from a sub-I, is generally recommended.
- Letters from research mentors (obligatory for MD/PhDs), or any other clinical faculty who know you well and can comment on your interest in pathology are also great.

Research
- Pathology is an academic discipline; it is definitely an advantage to be interested in research. However, you do not need to have done a PhD, or published in Nature, or presented at scientific conferences to be a competitive applicant. Even a small amount of research experience (e.g. your summer project from first year, scholarly pursuit, etc.) is helpful. If you have absolutely NO research experience and have NO interest in ever doing any, there are still LOTS of great opportunities within pathology, especially those that are less research-oriented or focus more on education. However, this might limit your chances at those programs that tend to be more research-oriented.
- There are tons of opportunities for research at Penn. Attendings you could consider approaching include Dr. Feldman, Dr. Bagg, Dr. Zhang, Dr. Montone, Dr. Furth, Dr. Siegel, and Dr. Luning-Prak.
- 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 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 and the programs. 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 to get an idea of what programs might be best for you. Your list may be very different, for example, if you were applying to AP-only versus CP-only programs.
- Strong programs tend to be ones that are strong in other areas of medicine as well. (Hopkins, Brigham, MGH, Penn, Columbia, Cornell, Yale, Wash U, Michigan, U of Washington, Chicago, Baylor, UCSF, Stanford, etc.) This is by no means an exhaustive list!

**Application process**
- Big name programs like some of those listed above are going to be fairly competitive, but coming from Penn Med will put you in a very advantageous position at any of these institutions. We are not talking derm or ortho here. You can be expected to be recruited by some of your “safety” choices.
- You should apply to 8-12 programs. 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.
- Board scores: We have only heard of one program having a “cut-off” (217 for UVA). If other programs also have cut-offs. Overall, I wouldn’t worry too much about it as long as you passed and the rest of your application is strong.

**Questions:** Kevan Salimian (kevan.salimian@gmail.com)

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**PEDIATRICS**

*Original work by Marah Gotcik. Updated most recently by Chris Gaw (2017), Ann Prybylowski (2017), and Taylor Olson (2017).*

**Point person:**
- Dawn Young will guide you through the entire process, but you will also be assigned a committee to advise you that contains one person from the residency leadership and one person from the medical student teaching leadership.
- There is a meeting in May of MS3 held by CHOP residency leadership to go over applying in peds.

**Rotations**

*Required*
- Peds Sub-I
- Some students find it helpful to do both Medicine and Peds Sub-Is, but it is really not necessary nor will it have an effect on how programs will view you as an applicant.

*Suggested*
A comprehensive list of Peds electives is in the online course catalogue on the SOM website. If you're interested in a less common elective ask Helene to put you in touch with someone who has done it before.

It is also possible to arrange an outpatient primary care pediatrics rotation by talking to Dawn Young (clerkship coordinator). If you are interested in doing so, 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 are more active.

Popular pediatric electives
- Adolescent medicine
- Child abuse (SCAN)
- NICU (Pennsy)
  - Great for ICU experience and procedures. Some opt to combine 2 weeks in the Pennsy Well-Baby Nursery with 2 weeks in the NICU.
- Pediatric anesthesia
- Pediatric dermatology
- Pediatric ED
  - Great preparation for your Sub-I or as a reintroduction to clinical medicine before intern year.
- Pediatric hematology
- Pediatric ID
  - Great way to re-learn/learn antibiotics. Lots of gen peds patients/topics so can be a good experience to have before sub-I or internship.

Other recommended electives
- Adult radiology
- Adult anesthesia
- Botswana
- Peds palliative care
- Sports medicine

Away electives
- **Not necessary** for applying in pediatrics but some people do them.
- General advice: do an away elective if you have significant interest in a particular program and want to see it firsthand, or if you have to be in a specific geographic location for residency.
- Pros: Can be rewarding and helpful in the residency application process *(some programs give automatic interviews to visiting students)*; can show you how non-CHOP programs work, which 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 so keep that in mind,” and “an away elective is like a month-long residency interview.”
- Speak with someone who’s done one at the place you’re thinking about!

Mentorship
- The Office of Student Affairs will assign you a mentor once you tell them that you are interested in pediatrics
- CHOP is a great resource and the faculty there are great and very approachable. Feel free to ask clerkship directors and residency program directors at CHOP to help you read over drafts of your personal statement, review your CV, and comment on your program application list.

Letters of Recommendation

**Departmental/Chair Letter:**
- This letter is written by either Dr. Jeanine Ronan, Dr. Erin Pete Devon or Dr. Rebecca Tenney-Soeiro, with input from Dr. St Geme (the Chair of Pediatrics), who co-signs the letters. It is a very supportive process.
- Starting in early summer Dawn will coordinate your letter-writing meetings; you’ll have one meeting with your letter-writing point person followed by one with Dr. St Geme.
- You will be asked to provide your CV, rotation history, relevant clerkship and elective evaluations, and a *draft* of your personal statement prior to both 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.
  o Realistically, August is the latest rotation to get a letter – 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. One letter can be from another discipline (i.e. medicine, surgery) and one can be from someone who knows you in a research capacity. Most importantly ask those who know you best.
  o Some rotations are thought to be better than others for getting letters (more close contact with faculty, etc.) – ask around if you’re unsure
● How many letters: Most programs require three total letters, but allow four, and your Departmental Letter counts as one letter. You should review individual program websites for specific application requirements.
● Tips:
  o Be prepared to give a draft of your personal statement and CV to your letter writers and feel free to ask for feedback from them on either.
  o Although it is best to ask in person, don’t be afraid to ask for a letter over email at the end of your rotation.
  o Don’t be afraid to follow up with your letter writers if they haven’t submitted anything - sometimes they just forget! JoMo will also email letter writers on your behalf when it’s getting close to the deadline if needed.
● On ERAS you can assign different letters to different programs. Some programs will allow you to submit additional letters outside of ERAS as well (this can be especially useful for away rotations).

**Boards**

● **Step 1:** Less important in Peds than in some of the surgical subspecialties, but not obsolete. Additionally, the competitiveness of pediatric residency programs varies widely. If you are worried about your Step 1 score you should increase and diversify your program list. If your score is reasonable, it’s not likely that you’ll be asked about it on interviews.

● **Step 2 CK/CS:**
  o Some programs require Step 2 CK and/or CS scores prior to Match Day, but none will require them to apply or interview. Many students choose to take them after applying but before December 31st, which is the medical school’s current strongly encouraged deadline.) However, some prefer to take CK/CS earlier, especially CS, when elective/Sub-I experiences are still fresh.
  o 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 (especially programs in California, Pittsburgh, and UConn) 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.
  o CS tips: This exam is graded pass/fail. Look at the NBME website for a description of the exam content and format. You may choose to look through a review book (e.g. 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). CS scores take about 12 weeks to come back, so schedule Step 2 CS earlier than CK.

**Research**

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

● **Scholarly Pursuit:**
Put out feelers to faculty early for potential Scholarly Pursuit projects. Many students start thinking about potential projects in early third year (many also start much later). It’s 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. You can contact faculty in a field you thinking of going into or have identified as a mentor during your rotations.

The Peds ID department does tons of research and regularly takes on several medical students to work on projects with lots of guidance and mentoring. Peds ED also has many projects ongoing and is a great resource.

Elective coordinators and your Pediatric advisor 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 November) so if you are trying to do a poster presentation, aim for having an abstract finalized by then.

You should also include it on your CV (whether you have started it or not) and be prepared to discuss your scholarly pursuit project in residency interviews.

Residency programs

Tips for Picking Programs

When making your rank list it ultimately comes down to a gut feeling, however when making your initial list of programs to apply you may wish to consider programs based on:

- Tracks - Categorical (for those going into subspecialty, hospitalist, or general pediatrics), Primary Care/Urban Health (offered at some programs), other Specialty Tracks (i.e. pediatric anesthesia, genetics, etc.), Research Fast Tracking (usually reserved for MD/PhD)
- Opportunities/Experiences - Community, International, Rural, Advocacy, Public Policy
- 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.
- Training sites - Academic vs. Community vs. Combination, one site vs. rotating through multiple hospitals, free standing children’s hospital vs. integrated
- What residents go on to do after graduating, including statistics on fellowship placement.
- Call schedule – Most places are homogeneous following the 2011 ACGME requirements, but there are some differences especially in the PGY2 and PGY3 years.
- Individualized curriculum or “tracks” - New for July 2013 and each program is implementing the requirement to provide residents with 6 months of individualized career preparation differently.
- Top programs vs. where you can see yourself vs. location - The ‘feel’ of a program is crucial. You will be working there for at least 3 years so concentrate on places where you think you would be a good fit.

Resources for picking programs

- Your advising/letter-writing committee
- Student Portal → Student Affairs → AMA FREIDA - basic info about all programs
- Student Portal → Student Affairs → Residency Review Program
  - Most recent review from 2012, but much of the information is still relevant and gives you a sense of what to think about when applying/interviewing
- Individual program websites – Make sure to check all of these for additional requests and requirements (specific Letters of Recommendation, Essays, Step 2 timeline).
- Check recent Match lists & 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!

Programs to Consider

Programs where many Penn applicants seem to apply are below. Don’t limit yourself to this list! Talk to mentors, attendings, MS4s to find a list that works for you and your goals. This list is in NO particular
order.

- CHOP
- Boston Combined Residency Program (BCRP)
- MGH
- Columbia
- Mt. Sinai
- Hopkins
- Anne and Robert H. Lurie Hospital at Northwestern
- University of Chicago
- University of Michigan
- UCSF
- Children’s National Medical Center
- Seattle Children’s and Harborview
- Denver Children’s
- Rainbow Babies in Cleveland
- Cincinnati Children’s
- Nationwide Children’s Hospital (Columbus)
- Duke
- Washington University
- Yale
- Hasbro Children’s Hospital at Brown
- Baylor
- Pittsburgh
- DuPont

Application process

General Info

- Most students apply to 12 – 15 programs, interview at 8-12, and rank up to 12. If you’re open to location you can apply to more.
- If you want to be in a particular location make sure that is indicated somewhere in your application - either by having done an away rotation in that place or mentioning that you have a specific reason to be there (i.e. have family in the area) in your personal statement to that program.
- When interviewing, try to find Penn Med grads in the program and try to get their candid view.
- Special tracks:
  - Research/Physician Scientist Track: typically only for MD-PhD's, 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)
  - Primary Care/Urban Health Track: Offers more electives for outpatient primary care and advocacy.
  - Global Health Track: 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: Peds Genetics, Peds Neuro, Med-Peds

Timeline

You’ll get more specific info during residency info sessions with the whole class in the summer.

- April/May/June
  - Peds electives and Peds Sub-I
  - Start to ask for recommendation letters
  - Look into scholarly pursuit projects
  - Attend information session for those applying in pediatrics- this meeting gets things rolling with introductions, the departmental letter, questions, etc.
  - Pick up ERAS token (will be emailed to you)

- July/August
  - Gather info about programs and make list of programs to apply to
Collect letters. Try to have all letters together by mid-August
Work on ERAS, CV and Personal Statement
Meet with JoMo
Write Dean’s letter unique paragraphs

- **September/October**
  - Submit ERAS applications (starting September 15)
  - Dean’s letters are sent (October 1)
  - Start receiving interview invitations. Peds interviews seem to be earlier than other specialties, many invites are sent before the Dean’s letter is out. Keep this in mind when you are attending residency panels geared toward the medical school class as a whole. If you haven’t received an interview invitation by early November you should start asking questions. 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 session

- **Late October/November/December/Early January**
  - Attend interviews
  - NRMP registration deadline (end of November)

- **January/February**
  - Meet with Dr. Ronnan, Dr. Tenney-Soeiro, or Dr. Pete Devon to discuss rank lists. This is a required meeting.
  - Meet with Lisa Z. about your advocacy call – email her assistant to set up a meeting. 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!) and that 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

*Common Interview Questions/Topics*
- Why this program?
- Why peds?
- Tell me about _____ *(anything)* from your ERAS application is *fair game*. Be able to talk about any experience you listed
- Where do you see yourself in 10 years?
- An interesting/difficult/memorable patient
- Leadership/volunteer experiences

*After interviews*
- Typically there is no contact after interviews though you may get thank you cards or emails. In our experience, pediatric programs typically do not call you post-interview.
- Second looks are generally billed as “optional” and meant to help you get a better sense of whether you like a program; don’t feel pressured to do these unless you truly want to.

*Questions:* Chris Gaw (chris.e.gaw@gmail.com), Ann Prybylowski (ann.prybylowski@gmail.com), Taylor Olson (taylorleigholson@gmail.com)

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**PHYSICAL MEDICINE AND REHABILITATION**

*By Mously Almoza, most recently updated 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 intra-muscular 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)

Med 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**

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

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**PLASTIC SURGERY**

*By Vivian Hsu, updated most recently by Alison Bae (2017)*

**Electives**

*Required*
- Plastics sub-I:
  - 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 2nd plastics sub-I at Penn
- One General Surgery elective (in recent years students have worked with JoMo, Fraker, or Drebin)
- 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.
  - UWashington – 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’s 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 (Mod 4) matter as well, obviously, and being AOA is definitely something to shoot for. The criteria change each year, but usually you need to honor medicine, surgery, and pediatrics 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 day (mid-February). Most people choose to take it between August and December so that their score isn’t automatically reported along with Step 1 (in case it’s not as high as you’d like) but it’s 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
  o 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/peds 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 don’t 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’re 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’re 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)

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**PSYCHIATRY**

*Original work by Scott Campbell. Updated most recently by Ben Yu (2017)*

**Program directors:** Dr. Rostain and Dr. Summers  
**Other helpful people:** Cabrina Campbell, Benoit Dube

**Rotations**

**Required**
- Psych 300 level (“sub-I”/”externship”): Inpatient or consult (many do both). Inpatient options are Pennsy Spruce 6 (primarily mood or personality disorders with a sprinkling of psychosis and geriatric psych, especially patients with dementia) and the VA dual-diagnosis unit. For diversity of experience, I would suggest doing your sub-I at the site you did not do your core clerkship.
- Your Penn med graduation required sub-I can be in Medicine/EM/Family Med/Peds (Peds is an option if you are considering child/adolescent psychiatry, if not you might want to stick to one of the other three). I did the Family Med sub-I and it in no way negatively impacted my application
Suggested
- Medicine electives: will help give you breadth of knowledge for internship year.
- Psych electives: Only need 1-2 more at Penn (no strict requirement). The following are some impressions from electives
  - Child Psych: 2 weeks inpt consults @ CHOP, 2 weeks outpt w/ rotating half days in various clinics. You will see patients and write notes during inpt, outpt is straight shadowing.
  - Addiction/Alcoholism: 2 weeks shadowing Dr. Kampman as he does VA outpt addictions clinic and enrolls research subjects at the Chuck 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 HUP consults (very busy service, though it was just overhauled within the last year with new structure and new attendings - early reviews from residents have been encouraging).
- Endocrinology, HIV, Palliative Care or other specific populations you’d like to explore working with.
- 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. I did not do one given my thought that risk>reward, and I believe most of my classmates felt similarly

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, one of Penn's Program Directors, is 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. However, do let him know (by the end of interviews) if you hope 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, a few require 4. 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). General guideline is that you should aim for 2 letters from psychiatrists who have worked with you clinically. 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 I applied there without one and still received an interview.
- You should have at least one medicine letter, preferably from your sub-I/externship. Some programs require this.
- Get at least one other letter from someone who knows you well (research mentor, Doctoring facilitator, community clinic head, etc).

Residency Programs
- Research them before you apply and interview
- Use websites and talk to other students or residents
  o Penn interview site has some useful information
  o Student Doctor Network forums (if you want to brave them) contain multiple threads with peoples’ rank lists, interview reviews, and other helpful info.
- Email Dr. Rostain and set up a time to meet - he will give you insight into different characteristics of programs.
- Aspects of Programs to Consider: - Emphasis of Psychotherapy training? - Balance between psychotherapy and biological psychiatry - Affiliation with Psychoanalytic Institute? - Academic vs. community – fellowships available? - Electives, research & international opportunities - Free standing hospital vs. part of health system - One vs. 2+ sites, - Opportunity to rotate at the VA? - Special tracks: research, therapy, child - Breadth and flexibility of electives, - Separate Psych ER or part of regular ER, - Training in DBT, Motivational Interviewing? - Didactic curriculum: weekly or scattered? protected? 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). I personally took Step 1 in February of MS3 and Step 2 CK in April of MS3, which I liked because I hadn’t lost all my Step 1 knowledge yet when I took CK. Many of my classmates took CK later (Aug-Dec of MS4). I heard from them that studying for CK during interview season can be a drag. Try and get Step 2 CS out of the way early if you can. Literally 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 year out is not necessary.
- A handful of programs are highly competitive and research/grades/boards matter more. An incomplete shortlist of these programs would include Columbia, MGH-McLean, UCLA, UCSF, and Cornell.

**Application Timeline**

**March to June**
- Meet with 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. For example, I wrote openly about taking time off during medical school and almost switching to a different career. I was asked about this at every single interview, but usually felt it ended up coming off positively or neutral. There were only a few places where I felt as though I was grilled about it and where I do think being honest probably hurt me a bit.
- 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
- 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 4 to 8 interviews at each program, each lasting 20 to 45 minutes.
- Expect some “interesting” interview questions, including “Did you have a happy childhood?” especially at more psychoanalytically oriented programs.
- 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, 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), resident salary and 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 hand-written 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.
- Finally, the general advice I’ve gotten from many people is to take everything a program tells you about your ranking with a grain of salt. “You are ranked strongly to match” and “you are in a very strong position to match with us” and “we are so excited about your application” mean nothing, and the only real words that you should bank on are “you are ranked to match with us.” Even then, I’ve heard enough horror stories to not fully buy that either. At the end of the day, focus on where you want to be and try to make your list based on that, and not so much your perception of which programs will rank you highly. Good luck! And please reach out with any questions. :)

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RADIATION ONCOLOGY


How does radiation oncology fit into the cancer care team?

In an academic setting, most cancer patients are seen by a multidisciplinary team consisting of medical (or pediatric), surgical, and radiation oncologists who are supported by pathologists, radiologists, and other
specialists. Medical oncology deals with long term inpatient and outpatient management of adult cancer patients, administration of chemotherapy, and ideally a comprehensive management of patient medical care issues based on completion of internal medicine residency (3-4 years) and heme/onc 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 ~5 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 2013 match reports 151 matched US seniors out of ~170 total US senior applicants for a match rate of 89%. 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 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, yet 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.

**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 not ignore 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. Some look for honors in certain rotations such as internal medicine. Others look for a certain proportion of honors in your clinical rotations. AOA seems to be important for many programs. So do as well in medical school as you can.

Outstanding letters of recommendation from your rad onc rotation(s) are a must. Aim for 2-3 radiation oncology letters, and 4 letters total. A strong letter from an attending who is well known holds 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. 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!!!).

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 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.

**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 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 radonc/medonc/surgonc/path, 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 list-serv 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 (med onc, surg onc), related disciplines (path, rads), and with a variety of patients (pediatrics, gyn, 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 rad onc 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 Tomotherapy, Truebeam, Varo
- Stereotactic procedures based on a host of evolving, competing technologies (Rapid Arc, CyberKnife, Gamma Knife Perfexion)
- Particle Therapy, most commonly Proton Beam Therapy
- In-department imaging for radiation planning based on advanced MRI and CT/PET fusion.

Is rad onc 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 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, ortho, 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-radonc rotations could provide valuable experiences to speak about at interviews (intern and radonc). 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 MSKCC 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 you have a more realistic chance at.

**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?**

The Hansen and Roach Handbook is the most commonly found textbook among rotating students and residents. The second edition is hard to put in a white coat pocket though. Also recommended is the Hafty
and Wilson Handbook. There is also a new highly rated book that is written in a question format: Radiation Oncology: A Question-Based Review (Boris, Lin, and Christodouleas).

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. [Per 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 (such as: 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.

Quoting Gfunk6, rad onc moderator on SDN (posted 1/2/11)

“From the ARRO 2011 survey, starting salaries are as follows:

Academic- $265k (range $175-400k)

Private practice - $310k (range $215 - 400k)

(although, the sample size was small and probably a salary of $290k would fit better with the trend of salary increases over prior years)"

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 (med onc and rad onc) 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?**

My advice is to apply to all of the programs for the standard applicant. 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 interview to every program they apply to, for a variety of reasons. Remember, programs are very small and often interview a lot of people for their small number of spots. Programs, for example, may interview ~30 people for each spot.

If you are the total package (AOA, high step 1, strong research), you can 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, and 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! I would recommend buying a smartphone that checks your e-mail frequently and notifies you if you have new messages. 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 application: 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 3:** Harvard, Memorial Sloan-Kettering, MD Anderson

**East:** Harvard, Memorial Sloan-Kettering, UPenn, Yale, Johns Hopkins

**Midwest:** Michigan, WashU, UChicago, UWisconsin

**West:** UCSF, Stanford

**South:** MD Anderson, Duke

**Who are the key people in the department at Penn?**

- **Dr. Neha Vapiwala:** Vice Chair of Education for RadOnc, and until ~2014, the Program Director. She also serves as an advisory dean 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:** Chairperson of Radiation Oncology (named Chair in 2015 after Dr. Stephen Hahn left for MD Anderson).

- **Cordelia "Cordy" Baffic:** Residency Coordinator

**Questions:** Melody Xu (melodyju@mail.med.upenn.edu)
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 elective
- 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/quiz you on cases approximately every week. Dr. Mamourian is definitely willing to write letters of recommendations. Hours are generally 9 am to 5 pm, with earlier days for weekly conference and tumor board.
- **Musculoskeletal Rads**: Great course. You focus on plain film in this rotation – so the imaging is easy to follow. The faculty member you work with changes at lunch time each day, so you have to be a bit more proactive for them to get to know you so that you’re comfortable asking for a letter of recommendation.
- **MRI**: May be difficult to follow if you don’t have a background in MR, but great chance to demonstrate your interest. Dr. Siegelman, the course director, is a master in the field and wrote a textbook on the topic. He also is the director of the residency selection committee for Penn Radiology. If Penn Radiology is high on your list for Residency I would be careful about taking this course, and potentially not impressing him. Most students in the past who match at Penn or radiology in general have not taken this course.
**Cardiovascular Rads:** Difficult for students without some background in imaging; good potential for research, nice faculty, relaxed schedule compared to other electives.

**Nuclear Med:** Unstructured. This rotation is pretty much a research elective done in the course director’s office/lab, with several hours per day of watching outpatient studies read if you prefer. NOTE: The course director has been known to sometimes only give honors if you continue to do research with him after the elective.

**Peds Rads:** Many conferences; spend your days in different sections; mostly shadowing.

**Breast Imaging:** Great Elective if you have an interest in women’s imaging. The faculty are also excellent teachers. This elective is far more patient-oriented and you will get to see many procedures. Focuses on Mammo/Breast MR/Breast biopsies. Some students have been able to get great letters of recommendations from Dr. Conant.

**Away Electives:** Differing opinions on this, but I (and most of the faculty) would say that unless you are particularly interested in a certain program or want to move to a region to which you have no ties (i.e. Philly for life, want to move to Cali), away 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.

**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 it 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 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)

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**INTERVENTIONAL RADIOLOGY**

*Original work by Dan DePietro, updated most recently by Dan DePietro (2016)*

**General comments**

The integrated IR/DR residency participated in its first large scale match in the 2016/2017 cycle. 61 programs participated and offered a total of ~120 residency spots. The application process was highly competitive. There were 424 US applicants and 165 IMGs, for a total of 589 applicants for 120 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 of the 2016-2017 cycle. I believe these numbers will level out of the coming years, but expect the specialty to be in the ENT/ortho competitiveness range for at least the time being. Additionally, there are 7 more programs pending accreditation for the integrated IR/DR pathway so there will hopefully be about 10-14 more residency spots in the 2017-2018 cycle.

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 120 residency spots, which means
another 100 or so trainees in IR have to 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 favor of these different residency pathways. The two other pathways include the ESIR (early specialization in IR), which is a very good option, and the independent IR residency, which is not a very good option. Both explained below:

ESIR: This pathway basically allows you to match into an IR residency 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 in medical school. You complete the IR residency in 6 years, same as someone in the integrated pathway. You apply to ESIR during your second year of diagnostic radiology residency. You can do this either at your home institution, which will be very common and the way most individuals will do it (my opinion), or at other institutions. 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. I actually think this is 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. In order to qualify for ESIR, you need to meet a certain set of parameters (>500 IR procedures before a certain year residency, etc). This shouldn’t be a problem at large programs but something you want to keep in mind when applying and assessing programs.

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. Basically, if you went through a DR program and fill the criteria to match into an ESIR program (>500 IR procedures, etc.) then you have to do an independent IR residency. Basically, you have to do an extra year of IR training because you didn’t get enough IR during your DR residency. Many program directors feel that this will be uncommon and that most individuals will be able to do the ESIR pathway. Currently, there are not many approved independent IR programs, but more are coming.

Some resources to help explain the different training pathways:
http://rfs.sirweb.org/wordpress/nstall/ir-residency-a-new-training-paradigm/
http://rfs.sirweb.org/wordpress/nstall/4787-2/

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. 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 only society that IR has 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. 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 - what they are looking for is 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. I had one publication and a few in the works when I applied and they were discussed on 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 its something they are on the lookout for.

**Personal statement:** Start this early and have a few individuals read it (I’m happy to review). The big question is whether you use the same PS for IR programs and DR programs. I very slightly modified mine for each (~2 sentences were different). Some people didn’t change them, others changed them a lot. I’m not sure what the right answer is, I would just be honest about what your goals are. For example, my change for my DR personal statement was to discuss how important good DR training was in becoming an IR. I would not try to hide the fact you are applying in 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.

**Clerkship year**

Always strive for honors in everything, but really try to honors medicine and surgery as these two are valued most by programs. I still did fine with a high pass in one of them, but with the field getting more competitive I would really try to get honors in these two (as well as the rest, it can’t hurt).

**Electives**

Many of the relevant electives are described in detail in the radiology section, so I would refer to that for more specific details. I’ll give my thoughts on some of them below and what I think makes for a well-balanced IR applicant with the right letters of recommendation below.

**Rads 300:** The intro radiology course is run by Dr. Nachiappan and is necessary prior to taking any other radiology electives, so DO THIS ONE EARLY. Dr. Nachiappan who is a super nice guy and is really interested in getting students involved in radiology (diagnostic radiology really) but will certainly be an ally for those entering IR as well. Take this course for honors and do well in it. Go to the reading room, 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 is giving one. He has not run the course for very long but I hear he is willing to write letters of recommendation for students entering radiology, so do well and get him on your side.

**IR:** You can take this any time after you take Rads 300. 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 anything and you will learn the relevant anatomy pretty quickly when doing cases. The key to doing well in this elective is to get there on time for all of the early morning teaching sessions, aggressively pursuing cases, and being as helpful as you can to the fellows and attendings you are doing cases with. This means running the table, flushing all the catheters, organizing wires, and having 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 I was placing 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 get you very involved in the case. Dr. Sudi runs the elective and has you do a small, low key presentation in his office at the end (not in front of anyone but him
and the other student on elective). Don’t feel the need to stay late, the department is pretty chill, just leave after the last case of the day. Do not do call or weekends, that is absolutely unnecessary. Try to identify someone within the department who will write you a letter of rec, if you don’t have someone already from a previous research project or something. They are all willing to write letters from my understanding, and I know many of them have.

Other radiology electives: in addition to Rads 300 and IR, I would recommend taking one more 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 rec from a DR if you didn’t get one during rads 300, which is what I did. I took GI radiology with Dr. Levine, who is very well known in the field and writes great letters. If he is still around, I would take this course, but he is retiring in a year or two. Its also a good elective because its GI fluoro, so you are not sitting around all day. Unfortunately you can’t really do much (true of all rads electives except IR). Refer to the radiology section for a description of the rest of the rads electives. Take one your interested in, sit there, and get honors.

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. You also don’t “need” to do away electives like in other fields (ortho, emergency, etc) to apply in IR. I did not do an away elective for two reasons. One – I couldn’t be bothered to apply, move somewhere for a month, and basically spend a month interviewing at a program. Two – the advice from one of my mentors in the IR department, “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)” and I agreed with that.

There are only two cases I think aways are 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, that’s not worth it. The only other reason I think an away elective might be necessary is if you are trying to go to the west coast, 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 to the west coast. An away can show that.

Non-radiology electives:

Sub-I: I did a medicine sub-I and am biased towards that. As IR is becoming more patient-care centered I think this is the way to go. 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 emergency sub-I is easier, and that is certainly an option. I am not sure if programs cared what sub-I I did, but I know I got a stronger letter from a medicine sub-I than I would have after doing a few shifts with an ER doc in an emergency sub-I.

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. I did vascular surgery to get some endovascular experience and enjoyed it. I would 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) I would recommend doing one. 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.

Schedule: Here’s what I did just to give you an idea:

January/February: Step 1
March: Medicine Sub-I (letter of rec)
April: Rads 300
May: IR (letter of rec)
June: GI rads (letter of rec)
July: vascular surgery (letter of rec)
August-December: scholarly pursuit an interviewing
January: advanced anatomy
February: frontiers
March: GI medicine elective

Letters of recommendation: From the above, you can see I got a medicine, surgery, diagnostic radiology, and interventional radiology letter. I think this is the perfect balance for applying in IR. You do not need more than one letter from IR, this 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 I would ask for the letter after you take the elective, it allows them to speak to both your clinical qualities as well as whatever that person knows about you from working with them previously. 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 rads 300 or whatever DR elective you take. 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 two medicine letters. I think the balance of having one medicine and one surgery letter was 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 (I didn’t send my DR letter to surgery intern year for example).

Scholarly pursuit: I would do an IR or DR project. Identify a project early in case you need IRB approval. I started mine in August and completed it throughout interview season and the few months after. If you can get it started early enough (pre-september 15th) 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 IR or DR department so you shouldn’t have difficulty finding a project. Identifying a project on your IR elective may be a good way of going about it if you don’t have something lined up already.

Applying:
- ERAS generally opens around September 15th. SUBMIT THIS DAY, NO EXCEPTIONS. 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. Have your application ready and do it. There is no reason you should not have your app ready by this time.
- 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. I applied to 18 IR programs and the same 18 DR programs. I would say apply to about 20 if you are a strong applicant, and more if you are not. It is really hard to say at this point as the match has not occurred, but be sure to take a 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 they matched or not.
- 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 department here, fellows, and residents 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
• Some programs have categorical intern years (you have to do intern year there). Make sure you are aware if this is true of a program.
• What it really comes down to for most applicants is two things: 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.

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 early.
• Keep you phone on you at all times. Interview spots fill up fast. Schedule as soon as you can once you get invited for an interview.
• In my experience, most IR and DR interviews days were combined (if you applied to the integrated IR program and the DR program, you interviewed for both on the same day). This was true of most programs but not all.
• A few programs interview on the same data, 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 simply 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. I’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. 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.
• It’s OK to cancel an interview within ~2 weeks of the interview date – any closer to the interview than that and you could be screwing over a program.

Interviews (adapted from radiology section):
• 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. People will ask you about your research quite often.
- 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!
- Questions that were always asked:
  - How did you end up interested in IR?
  - Tell me more about this research you did

After the Interview (adapted from radiology section):
- 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. I wrote a simple email thank you to program directors and an IRs I interviewed with, sometimes to a few other individuals I interviewed with. Never sent any to residents I interviewed with.
- You must tell your number one program that you will be ranking them number one. There is not reason not to. Try to do this by January when interview season is wrapping up. 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.

Other:
- 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). Feel free to email me about different program’s reputation, ranking, interviews, etc.
- 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.
● 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.

**Good programs in my opinion:** Penn, Mount Sinai, Yale, Brown, UVA, Vanderbilt, Northwestern, MCW, MUSC, Mallinkrodt (Wash U), UCSF, Stanford, Hopkins, Michigan. I don’t know much about the west coast and there are plenty of other good programs throughout the country, but these ones come to mind.

**Questions:** Dan DePietro (depietro213@gmail.com)

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**SURGERY**

*Original work by Landy Parish, updated most recently by Mark Barry (2017), and Christy Marcaccio (2017)*

**Point person:** Dr. Kelz

- The Agnew Society organizes a meeting with applicants and residents for Q/A around Aug/Sept of MS4 year.

**Rotations**

Get a copy of the resident schedule and find out who the residents will be: extranet → surgery website → education → schedules → resident call schedule

Then, speak to MS4s or junior residents you have worked with during clerkship year to get advice about which which chief residents will be best to work with during your surgery sub-internships.

**Strongly recommended**

- General surgery sub-internship:
  - **Fraker:** Surgical Oncology and Endocrine (aka EOS). A lot of thyroids, parathyroids, lap adrenals with a whipple and melanoma excision thrown in for good measure. One of the busiest surgeons in the hospital and a lot of fun in the OR. A student favorite. Dr. Fraker is a leader in his field and has a national reputation. As such, his opinion of you is really valued by Penn and other programs during the application and interview process. Be warned, however, that Dr. Fraker is exceptionally busy and will often take a little while to write your letter so you may want to schedule this elective a bit away from the ERAS submission date.
    - Schedule: OR on Monday (light), Tuesday (2 rooms), Thursday (2 rooms), Friday (CAM); clinic on Wednesday
  - **Dempsey:** General Surgery at HUP on the blue service is a real general surgery month – a wide mix of cases focusing on the foregut with some mixture of bariatrics and minimally invasive procedures. 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 Dr. Dempsey loves teaching students. You take call whenever your Chief does and you can also spend time with Dr. Williams (bariatrics, associate program director) when Dr. Dempsey is not operating.
    - Schedule: OR schedule is variable; clinic on Wednesday with Dr. Williams and on Tuesday with Dr. Dempsey.
- **GI Gold:** This rotation will give you an opportunity to spend 3 days a 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 Program Director for the General Surgery Residency Program at Penn. He is obviously a good person to get to know if you think you want to stay at Penn for residency. But even if you think you want to go elsewhere, he is a great student advocate and will want you to succeed. This service is also a good opportunity to become comfortable with “bread and butter” general surgery (hernias, lap choles, etc.) and to have hands-on experience in the operating room. When Jomo has academic days, you can spend time in Dr. Dumon’s OR (mostly bariatric surgery, as well as some general surgery). Overall, this service is less busy than others at HUP because many surgeries are performed in the outpatient surgicenter. So, lots of operating and not a lot of floor work.
  - Schedule: Jomo OR Monday and Wednesday, Jomo Clinic Thursday, Dumon OR Tuesday and Friday
- **Note:** These three are great people to get letters of rec from for your application. They are nationally/internationally known and you will want at least one of these people to know you personally.
- **General surgery SICU or CT SICU:**
  - **General surgery SICU** is management of post-op general surgery and trauma patients. Has a more constant flow of students so there is a well-defined student role. You should take 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.
  - **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 the acuity of disease, NP presence, and patient volume. If you are committed, there is more opportunity to do procedures; you’ll also be very comfortable with pressors, diuretics, intra-aortic balloon pumping, VADs, ECMO. You can go down to OR when it’s slow. **Note:** This rotation requires permission, so you should initiate contact sooner rather than later to secure a spot when you want it.

**Suggested**
- Medicine Sub-I: Dr. Morris and many MS4’s will tell you not to do a medicine sub-Isso 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 and learning experience. Consider doing a medicine Sub-I at Presbyterian, Pensy, or 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.
- 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.
- Infectious Disease, Cardiology, Nephrology, Pulmonology, GI. If you don’t like consult months – MICU/CCU.
- Radiology: A surgeon should be able to read his/her own imaging. General radiology course is terrific. You can also consider a specialized radiology elective (2 or 4 weeks) if you have a specific interest in breast cancer or GI.
- Subspecialty surgery electives (depending on your interests)
  - Vascular surgery: You’ll learn a lot about managing these very sick patients, and the surgery is high end.
  - Thoracic surgery: Pneumonectomies, lobectomies, thymectomies, esophagectomies etc. An opportunity to work with Dr. Cooper (a living surgical legend) and Dr. Kucharczuk, one of the busiest thoracic surgeons in the region and great medical student teacher and advocate. This is a fellow run service.
  - Cardiac surgery: A no scut elective. Essentially all OR time, no patient responsibility. Again, very high end surgery. It’s also something you won’t get much exposure to in most residency programs.
  - Breast surgery: A relaxed and fun elective. The attendings are friendly and like to teach.
You will get a lot of hands-on experience when in the OR with Dr. Czerniecki. Clinic is laid back and very educational.

- Congenital Cardiac at CHOP: Absolutely amazing surgeries and the chance to work with Dr. Spray, one of the best congenital cardiac surgeons in the world. Good hours, and incredible cases, but, for obvious reasons, a limited role in the OR. Chance to go on heart harvests with the fellows. A PA run service.

- 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.

- Pediatric Surgery: 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. Call is once per week.

**Away rotations**

- You may want to consider an away elective, especially if you’re seriously considering another part of the country or have a specific program that you love. You’ll get an insider perspective and will let the program know that you are seriously interested. You’ll also have the chance to see how things are done somewhere else. That said, Dr. Morris often recommends against away rotations for those applying into general surgery because it’s “ours to lose.”

- 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**

- Try to develop your mentors from the time you know you are interested in surgery and use them for advice along the way. The Academic Programs Office will hook you up with a faculty mentor if you don’t have one. Talk to Nancy Murphy. Ask other students who they have worked with and if these mentorship relationships were beneficial and productive. Reach out to the Agnew Surgical Society leaders for specific recommendations.

- Dr. Morris is an excellent advocate who is very familiar with the system, although it becomes increasingly difficult to use him during your application and interview process given his role as program director (conflict of interest). If you ever had questions about the application process, don’t hesitate to contact him (he is great about responding to questions via emails).

- See Dr. Kelz! You should meet with her at several time points along the way—most communication can be done by email and she usually responds fast. However, don’t feel bad about emailing her a second or third time if you never hear from her, as she is very very busy.

  ▪ First, make yourself known to her when you decide for sure that you are applying in surgery!
  ▪ Get her help in making a list of programs to submit your application. Bring your board scores, ERAS application, personal statement, transcript and a list of the programs where you are thinking of applying.
  ▪ See her when you have applied and have been offered most of your interviews. Don’t be afraid to let her know this information, i.e. where you applied vs. where you got interviews (she may send an e-mail asking for this—it is optional). She may also be able to help you if you tell her that you didn’t get an interview at a program that you are very interested in.

**Letters of recommendation**

- Get 3 to 4 letters from your surgical sub-Is: one general surgery, one the Chair, and 1-2 others
- Give them 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, or ask Dr. Morris if you are having lots of trouble getting one of your letters.

Residency Programs
- Research them before you apply – search the websites, talk to students at other medical schools, talk to former Penn students who are now residents at other programs, and talk to the fellows and attendings who have trained and worked at other programs. Read the blogs (but do NOT post anything. Ever.). Listen to the rumors, but keep an open mind and make your own judgments of the programs – sometimes the reputations lag the changes in the programs.
- “So you want to be a surgeon” is a great website/resource for information on surgery as a profession, and it also has a “guide to finding the right residency program” which is very helpful. You can find programs by geographic location and get some basic information. This is a great starting point!
- List of programs: It is helpful to get as much advice as possible on this. Each mentor might suggest different programs you hadn’t thought of applying to. Dr. Drebin will also go through your list with you, and offers great perspectives about program chairs.
- Go to American College of Surgeons 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.
- Check each program’s website – a few have slightly different application requirements

Scholarly pursuit
- Find out about projects by asking your attending and residents (especially the former Penn students). They will have a good sense of what’s going on in the department. You don’t have to know what you want to do with the rest of your life in order to pick a project! Sometimes what you do for a project will lead you toward picking what you want to do. Just do something that sounds interesting and doable in 3 months.
- If you need some guidance, Dr Kelz is always a good resource to hook you up with a surgery lab or on a project that has a history of mentoring medical students.
- Consider meeting with potential mentors during the spring of your 3rd year to get a project in order and submit an IRB. This is will allow you to hit the ground running come the fall.
- Most students do scholarly pursuit during the interview months (Nov, Dec, Jan) because it allows for the most flexibility. It is nice if you have the general project set up beforehand, so that you can get it on your application and talk about it during your interviews.

Application process
- You need to be proactive. Other specialties give a lot more support to their applicants. For 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.
  o Have anyone who is willing read over your personal statement: JoMo and Kelz are also willing to take a look at it and will make some suggestions that are more specific to surgery. Family members and friends can be useful for brainstorming, editing, and proofreading.
- Work on updating your CV before ERAS opens. This is immensely helpful when filling out ERAS because you can copy and paste!
- In general, people apply to about 15-20 programs. When you meet with Dr. Kelz or JoMo, they will tell you if you can apply to fewer than that or if you need to apply to more.
- Schedule at least 10 interviews at places you would consider ranking. You won’t be able to interview everywhere, since there are so few interview dates (most are on Saturdays).
- Meet with the Chair when you are close to submitting your rank order list (Preferably before the first week of February)—let him/her 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. The Chair and JoMo are great advocates and have your best interest at heart.

- **Step 2:** MA and CA programs require Step 2 scores before matching.

**Application Timeline**

**Jan to June**
- Meet with mentor and/or Dr. Morris to plan the year
- Consider doing rotations in Jan/Feb when most of your classmates will be taking the boards (Chair, Fraker, and non-General Surgery elective surgery blocks tend to be in high demand)
- 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 the Chair
- 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 Sept 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 2014 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**
- If you don’t get an interview at a program that you really like, consider seeing if Dr. Morris/the Chair can make a call on your behalf.
- 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
- 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 the chair or JoMo 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: Mark Barry (mbar@mail.med.upenn.edu), Christy Marcaccio (christy.marc12@gmail.com)

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:
  o 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. You can also go down to OR when it’s slow or go on heart/lung harvests for transplant. **Note: This rotation requires permission, so you should initiate contact sooner rather than later to secure a spot when you want it.**

- **Medicine Sub-I**: Dr. Morris and many MS4’s 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.

**Residency Programs**

- Research them before you apply – search the websites, talk to students at other medical schools, talk to former Penn students who are now residents at other programs, and talk to the fellows and attendings who have trained and worked at other programs. Read the blogs (but do NOT post anything. Ever.). Listen to the rumors, but keep an open mind and make your own judgments of the programs – sometimes the reputations lag the changes in the programs.
- Consider whether you want to have the dedicated research time during residency. There are very few programs that have a mandatory 2-year research period (Beth Israel Deaconess Medical Center, MGH, Dartmouth, Michigan, Stanford, Pitt). Many others have optional research time.
- 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 is will allow you to hit the ground running come the fall.
- Most students do scholarly pursuit during the interview months (Nov, Dec, Jan) because it allows for the most flexibility. It is nice if you have the general project set up beforehand, so that you can get it on your application and talk about it during your interviews.

**Application process**

- You need to be proactive. Other specialties give a lot more support to their applicants. For vascular surgery, if you have questions, actively seek out the advice of your mentors.
- Start working on your personal statement—write when you get inspiration. It helps to get this mostly done before ERAS opens so then you are ready to go with the next step.
  - Have anyone who is willing read over your personal statement: Ben Jackson or Grace Wang 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:** MA and CA programs require Step 2 scores before matching.

**Application Timeline**

**Jan 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)

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NEUROSURGERY
Original work by David Krieger, Ryan Grant, Brandon Gabel
Most recently updated by Mike Spadola (2017)

- 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, as you will work with the chiefs and PGY2s that will be the same for your subI, 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.
  - Required
    1) Neurosurgery HUP Sub-I
    2) Neurosurgery away Sub-I: 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.
      - 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.
      - Where have students gone recently? Johns Hopkins, Columbia, MGH, Barrow, Michigan, Iowa, Stanford, NYU, Pittsburgh, UCSF, UCLA, Miami, UWash.
      - 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, Stanford, UCSF, USC, UCLA, Barrow (Penn Alum), and UCSD (Penn alum)
- Mid-West or the South? U Michigan, Mayo, Emory, Vanderbilt (Penn alum), Cleveland Clinic, Iowa, Washington U, Ohio State, U Florida, Miami, Northwestern (new chairman Lesniak is great)
- North-East? Dartmouth (Penn alum), Columbia, Cornell (Penn alum), NYU (Penn alum), Yale (Penn alum), Duke, 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. **I would recommend doing your Penn Sub-I in April or May, then your two aways in June and July. This gives you time to settle back into a routine before submitting applications in September and to get your letters in order.** That’s 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.

**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 I 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 II (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 I there isn’t any need to take Step II 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.

- (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.

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.

- 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 won’t 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)

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 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.
- Interviews are normally benign. You will get the normal “why neurosurg” 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.
- 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 doesn’t look good if you can’t talk about it.
- Some interviews MAY have you read MRI/Angios and ask you questions, but it was low-stress and usually something obvious (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.)
- Afterwards follow up with programs you plan to rank highly. Email PDs and Chairmen. Let them know you are interested.
- 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. Just one man’s opinion.

- You can consider doing second looks but these are by no means necessary. 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 subI 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.

**Other:**

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

If we missed anything, Please don’t hesitate to e-mail!

Good luck!

**Questions:** Mike Spadola ([mspadola@gmail.com](mailto:mspadola@gmail.com)) | Ashwin Ramayya ([ashwinramayya@gmail.com](mailto:ashwinramayya@gmail.com))

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**UROLOGY**

*Original work by member of class of ’07. Updated by Jeff Morrison (2017)*

**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**
Away rotations are not required, but most applicants do 1-2. Most applicants who do an away rotation are invited back for an interview, or will be interviewed during their visiting rotation. 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.

**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 422 rank lists submitted for 319 spots with an overall match rate of 75%, 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 45-55 this last cycle in 2016-17, with many applicants across the country 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 pimpting or questions about knowledge.

After interviews
In general, 2016-17 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.
Resources
The match is organized by the AUA. You can find registration information at www.auanet.org. The best informal source of information is at www.urologymatch.com. This site, created by a Penn Urology resident, contains information on the match process. It also has numerous other features like discussion boards, tips on interviewing, sample thank you letters, etc. However, always remember that the information posted on this site is user-generated.

Questions: Jeff Morrison (morrisjc89@gmail.com), who matched at Colorado in 2017 and Alex Skokan (alexs kokan@gmail.com), who matched at Penn in 2014.

MED/DERM
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: MEDICINE SUB-I, DERM 300 ROTATION. 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.

Double 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 handful 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:
1. University of Minnesota (2 spots open per year)
2. University of Wisconsin (2 spots open per year)
3. 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.
4. 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.
5. Northwestern (1 spot open per year): Combines the IM department at Washington Hospital Center

The Application:
- ERAS opens on July 1, and applications can start being submitted on September 15. Try to submit your application as early as possible, but a few days after September 15 is not a big 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.

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 10-20min, 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 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 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. Don’t 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)

A WORD ON STEP 2
By Amma Hewitt, most recently updated by the Class of 2017

You will need to take both parts of Step 2 in order to graduate. Many if not all programs require passing scores before match day. Some may want to see scores before offering an interview or before submitting rank lists. Please be sure to check websites for individual programs (particularly west coast programs) to see if and when they require or advise submitting your Step 2 CK and CS scores. Students also tend to decide when to take Step 2 with consideration for their Step 1 scores. Conventional wisdom is to time Step 2 CK so that your scores do not come back until after your ERAS is submitted if you are satisfied with your Step 1 performance, as you have to release all available USMLE scores when you submit ERAS. Conversely, if you scored lower than you had wished on Step 1, you might consider taking Step 2 earlier, in time to boost your testing profile before submitting your residency applications. Please note that there is no longer an option to selectively forward Step 2 scores in ERAS. You release all of your scores to all of your programs, or none at all.

STEP 2 CS
- Registration
  - Register as soon as you can (~6-9 months in advance) as slots in Philadelphia fill up quickly.
  - Consider taking Step 2 CS after your Clinical Skills Inventory exam, which is good practice
- How long to study for the exam
  - Many Perelman students do not take dedicated time off of rotations to study for Step 2 CS. Instead, they may read First Aid for Step 2 CS over the course of a day or two before the exam. Some also practice a few complete encounters with friends.

STEP 2 CK:
- How long to study for the exam:
  - Many Perelman students take 2-4 weeks of dedicated time off of rotations to study for this exam.
- Helpful resources:
  - USMLE World- very popular with Perelman students and sometimes used as a sole resource.
  - First Aid for Step 2 CK
  - Kaplan Q Bank
  - Kaplan Step 2CK Question Book.

-THE END-