

Chapter 19

I Am a Surgery Resident Now, 10 Things I Wish I Had Learned as a Medical Student

Jared R. Gallaher and Laura N. Purcell

Abstract The transition from medical school to residency is a period of significant adjustment. The goal of this chapter is to highlight several areas that are critical to pay attention to during this time and plan for in advance of beginning training. These are ten of the most important lessons we wish we had learned as medical students prior to surgical residency although all of these apply to other specialties. This is taken from personal perspective as well as input from peers and the medical literature. We hope this list facilitates personal reflection on how you can learn from our experiences and begin the process of working towards your own professional development.

The transition from medical school to residency is a period of significant adjustment. The goal of this chapter is to highlight several areas that are critical to pay attention to during this time and plan for in advance of beginning training. These are ten of the most important lessons we wish we had learned as medical students prior to surgical residency although all of these apply to other specialties. This is taken from personal perspective as well as input from peers and the medical literature. We hope this list facilitates personal reflection on how you can learn from our experiences and begin the process of working towards your own professional development.

19.1 Develop Organizational Skills Now

Years of schooling have taught you the fundamental skills needed to keep your school work organized. However residency will challenge your capacity to organize your work, as well as your personal life. This is illustrated in a recent study showing

J.R. Gallaher, MD, MPH (✉) • L.N. Purcell
University of North Carolina, Chapel Hill, NC, USA
e-mail: jared.gallaher@unchealth.unc.edu; Laura.Purcell@unchealth.unc.edu

that residency program directors identified poor organizational skills as a primary concern for incoming interns (Lyss-Lerman et al. 2009). Medical school is the perfect time to focus on improving your organizational skills. We suggest focusing on these three areas.

During your clinical rotations experiment with different systems of organizing patient information and tasks. As a third-year medical student you will likely handle up to five patients on most services, but as an intern you may be managing as many as thirty patients. Medical school is a great time to practice different approaches to organizing information in order to find what works best for you; some of the best techniques can be learned from strong residents with whom you are working. Many of your responsibilities as a resident will be administrative, either in implementing plans or organizing data for complex patients. Consequently, it is impossible to succeed as an intern without a foundational set of organizational skills.

Second, you will need to balance clinical work responsibilities with other non-clinical expectations. This includes activities like research, board certification, loan repayment, and medical student education. Your department will fill your inbox with emails that need timely responses. You will also need to keep track of your medical license and when you are participating in research: communications from your IRB, abstract, conference, and funding deadlines.

Lastly, as you have already experienced during medical school, your personal life does not stop during training despite the increased level of responsibility. Bills still need to be paid and that pile of laundry will not wash itself. Experiment with different systems that help you keep track of day to day life like automatic bill pay. There are also many mobile apps useful for this purpose that can keep important aspect of your life in order, such as your parents' birthdays.

While medical school is very challenging, your last years of medical school and your residency training will add additional layers of complexity and a substantial amount of new data for you to organize and utilize. Establish these good habits now.

19.2 Work Well with Others

During school it is easy to focus on individual performance and overlook that healthcare is fundamentally a team sport. The delivery of quality care requires an incredible number of people working in synchrony. The healthcare team extends out from fellow residents and attendings to the mid-level providers, pharmacists, nurses, case managers, and hospital staff that make the hospital function. It is critical to develop strong collaboration skills as quality teamwork improves patient outcomes and also helps you reach your goals – a patient's safe discharge.

The importance of teamwork in clinical care is a point of emphasis in health services research. A recently published systematic review showed that effective

teamwork correlated with positive patient outcomes (McKinley 2016). There is also evidence that programs like interdisciplinary rounds only improve clinical outcomes if they increase teamwork (O’Leary et al. 2016). Effective teamwork requires robust communication, task coordination, and strong leadership.

As a physician in training, you will have a natural leadership position on the team. Take this role seriously by establishing patterns of healthy team interaction. The Golden Rule, “Do to others as you would have them do to you” applies aptly in teamwork development. Treat others well and it will usually be reciprocated. As your training progresses, your confidence will grow but you must guard against arrogance. Seek humility by receiving feedback well and be constructive with advice to others. In addition to helping patients, other members of the health care team will be critical for your professional development through personal support, constructive criticism, and task-sharing for common goals.

In the midst of stress and exhaustion, working well with others is challenging. However, it is these moments where you need your coworkers most to provide excellent care to your patients and to help you grow as a physician.

19.3 Establish Habits of Personal Responsibility

One of the most convenient, but most damaging, attitudes to develop in medical school is the avoidance of responsibility for patient care. During your third and fourth year of medical school you will follow patients, present their clinical course during rounds, and even perform their procedures. However, you will be aware that the resident (and by extension the attending) is ultimately responsible for placing their orders for the day, writing their progress note, and supervising your involvement. When you are busy, exhausted, stressed, or simply have other plans, it will be easy to think of this safety net as excusing you from responsibility.

Working long, stressful hours is challenging in any profession. Medicine is unique in that nearly every decision you make has a potential harmful effect on another person. Taking care of patients is a special responsibility that demands a significant professional commitment. As a medical student, you are protected by the residents and faculty working over you. When you start residency this changes. Consequently, medical school is a great time to start developing two habits that will make it easier for you to take responsibility for your patients as a resident.

First, avoid signing out tasks or studies to follow-up at night for your patients. As a medical student, your time is often protected allowing you to go home before the work is done. Discern when it is appropriate to leave and when it might be better for your learning to stay later to see a procedure on one of your patients or follow the course of someone critically ill. If staying at the hospital is not practical, practice following-up on your patients from home.

Second, challenge yourself to know more about your patients than anyone else. The harder you work to follow-up investigations, find outside records, and obtain a more thorough history, the more responsible you will feel for your patients and their

outcome. As a student, your role as a conduit of patient information for the team is invaluable and will help you develop healthy habits useful for the rest of your career.

Take your personal responsibility for your patients seriously now. Habits you build as a student will build a foundation that lasts a career.

19.4 Find Good Mentors

All of us know less than we realize. Thankfully, mentors with experience and expertise help guide us through decisions and our professional development. As a medical student, you should start seeking out mentors and the earlier, the better. They may be basic science instructors, small group leaders, your anatomy lab teacher, an attending you worked with, or a resident you connected with on a clinical rotation. All of these people are well ahead in the training process and can help you with decisions and give you advice in challenging circumstances.

One of the first major decisions you will make in medical school is your clinical specialty. Mentors often play a significant role in this process either by helping you discern a good personal fit or by serving as a role model in a particular specialty (Thakur et al. 2001). During The Match, you will seek guidance on programs to apply to and how to order your rank list. Your mentors may offer important perspectives when selecting a program, write letters of recommendation, make calls to program directors, and network on your behalf (Mayer et al. 2001).

Outside of career decisions, mentors are vital for your professional development. This includes providing feedback on your clinical performance and teamwork effectiveness. It also involves teaching you basic skills in non-clinical areas such as research. Your first mentors may be your first co-authors on a research project or direct you to the right journal for a paper you write.

However, finding the right mentor requires initiative. Most of these people are very busy, just like you. You should seek out potential mentors by scheduling a time to meet and expressing your desire for a mentor relationship. Some medical schools or residency programs may have formalized programs but evidence in some specialties suggests this is an unmet need and you should not rely on others to establish these relationships for you (Dhami et al. 2016).

19.5 Learn Work-Life Balance Early

Physician burnout and work-life balance are buzzwords in medical education. As future residents, these topics will be featured during many meetings and grand rounds. Burnout is defined as emotional exhaustion, depersonalization, and feelings of reduced personal accomplishment. Across all specialties, reported burnout rates average 50%. These feelings are not limited to residency; medical student burnout is reported as high as 45% (Ishak et al. 2009).

Do not have the false impression that once you reach residency and the 80-h work week that there will be much time outside of work. Unfortunately there is not. In residency, much like medical school, there is always something more you could be doing: studying for tomorrow's operating room cases, working on a research project, or finishing clinic notes.

When applying to medical schools and residency programs we are pushed to become modern Renaissance men and women. Our applications are full of academic, art, and athletic achievements with long lists of hobbies to prove we are well rounded. You will be unable to sustain all your hobbies and extracurricular activities during residency. Instead, identify the aspects of your life most important to you. What rejuvenates you? Whether it is friends, family, faith, running, reading, painting, or playing the trumpet, maintaining these pieces of your life will make you more resilient, a better doctor, and keep your life a little more "normal."

19.6 Residency Is a Journey

The vast amount of medical knowledge is exponentially expanding. In 1950, the doubling time of medical knowledge was about 50 years; in the 1980s, 7 years; and in 2010, it was estimated to be about 3.5 years. By 2020, the doubling rate of medical knowledge is expected to be 0.2 years, a mere 73 days (Densen 2011).

"He who would learn to fly 1 day must first learn to stand and walk and run and climb and dance; one cannot fly into flying." Nietzsche's quote is applicable to becoming a doctor and starting residency. You will not be expected to know everything about medicine and general surgery or function independently on July 1st. On day one, you will be a step ahead if you can find the bathroom and have a functioning EMR password.

A surgery residency is structured as a tiered, 5-year program for a reason. The hospital is structured for patient safety and your education. At no point will you be alone in the hospital caring for patients, even on night call. There are nurses with significantly more experience than you, upper level general surgery residents, and cardiology fellows. No matter how many times you read *Dublin's Rapid Interpretation of EKG* before starting residency, you will not be expected to get a patient suffering from a myocardial infarction to the cardiac catheterization laboratory independently.

Over the course of the 5-year general surgery residency, you will gain the knowledge and skills needed to become an independent practicing surgeon. Start developing those needed skills in medical school. Prepare for cases by reading about the patient prior to stepping in the operating room. Understand the indications for each procedure, the anatomy for that specific operation, and complications of each surgical procedure before scrubbing for the case, and meet the patients prior to the operation. These people are putting their trust in your surgical team at a vulnerable time in their lives and should respect their trust. The energy invested is directly related to

the knowledge and experience gained. At the end of your residency it will be your operating room, so start practicing the skills now!

19.7 Delve into Research

As an academic surgeon, research in some form or another will be a constant aspect of your life. There is exciting and important research being done at all medical schools in many fields, including: basic science, clinical, translational, and outcomes-based research. Get involved! Many professors will have projects underway and more often than not, they will need and want assistance. Find a surgeon you would like to work with and ask if they have a project. The worst that can happen is they say “No.”

The benefits to participating in research are twofold. Research experience will narrow your program search and strengthen your application. Finding research you love has the ability to focus your residency program search to institutions that excel in the research that excites you. If you find research is not part of your future, it will steer you away from academic programs.

In addition, involvement in surgical research may strengthen a residency application and set applications apart in a competitive general surgery applicant pool. In a study surveying general surgery program directors involvement in clinical and basic science research was an important secondary criterion for potential surgery residents with directors (Melendez et al. 2008). Through research you can obtain a more powerful letter of recommendation by establishing a strong relationship with a professor, produce tangible evidence for interest in surgery, and provide important talking points within a residency interview.

19.8 Explore Your Interests

“Twenty years from now you will be more disappointed by the things that you didn’t do than by the ones you did do. So throw off the bowlines. Sail away from the safe harbor. Catch the trade winds in your sails. Explore. Dream. Discover.” This popular quote attributed to Mark Twain, describes the exploration one should pursue in medical school. Medical school is unable to teach or give exposure to all areas of a rapidly growing medical field. If a field peaks your interest, take the opportunity to explore that area.

Seek a diversity of experiences during medical school. Use your elective months in third and fourth year to explore medical fields outside of surgery. This might include radiology to understand how to read imaging, anesthesiology to explore what happens on the other side of the curtain in the operating room, pathology to follow the specimens surgeons remove, or whatever strikes your fancy. Another opportunity are global health experiences. Medical students who have undertaken

international experiences have more confidence in their diagnostic skills, a greater understanding of the importance of public health, increased respect of cross-cultural communication and competency, and appreciate health care allocation and costs (Thompson et al. 2003; Drain et al. 2007).

During fourth year, we recommend pursuing away rotations at different academic institutions. As you are applying for residencies and creating your program match list, these experiences provide a framework for evaluating your needs and desires from a residency program. Perhaps most importantly, these experiences help identify what you do not want in a future career or specific residency.

19.9 Cultivate a Healthy Perspective

Perhaps one of the more challenging aspects of your medical education is keeping a healthy perspective on your work and training. Many medical students enter their training idealistic about patient care and the altruism of practicing medicine. These feelings may unfortunately fade as long hours and stress build up. It is important to cultivate a healthy perspective on your work through some simple practices.

First, accept that you will make mistakes. Perfectionism may have helped you excel in school, but in clinical practice much of your learning happens on the job. You will not be prepared for your first day of your internship but you will learn quickly with the help of others and through your mistakes. Challenge yourself to use errors as motivators to work harder, care more, and utilize the help offered to you by your team. When you make a mistake, talk to someone on your team or a co-resident. Research has shown that regular team discussions help prevent burnout among surgery residents (Chaput et al. 2015).

Second, express daily appreciation to your teachers and co-workers for their contribution to your education. Gratitude will center your perspective as a constant reminder that you depend on others for your professional development.

Lastly, continue to invest time in the volunteer activities. This is admittedly challenging given the time commitment of medical school and residency but will help you maintain a perspective on why you pursued a career in medicine. Interest in global health has been growing in recent years but there are many local volunteer opportunities as well. Finding a way to incorporate this into your life will grow your appreciation for your job.

In the end, you are training to be a physician in order to help others. Seek our practices that help cultivate a perspective that acknowledges you are fallible, that you depend on others, and that acts of service are the driving force behind your work.

19.10 Attitude Is Everything

It is no secret that residency can be challenging and immensely frustrating at times. Balancing the demands of attendings, patients, and nurses with clinical and research responsibilities, while also trying to maintain a work-life balance is incredibly stressful.

We challenge you to keep a positive attitude. Finish medical school and start residency by setting the right tone personally. The path to becoming a physician and surgeon is an incredible journey so relish in the experience. This being said, there are days where a vent session will be therapeutic and necessary.

Maintaining a positive attitude throughout the process can be challenging, but it will make you a better team player and has shown to improve your mental health. Scheier et al. describe three ways a positive attitude can improve an individual's ability to cope with stress, which are as follows:

1. "*Breathe*" – provides break from managing the stress
2. "*Sustain*" – bolster perseverance and drive when times become most difficult
3. "*Restore*" – improving ability to recover from stress by restoring diminished resources (Scheier and Carver 1985)

These three characteristics will aid your resiliency and make your residency experience more enjoyable and fulfilling.

In "*Invictus*" William Earnest Henley wrote, "I am the master of my fate: I am the captain of my soul." You have the opportunity to direct your medical school and residency journey. By doing so with a positive outlook and learning from our experiences, you will be successful in any residency you choose.

References

- Chaput B, Bertheuil N, Jacques J, Smilevitch D, Bekara F, Soler P, et al. Professional burnout among plastic surgery residents: can it be prevented? Outcomes of a national survey. *Ann Plast Surg.* 2015;75(1):2–8.
- Densen P. Challenges and opportunities facing medical education. *Trans Am Clin Climatol Assoc.* 2011;122:48–58.
- Dhami G, Gao W, Gensheimer MF, Trister AD, Kane G, Zeng J. Mentorship programs in radiation oncology residency training programs: a critical unmet need. *Int J Radiat Oncol Biol Phys.* 2016;94(1):27–30.
- Drain PK, Primack A, Hunt DD, Fawzi WW, Holmes KK, Gardner P. Global health in medical education: a call for more training and opportunities. *Acad Med.* 2007;82(3):226–30.
- Ishak WW, Lederer S, Mandili C, Nikraves R, Seligman L, Vasa M, et al. Burnout during residency training: a literature review. *J Grad Med Educ.* 2009;1(2):236–42.
- Lyss-Lerman P, Teherani A, Aagaard E, Loeser H, Cooke M, Harper GM. What training is needed in the fourth year of medical school? Views of residency program directors. *Acad Med.* 2009;84(7):823–9.
- Mayer KL, Perez RV, Ho HS. Factors affecting choice of surgical residency training program. *J Surg Res.* 2001;98(2):71–5.

- McKinley DW. Evaluating team performance: a systematic review. In: *Assessing competence in professional performance across disciplines and professions*. Switzerland: Springer; 2016. p. 285–329.
- Melendez MM, Xu X, Sexton TR, Shapiro MJ, Mohan EP. The importance of basic science and clinical research as a selection criterion for general surgery residency programs. *J Surg Educ*. 2008;65(2):151–4.
- O’Leary KJ, Johnson JK, Auerbach AD. Do interdisciplinary rounds improve patient outcomes? Only if they improve teamwork. *J Hosp Med*. 2016;11(7):524–5.
- Scheier MF, Carver CS. Optimism, coping, and health: assessment and implications of generalized outcome expectancies. *Health Psychol*. 1985;4(3):219–47.
- Thakur A, Fedorka P, Ko C, Buchmiller-Crair TL, Atkinson JB, Fonkalsrud EW. Impact of mentor guidance in surgical career selection. *J Pediatr Surg*. 2001;36(12):1802–4.
- Thompson MJ, Huntington MK, Hunt DD, Pinsky LE, Brodie JJ. Educational effects of international health electives on U.S. and Canadian medical students and residents: a literature review. *Acad Med*. 2003;78(3):342–7.