Applying for Residency: General Surgery

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Contributing Authors:
Douglas Smink, M.D., M.P.H - Surgery Residency Program Director, Brigham and Women’s Hospital
Bryan V. Dieffenbach, M.D.- Department of Surgery, Brigham and Women’s Hospital
Joshua Caldwell - Class of 2019

Part I: Overview of General Surgery

Description of Specialty, Common condition, types of patients:
Welcome to General Surgery! Our specialty manages some of the most complex pathologies and offers a wide array of career and subspecialty options. Training in general surgery focuses on management of a broad spectrum of diseases and injuries affecting nearly all areas of the body. Individuals who complete general surgery training pursue careers treating conditions and performing procedures which range from minimally invasive lung resections in premature babies as a pediatric surgeon to large abdominal tumor resections as a surgical oncologist to emergent thoracic or abdominal trauma operations as a trauma and acute care surgeon. The most frequently encountered conditions managed by community general surgeons are: breast disease, gallbladder disease, hernias, gastrointestinal cancers and the acute abdomen from appendicitis.

Career trajectories: academics, clinical, research, teaching, etc.
General surgery provides the opportunity to practice in a variety of settings. Clinical practices can be focused on rare and complex pathologies or broad and spanning the gamut of surgical disease processes. Research endeavors are limitless and can be tailored to one’s own interests ranging from outcomes to education to basic science projects. For those who pursue careers at academic centers or academic-affiliates, opportunities exist for daily teaching of residents of all levels and subspecialty fellows both in and out of the operating room.

Practice Models
Practice models for general surgery include traditional private practice, group practice, employment through a Health Maintenance Organization (HMOs, for example, Kaiser Permanente), hospital or medical center employment, academic medicine, public health or community health centers, Indian Health service or the military.

Residency: Length, typical curriculum
The required clinical training in general surgery residency is 5 years. Training programs with a focus on academic surgery generally require a 7-year commitment wherein 5 years are dedicated to clinical training in general surgery and 2 years are devoted to research endeavors tailored to the interests of the trainee. These two ‘academic enrichment years’ are usually spent after completion of the second or third clinical year. During the clinical residency years, residents rotate through inpatient surgical services (including night float) and outpatient clinics. Rotations include: general abdominal surgery, minimally invasive and bariatric surgery, acute care and trauma surgery, colorectal surgery, surgical oncology, cardiothoracic surgery, transplantation, pediatric surgery and vascular surgery. Programs will differ on research requirements, elective rotations and call schedules. During residency, expect to take night call in the hospital regularly – this varies by program. Many programs will require rotating through more than one hospital. Programs exist in community hospitals, county hospitals, academic medical centers and the Armed Forces. Some programs sponsor global health electives, while others may allow residents to participate in overseas electives but do not sponsor the elective.
Fellowships offered after residency
Fellowships are offered in: Trauma and Acute Care Surgery (Surgical Critical Care), Minimally Invasive and Bariatric Surgery, Endocrine Surgery, Surgical Oncology, Hepatobiliary Surgery, Colorectal Surgery, Breast Surgery, Cardiothoracic Surgery, Vascular Surgery, Pediatric Surgery, Plastic/Reconstructive Surgery and Transplantation Surgery. Fellowships range from 1-3 years duration, and may or may not be accredited by the ACGME depending on the program and specialty. Today, approximately 80 percent of residency graduates complete additional fellowship training, and in some academic programs, that number can be over 90 percent. There are also an increasing number of integrated residency programs in the subspecialties of Vascular Surgery, Plastic/Reconstructive Surgery and Cardiothoracic Surgery. Those pursuing careers in these specialties can follow three different paths: 1) apply directly into an integrated training program, 2) transfer into an integrated track mid-way through residency (only possible with some programs), or 3) complete general surgery residency followed by fellowship. Students interested in these subspecialties should read the chapters on those subspecialties.

Part II: Life as a General Surgeon

Demographics
According to AAMC data from 2018, women made up 38% of applicants in general surgery in 2018. Nearly 50% of general surgery applicants were white, 7% were African American, 7% Hispanic and 19% Asian-American. In 2017, 25,157 general surgeons were in the workforce equating to 7.65 general surgeons per 100,000 population.

Earnings Potential
Annual compensation for general surgeons is highly variable and dependent upon subspecialty training. In 2016-2017, median annual salary at the junior faculty level was $334,000 and increases to $421,000 as senior faculty.

Lifestyle
General surgeons usually work between 50 and 70 hours per week, depending upon practice demands, call obligations and other commitments (e.g. teaching, administrative work, etc.). Call schedules are widely variable and dependent upon many factors. About 55% of general surgeons practice in an urban setting and 6% practice in a rural setting. In both academic and non-academic settings, general surgeons work closely with physician assistants and nurse practitioners.

Academic Medicine
Academic surgeons participate in research, medical student and resident and fellow education, and clinical care. Those who do not join academic practices but wish to teach may pursue teaching affiliations with local/regional medical schools.

Part III: Preparing to Apply in General Surgery

How Competitive is General Surgery?
General surgery has become increasingly competitive in recent years. In 2018, there were 2,391 applicants (1,351 US graduates) for 1,319 categorical general surgery positions (1.8 applicants per position). 76.2% of positions were filled by US medical graduates and 99.6% of general surgery categorical positions were filled overall.

Planning the post-clerkship and senior years
After deciding to pursue a career in general surgery, you should meet with your academic advisors, your surgery mentors, your Surgery clerkship site director and perhaps the Chair of the Department of Surgery at your PCE site to plan your post-clerkship clinical experiences and extracurricular activities. Be prepared to discuss your strengths as a general surgery applicant and be open to discussing opportunities to improve your competitiveness. Program
Directors at the affiliated hospitals are also a great resource. You should feel comfortable making appointments with them to introduce yourself and discuss your candidacy, and to receive advice about the process. The Program Directors and Chairs typically hold an information session in June/July with all of the rising 4th year students to discuss the interview process, and make themselves available to any student who wishes to seek advice on the residency application process.

**Clinical Rotations**

**Sub-Internships**
You must complete a medicine sub-internship in addition to any general surgery sub-I’s (which are officially called electives). We recommend you complete 2 general surgery sub-I’s, at least one of which should be at an HMS-affiliated hospital. It is ideal to complete a surgery sub-I at a site other than where you completed your PCE year, both for you to see another hospital and to expose you to additional surgical faculty. Sub-internships should be completed by July of your senior year in order for the department committee to have adequate time for course grades and summative comments to write Departmental Summary Assessment (DSA) in August for all students (see below).

You may want to ask the course director of your sub-internship and/or Department Chair for a letter of recommendation; don’t worry about this- course directors and Chairs expect to be asked, even if they have had limited contact with you directly. It is best to schedule a meeting to make this request in person during the rotation to give the course director adequate time to write the letter. You may also want another faculty member from a Sub-I to write a letter- again, it is best to make this request as soon as possible.

**Away electives**
Away electives are traditionally sought by students as “audition rotations,” though students from Harvard may have a variety of motivations for pursuing a rotation elsewhere. Like anything in surgical care, these offer both a potential risk and a potential benefit. A stellar performance may impress some faculty at the away institution, but a subpar performance may actually diminish you as a candidate. In general, away rotations are not expected or required for qualified Harvard students to be considered by the most competitive general surgery residency programs. The exception to this is if your clinical performance is likely to be markedly superior to your USMLE Step scores and academic record.

If you wish to be considered by a specific program (partner or spouse in same institution, family or other ties to a region) or feel you will be able to impress a program with your clinical performance, choose a rotation that will display your strengths and allow you to come into contact with many faculty and residents. Depending on the competitiveness of your application, it may not be necessary to complete an away rotation to receive an interview or match at a specific program. You can consult with your advisors if you are unsure about the competitiveness of your application for a specific program.

Some students may pursue away rotations primarily for the educational experience (e.g. rotating on a Trauma service at a high-volume county hospital) or to experience a different region (e.g. the West Coast) regardless of their level of interest in pursuing residency at that program. Though your performance will be closely evaluated as an applicant, pursuing rotations for reasons other than “auditioning” offers some students a valuable learning experience and is a way to expand your professional network in a different region. Again, only a small number of HMS applicants in general surgery will complete an away rotation.

Remember, you cannot receive academic credit at HMS for more than 2 clinical electives in the same specialty (all sub-specialties count as Surgery), including away electives. (HMS Student handbook Section 2.14) Any rotations that end after ERAS is submitted on September 15 will not be recorded on the official transcript submitted with your application. Therefore, if you choose to complete any rotations (away or at HMS) ending after this date,
programs will not be aware you have completed the rotation unless you send an updated transcript, submit a letter of recommendation from a faculty at that program or volunteer the information in an interview.

**Other Recommended Electives**

There are a number of clinical electives that will help prepare you for general surgery training. We recommend a surgical intensive care/critical care unit, anesthesia and radiology elective (specifically focused toward abdominal and thoracic imaging, or dedicated to ultrasound). You will spend 5-7 years doing intensive general surgery training, so you may also use your elective time to broaden your knowledge of fields that will help you care for patients during residency, such as cardiology, infectious disease, gastroenterology, or others. You may want to schedule these electives during the fall (August - October) or late winter and spring (February - April). Remember you want to have flexibility to interview during November - January. Summer electives may be quite competitive with students applying in these areas so may be difficult to obtain. Of note, there is a Surgical Boot Camp elective offered in April at BIDMC which is popular among students entering surgical specialties.

**Research**

General surgery is competitive and many academic programs will give an edge to an applicant with research experience. In general, research experience does not need to be in a general surgery specialty as we recognize that people take many different paths before deciding to pursue a career in surgery.

**National Meetings**

Attending and presenting your research at a national surgical meeting is excellent experience and is a good opportunity to introduce yourself to program directors and other prominent individuals from general surgery programs of interest. The American College of Surgeons meeting and the Academic Surgical Congress are good meetings and often attended by general surgery program directors. These meetings have both oral and poster presentation sessions.

**Other degrees**

Some general surgery applicants have additional advanced degrees, such as a PhD, an MPH, an MBA or other Masters level training. These are usually well-regarded but are not required to match into a general surgery residency.

**Part IV: Assessing Your Competitiveness**

**What Criteria do Programs Consider?**

Assessing your competitiveness will determine to how many and to what types of programs you should apply. Your application is judged based on many factors, including academic and non-academic experiences prior to medical school and during your preclinical and clinical years. You should realistically assess your competitiveness with your faculty advisor; for example, low USMLE Step scores may mean you need to apply to more programs, or different types of programs, to match successfully. There is no uniform number of programs recommended but match data suggests that longer rank lists increase the likelihood of a successful match in general surgery.

According to the 2018 NRMP Program Director Survey, general surgery program directors cited the following factors as important considerations for selecting interview applicants: USMLE Step1 and Step 2 scores, letters of recommendation, clerkship grades (especially surgery), professionalism and leadership qualities, perceived commitment to the specialty and interest in an academic career. Negative contributors included: failed attempts at USMLE exams and NRMP match violations. When ranking applicants, feedback regarding interactions with faculty, housestaff and program administrative staff are of paramount importance to program directors, in addition to the other factors previously mentioned. Keep this in mind during correspondence such as emails and phone calls, as well as during visits to programs.
If your self-assessment indicates you are a less competitive candidate, you might consider applying for an away elective at one or more of your desired programs. An exemplary performance and a letter of recommendation from a faculty member at that institution may help your application.

1. Grades and your DSA
Above average achievement in the preclinical and clinical years is important and conveys an understanding of the principles of medicine. HMS is now using the Department Summary Assessment for 2019 and beyond (a small set of seniors will still be in the New Pathways and will not have a DSA in 2019-2021). The DSA is intended to capture a student’s professional growth over time and includes all clinical coursework in the specialty from the clerkship through July of the application year. In addition to your Surgery DSA, a strong performance in medicine is well regarded on general surgery applications. Poor grades diminish your competitiveness, but many programs (even highly competitive programs) use a holistic approach to evaluating candidates.

2. USMLE Step Scores
Some general surgery programs use USMLE scores as objective screening tools for applicants given the large number of applications each year. That said, many top-ranked programs do not have a score cutoff to be considered for interview. The mean USMLE Step 1 and Step 2 scores for US medical graduates who matched into general surgery programs in 2018 were 236 and 248, respectively. The NRMP Program Director Survey 2018 found that the median USMLE Step 1 and 2 scores below which some general surgery residency programs did not grant interviews is typically 220. Most programs do not require you to have completed Step 2 before applying. For candidates who are less competitive or have a lower Step 1 score, taking the Step 2 exam (and earning a high score) early enough for consideration in the initial review may boost your chances for an interview and ultimately matching in that program.

3. Research Experience
Research experience shows an interest in pursuit of an academic career which is important to many academic general surgery training programs. According to NRMP data from 2018, the mean number of research experiences for matched applicants was 3.6.

4. Publications
Applicants who matched into general surgery in 2018 had a mean of 6.2 abstracts, presentations and/or publications, whereas those who went unmatched had a mean of 4.7. Although it is preferable to list publications that have already been accepted or published in a peer-reviewed journal, you are also able to list manuscripts as ‘under preparation’ in ERAS if your project has not yet been submitted and can update programs via email if you have additional work published between your interview and the Rank List deadline.

5. Extracurricular Activities
General surgery residency programs value diverse applicants with a variety of extracurricular interests. Activities from college years or before that demonstrate acquisition of leadership skills and a team mentality are well regarded and should be included on residency applications. Programs also seek candidates with long-term interests and passions, so you should include in your application activities that are formative in your development. There is no optimal number of activities. More activities does not necessarily make for a stronger application. You should avoid including activities that are not meaningful to you as this will clutter your application and detract from the activities and accomplishments you wish to highlight in your application.

Getting an Interview: Attributes Residency PD’s Consider in Granting Interviews:

Letters of recommendation
Excellent letters of recommendation are essential and among the most important aspects of your application. When selecting applicants for interview, program directors rank recommendation letters as more important than
the personal statement and clerkship grades. General surgery applicants need at least 3 letters of recommendation but can submit up to 4 to each general surgery program. You may obtain and upload more than 4 letters of recommendation to ERAS if you do not wish to use the same letters for every program (for example, if you obtain a letter of recommendation from an away rotation or if you are dual applying to general surgery and an integrated surgical specialty program or another specialty).

Your letters should include a Department Chair letter (this can be from any of the Harvard hospitals) and 2-3 supporting letters. You want to choose faculty who will be strong advocates for you as an individual and ideally know your personal and clinical strengths. Examples of good letter writers include: faculty members who have worked closely with you clinically, research mentors (especially if you completed abstracts and/or publications with them) and/or faculty with a national reputation. When asking for a letter of recommendation, try to assess whether the faculty member will feel comfortable writing you a strong letter based on their experience with you; obtaining a weak letter from a prominent surgeon will not help your application. You may choose surgical faculty from your PCE rotation or a post-PCE surgical sub-internship. Oftentimes, faculty will solicit input from residents or other faculty on their service who worked with you; however, this is at the discretion of the individual writing the letter. Letters from faculty outside of general surgery are usually not recommended unless that faculty member is your PhD or other research mentor, in which case a letter from them is encouraged.

Letters of recommendation should be requested early once a faculty member has been identified (often at the conclusion of a rotation or sub-internship) to be sure that they are completed in time for application submission. Give your letter writers your CV and personal statement to review as soon as you have them completed. Plan to meet with each writer in the summer to review your portfolio and give them time to write the letter. Ask the writers to submit their letters before August 31. ERAS provides a letter request form which you should provide to your letter writers. This form assists your letter writer with submission and includes instructions on how to access and use the ERAS Letter of Recommendation Portal. You should send a reminder to the writers around August 20. Remember summer vacations and other commitments may come up, and you want to be respectful of your writer’s time. You should consider writing a thank you note once the letter is on file with ERAS, and remember to update them with your results after Match Day.

ERAS gives you the option to waive your right to review the letter of recommendation. There is no benefit to reviewing your letters, and program directors would be concerned if an applicant did not waive this. It is strongly recommended you waive the review.

**Part V: Applying Into General Surgery**

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

The number of programs that you should apply to depends on your competitiveness as an applicant, geographic restrictions, whether you are couples-matching, and other factors. Your surgical mentor or another advisor may be helpful in determining to which and how many programs you should apply. AAMC data from 2011-2016 suggests that for US applicants with USMLE Step 1 scores ≥237, 220-236, or ≤219, the ‘point of diminishing returns’ for applications submitted to general surgery resident programs was 33, 35, and 46, respectively. However, a typical candidate from HMS applies to 15-20 programs and interviews and ranks about 15 programs, resulting in a successful match. You should plan to apply to all programs you are interested in on the day that ERAS opens for submission. If you add additional programs mid-way through interview season, you decrease your likelihood of receiving an interview offer from those programs as they may not review applications submitted at a later time.

**How many interview invitations should you accept?**

Regardless of how many programs you apply to, you want to interview at as many programs as you need to match. Data from the 2018 NRMP match showed that >90% of US medical graduates matched into general surgery when they had >11 programs on their rank list, the mean number of ranks for matched applicants was 13.1.
Travelling to interviews can be very costly, and depending on the number of interview invitations you receive you will likely need to turn down at least one interview due to a scheduling conflict. Once you receive an interview invitation, you should schedule your interview immediately as the dates offered will fill up quickly. If you decide to cancel an interview that you have accepted, try to do so as far in advance as possible out of consideration to the program and to the other applicants who might be able to take your place. Note that all interview days include a pre-interview social event the evening before. Though this is typically not a required event, it can be a valuable opportunity to meet the residents and for the residents to meet you. You may want to consider your ability to attend the pre-interview social event when scheduling your interviews.

When ranking programs, be realistic. Remember, by ranking a program, you are agreeing to employment at that program. **Do not rank a program you do not wish to attend.** Rank the programs in your preferred order, and (this is the hardest part!) trust that the NRMP will give you your best match.

**Advocating for Interviews**
If you do not get an interview offer with a desired program, but you are placed on a waiting list, you have several options- acceptance, advocating for yourself, or asking your clerkship director or Surgery Advisor to advocate for you. We recommend discussing this with your Surgery Advisor, including a frank discussion of your reasons for wanting a particular program and your competitiveness at that program. If after that discussion you want to approach the program, you may communicate with the residency program director yourself or ask your advisor to contact the program director. It is unusual to get an interview if you are not on the program’s waiting list.

**How should you prepare for interviews?**
Review your own application, and be prepared to discuss any activity you included. Look at the program’s website and be prepared to answer the question “Why [insert program name here]?”

**Common questions you may be asked – specialty specific:**
- Tell us about a particularly memorable experience you had in surgery and how it has influenced your decision to pursue a career in surgery.
- What draws you to surgery?
- Where do you see yourself in 20 years?
- What is your ideal career?
- Do you have any subspecialty interests in surgery? What experiences influenced these?
- What is your ideal surgical training program?
- What factors in a training program are most important to you?
- Tell us about (research experience on application) and what your role was in the project.
- What experiences have helped contribute to your leadership skills?

**Common interview errors:**
- Poor preparation, not being familiar with the program or information on your application
- Inconsistent or inappropriate answers to questions
- Not having a question of your own when asked “Do you have any questions for me?”
- Abrasive, condescending, or evasive behavior, particularly to administrative staff
- Disinterest or flat affect
- Inappropriate humor (be professional!)

**Post-interview communication with programs: NRMP Code of Conduct for Applicants and Programs**
After the interview, it is customary to send thank you notes to the Program Director, Chair, your interviewers and the administrative staff. Some students choose to hand write their thank you notes, and others send them via email.
Both candidates and programs are governed in their behavior and communication by the NRMP Match Communication Code of Conduct (http://www.nrmp.org/communication-code-of-conduct/). This is a contract you agree to by your participation in the Match. The intent of this Code is to protect applicants’ privacy and confidentiality, to prevent programs from asking illegal or coercive questions, and prevent onerous displays of intent (requiring second interviews or visits, rotations at the program institution, demanding to know how the candidate will rank a program).

Nevertheless, students report receiving a range of post-interview communication from programs, including letters, emails and phone calls expressing varying degrees of enthusiasm. Some programs remain silent even to those who are ranked highest on their list. For this reason, it can be challenging to interpret communication from programs and students often feel pressured to respond and express their preference.

If you have one clear first choice program, discuss with your Surgery Advisor whether you should communicate that to the Program Director. You may ask a mentor or advisor make a phone call to the program advocating on your behalf. While some programs want to know this information, others may not use that information in their rankings. In most cases it will not help you to inform the program; just as you should rank programs from your favorite to least favorite regardless of communication, programs will do the same. Do not tell a program you are ranking them first if you are unsure or are not planning to do so- program directors do talk to one another and to clerkship directors to gather information about candidates, and you do not want a reputation for dishonesty. It is ok to continue weighing your options until the rank list deadline. Do not feel pressured to declare your intent to rank a program first if you feel uncertain of your rank order.

Creating your Rank List
Creating your rank list is a highly personal decision, and there are many professional and personal factors to consider. You may seek advice from your mentors, family and partner but ultimately your list is your decision. Remember, by ranking a program, you are entering a binding commitment to employment at that program. Do not rank a program you do not wish to attend. Rank the programs in your preferred order, and (this is the hardest part!) trust that the NRMP will give you your best match.

What if I don’t match?
During Match week, all applicants will receive an email on Monday informing them of whether they secured a position through the Match. Though it is rare, on occasion HMS students do not match and must enter the Supplemental Offer and Admission Process (SOAP). You should contact your Society advisor immediately as they can support you through the next steps of this process.

Final thoughts
Applying for surgery residency can be a somewhat daunting and stressful process, but it is also exciting. You will get to learn about yourself and your goals, and you will meet surgeons and surgical residents from across the country. They are the members of the professional community you are entering, so do your best to enjoy the process!