

MSSJ

A Medical Student Survival Journal

Pre-release Edition

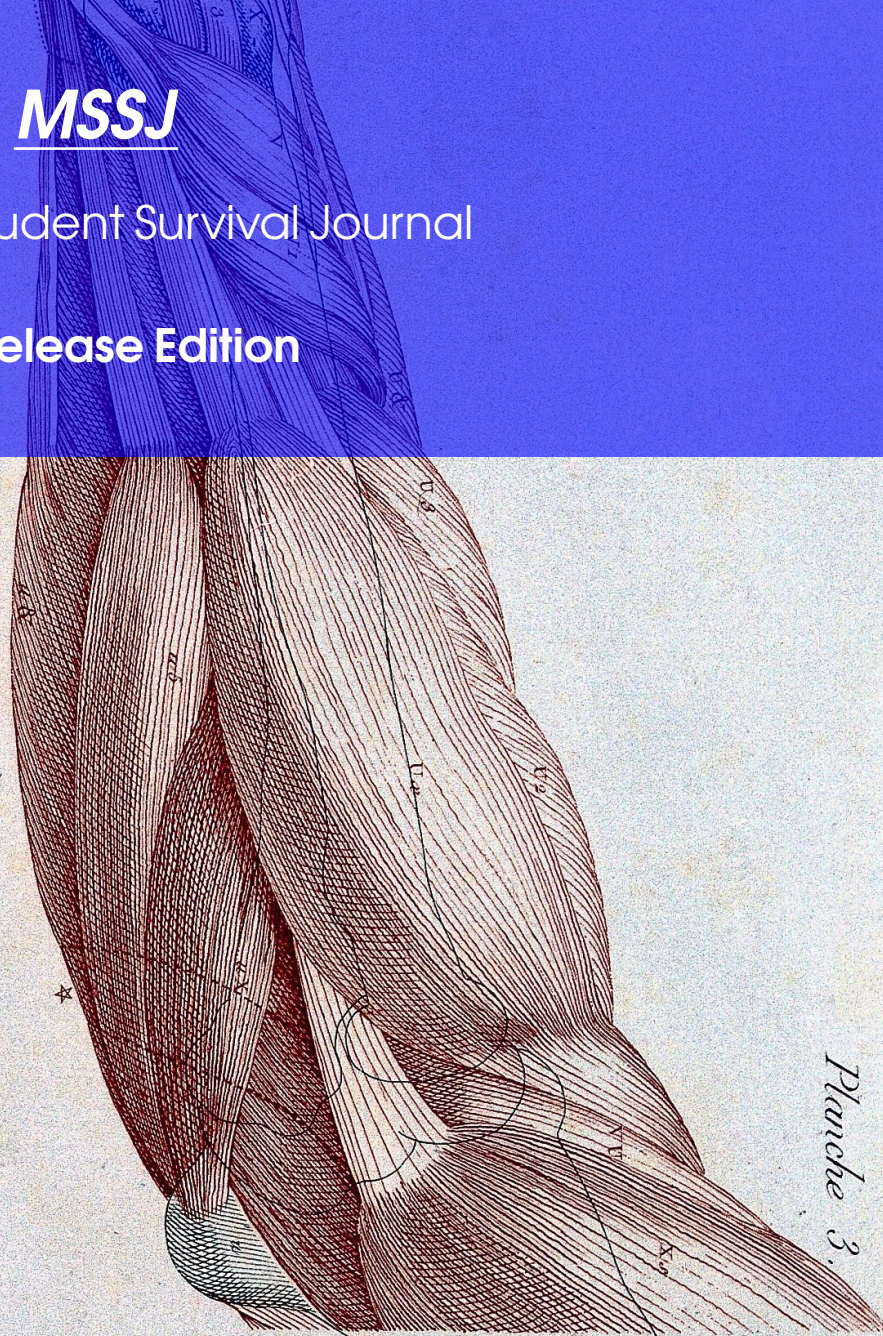
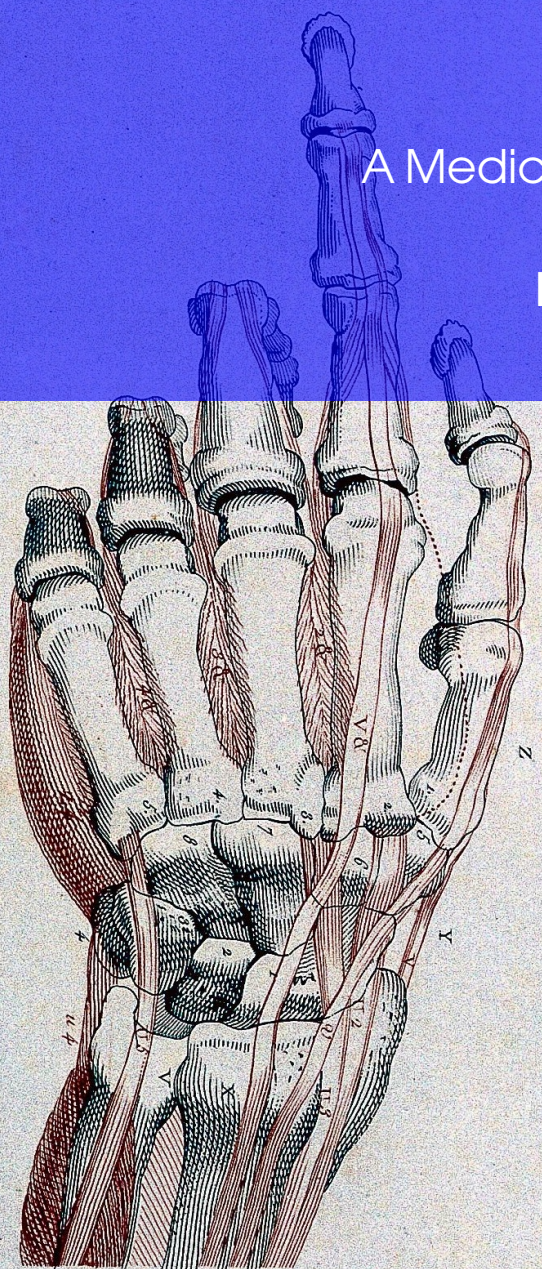


Planche 3.

Welcome to the Medical Student Survival Journal:

MSSJ

Benefits

- A running record of questions, answers, discussion, commentary and advice will greatly benefit the subsequent waves of medical students.
- Substantial contributions will exemplify the leadership and mentoring skills of authors.

Submissions

- Every student, resident, and faculty member who has experienced the challenges of medical education has pearls that can aid the future waves of prospective residents. This journal is meant to allow for those pearls to be recorded and passed on to future generations, rather than to go un-shared and forgotten.
- We encourage submissions of substance to be provided regarding any topic as it pertains to the medical student experience. If your topic does not fit within the currently defined margins of the journal, it can be expanded.
- Write papers as if they were going to be submitted to any other academic journal. You do not need to copy the format of the previously included articles, as submitted articles will be re-formatted for the journal. However, referencing previously submitted articles will help with the writing process.
- All submissions are subject to refusal at the discretion of the MSSJ Journal board.

Rules

- Be professional.

Submissions

The Following Types of Submissions are Accepted:

- Advice
- Commentary
- Discussion
- Questions
- Answers
- Responses

Required Submission Elements:

1. TITLE:
2. AUTHOR: *Optional*
3. INTEREST: *e.g. Family Medicine*
4. TOPIC: *e.g. MI Anatomy*
5. TEXT: *optional subheadings, include title of referenced article if applicable*

Submission Rules and Tips

- **Don't worry about fancy formatting**; simple is better.
- Please report typos! It's a big help!
- **Be professional.**

Please submit via:
The Google Form 

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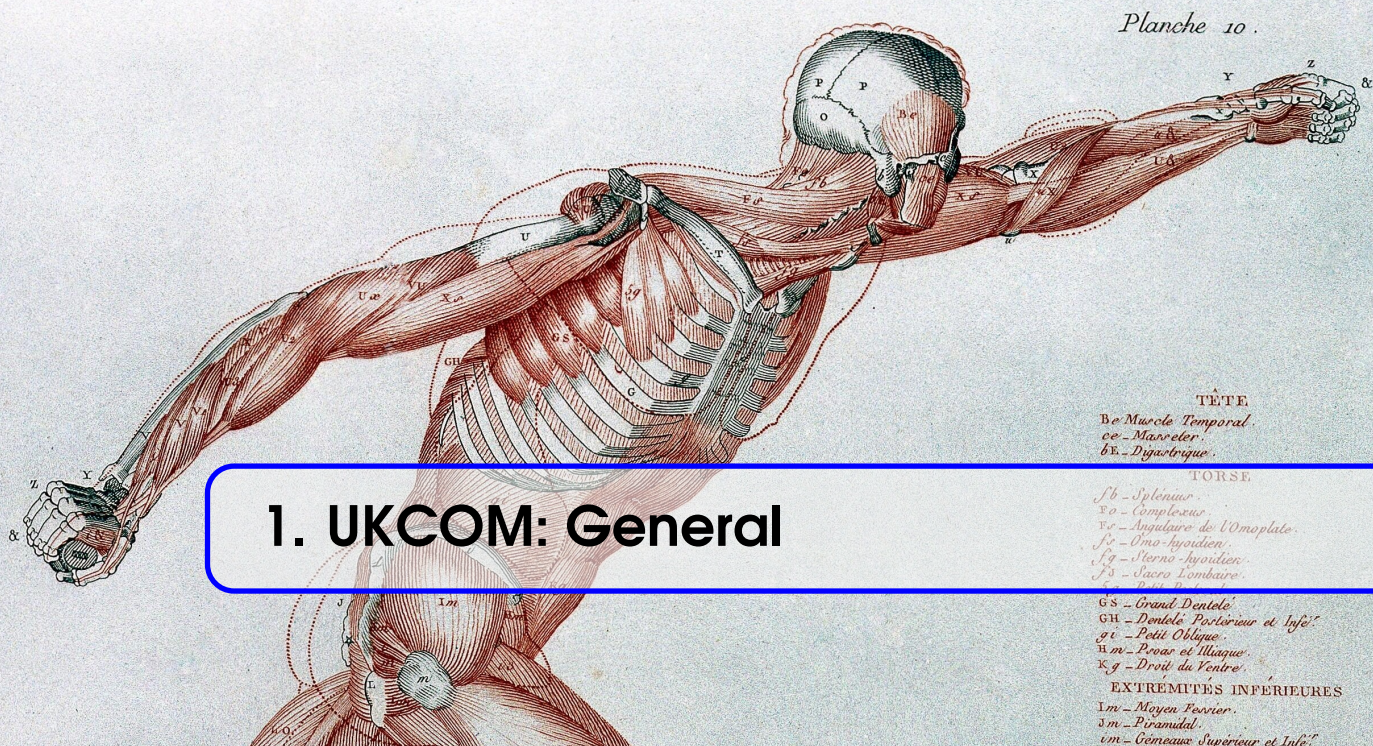
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1.0.1 80/20 Principle – Accomplishing More with Focused Work

Author: [Bennett Collis](#)

Interest: Undecided

Submitted: 6/12/22

The Pareto Principle explains the 80/20 principle, which is often applied in economics. The idea is that 80% of outcomes/results are caused by 20% of the inputs/efforts. I do not know if studying in medical school has this degree of outcome:effort, but I do think it can be applicable to medical school. Let me explain.

If you study for 3 hours in a group, consider how much of this time is productive. How much time are you spending engaged in focused studying that is really improving your knowledge and increasing your test scores? During those 3 hours, let's assume you spend two hours total distracted by talking, texting, checking social media, and removing yourself from your study area unnecessarily. You don't have to spend the whole 2 hours distracted but if you cannot get into a flow state working, then the time is far less productive than it should be. The one hour of work that is focused and productive represents 33% of your time. This 33% is your input that produces the vast majority of the benefit from your studying period (i.e. 80/33). In other words, 67% of the distracted time you have dedicated to studying produces very little results. You are spending more time than necessary studying which leaves you with less time for extracurriculars for your health and résumé building.

Instead of spending 3 hours with a productivity of 33% it makes far more sense to spend 2 hours with maximal focus and productivity. This saves you an hour of time and doubles your productive

time. Your results should increase in the long-term and your total study time should decrease. Just do not get caught up in the idea that total hours is most important. What is important is the percentage of those hours that can be active, concentrated effort. The question then becomes what needs to be done to ensure your time is productive?

A great study tool is called the Pomodoro Technique. The idea is to have 25 minutes of work while consciously refusing distractions. You set your timer, work for 25 minutes, then take a 5 minute break. I think you can focus for longer than 25 minutes at a time but you'll have to figure out how long you can stay zoned in. I modified the technique. I determine how long it should take to do a task. For example, a lecture may take 1 hour to cover thoroughly. I set my timer to 1 hour and monitor it as I go through the lecture. This provides me with feedback as I am moving through the lecture. It helps me determine if I am studying at an appropriate pace. If I am distracted, then I will not complete half the lecture in half the allotted time. What you must avoid is turning the 1 hour activity into 1.5-2 hours because you are distracted for the additional wasted time. I think the timer is a great tool to show you how much time you are wasting and to hold yourself accountable to stay on task to finish the assignment. When you have completed the task then you take a break. Timing yourself motivates you to stay on task, increases your productive time and saves valuable time.

Another method to increase productive study time is to schedule an extracurricular during some afternoons. If you give yourself all day after class to study then you might use the whole day studying with a decent portion of the time being distracted. Having an activity scheduled gives you a deadline. You know you only have a few hours rather than the whole afternoon to study. You are then pressured to stay focused to ensure the time that you do have is productive enough for you to succeed. It is easy to get consumed with grades and to spend all your time maximizing them. Dedication is a good thing but the grades are pass/fail and you

need to show your dedication to the specialty you are interested in pursuing. This method allows you to have extracurriculars for your interests and residency application as well as continuing to succeed academically.

The purpose of this article is to try to help first and second year students realize that more is not always better. Efficiency, focus, and holding yourself accountable is the key to success and being well-rounded. Hopefully, the methods in this article allow students to succeed in their school work as well as expanding their education beyond the classroom.

1.0.2 Habits and Systems

Author: [Bennett Collis](#) ↗

Interest: *Undecided*

Submitted: 6/12/22

The first two years of medical school are challenging. The first year is an adjustment as you cover a dense amount of material, five days a week for ten months. Second-year students are used to the five-day workload but will also need to prepare for more challenging physiology lectures in each system as well as the looming Step 1 exam (we can cover Step 1 in another journal submission). This is a guide to reducing the friction of the daily grind of medical school.

I strongly advocate developing a system that works for you. I do not think a “wing it” approach is going to enable you to maximize your potential. You are going to need to develop habits that, collectively, enable you to succeed. These habits are in place to produce consistently positive results. The key to success in medical school is to have your system and to be flexible in case you need to adjust given the circumstances of the day.

The first habit of the day is your wake-up time. Determine what works best for you and your circadian rhythm. I preferred to go to bed early and wake up early. Waking up early enabled me to eat breakfast, go to the gym, get some studying done, and attend class. An early wake-up time will enable you to participate in your chosen hobby before the school day starts. If you wait until after class, then you have 3 hours of new material and all the material you need to review so your hobbies have a greater expense.

The second part of your day is class. Which habit will you get into: going to class or watching it on your computer? The reality is that it is faster to watch a lecture on Echo360. You can easily watch the lecture on 1.25 speed and can also skip through the breaks – potentially cutting the 3 hours

of class time into 2 hours. That hour saved every day could provide you the time to do an extracurricular to boost your résumé. However, going to class is enjoyable because you are surrounded by classmates, professors, and physicians rather than alone in your apartment. Maybe going to class also proves to be less distracting than watching the lecture at home or in a group studying. Figure out which works best for you and stick to it.

Now that class is over you need to determine how you are going to study the material. This varies from person to person. I know people who read through the lectures and supplement with a question bank, others who would handwrite their lectures and review the papers, and others that use Anki. I am confident in saying that Anki is an incredible tool and I cannot imagine medical school without it. My system was to cover all of my flashcards that were in my Anki decks from previous lectures. Then, I would begin scouring that day’s power points and creating new cards on high-yield material. I would then cover my new cards and that was the end of my studying for the day. Anki provided me the ability to review the old material and learn the new material all on the same day.

Your study strategy deserves two paragraphs. This is where consistent results are produced. If you can rely on your system of learning to put you in a position to safely pass each exam then your first two years are going to be much less stressful. If you never put together your system then each exam is an experiment to see if your chosen method of studying will produce good results. Why leave it up to chance? Remove choice from the equation. Your study habit is something you do every day for every class and produces the intended result every

time.

After your system is in place and you are satisfied with your day-to-day life in medical school you can start thinking about adding in extracurriculars. You need to make planning ahead a habit. Planning allows you to stay engaged in extracurriculars while also continuing to succeed academically. If you want to volunteer at the Salvation Army Clinic then look for a day to volunteer that fits best with your academic schedule (i.e. the day after an exam, before the new exam's material piles up). If you want to participate in research it may be best to find a project that can be done at home. Then, if you have some free time over the weekend you can get some research done. Lastly, plan for your summer. I wanted to make my summers productive and pursue my interests. I started a couple of months early and sent emails to researchers I was interested in working with. Extracurriculars

are required to prove your interest in specialties and to show you are well-rounded. Target your extracurriculars to your desired specialty and find opportunities that are convenient for your schedule. This is done by reaching out early, sometimes to multiple people, and finding the best opportunity.

I hope those that read this will understand the value of a system. The routine nature of my day may seem constricting but in reality, it provided me freedom. My habits gave me the control over my day necessary to pursue a daily hobby, engage in extracurriculars, and succeed academically. It will be much harder to accomplish this if your day is not planned out. As I mentioned in the first paragraph, you have to be flexible. Sometimes things happen out of your control and your system must adjust. I am specifically advocating against taking a "who knows?" approach to what each day will look like.

1.0.3 In-House Exam Strategy | The Double Pass Method

Author: [Max Rakutt](#) 

Interest: Orthopedic Surgery

Submitted: 3/6/22

Although heavily influenced by COVID, which prevented attendance, there is still merit to this strategy. At the beginning, I told myself that I would attend every lecture and read every relevant textbook like I did in undergrad. However, this strategy was less efficient as the in-house content more closely mirrored the content taught in most extracurricular learning resources (Boards and Beyond, Sketchy, etc.) As the content progressed into shelf-structured content (Heme and classes afterwards), the extracurricular resources became higher and higher yield. I quickly learned that watching lectures at double speed and allowing more time for extracurricular studies was greatly beneficial.

Double Speed

Listening to lectures at double speed lectures sounds ridiculous. How can the information squeaked out two octaves above speaking tone be learned and retained? This is a common misunderstanding. Consider the speed that you are reading these words. Surely you can read and comprehend them faster than they could be read to you. Thus, the brain has the ability to comprehend speech at a much faster rate than the mouth can articulate language. Why limit the speed of the brain to the speed of the mouth? In regard to the pitch of the lectures, there is a solution. Echo 360 permits the downloading of videos. Videos that are down-

loaded can be played in VLC which retains the pitch of sped up videos. Further, videos can be carefully adjusted using 0.10x speed increments; the listener can find the limit of comprehension, and then slow down one or two clicks. The only downfall to this strategy is that soon you might find yourself watching entertainment videos (Movies, YouTube) at double speed as well... It's a slippery slope.

Balance

It is safe to assume (although likely not at all accurate) that in-house test material is 50% content emphasized in lecture and 50% content emphasized in extracurricular resources. This is less true for classes such as Heme Lymph which closely mirror Pathoma, and more true for classes like Foundations where a stronger emphasis is placed on the knowledge within in-class lectures. Importantly, this is not a flaw of either class; both classes and their lecturers will leave long-lasting positive impressions on the learner. Instead, this emphasizes the need for balance. No matter how comprehensive Boards and Beyond is, it will never be sufficient alone. In classes such as Neurology that go further in depth than the extracurricular resources, this need for balance holds especially true. It is critical to learn both the extracurricular content and the in-house material.

Sometimes Boards and Beyond goes into so

much detail that it feels low-yield. However, the content is most assuredly not low yield. The most regretful decision I made was not putting more emphasis on watching and learning the entirety of Boards and Beyond. The content taught is incredibly comprehensive and I can assure you that nearly every detail is covered for a reason. It is even reasonable to assume that board exam writers use this material to write exams. That is how comprehensive the material feels.

The Strategy

The strategy I developed was to first quickly watch lecture, mostly combing for relevant content. This first pass served as an introduction to concepts

as well as a scaffold for the content areas I needed to learn using extracurricular resources. Days studying mostly involved these extracurricular resources. Then, nearing the examination, the lectures could be re-watched in bulk at double speed once all of the extracurricular content was more or less mastered. Doing this allowed for the differences between the two content sets to become obvious. Little bits of information emphasized more in class than expected become noticed. Content not covered in extracurricular studies stands out. Content covered by both sources becomes obvious. All of these clues can be used to guide the final preparations for the exam. This was deemed the double-pass method.

1.0.4 Maintaining Balance

Author: Sean Noble [↗](#)

Interest: Anesthesia

Submitted: 3/5/2022

Prior to beginning M1, my general impression of the life of a medical student was study all day, fall asleep, and repeat the following day. This was cultivated over the course of my undergrad experience by brief encounters with other pre-med classmates, medical students, and the general stereotype of a medical student portrayed in films/media/etc. Leading into my first year, I was anxious about sustaining such a grueling pace and what I would have to sacrifice in order to do so. Horror stories of sleep deprived 12-hour study sessions every day filled my head as I embarked on my first year. After having gone through 2.5+ years of medical school, I can confidently say this was not my experience. I have been able to sustain a healthy balance of school and life. I would like to make the case for a schedule that allows space not only for school, but for exercise, a well-balanced diet, fostering relationships, leisure time, and mental health.

Fitness

I have been a fitness enthusiast the majority of my life. Like many other students, it is important to me and a part of my day that allows time to decompress. Coming into med school, I heard a lot about having to be selective with things I spend my time on, that I would be forced to trim activities from my schedule I am usually able to enjoy. While that is true, I believe the notion is often exaggerated. I have chosen to maintain a gym schedule of 5-6 days a week for the entirety of M1-M3. The compromise I make is not whether or not I go to the gym, but rather the length of time I spend there. An area I am not willing to make sacrifices in is

the food I eat. I prefer to cook my meals, even if it might take a little longer than having something delivered or picking it up. If I am trying to optimize my ability to perform academically, I believe a healthy diet is one of the best decisions I can make.

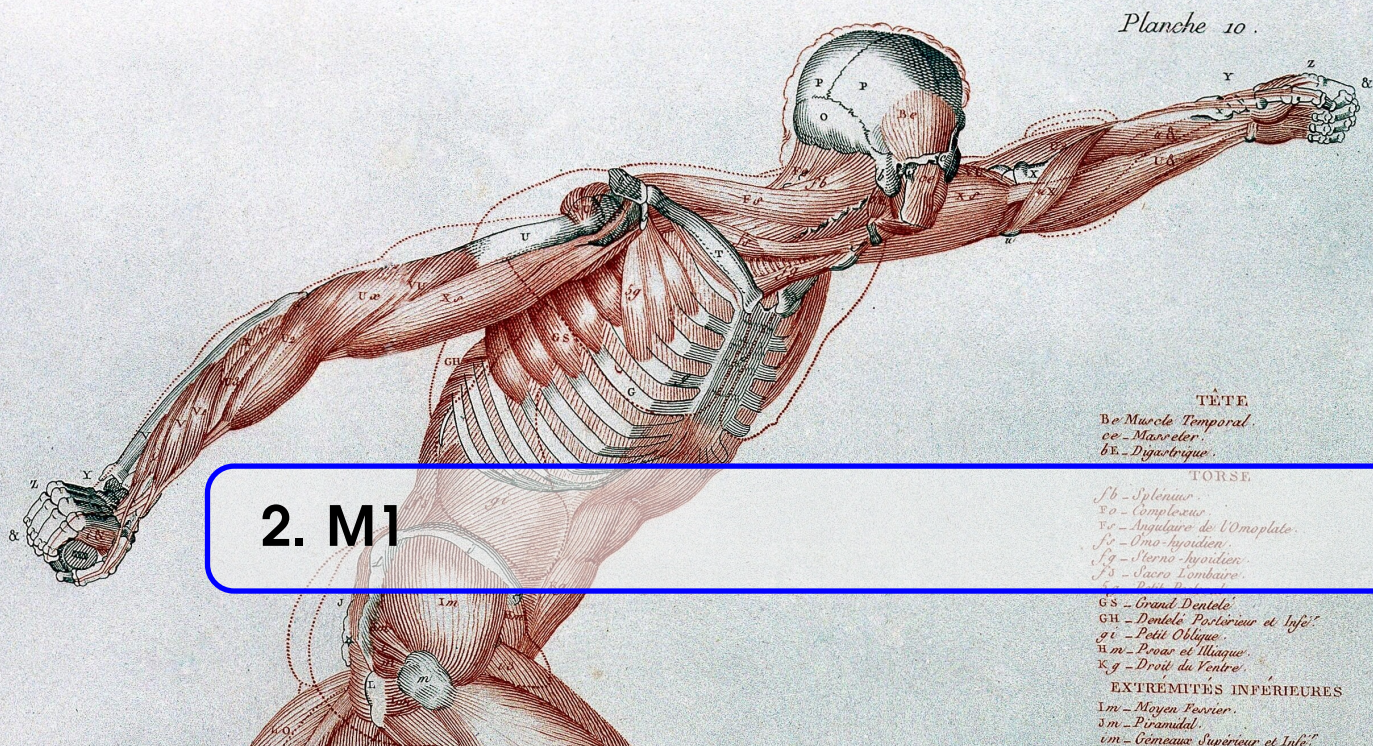
Relationships

My primary goal in coming to medical school is obviously to become a doctor, but I don't want to end up four years down the road with an MD and the social graces of a robot. I also want to make new friends and build meaningful relationships along the way. It has been very important for my mental health to have a robust support network of friends both in and out of the medical community. During my time at UKCOM, I have been in a long-distance relationship that involves me traveling out of state on a regular basis. I have also been very fortunate with the friends I have made, who afford me an active and fulfilling social life. These are all things that take time but enrich my life in a way which makes the time well spent.

This idea of a healthy work/life balance leading to higher productivity is by no means a new idea. After a certain point, the hours I spend studying yield diminished returns. When this happens, I am best served by accepting it and taking a break. What I have found the most success with is making sure I am in a good place, mentally, emotionally, and physically. This allows me to be far more efficient when I sit down to study. If I am happy and healthy (or as close to it as I can manage), I am able to accomplish more with my time. I think

there are probably many ways to perform well in medical school. I don't think the method I chose is unique or superior to any others, but it has allowed me to do more than just survive this experience and get good grades. We are only in medical school

for four years of our lives. I don't think it is meant for us to spend the whole time miserable and overwhelmed with work. I believe it is possible for us to learn how to be physicians while also leading rewarding and gratifying lives.



2.1 M1 General

2.1.1 The Journey Begins: Advice to the New M1

Author: [Michael Vieth](#)

Interest: *Dermatology, Radiology*

Submitted: 6/27/22

INTRODUCTION

Congratulations, all of you have made it to the starting blocks – M1 year! This new journey may seem like a daunting one, but don't worry, you have everything you need to succeed at UKCOM at your fingertips (you just might not know it yet). During my first year of medical school, I knew I could be successful, but it was not always clear how to reach my goals. We all had our tried-and-true study methods in undergrad, some good and some, well let's face it, not so good. While those study habits might work for some medical students, the reality is that many of us had to adapt to be successful our M1 year. There are countless resources out there that will help you excel at UKCOM – academically, socially, and personally. The immense quantity of resources and opportunities can be overwhelming, so my advice to you is this; try everything once. If you like it, run with it. And if it doesn't work for you, kick it to the curb.

ACADEMICS

If I had to guess, this is probably the topic on the forefront of most of your minds. I know that was certainly the case for me. As many of you know, Anki is a spaced-repetition flashcard-like program that countless medical students use daily. It's like Quizlet but better (if you ask me). You can make your own cards or use pre-made decks (or a com-

ination of the two). Coming into M1 year, I had heard tons of chatter about Anki, and I was certain I wasn't going to use it. However, I was convinced to give it a try – and boy am I glad I did. This is one of those resources I tried once and ran with. Sketchy is another popular resource. There are videos covering nearly every topic you could think of – microbiology, pharmacology, pathology, etc. These videos use quirky stories and graphics to help you remember high-yield info. Try making charts to compare various diseases quickly and easily. Give it a go with medications, too! And here's a hot topic that everyone wants to know about; should I go to lecture in-person or watch online? My advice, start in-person. If going to campus and being present in the lecture hall works for you, stick with it. But if you find that option isn't optimal, there's no problem with switching it up. Keep an open mind, try new things, and stick with what works for you.

SOCIAL

While the main goal at UKCOM is to focus on education and become exceptional physicians, the importance of social engagement and finding a sense of community cannot be overstated. Get involved in anything that sounds interesting. Striking a balance between academia and social involvement is key to thriving in the program. Sign up for in-

terest groups and see which ones you enjoy. The school also has fun events such as Caduceus Ball and Casino Night. These are great opportunities to dress up, have fun, and meet people in the program providing the social network that is so important to overall success in medical school. Embrace your House Learning Community, you might just find your closest friends there. Invest time in yourself, friendships, and family.

PERSONAL

While academics and social events are important, so is taking care of yourself. Self-care is easy to overlook as a new medical student, but it's just as important as the rest. Find time each day to do things that make you happy. Exercise, video games, playing with your dog, trivia night with friends – whatever it is, don't give up on it. Draw boundaries between school and your personal life. Set a daily goal for what time you'll finish studying. You might not be able to stick to that every day, but it always helps to have an objective. Find a schedule that works for you. If past habits haven't worked,

try something new. Try getting in bed earlier and waking up earlier to exercise or study, thus starting your day on the right foot. When it comes to our personal lives, we are now tasked with marrying our future goals to our daily happiness. Finding the balance between the two is possible, but you must be willing to do what works best for you in both categories. Your first year of medical school may feel overwhelming and maybe even stressful too but following the recommendations above will help you thrive and finish strong.

CONCLUSION

What it all boils down to is finding what works for you. There is not one strategy that fits all. Experiment with new things and hold on to the ones that work. Invest in academics, social and personal life. The beauty of UKCOM is that we have all the support and resources we need to be successful. When in doubt, ask for help and you will certainly find it. Congratulations on making it to the starting blocks. Now the real fun begins!

2.2 Introduction to Clinical Medicine

2.3 Anatomy & Radiology

2.4 Foundations of Disease and Therapeutics

2.4.1 Foundations of Medicine | A Memoir

Author: Sarah Kosse 

Interest: Internal Medicine

Submitted: 3/7/2022

I remember the week before starting the Foundations course at UK my first year, all I heard were horror stories from previous classes regarding the rigors and pass rates of this course. My advice to you is to ignore those rumors. UKCOM has purposefully changed the course for the better, and although the course is long (11 weeks), if you stay on top of your material and follow some of the tips in this essay, you will do great! Disclaimer: I am a visual learner. These are the study strategies that I used to succeed, but if you do not like them and they do not feel natural, try something else! It will not hurt my feelings.

What is Foundations?

The course is called Foundations of Infection, Disease, and Therapeutics. I would argue that it is one of the most important classes of medical school. While you are taking the course, you might think that some of the topics will never show up again in

your life, similar to the thoughts you may have had during Organic Chemistry in undergrad, but I will promise you that a topic from this course will be seen in all of your subsequent courses. Not to mention, USMLE Step 1 and Step 2 love to test you on these topics. This course is 11 weeks long. It focuses on biochemistry, genetics, infection, immune mechanisms of disease, inflammation, neoplasia, and the treatments for organ specific diseases. It sounds like a lot, but it is important not to look at the course as a whole, or you will become very overwhelmed. Take it a week at a time. I promise that if you can remember and understand the concepts in this course, you will do better on your USMLE Step 1. To pass, you need a 70% in the class, and you need to score at least a 50% on all 5 exams. This rule was not put into place to scare us. It was added so that students do not get high scores on the first exams, and then skip out on studying for the last exam. For our class, the last exam covered

antibiotics, so learning this material was pertinent for the rest of our medical careers.

How to Succeed

Before COVID-19, most of our class attended in-person classes during first year. I found this very helpful. If this is an option for your class, I strongly recommend. Class usually consisted of three, hour-long lectures. Try and study the lectures each day and use the weekend to review/catch up on the things you could not get to. The lectures consisted of diseases, infections, and therapeutic. Just as the course name implies. All of the questions on the exams come straight from the PowerPoint lectures. My suggestion is to structure your studying based on these categories:

Diseases

I thought the diseases were the easiest to study. I am a visual learner, and the lectures always included pictures that help me associate phenotypes to the specific disease. I did not use any outside resources for these lectures. I got all of the information I needed off of the PowerPoint slides. I used the old school approach to studying the diseases, color coded charts on computer paper. I made the first column the name of the disease, the second column the gene mutation and/or chromosome, the third column the disease manifestations, and the fourth column the treatments. Sometimes, the lectures were very unorganized, so I found it helpful to go through the slides and find all the information about one disease and put it all in one organized row. Additionally, the action of going through the slides and making the charts helped me focus on studying.

Infections

Again, like the disease lectures, all of the questions on the exams come straight from the PowerPoint lectures. I used the same approach as above for the majority of the infections, but for the bacteria and viruses, I strongly suggest using Sketchy Micro videos. Like I said before, I am a visual

learner, and these videos use humor, story telling, and visual tools and characters to make it easier to learn and recall. Sketchy helped me through Foundations and made it easier to refresh my memory while studying for Step 1. Also, if you can find a group of students who are willing to split the account, I would suggest this option. By having an account you have access to short quizzes after the videos that help solidify the most important topics which I found helpful.

Treatments

Sketchy Pharm! Out of all the Sketchy Medical videos, these are by far the best. The antibiotic videos are the most helpful and have helped me tremendously in my classes and on my clinical rotations. If you only have time during Foundations to watch Sketchy videos for one topic, choose antibiotics.

Conclusion

I hope that these tips are helpful. I know this course consists of a lot of information, but if you push yourself to stay on top of the information each week, you will do great. Sketchy videos are helpful to solidify the knowledge for the future, but if you do not feel like you have time, or you are not a visual learner, do not use them. Outside resources are always helpful to supplement learning, but if you just want to do well on the exams, all you need are the lecture PowerPoints. This class is not only hard because it is long and consists of difficult topics, it is also hard because it is only the second course of medical school. Learning how to balance medical school and the rest of your life is also part of this course. It is easy for me to look back and give advice on things that I thought helped me, but in reality, I was also struggling to balance life. My biggest advice to succeed in this course and the rest of medical school is to surround yourself with people who are going to help and support you through this journey because it is just the beginning! Study hard and good luck!

2.5 Hematologic and Lymphatic Systems

2.5.1 Transitioning to Heme Lymph

Author: [Colby Canter](#) 

Interest: *Internal Medicine*

Submitted: 2/20/22

MD 816, colloquially known as “Heme/Lymph” to most, is the first organ system taught at UKCOM and serves as a springboard

into a different manner of thinking. Prior to the systems portion of the curriculum, students had been exposed to Anatomy and Foundations of In-

fection, Disease, and Therapeutics, each of which lent themselves to memorization. However, MD 816 offers a pleasant change of pace; instead of rote memorization, students are exposed to general principles of hematology, oncology, and lymphatics and are expected to extrapolate knowledge to clinical scenarios, much like the type of thinking necessary to succeed on USMLE and in clinical practice. Additionally, the course is taught over the course of a month, which is a stark contrast to the length of the previous two blocks. There is little time to catch up if ever behind.

General Strategies

1. Above all other things, understanding the class material is imperative to succeeding in any class, especially MD 816, as this is the material which you will be directly tested over. Understanding EVERY detail on the slides is of utmost importance, as a test question can be pulled from any of them. It can be very easy to get caught up in outside resources, but having a solid foundation in the class material is necessary. Although I used outside resources (mentioned below), I made sure to limit the number that I implemented. I find that it is more beneficial to have one to two resources (including the class notes) and know each well than to be bogged down in multiple with a superficial understanding of each.
2. Another helpful strategy is completing the required pre-work BEFORE class, as intended. Having a general idea regarding the material prior to showing up for a flipped review session is always advisable and ideal.
3. MD 816 also features in-class group quizzes, a component of grading that is distinct from the first two courses. These present the new challenge of interacting with your classmates in a collegial way to achieve an end goal, which is to achieve the highest score on the quiz as possible. Furthermore, it grants you the ability to reason through test style questions and allows you to learn from your colleagues. By showing up prepared to the quizzes, you help ensure that you and the group can maximize the collective and individual scores, learn more about the class material, and demonstrate professionalism.
4. Understanding clinical reasoning is imperative to succeeding in this course. One of the most prominent ways to hone clinical reasoning is understanding how to interpret CBCs. This skill is emphasized throughout the course, but practice is also avail-

able through the group quizzes and practice questions that students may do on their own time.

5. Despite the emphasis on understanding underlying principles, there is some necessary memorization. For instance, many malignant hematologic processes such as leukemias and lymphomas have characteristic translocations, which are imperative to know. These are also fair game for board exams. Furthermore, the course teaches transfusion medicine and its associated reactions. All these topics are well-suited to rote memorization.
6. Basic histologic and pathologic slides are also presented in the class and are also testable fodder. Hematology is a visual science, and understanding the associated bone marrow biopsies, peripheral smears, and lymphoid tissue samples projects mastery of the material. Furthermore, such images are common test fodder at all levels of training. *Pathoma* serves a helpful adjunct to this purpose.

Resources

In this section, resources I found key to success will be discussed. I would like to emphasize my previous point that knowing a small number of resources well is preferable to having a superficial level of knowledge about the information conveyed in many resources. Knowing the limited core resources well is integral to success as it provides you with one cohesive view.

First and foremost, understanding the class material is imperative. I found that reviewing the lecture material shortly after it was delivered in class was one of the most effective ways to ensure that the material had been mastered and reinforced. I could then fill in gaps in my knowledge. Weekends were reserved for reviewing lecture material from the week in a systematic way, with a special emphasis on reviewing difficult material first. I made a special point to get through each lecture. By the time an exam comes around, previous strong topics can be easily missed if not reviewed because knowledge has a tendency to atrophy quickly without use.

As a supplement to lecture, I found Dr. Husain Sattar's *Pathoma* lecture series to be tremendously helpful for the class. His sections regarding neoplasia, hemostasis, red blood cells, and white blood cells were pivotal to my success. I watched these at 2x speed, which helped me to gain a general understanding of the material **prior to attending class**. Then, I would fill in gaps in my knowledge with the lecture material by annotating the

supplied book.

Lastly, flashcards were used to drill in the material that lent itself to memorization. Some students

prefer Anki, but I used traditional paper flashcards for this task since the amount of material I was attempting to memorize was limited.

2.6 Neurosciences

2.6.1 Don't Fear Neuro: It's All In Your Head

Author: [Rachel Fine](#) 

Interest: *Undecided*

Submitted: 6/30/22

The Neurosciences course, or “Neuro,” is an eight week course that falls between the Hematologic and Lymphatic Systems course and the Behavioral Basis of Medicine course. It is led by Dr. Franklin, Dr. McFarlin, and Dr. Rudy. This class is feared by some, eagerly anticipated by others, but it is certainly manageable by all with an effective study approach.

With regard to the course structure, one’s grade is determined by 4 exams, 1 OSCE, and multiple course activities (including Canvas Neuroanatomy quizzes). Students need a 70% to pass the course in accordance with the College of Medicine’s grading system. A typical day in the Neurosciences course involves pre-work and three hours of lecture with occasional asynchronous activities. You will find that some concepts are carried over from Anatomy, so particular topics (such as the cranial nerves or the structure of the central nervous system) are reinforced before one takes a deeper dive into neuropathology and neuropharmacology.

General Advice for Course

1. Pathways: Know any neural pathway that Dr. Franklin teaches backward, forward, and at any point in between! The previous statement may sound extreme, but being able to reproduce these pathways can improve your understanding and allow you to be more confident and successful on exam day. I highly recommend using colored pencils or pens to distinguish between the various pathways and their components if you are a visual learner. Dr. Franklin will demonstrate effective strategies for drawing out the neural pathways during his recitations, as discussed in a future point.
2. Radiology Returns: Similar to some of the aforementioned concepts, radiology pertaining to the CNS also reappears from Anatomy and is taught by Dr. Ayoob. For the class of 2025, this consisted of one full day of lecture with Book Widget Imaging pre-work. While it is only one day of lec-

ture, a lot of ground is covered. Make sure to dedicate time to understanding this material as it made up a portion of the first exam’s questions. It is important that you watch the pre-work and familiarize yourself with the material beforehand if you plan on attending class in-person.

3. Preview the Material: While it may be difficult to read ahead for every class, I recommend looking at the topics to be covered in the upcoming week during the weekends. One weekend study strategy that I found to be effective (and can be applied to other classes) was to dedicate Saturday’s study time towards reviewing and reinforcing the previous week’s material. This included re-watching particular lectures, reviewing flashcards, or skimming through the PowerPoints. Then, reading through the available PowerPoints for the following week’s lectures was effective for studying on Sunday. Since all four of the exams occur on Fridays, the division of weekend study time between past and future material helps to prevent any “cramming” of material before an exam. This weekend preparation can help you identify potential questions as well as prepare you for the review lectures and, ultimately, the exams. I would also advise taking the weekend following each Friday exam to relax, spend time with friends and family, and to take a much-needed break from studying.
- 4.) Repetition is Key: Spaced repetition is of paramount importance in the Neurosciences course. This may seem paradoxical considering the great amount of information being presented, but the more times that you review a concept in different contexts, the more likely you are to remember it. The most effective method for spaced repetition depends entirely upon personal preference. For instance, some find Anki to be useful while others (including myself) rely on a personalized plan of lecture PowerPoint re-

view or homemade flashcards.

4. Ask Questions: There are some challenging concepts presented in this course, but the professors are very willing to answer students' questions, either via e-mail or through in-person office hours. Personally, I asked all of the course directors questions at some point in this class, and each professor was helpful in addressing any questions regarding content or OSCE preparation. We are fortunate to have professors that welcome questions and truly want each student to succeed!
5. Attend the Recitations and "Putting It All Together" Sessions: I would highly recommend attending (in-person, if possible) the recitation or pre-exam review lectures held by Dr. Franklin, Dr. Farrell, and Dr. McFarlin. The recitations, usually taught by Dr. Franklin, provide summaries of the neural pathways covered earlier in the week. Dr. Franklin works through the main pathways and identifies key lesions. On the day before each exam, I would recommend re-watching each of the recitations on Echo as a final reinforcement of some of the key content. Additionally, the "Putting It All Together" review sessions are equally important, and these lectures are taught by Dr. Farrell and Dr. McFarlin. Students get the opportunity to review cases and answer questions that feature high-yield information for the upcoming exam. Dr. Farrell and Dr. McFarlin talk through each case and provide a clinical perspective for the neuroanatomy concepts

that Dr. Franklin teaches during his neural pathway recitations.

OSCE Advice

The Neurosciences course contains one OSCE consisting of an in-person neurological exam with a standardized patient and an online headache assessment. The course directors dedicate a time period on the study day prior to the third exam towards an OSCE practice for all students to observe a neurological exam. Dr. Rudy provides a helpful video outlining the exam as well as in-depth instructions for each step that is useful to watch before attending the OSCE practice.

The online headache assessment involves watching a series of videos in which a physician interviews a patient whose chief concern is a headache. One must reason through what type of headache that the patient has and offer reasonable alternatives. To best prepare for this portion of the exam, I recommend printing out the study guide that Dr. Rudy provides and adding notes in the margins from his lecture on headaches or any mnemonics that you find helpful. I lightheartedly add: For additional practice, identify your tension headaches on busy days of studying and be able to disprove the other types of headaches.

Conclusion

M1s, put your amygdala at ease and activate your Papez circuit for an eight week exploration of the central nervous system. My biggest piece of advice is to find a study plan that works best for your learning style and schedule, and you will do great!

2.7 Contemporary Practice of Medicine

2.7.1 CPM: Incorporating Math Into Medicine

Author: [Rebecca Fine](#) 

Interest: *Undecided*

Submitted: 6/30/22

The MD812 course, known as "Contemporary Practice of Medicine" or "CPM," is an eight week course that begins after the conclusion of ICM (Introduction to Clinical Medicine). This course is unique as it highlights the important roles of statistics and experimental design in the discussion of various health topics, including community health, epidemiology, and health disparities. Additionally, CPM is different from ICM because it meets twice a week (Mondays and Wednesdays) and assesses students through three multiple choice exams and a group project. Before taking this course, I had

heard from multiple M2s and M3s that they thought that the course was taught well but felt that the material was challenging to balance with the other simultaneously taught Systems courses, such as BBM (Behavioral Basis of Medicine course) and MSK (Musculoskeletal and Integumentary Systems course). To help reduce some of the end-of-the-year stress, I will discuss what M1s can expect from this course as well as some study tips that I found helpful throughout the class. I hope this information helps make the transition towards the end of M1 year smoother!

Course Structure

With regard to class set-up, there are lectures on Mondays and Wednesdays from 1-3 pm. Typically, there is pre-work posted which includes statistics videos and reading from the Contemporary Practice e-Book. Throughout the course, there are three multiple choice exams (roughly 30 multiple choice questions per exam), three Clinical Application sessions, and a group project on community health. The Clinical Application sessions are interesting lectures given by guest speakers. For the Class of 2025, some of the topics covered were the effect of healthcare disparities on COVID-19, the role of clinicians in public health, the functional and foundational domains of Health Systems Science, and the complexity of healthcare structure. It is important to view these lectures in-person because they count for 10% of one's overall grade. In addition to attending the Clinical Application sessions, you will also complete a group project that is a 10-12 minute PowerPoint presentation about a community health problem that affects a vulnerable Kentucky population. Throughout this presentation, you will utilize statistical concepts (e.g., bias, precision, generalizability) in order to evaluate the utilized research articles and ensure that the community health issue is accurately represented throughout the presentation. As a whole, this course encourages students to understand statistical concepts and their application in healthcare.

Tips

Pre-Work: I would suggest completing the pre-work before attending/watching lectures. While Dr. Hoellein and Dr. Maul emphasize important points during lectures, it is much easier to follow the lectures and feel more confident about the material if you have viewed the pre-work beforehand.

Practice Exam: I would recommend taking the practice exams and making sure that you feel confident with all of the problems before exam day. I found the practice exams to be structured similarly to the real exam. However, you still should review all of the lecture material (including the material from guest speakers) before test day because the practice questions typically focus on math-based objectives and may not include questions for all of the objectives. Also, I always found it helpful to look over the practice exam on the night before or morning of the actual exam because it makes major concepts easier to recall during exam time!

Time Management Practice for Exam: When you take the practice exams, I would recommend timing yourself. Since you are given 2.4 minutes per

question on the real exam, you can practice by allotting yourself 2.4 minutes per question for the practice exam and seeing which questions require the most time. It is important to note that there are more calculations involved on exams 1 and 3.

Office Hours/Review Sessions: I felt that it was beneficial to attend office hours and review sessions. Dr. Maul and Dr. Hoellein re-emphasize main points during these sessions and may re-explain topics in ways that may be easier to understand after hearing them a second time.

Group Project: With regard to the group project, it is beneficial to start early. Towards the end of the semester, you will have to prepare for the CPM presentation in addition to the MSK OSCE and final exam. To avoid added stress, it may be helpful to set weekly group goals. For instance, my group created our research question by the end of the first week and analyzed our three articles by the end of the second week. Also, we found it easier to have each group member find and present an article that addressed one aspect of our research question.

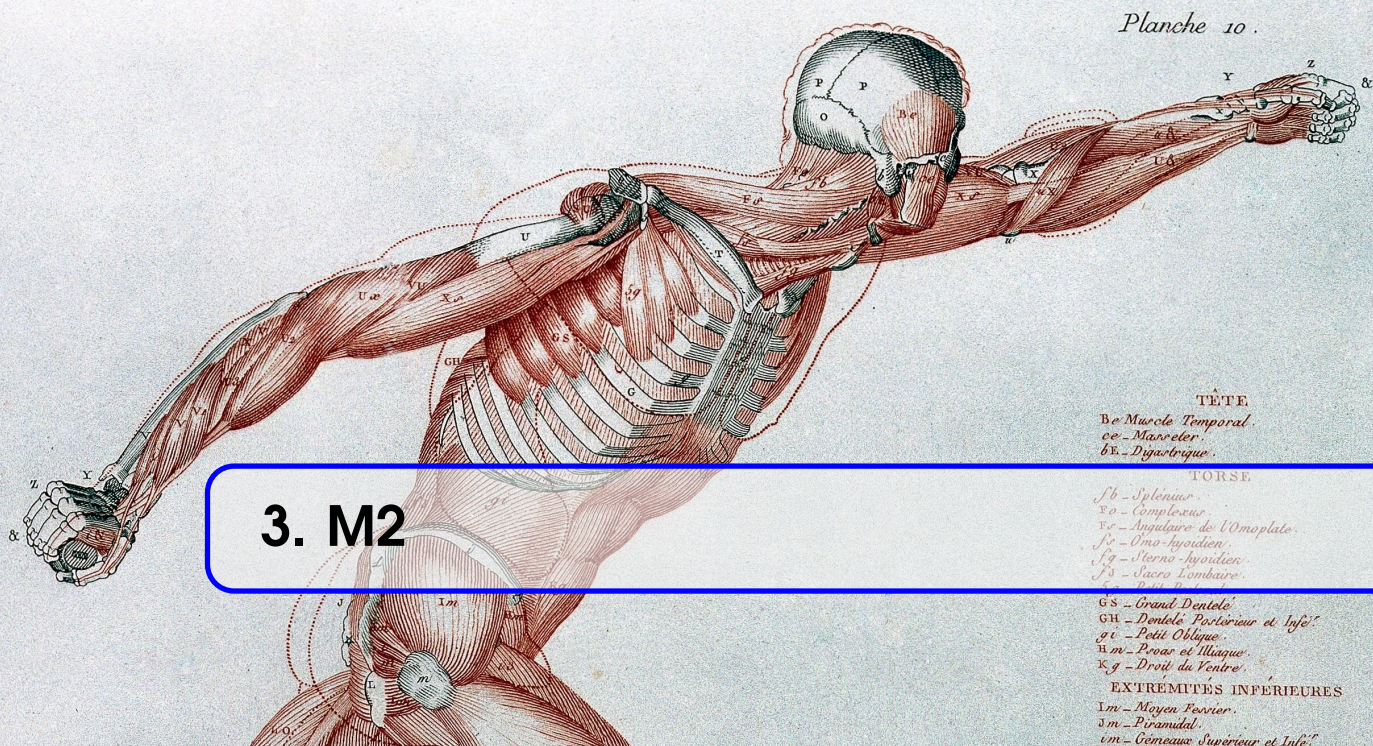
Overall Study Tip: While studying, I tried to review the information 3 times. For the first pass of the material, I found it helpful to write down and memorize the main points (formulas, definitions, etc.). After a few days, I would re-watch the lectures and focus on adding to the first day's points. For instance, I would memorize examples listed in the e-Book that correspond to the first day's definitions. For the final review, I would look at the course objectives to ensure that I could answer them. Also, I would skim through the PowerPoints and re-work any practice exam questions. I found this strategy to be applicable to all of the Systems courses during M1 and hope it can be helpful for you!

Conclusion

While it may seem daunting to balance the exam schedules of two classes at the end of M1 year, it is doable! During a week with an MSK or BBM exam, you may find that you can't devote as much time to CPM as you would like. Don't feel worried! The exam schedules for the courses were created in a way that allowed time to catch up in one course after taking an exam in the other course. I would suggest trying to make and review flashcards of definitions/formulas on busier days. Also, I found that attending class in-person was beneficial and prevented me from falling behind. Overall, I hope that you find these tips useful and hope you have a great M1 year!

2.8 Behavioral Basis of Medicine

2.9 Musculoskeletal and Integumentary Systems



3.1 Advanced Clinical Medicine

3.2 Respiratory System

3.3 Renal and Urinary Systems

3.4 Cardiovascular System

3.4.1 Heart Whisperer: Advice on Tackling Cardio

Author: [Rachel Crasta](#)

Interest: Undecided

Submitted: 7/1/22

Cardio: does anyone else have palpitations talking about it? Cardio is a very challenging class, and it was especially difficult for me. On top of the content, the whole course shook my confidence. The first exam left me feeling defeated and questioning whether I was capable of passing the course. I felt drained after back to back to back hard classes and a disappointing exam. I didn't know what to do and it took a lot of time, and tears, to figure it out and it led me to score 20 points higher on the second exam. I can't make any promises, but I can tell you what helped me. You may already know all this, but hopefully, this can be a helpful reminder of all you have in your arsenal from Day 1.

Cardio is a class where lots of information is hurled at you quickly. So I'll tell you, work smarter and ask for help before you're in a pinch. Furthermore, it's okay to struggle in this class. I did, many of my friends did, and many current physicians (and even cardiologists!) did. The struggle will teach you. It may teach you to ask for help. It may teach you which study method clicks best for you.

Or, it may just teach you how hard you can work when the occasion calls for it. You can absolutely do this!

And finally, to the good stuff. Here's what helped me. I hope it helps you:

Practice Questions! Practice Questions! PRACTICE QUESTIONS!!!

Before medical school, practice questions were usually provided a day or two before the exam and that was fine. You did the practice questions, looked over your mistakes, and then killed the exam. From personal experience, I can tell you that strategy no longer works. In medical school, and this class especially, practice questions (I used Amboss) should be used to test yourself. It is a gauge for how much you know AND it is a learning tool. Every question, especially if you get it wrong, is a chance for you to have an "Aha!" moment and see what's not clicking. As you do more and more questions, you'll start seeing the patterns. All of a sudden, your eyes will know where to focus. You'll likely find yourself saying "I know this

question because I missed it four times before it clicked for me.” I know I did. For example, if you see a diastolic murmur in the vignette, guess what? You can usually cross off a few answer choices instantly.

The last couple of days before the exam when you have an in-class review, you’ll find yourself being able to answer the questions, understanding and learning from your mistakes, and feeling confident. That’s where you need to be. An ounce of prevention is worth a pound of cure. If you wait to do practice questions until a few nights before the exam and are not seeing the score you want or struggling to understand why you are missing questions, it is too late to learn the material and that’s stressful. Let’s be honest, on exam day, that is the last thing you need. (I hope in addition to helping you pass Cardio, this guide can help minimize your pain during it.)

Be The Teacher

Your plate is full as a student and yet now you have to be a teacher. Bear with me—not only will this help you on your exam, but you’ll also get to practice educating your patients to be a great doctor. When I sought help, I found that what worked for me was teaching the material to someone. You can teach it to anyone willing to listen: friends, family members, or even your cat. Sometimes, our brains have a way of convincing us that we know more than we do. When you verbalize it, you have the opportunity to check your understanding. If I didn’t have a firm grasp, I found that it was difficult to answer questions that were asked or I struggled to expand on certain concepts. It also allowed me to come up with specific questions regarding material I didn’t understand. I can sometimes recognize that I’m lost or confused but not be able to pinpoint the “why” or “what”. Teaching it out loud helped me discover those gaps.

Keep Your Cool

I said above that it’s okay to struggle in this class. You’ve heard “it’s okay to not be okay,” before and that goes doubly for this class. You can accept frustration and discomfort. . . within reason. I recommend maintaining whatever routines keep you well (including attending or initiating counseling or psychiatric care). Additionally, when you’re in a real pinch or about to explode, take a break and put an ice pack or bag of frozen veggies on your forehead. Take some deep breaths, particularly with prolonged exhalations. Physiologically, this should help you calm down. At the very least it can make you chuckle at yourself for having frozen veggies on your forehead. It may be cheesy, but it works.

Keep it Simple: Big Picture vs. Small Details

The people teaching you are experts in the field. They know this material inside and out, they have practiced for years, and they’re passionate about it and that is how they will teach it. While it is a privilege to be taught by people who are so invested in you getting the full breadth of cardio knowledge, it can be a double-edged sword especially if you are like me and you want ALL the details. I refused to move on from certain lectures because I was getting too caught up in the weeds of certain concepts. For the second exam, I was very strict with timing myself during review sessions. If I didn’t understand something, I bookmarked it and moved on. If I had time, I could come back to it, but it was more important that I get through what I needed to do for that day. I think being efficient made it to where I did have time to come back and review what I didn’t understand. Cardio especially can be like an impressionist painting; try to get the whole picture before wasting time and frustration focusing on a single brushstroke.

When in Doubt, Draw It Out

This is not exclusive to Cardio, but a white board can be your best friend. Drawing out the circuitry of the heart and lungs or the graphs for the antiarrhythmics, creating concept maps, tables, and lists will reinforce the material in a new way. Everybody’s brain works differently and often the same brain will even work differently in one course versus the others. Endlessly repeating the same method, instead of trying something new like drawing out concepts, can be like rolling a boulder uphill. I won’t say it’s impossible, but why do it? More passes of the information, in more modalities, will lead to more retention and understanding.

Parting Thoughts

Here is what I will leave you with: medical school is difficult and “failure” (disappointment) can be inevitable at times. Whether it be a numeric score or just an internal feeling.

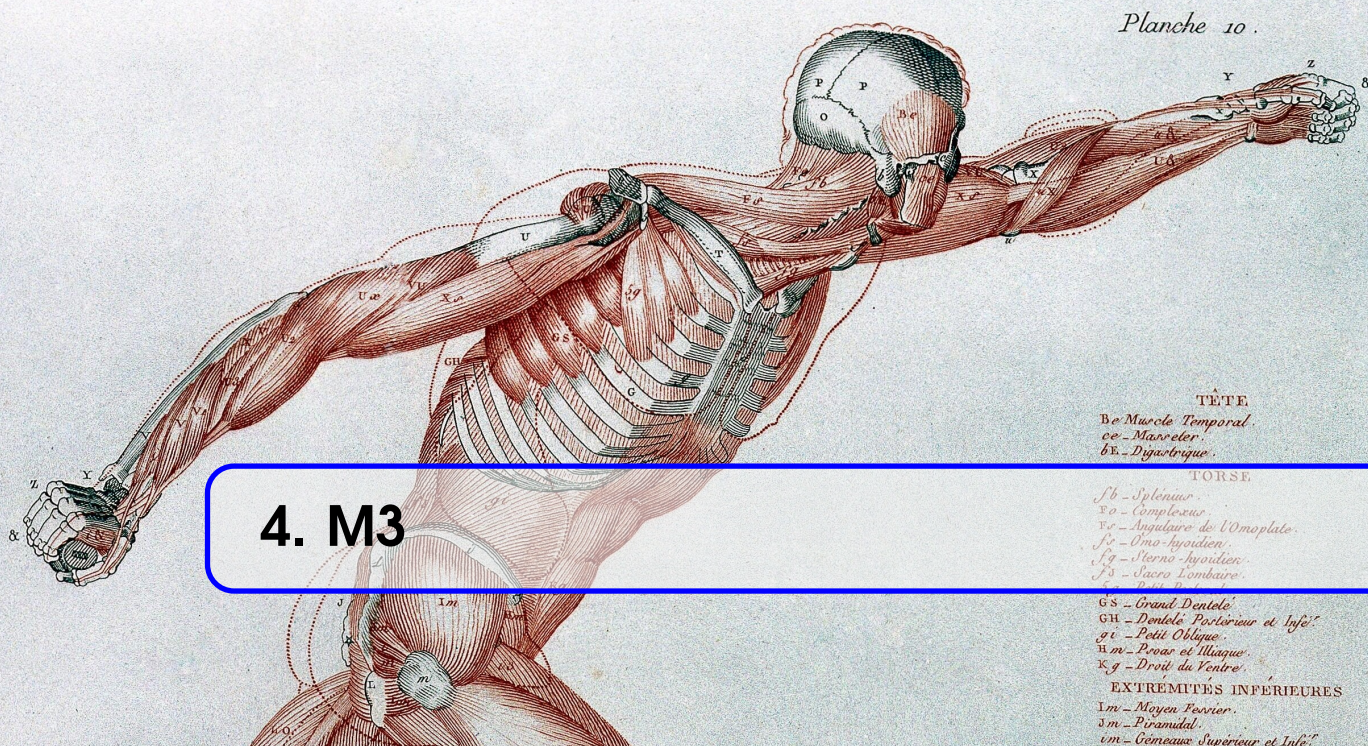
- There are several opportunities to review during class—TAKE FULL ADVANTAGE.
- Grow from it. These are all opportunities for you to learn. If you knew everything, you wouldn’t need to go through this process.
- Cardio is notoriously one of the most difficult classes of M2 year. It’s part of the Dreaded Three (Respiratory, Renal, and Cardio), and even worse, it’s the third class so you’re already mentally exhausted.
- Get help. Don’t try to tough it out. Stress, anxiety, depression, etc. are not conducive to you succeeding, which will cause a positive feedback loop of pain.

- Do your practice questions/cases!
- You don't know what you don't know. Utilize other resources to further solidify concepts. Watch the drug lecture, watch a few Sketchy videos, watch the physiology lecture, watch some Boards & Beyond, and so on, and so on. More passes of the material, with more modalities of teaching, leads to more retention and understanding.
- Seek help before you're drowning. It's okay to ask for help. You've helped others and will help others as a doctor. It's okay to ask for help now.

3.5 Gastrointestinal System and Nutrition

3.6 Endocrine and Reproductive Systems

3.7 Multisystem and Integrative Concepts



4.0.1 Welcome to M3 | General Advice

Author: [Chloe Cao](#)

Interest: General Surgery

Submitted: 4/5/22

Welcome to M3! You did it! You finished the 2 year grind of M1 and M2, and now you get to see medicine in action. From my limited experience, I think M3 has been the best year of medical school so far. You get to see more of the clinical aspects of medicine, and this is the best time to work on your interviewing and physical exam skills. Also, this is a great time to learn specialty specific knowledge from residents. That knowledge might make you look more impressive in your other rotations. Here are some suggestions I have for M3. I will admit that most of my advice I gathered from my surgery rotation which happened to be my first rotation.

Eat when you can. Pee when you can. Drink when you can.

One thing I have learned from my rotations is that running on too little calories is the quickest way to become miserable. Rounds will seem to last longer, and soon you will be thinking about how you wish you were anywhere else but here. If you are very unlucky, you might be in a surgery and start to feel lightheaded and have the strong need to sit down because there's a chance you might fall forward and break the sterile field. Thereby angering the scrub tech, the resident, and the surgeon which is the last thing you want to do in your miserable state. Some rotations are more energy intensive than others simply because of all the walking you have to do. The best way to prevent this is to snack while you can. It doesn't always have to be the

healthiest snack, but some form of calories is better than no form of calories. During my surgery rotation, I accepted that I never knew when I would be able to get lunch so it was just easier to wolf down a granola bar and continue working. I also bought Ensure because sometimes it is a lot more convenient to drink your calories than eat your calories. This was especially true when I was on call. Hydration is also incredibly important even if it does lead to times when you really want to go to the bathroom, but there is no convenient time during rounds. So pee when you can. Drink when you can.

Show initiative

One of the first things Dr. Bernard taught me was that you will take out as much from your rotations as you put in, and it is very easy for medical students to fade into the background, so you need to show initiative. This advice has served me well not only in surgery, but also in other rotations. Assert yourself. Ask questions when it is a good time. There is a lot you can learn from residents if you just take the time to ask. You also look more impressive because you show that you are eager to learn and that you care. Also, you can learn from a resident's experience because there are some things that you just can't learn from a textbook. Showing initiative can also ingratiate yourself with the surgery techs, and they can help you look more impressive to the team by telling you ways you can

subtly help out during the operation.

Be prepared to help residents

As a medical student, you will have more time compared to residents so what you can do is show that you are a team player by helping the residents when you are free. There are many ways to do this. See patients in the afternoon and ask the residents if they want you to check on their patients as well. For some surgical services, have wound supplies ready. This will make rounds a little more efficient because you or the nurse will not have to search for supplies while the team is seeing the patient and their wound. Update patients' hospital courses. In a separate article, I will describe ways to write a hospital course. When you take the time to do this, it makes the resident's life easier because they can simply edit what you wrote, which saves them time as they don't have to write it from scratch. Also, it will make your life easier because if you are caring for a patient who has been in a hospital for a while, by updating the hospital course almost every day, you will save yourself the headache of trying to figure out what happened to the patient from the first day they were admitted all the way to present day. If you are working with the orthopedic team, help prepare the patient before the surgery and help clean up the OR. In psych, you can volunteer to call collateral.

Don't take criticism personally

This is a very important thing to do, and it is also a very hard thing to do. You are working in a new environment so you are bound to make mistakes, and that is fine. Everyone wants to do what is best for the patient, and you are only human. All you have to do is work to the best of your ability, and if it is something you can improve on, then take the time to figure out how to improve. If it is not something you can fix, acknowledge it and move on. One example of this is during laparoscopic surgeries. As the medical student, you get the role of manipulating the camera, which is terrifying because you don't get a lot of experience with this in M1 and M2. The surgeon might get upset that you aren't doing a good job, and that judgment might hurt a lot, but sometimes you need to give yourself credit for trying. You did something to the best of your ability with the limited experience you had prior to this surgery. You will get better with manipulating the camera, and you can take some

time later to figure out how to improve your skills. But you did the best you could with the experience and knowledge you had. Another example of this is when you present your plan on rounds. It can be very discouraging when you suggest a plan, and then the attending proceeds to eviscerate your plan. It feels even worse when they do this in front of the patient during bedside rounds. Forgive yourself for making mistakes. You did the best you could with the knowledge you had. Learn from the mistakes you made, and next time you can proudly present a better plan when you have a patient with a similar problem.

Study advice

I can only speak to what I did to study for Shelf so take my advice with a grain of salt and change it to best help you. I tried my best to finish all the associated UWorld questions for a rotation. I was not always successful with this. Sometimes I was not even close to finishing all the questions. Initially, I tried to do a block of 40 questions each day. That did not always work out well because by question 15, I would lose steam and want to give up. So, I adjusted to doing blocks of about 20 questions. Even then, there were days when I couldn't even finish a block. I would try to keep the blocks pertinent to an organ system or a specific topic within an organ system since I viewed Uworld as a learning tool, and then take notes on the mistakes I made. It can be discouraging to see scores < 50% on UWorld, but it's fine since Uworld is meant to be a learning tool rather than a testing tool. I would learn new content from OnlineMedEd and Emma Holliday. OnlineMedEd has great videos that average around 20 minutes or less about important topics. They even provide a possible schedule to watch videos. You will have to adjust this schedule because the length of a rotation was often different from how long OnlineMedEd thought a rotation would be. I would also do OnlineMedEd cards from AnKing's deck to help me retain information from the videos. For Emma Holliday, I would read her PowerPoints and quiz myself with a premade [Anki deck](#) ↗.

So go forth and enjoy your third year of medical school. You will make mistakes and sometimes things will feel awkward. You will have growing pains. But overall, you will learn so much. And hopefully, my advice makes your life a little bit easier.

4.0.2 Shelf Exams: What are they and how do I prepare for them?

Author: [Colby Canter](#) ↗

Interest: Internal Medicine

Submitted: 3/5/2022

Introduction

Entering third year, I was unsure of how to effectively study for the notorious shelf exams. Coming off my first two years of medical school, I did not establish efficient study habits during the didactic portion of the medical school curriculum. I would often spend hours aimlessly looking over PowerPoints with diminishing returns on my investment of time and effort. Furthermore, I struggled with time management. I knew that establishing structured, effective, and efficient methods of studying would be imperative for success moving forward in third year. In this article, I hope to detail how I altered my approach in studying to culminate in shelf exams scores that are dramatically better in comparison to my former years of medical school.

What are shelf exams?

Shelf exams are multiple choice assessments that are taken at the conclusion of a clinical rotation. These are comprehensive exams in a particular discipline, with exams ranging from 100-110 over the course of approximately three hours. These tests are known for being particularly difficult due to the breadth and depth tested. This, along with the demands of a hectic clinical schedule and a variety of options for studying, make for a challenge. At the University of Kentucky College of Medicine, shelf exams are administered in the following disciplines: psychiatry, family medicine, obstetrics & gynecology, neurology, internal medicine, pediatrics, and surgery. Additionally, at UKCOM, there is an examination following completion of the emergency medicine clerkship; however, this is an exam that is not administered by the NBME and will not be further discussed in this article.

What changed in your study habits?

Questions, questions, and more questions! During the didactic portion of the curriculum, I was completely oblivious to the use of question banks as a means of studying. Once I began studying for USMLE Step 1, I picked up UWorld, and I had a reasonable amount of success with the resource for board studying. It struck me that this would be an effective means of studying moving forward. Thankfully, UKCOM bought a one year subscription for my class to use throughout our clerkships. I took full advantage of this generous gift and used it as a primary study resource. Question banks are an effective means of studying due to the use of active recall, which is similar to other study methods such as Anki (discussed elsewhere [e.g. 5.0.1] in this manual).

Usage of UWorld was supplemented by one

text per clinical rotation. Textbooks were consulted after looking at the performance tab of the question bank and identifying areas of weakness, which resulted in further reading to fill in remaining knowledge gaps. These books were not read in their entirety but rather served as a supplement to UWorld. Textbooks utilized are listed below with the corresponding rotation.

- **Psychiatry:** First Aid for the Psychiatry Clerkship, Sixth Edition
- **Family Medicine:** Case Files Family Medicine, Fourth Edition
- **Obstetrics & Gynecology:** Blueprints Obstetrics & Gynecology, Seventh Edition
- **Neurology:** Case Files Neurology, Third Edition
- **Internal Medicine:** Harrison's Principles of Internal Medicine, 20th Edition
- **Pediatrics:** BRS Pediatrics, Second Edition
- **Surgery:** Surgery, A Case Based Clinical Review, Second Edition

How do I approach answering questions to study for shelf exams?

I found that answering approximately 40 questions per day to be manageable, with the goal to complete the question bank well before the end of the clerkship to allow for a week of review prior to the exam. Completing two 20 question blocks appeared to prevent the onset of fatigue while maximizing retention of material.

Most question banks, including UWorld, offer extensive and often comprehensive explanations to both right and wrong answer choices. Reading the explanations for each answer choice, whether answered correctly or not, was integral to my approach to using a question bank as my primary study resource. I found that studying this way was comprehensive and covered all the common pathologies in addition to some of the more esoteric ones that have a propensity to be tested on shelf exams.

What other resources did you use?

The final resource used for clinical rotations was NBME practice exams. These are 50 question exams available for purchase from the NBME website. I made a point to do ALL of the exams for each shelf exam and approached them with the same strategy as UWorld. I would take an exam on each Saturday of the rotation, beginning with the first week to establish a baseline score. I found this to be extremely useful as the shelf exams closely mirrored the content and structure of the available practice exams.

4.1 Neurology

4.2 Emergency Medicine

4.3 Internal Medicine

4.3.1 Not Quite Dr. House

Author: *Colby Canter* 

Interest: *Interest*

Submitted: *3/27/22*

Internal medicine can be an intimidating rotation for many medical students, owing largely to the breadth and depth of pathologies encountered. This specialty can be practiced in the inpatient and outpatient settings, or it can serve as a springboard to various specialties. Some of these specialties include cardiology, gastroenterology, rheumatology, pulmonary/critical care, hematology/oncology, infectious disease, nephrology, hospice/palliative care, among others.

Selection of Services

One aspect of internal medicine that is unique to the UKCOM is the ability to select rotations (usually two weeks in duration). Some of these rotations include cardiology, MICU, and hematology. These are great opportunities to explore areas of future interest or to focus on weak areas for improvement.

Advice for Wards

At UKCOM, you can select from Chandler Hospital, Good Samaritan, and the VA for wards. Each of these offer fantastic opportunities to train in the breadth and depth of internal medicine. Most of the rotation was devoted to inpatient medicine, and as such the bulk of this article is devoted to general and specific advice to excel on wards.

1. **Show up EARLY.** During my first week of internal medicine, I found myself to be rushed in preparation for rounds and my performance in presenting patients suffered because of it. I found that showing up thirty minutes earlier allowed me to follow up labs, collect my thoughts, organize my presentations, and run plans by my residents prior to rounds. My improvement throughout the rotation can largely be attributed to this simple step.
2. **Read about your patients.** I would often follow a patient for more than one consecutive day and would read about a patient's condition in the evening after coming home from the hospital. If you find information that evening that is relevant and changes management of the patient, present it on rounds the following day!
3. **Ask attendings for feedback and expectations.** This especially holds true regarding expectations for oral presentations on rounds. Attendings and residents can often have varying preferences regarding what they would like to see out of a medical student presentation. Some attendings might prefer longer, more detailed presentations with vital ranges, but others desire presentations that focus on pertinent positives and negatives. As a rule of thumb, new admissions warrant a thorough HPI and will likely take much longer to present. **ESTABLISH EXPECTATIONS EARLY ON!**
4. **Develop your assessment and plan.** As a spin-off of my last point, the assessment and plan are the most critical portions of your presentation. Many third-year medical students are timid with presenting an assessment and plan out of fear of being seen as too assertive. However, I feel that offering suggestions for changes to management is **WHY** you are training at an academic medical center! Ensuing discussions regarding your proposed changes are where learning takes place. I have found that attendings respond positively to student input on management of patients.
5. **Practice calling consults.** As a medical student, you will likely be looking for ways to be helpful to your team. One way to do this is by calling a consult. This can most certainly be an intimidating process, but it is one you will also likely be doing regardless of your future specialty. Always offer to call a consult to ease the burden on your residents and they will thank you!
6. **Don't focus on zebras.** As a medical student, it can sometimes be tempting to immediately jump to rare diseases as the cause for a patient's presentation. Fight this urge. Yes, you **WILL** encounter rare diseases while training at an academic medical center, but

an atypical presentation of a common ailment is often more common than a textbook rare disease. If the search for common diseases does not pan out, at that time begin to include rare diseases in your differential.

7. **Learn basic renal pathology.** Medical students, residents, and attendings often agree that kidneys are perplexing. One guarantee is that you will encounter renal pathologies in your time on wards. Therefore, it is worth your time to have a firm grasp of common renal pathologies, especially acute kidney injuries. Being able to delineate between pre-renal, postrenal, and intrinsic renal injuries and state in your presentations WHY a patient fits a certain diagnosis demonstrates clinical reasoning and sets you apart from other students.
8. **Establish an approach to reading chest imaging.** At this stage, few will expect you to be a radiologist... in fact, nobody expects you to be a radiologist (unless you are one). However, one situation I've found is that patients are often seen on rounds before a radiologist has interpreted the imaging. By taking the time to state your own findings (even if completely wrong), you are taking initiative and demonstrating an ability to think for yourself.
9. **Develop an approach to interpreting ECGs.** A rite of passage as a medical student is being handed an ECG on rounds and asked to interpret it. Developing a systemic approach to each ECG is critical. By identifying rate, rhythm, axis, wide or narrow QRS complexes, and regular or irregular, you can usually reason your way to accurately identifying a common tracing. Even if you are unable to recognize the pattern on the tracing, you can still supply useful information by stating the aforementioned qualities of the ECG by applying a structured approach to each reading
10. **Learn to perform a detailed HEENT physical examination.** I've found that this is an often-neglected portion of the physical examination. You can often find interesting findings when thoroughly examining these regions. Systemic disease often manifests in the oropharynx, ears, and eyes. For instance, oral ulcerations can often be found in patients with lupus, conjunctival pallor in anemia, and leukoplakia as an antecedent to oral cancer. However, most attendings are interested in hearing pertinent positives and negatives. By presenting *relevant* HEENT findings, you demonstrate thorough physi-

cal examination techniques that are likely to impress your attending.

Advice for Continuity Clinic

The internal medicine rotation largely focuses on inpatient medicine, but continuity clinic was one of my favorite experiences of medical school thus far. In this component of a rotation, you are placed with the same preceptor for one afternoon weekly. The continued, one-on-one contact is the likely the longest you will be with the same attending in all of third year. This offers a great opportunity for a strong letter of recommendation as you work closely with the same physician for nearly two months.

1. **Ask your attending for expectations regarding notes.** My attending preferred that I continually see patients and instead have residents write notes to maximize my learning. Be sure to establish this prior to seeing your first patient.
2. **Be familiar with USPSTF guidelines.** As mentioned in the family medicine article, applying USPSTF guidelines to your patients ensures that they receive age-appropriate screening.
3. **Work efficiently.** Clinic is fast paced. As mentioned in the family medicine article, attendings are often under pressure to see many patients in a short amount of time. Make sure to streamline your presentations to convey the required information to the attending without including extraneous and superfluous details.

A Brief Word Regarding the Shelf Exam

The internal medicine shelf exam is incredibly broad, but it also demands an appreciable amount of depth in many topics, with cardiology as the most heavily tested subject. Aside from traditional questions regarding knowledge of internal medicine's various organ systems, biostatistics is a component of the exam that students often neglect. In addition to its intrinsic difficulties, this exam becomes challenging to study for after a long, exhausting day in the hospital.

1. **Questions, questions, and more questions.** Most students select UWorld as their question bank on rotations, and the internal medicine section encompasses more than 1,200 questions. This leaves you with no shortage of material to study. I suggest making this the backbone of your method of studying as the common (and many of the esoteric) topics will be adequately covered with this. Your success on the shelf exam is directed correlated to the number of ques-

tions you complete!

2. **Select a text and stick with it.** This allows you to fill in gaps in knowledge left by the question bank and consolidate material. In addition, it allows you to look up information. By sticking with the same text, you become comfortable with the resource and able to quickly look up information. I personally used Harrison's Principles of Internal Medicine for the shelf, but I (obviously) did not make it through cover-to-cover. Instead, I used it as a reference. Regardless of your choice of text, make sure to pick a resource you find helpful and stick with it.
3. **Focus on weak areas.** I am personally guilty of studying areas in which I find interesting or already proficient in, likely due to it being comforting. **DON'T DO THIS!** With limited time to study for an incredibly

difficult shelf, pick up points where you can and try to minimize points/questions left on the table.

4. **Know common, "bread and butter" pathologies.** On wards, you are likely to see cirrhosis, heart failure, COPD exacerbations, myocardial infarctions, AKIs, and gastrointestinal bleeding. As a result, it is also likely that you encounter these same pathologies on future exams. Be comfortable with diagnosis, workup, and treatment of common pathologies and it will serve you well!
5. **Don't neglect ambulatory medicine.** Given the vast amount of information covered, it can be easy to overlook this section. Make sure to review it as it is high-yield for both clinic and examinations.

4.4 Pediatrics

4.4.1 "Plerkship" – The Pediatric Clerkship

Author: *Daniel Cooper* 

Interest: *Pediatrics*

Submitted: *6/28/22 Submitted*

Introduction

Pediatrics is not always as bright and shiny as Dr. Glaucomflecken's birthday-hat-unicorn videos make them out to be, but to be honest, it's pretty close. In pediatrics, you have the unique opportunity to see essentially two patients: the child and the parents/guardians. Additionally, studying for the clerkship can be challenging because all medical education up to this point has only been sprinkled in throughout your first two years of medical school. Nonetheless, this is an essential rotation for almost all future physicians, as many future careers have at least some pediatric components to them – we were all also kids once.

General thoughts on the rotation

This was a great rotation, even if it is one of your first, because almost everyone on the rotation is nice. This is not to say that everyone in the hospital is rude, but the instructors and attendings at our institution are greatly invested in the education and advancement of learners, both medical students and residents alike. Develop relationships with your attendings and upper levels early, as you may see some of them more than once during your time on pediatrics. Developing longitudinal relationships with your upper levels gives you the chance to show your growth throughout the rotation. This

may even lead to good evaluations based on your performance, regardless of where you start out on the spectrum of knowledge of pediatrics. Pediatricians love to see growth, both in their patients and in their medical students!

If I could have changed anything about the rotation, I would change our lectures. While it was nice to be able to sit back and relax for a few hours during what can be a busy week, I did not feel like I ever left with anything meaningful. My suggestion would have been to make the lectures more relevant to the shelf (since that is what our current system places so much emphasis on) or encourage students to create and deliver their own lectures or case presentations.

Similar to internal medicine (see future-Dr. Canter's guide for internal medicine), there are a few elective rotations you can choose from on top the regular schedule. There is PICU, pediatric radiology, and NICU. People have various thoughts on the rotations, but in general they are highly dependent on the patients/residents/attendings present during these rotations regarding how much you get the chance to do during your time. For those interested in OBGYN, pediatrics, and surgery, and critical care, choose either NICU or PICU. There are only 3 days on this rotation, so do not sweat it if you do not get your first choice. Remember that

you can rotate through any of the above electives during your fourth year at no detriment to your likelihood of matching regardless of specialty of choice. The bread-and-butter rotations you will find yourself on are: pediatric wards, adolescent medicine, newborn nursery, and outpatient clinic. I will not delve into these, as I felt the descriptions on the canvas page and syllabus will adequately prepare you.

Things I wish I knew before the rotation

Keeping an infant still: INVOLVE PARENTS. Have them hold their child's head with one hand, and with the other arm, hold their hands and feet to keep from swatting at or kicking you. For your stethoscope and cardiologic examination, what air goes back out must come back in – they take a breath between cries and babbling. During this time, it is usually much easier to hear heart sounds and to assess their inspiration. Additionally, warm your stethoscope with the palm of your hand, as this will decrease the likelihood of baby becoming agitated at your coldness.

Recognizing a sick baby: One of the most important things in medicine as a whole is recognizing someone who is sick. Unlike most adults, children are usually able to compensate for their sickness all the way up until they cannot. That is to say, a child may look mostly well for one's examination, but 10 minutes later they may be the opposite. Keep this in mind especially during your night shifts on wards when you receive admissions.

Medical education opportunity: If you are interested in medical education, the medical curriculum education committee (MSEC) is a great and relatively easy way to get involved. It is comprised of the chief residents, the course directors, and your satellite campuses. The committee is first come, first served, so keep this in mind!

Notes: Notes are your time to shine. Almost every clinic or team in the hospital has Smart-Phrases that include the milestones so you don't have to remember them during every patient encounter. Use Angela Houchin's "WCC" (well child check) smartphrases.

Continuity: Given turnaround time, this clinic may be the first time in your medical career that you get to have continuity with patients since you see newborns and they are seen soon after. You

may even get to see them be born and transition their care to outpatient and literally see them grow up. What could be better? Thinking about doing surgery on bones all day?

Pearls

- Go to morning report each morning at 7 if you can. Such good learning opportunities and even chances to stand out among your peers or the residents if a med-student level question is asked.
- Save interesting or particularly challenging patients in EPIC or write down their MRN and the attending you were with. Residents and attendings are always looking for a quick addition to their CV, so if you reach out to them and ask if you could write a case report or poster on one of the patients you saw, this is a great way to revisit patients again when you have the time.
- It's good to keep a mental or physical checklist of things you want to learn for when an attending or residents asks, "what do you want to learn while you're on this rotation?" It shows you are engaged and are interested in learning regardless of your interest in the specialty.
- The clerkship is so long here at UK (7-8 weeks), and this coupled with almost half the rotation being half-days of clinic, you can almost finish two passes of UWorld (first pass plus misses) or complete the AM-BOSS questions on top of UWorld. I did the latter, but either method should be effective.
- As of writing this article, Zanki has just released V12 of their tags, which includes about 80% of UWorld Step 2 question IDs. If you do not know something, chances are there are cards related to the question ID located in the Zanki deck.
- When on newborn nursery, the residents carry the delivery pager for newborn resuscitation. Always go with them, as this can be an opportunity to help resuscitate or stimulate a newborn. Additionally, this gives you the chance to see how the NICU, Nursery, Respiratory Therapy, and Labor and Delivery teams work in unison and rapidly assess a baby's status.

4.5 Surgery

4.5.1 The Dos and Don't You Dares of the OR

Author: *Kiah Gledhill* 

Interest: *General Surgery*

Submitted: *3/21/22*

When I scrubbed into an OR for the first time as an M3, I sympathized with my non-Catholic friends who attended my wedding... There was unique smells, interesting music, men in gowns, and A LOT of standing. And just like my buddies at my wedding, I had no idea what to do. In both cases, not knowing what to do (the first couple of times at least) isn't too big of a deal. However, not knowing what NOT to do can be a huge deal. Here is your outline for the Dos and the Don't you dares of the OR.

THE DOS

Most of these “dos” are simple things that are both helpful and are easy to do. In other words, they don't take any brain power away from the one million Anki cards you have stored.

Tying Gowns

Often, you will find yourself in the OR and you won't be sterile (scrubbed) while others are gowning up. If this is the case, tie their gown for them. There is a Velcro strap that goes around the back of the neck, and two tie strings that are located at the hips. Also, the person you just tied might turn around and hand you a card that is attached to their gown... just hold it and watch them spin.

Get the Bed/Help Move the Patient

After every case, the patient will be moved from the surgery table to a hospital bed. Once the case is over, and anesthesia has extubated, go get the hospital bed. It is located outside the OR door. Wheel that puppy in, and get ready to help move the patient. But first, in every OR, there is a blue “transfer board”, find it. If you've never transferred a patient before, I would recommend starting with helping stabilize the feet, but pay attention to the people with the board because in a couple days you can help with that.

Be Attentive, Always

If you find a physician more attentive to detail than a surgeon, then you have found an infectious disease doc taking an HPI, other than that... there are none. Attentive people like attentive people. That's obvious, right? When you are in the OR, this is a great time to pay attention to all the details, and not just within the surgery. For example, after a case had been going on for a while, a classmate of mine noticed that the ALP® compression sleeves (DVT prevention) weren't on... he promptly let someone know and the attending was very impressed with his attention to detail and even wrote about this in his evaluation. In the OR, there are always ways to be helpful, but if you're not paying attention, you will miss some opportunities.

Know the Anatomy or at Least Know Something

Okay, this one might take up a little bit of brain space... but you can handle it. I would say 90% of “pimp” questions in the OR are about anatomy. Therefore, know it. Now, there will be plenty of times that someone points to something and asks “what is this?” and you will have no idea. This is where the “know something” part comes in. Even if you don't know what they are pointing to, you should know something they MIGHT be pointing to. For instance, during a cholecystectomy, the surgeon will locate both the cystic duct and the cystic artery and will likely ask you about one or both. In case you were wondering, their anatomical next-door neighbors. So, if they point and ask “what is this?” and you only see shades of red, you could say something like “well, I know around this point we should be ligating either the cystic duct or cystic artery... I'm not sure which one that is but I would say it's one of those.” This is both correct(ish) and shows you've reviewed the relevant anatomy. However, if you know the answer, say it confidently.

Be Helpful, but Not Dangerous

This one involves a lot of doing with a dash of don'ting. One of the first cases that I scrubbed into, as I was standing at the table, the attending told me his rule for medical students: “If you feel like you can be helpful, please do, but don't mess up.” As med students, we do a lot of suture cutting and retracting. What do both things have in common, you ask? They're impossible to mess up... well... mostly impossible. For example, most the time it is obvious what suture the attending/resident is wanting to be cut, however, not every suture that has been passed/tied needs to be cut at the moment. So, how do we know what to do when? Sometimes you don't, and it's okay to ask.

That said, there is an opportunity to impress in these moments. Paying close attention (shout out to “**Be Attentive. Always**”) to the previous steps of the procedure will allow you to see they OFTEN are repetitive. Paying attention will allow you to anticipate what you can do next to be helpful (ie what suture to cut and where to move the retractor). Now, there is still a fine line to walk between being helpful and hurtful. Please don't mess up. You DO NOT want to cut a suture that isn't supposed to be cut. Again, be helpful, but don't mess up, and always ask if you're unsure.

THE DON'T YOU DARES

This section is shorter, but more important. Just like a Catholic wedding, there are plenty of things you can do, but if you don't, most people won't

notice. However, there are a few things that you should not do, but if you do, EVERYONE will notice.

Don't Break the Sterile Field

This is the obvious one. It's obvious for a reason. I will say, however, the subheading is a little harsh. It's okay if you break sterile field once or twice. It is not okay to make a habit of this. If you break sterile field once in a case and must rescrub, don't break it again. A simple way to help with this is let the scrub nurses/techs know that this is your first couple times in an OR and they will guide you. If you are asked to rescrub, just do it with grace and get back in there.

Don't Ask Stupid Questions at Stupid Times

"No question is a stupid question" is mostly true, but even the best question asked at a stupid time is a stupid question. Period. Hear me out. If the attending has stepped in to relieve the resident during a key moment, that's a bad time to ask a question. If the attending and resident haven't talked in the past 30 minutes, that's a bad time. If the attending/resident has talked but >50% of the words have been curse words... also a bad time.

4.6 Family Medicine

4.6.1 AHEC and Beyond

Author: *Colby Canter* 

Interest: *Internal Medicine*

Submitted: *3/22/22*

Family medicine is a unique rotation in that the breadth of material encompassed is unsurpassed by any other specialty encountered in third year, even more so than internal medicine. I was exposed to many cardiovascular, renal, MSK, rheumatologic, pulmonary, and gastrointestinal pathologies, among others. It also was in this rotation that I gained my first exposure to pediatrics and ON/GYN, even before my respective rotations in these specialties. Furthermore, as a learner in primary care, you are exposed to preventative and screening medicine.

Another facet of the rotation that makes it unique is the fact that many students have the rotation as an AHEC away rotation. The rural, private practice settings bring their own sets of unique challenges. You are expected to see as many (if not more patients) than you would at UK, and the pace is very fast. Additionally, you might have to temporarily move out of Lexington for a month for the rotation. Despite the rotation's idiosyncrasies, it is a very manageable rotation and was one of my

favorites of third year.

For the most part, it's obvious when to and when not to ask a question. Please take the intensity of the situation into account when you are asking questions. I've heard of attendings asking students to stop talking because of their question timing. Have some feel, and if you can't tell if it's a good time or not... it's not.

Don't Fall Asleep

This one needs no explanation. Do not fall asleep. Yes, there will be times when you have been standing in place for two hours and you can't even see the surgical field because there are too many people scrubbed. You will begin to wonder if it's possible to sleep standing up. It is. But, you must do whatever it takes to not fall asleep. Believe me, there is no sweeter lullaby than the heart monitor beeping in a dim lit room during a laparoscopic case. Fight the urge.

My conclusion is simple. There is a lot of things you can and should do in the OR to be helpful/standout. There are a few things you can do in the OR to be hurtful/standout in a negative way. Do your best to maximize the Dos and make the Don'ts obsolete.

favorites of third year.

General Advice

Below I will outline some tidbits that helped me succeed in the clinical aspect of the rotation.

1. **Be familiar with USPSTF guidelines for a patient's age and gender.** By knowing these ahead of time (or looking them up between patients) and presenting these suggestions in the assessment and plan for a patient, you will look like a rockstar.
2. **Streamline your presentations to attendings.** In family medicine, the experience largely focuses on outpatient medicine, and clinic tends to be fast paced. Therefore, developing thorough yet streamlined presentations of your patients is critical. By focusing on positives and negatives, you can quickly guide the listener to the same conclusion as you for an acute complaint or wellness visit. Also, even for an acute complaint, don't forget USPSTF guidelines!

Sometimes these are the only visits a patient may have, making it crucial to deliver age-appropriate screening in these settings.

3. **Focus on the assessment and plan.** As a spin-off of the last point, the assessment and plan is the most critical part of your presentation, and a well-developed A&P is what sets apart a third-year medical student from an intern. As a third-year, you are likely more than apt at obtaining an HPI, collecting data, and performing a physical examination. Developing a thorough A&P with synthesized findings, suggested diagnostic steps, and options for treatment are crucial to your development from a student to a physician. This rotation offers a great opportunity to work on this as the complaints are varied, and you have limited time between patients to prepare for presentations.
4. **Refine your auscultation techniques.** In family medicine, you will likely be listening to the heart and lungs of most patients you encounter. This is a great opportunity for learning what “normal” sounds like, and for being able to pick out pathologic murmurs or adventitious breath sounds. I suggest listening to YouTube videos as a primer, then applying these to patients. **THE MORE HEARTS YOU LISTEN TO, THE BETTER YOU WILL BECOME.** By the time I arrived to internal medicine, several attendings commented on my ability to pick out subtle murmurs, and I largely attribute this to deliberate practicing during the rotation.
5. **Become comfortable examining rashes.** In family medicine, you never know what might walk through the door, but you can almost certainly bank on a patient presenting with a skin lesion. It is extremely high-yield (for both clinic and shelf exams) to be able to describe skin lesions and begin to attempt to develop a differential diagnosis. These lesions can be isolated or a sign of systemic disease, making them an important diagnos-

tic clue.

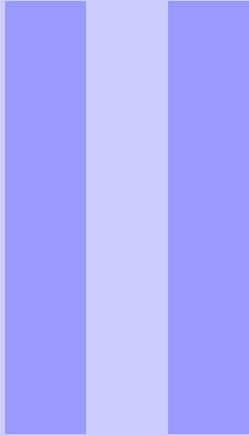
6. **Read about your patients.** In family medicine, it is incredibly difficult to know everything, and it is impossible to learn everything in a four-week rotation. I suggest allowing the patients you see to guide your reading. If you see many patients with COPD, read about the conditions and the treatment for it! If you see patients with diabetes mellitus (which I can safely assume you will), learn about the specifics and intricacies of treatment and propose treatment plans/changes for your patients! Even if you are wrong, your attending will appreciate the initiative and your ability to think independently.
7. **Take every opportunity given to you.** Family medicine presented many unique opportunities to me. In this rotation, I got to use an otoscope on a screaming toddler with otitis media, perform a pap smear, and help freeze off skin lesions with cryotherapy. If you feel comfortable performing a task with supervision, take the opportunity if given to you! By performing some of the aforementioned tasks, I was more comfortable with physical examinations in future rotations.

A Brief Word About the Shelf Exam

The family medicine shelf is incredibly broad, and there truly is no way that one can truly master everything on the shelf in the four weeks on the rotation. It is a notoriously difficult shelf exam due to the breadth tested. For this shelf exam, I solely studied using UWorld, NBMEs, Case Files, and USPSTF guidelines and performed reasonably well. In hindsight, had I taken the shelf near the end of the year, I feel that I would have performed much better due to overlap with other exams. However, do not let this dissuade you from taking the rotation early, as I felt it helped me clinically throughout the rest of the year.

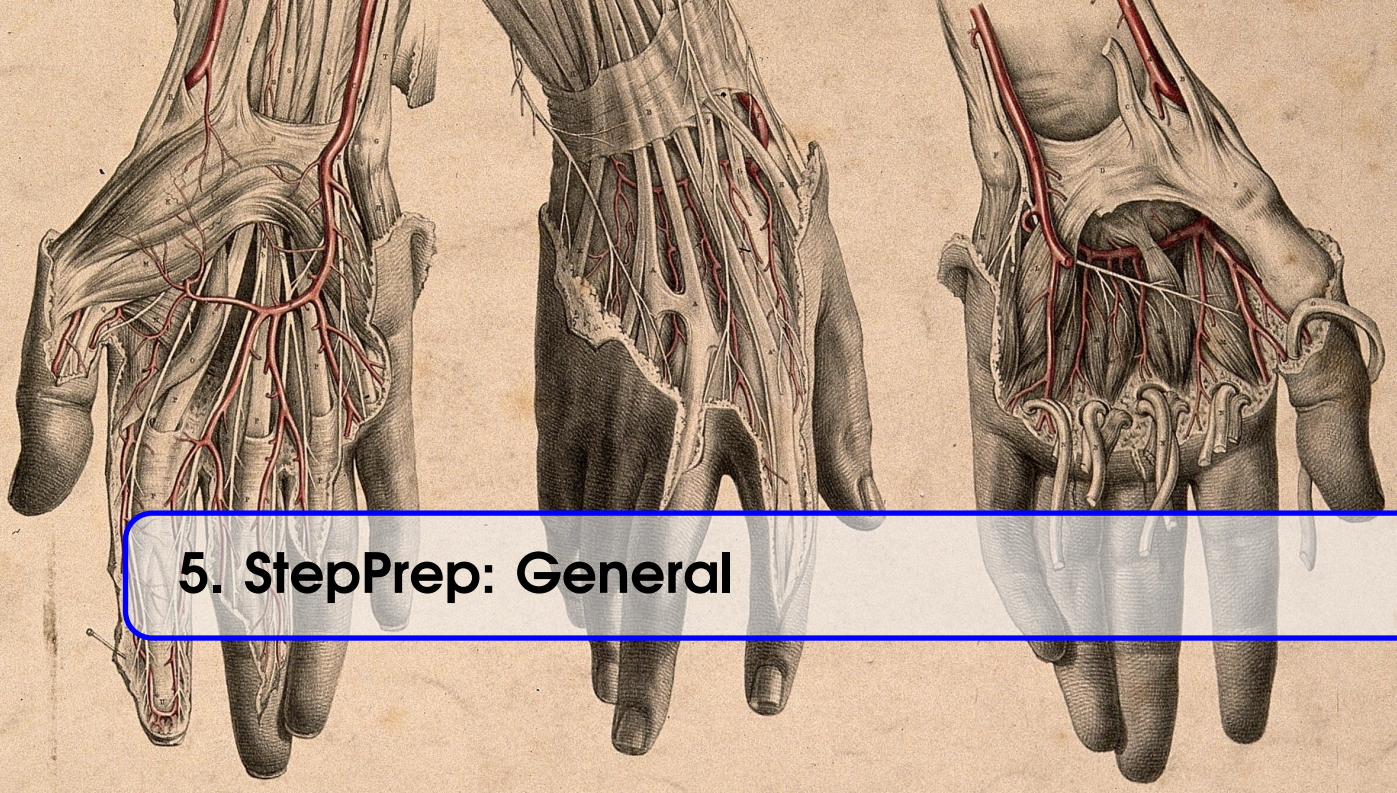
4.7 Obstetrics and Gynecology

4.8 Psych



StepPrep

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5. StepPrep: General

5.0.1 Again, Again, Good: An Anki Overview

Author: [Max Rakutt](#)

Interest: Orthopedic Surgery

Submitted: 3/4/2022

Why Anki?

At the beginning of first year, I was strongly opposed to Anki. Blasting through hundreds of flash cards daily seemed like a lazy, inefficient, and non-comprehensive way to study the content. In undergrad, the easiest way to study was to simply memorize all of the PowerPoint slides the night before the test. I thought that this method would be just as effective in medical school... By Hematology and Lymphatic Systems, the sheer volume of content already forgotten was overwhelming.

Is Anki Still Relevant?

In 2019, it was hard enough to justify spending countless hours studying Anki cards knowing that class was "unranked" and pass/fail. However, the looming threat of a Step 1 score provided motivation to complete the daily reviews. With pass/fail M1, M2, and Step 1, it is even more difficult to justify this sacrifice. However, there are some important considerations that must weigh into the decision:

- AOA status is still highly regarded by many residency programs, and is in part related to academic standing.
- While likely less efficient than studying without Anki, the threat of building reviews for each Anki day skipped is motivation to study every day, improving retention.
- Long term retention of knowledge is one of the greatest features of Anki. Daily re-

views ensure continued retention of all past knowledge.

- Shelf exams after each M3 clinical rotation build on the foundational knowledge learned during the first two years of medical school. Starting from scratch (or from a passing threshold of knowledge with no further review) would be very challenging.
- Many report Steps 2 and 3 also build from the foundational knowledge gained when preparing for step 1.
- On the wards, it is very common to get asked questions that probe understanding of either foundational concepts or commonly memorized lists necessary for step 1.

What is Anki?

Anki is a somewhat crudely designed spaced-repetition platform that allows for the learning and retention of information stored on special flash-cards. Anki determines which cards should be reviewed each day based on the input from prior reviews. If a card reviewed is known, the time until that card is reviewed again increases. Conversely, if a card reviewed has been forgotten, then the card will be seen more frequently, allowing the user to re-learn the card.

How does it work?

Anki **cards** store information that is worth remembering. Within Anki, this information is stored as

a **note**. For instance, it might be important to know that “mitochondria are the powerhouse of the cell.” In Anki, a **note** can be created that contains this information:

Mitochondria are the powerhouse of the cell.

From the **note**, Anki creates one or more **cards** that contain **cloze fields**:

```
{{c1: Mitochondria::Cell Type?}}
are the {{c2: powerhouse of the
cell.}}
```

Which will create the following **cards**:

[Cell Type?] are the powerhouse of the cell.

And:

Mitochondria are the [...] of the cell.

As stated earlier, these **cards** will be shown repetitively based on their **interval**, which is the number of days until the **card** is to be reviewed again. As the **card** is learned, the **interval** will increase. If the **card** is forgotten, the **interval** will either be reset, or the **interval** will decrease by some specified factor.

The Anki library consists of **suspended** and **unsuspended** cards. **Cards** that are **suspended** are highlighted yellow within the browse function. These **suspended** cards are simply stored and will not appear for review unless they are **unsuspended**. Each day, Anki will add a specified number of new **cards** from the **unsuspended** pool to the pool to be reviewed. The user will provide feedback on whether each **card** needs to be seen **again**, or if the card was known and **hard**, **good**, or **easy**. This feedback allows Anki to appropriately modify the **card's interval**. Each subsequent day, Anki will pull another chunk of new **cards** from the **unsuspended** library for review. Additionally, Anki will show all **cards** due for review based on each **card's interval** and last review date. If a day of review is skipped, Anki adds the skipped day's reviews onto the following day.

How to Anki

There are two schools of thought: make your own Anki cards or find a pre-made deck online. I am a proponent of the latter; however, you will need to do some research to determine the best pre-made deck for you. It might be tempting to make your own cards, especially after you discover ‘image occlusion;’ however, again, I strongly discourage this. After months of review, many find old image-occluded cards to be tedious, and low-yield.

Configuration

1. Download Anki from [AnkiWeb](#) [↗]. If you already have the program installed, make sure you have the newest version.
2. Download the following addons by going to tools -> add-ons -> get add-ons.
 - a. Paste the following codes individually
 - i. 24411424
 - ii. 594329229
 - iii. 395343016
 - iv. 1102281552
 - b. Go to this [link](#) [↗] and click the downloaded file with Anki running
 - c. Set up the add-on ‘Customize Keyboard Shortcuts’ by clicking on the add-on and clicking [config].
 - i. Replace all of the text with the text in this [link](#) [↗].
3. Restart Anki
4. If you have a downloaded deck, make sure that all of the decks are under one ‘parent’ deck.
 - a. At the bottom, click ‘Create Deck’ and name it something. Then click and drag all of the other decks under this parent deck.
5. Click the cogwheel to the right of the parent deck. Go to options:
 - a. Daily Limits
 - i. New cards per day: 150. Change it later to 100-115 as the workload increases.
 - ii. Max reviews per day: 9999. This is critical for Anki to work as designed. You will not see 9999 cards per day, but it will allow Anki to show you all of your cards due for review each day.
 - b. New Cards
 - i. Learning Steps: 20m 1d
 - ii. Graduating Interval: 3
 - c. Lapses
 - i. Leech Action: Suspend card. After missing a card 8 times, this card will be deemed a leech and be suspended.
6. Click SAVE at the top (or ctrl-enter).

Usage

After downloading an appropriate deck and configuring Anki, browse the library of new cards by selecting ‘Browse’ at the top, or by clicking B on the keyboard. All newly added cards are unsuspended by default. Select all of these cards (ctrl/cmd-A) and then suspend them by right clicking and selecting ‘toggle suspended,’ or use the

shortcut ctrl-J/cmd-J.

Finding relevant cards can be done either via searching individual decks, sifting through various sub-decks, or via the tag system on the left pane of the browse window. When searching, search for words (mitochondria), parts of words (mito), exclude words (-mitochondria), or filter by card state (-is:suspended).

Every day, click the **parent deck** and begin reviewing. When reviewing, the space bar or enter will reveal the hidden cloze, and also select 'good' for when you know the card. Clicking l or] will select 'again.' Clicking z or [will undo the previous action.

Left handed: , , and .

Right handed: , , and .

This sounds very silly until you have clicked these keys hundreds of times per day for a few weeks.

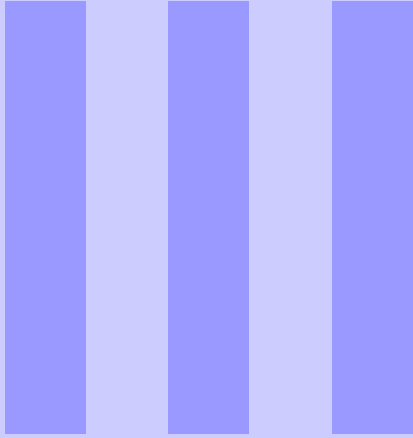
Mobile Anki

Anki allows the user to sync their reviews to a database for free. This database can be shared with

your mobile phone, allowing for on-the-go Anki reviewing. There are two caveats. First, the app costs \$20 on Apple phones. Second, large decks take up a large amount of storage. Regardless, the use of a mobile Anki app in conjunction with the desktop version is strongly recommended.

Strong Suggestions

1. Don't unsuspend a massive load of cards at once. Limit to about one week's worth of new cards. ($150 * 7 \approx 1000$)
2. On a desktop or laptop, narrow the reviewing window so that there are 7-10 words per line. This allows for less fatigue when reviewing as the eyes generally don't need to move side to side to read the cards.
3. Don't be a hero. Don't do more than 200 new cards per day. It adds up.
4. **Don't click anything but 'good' and 'again'**. Clicking hard or easy can mess up the interval system.
5. Don't cheat. If you don't know the card, click again.
6. Do all reviews every day always.



Research

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6. Research: General

6.0.1 Research Struggles: A “Pub”lic Service Announcement for Medical Students

Author: [Mohammed Hindi](#) 

Interest: Otolaryngology

Submitted: 3/6/2022

Key Points:

- Communication is often the hardest part of research. Make it as easy as possible for faculty to meet/respond to messages.
- Try to solve problems on your own. This is a great way to learn and demonstrates initiative.
- No project is without hiccups. Be prepared to face them, and assume everything will take more time and effort than expected.

Research in medical school is an increasingly sought-after entry on any residency applicant’s resume. Across all specialties, U.S. seniors in 2020 reported an average of 3.6 research experiences and 6.9 publications, both up from 3.0 and 4.8, respectively, in 2016 [2, 3]. This trend will almost certainly continue into the future considering the move of USMLE Step 1 to pass/fail grading. Programs need to determine if a student is truly interested in a desired specialty and has the ability to carry out long-term goals in that field, and research is a simple way to answer both of those questions. It is unfortunate, then, that research is often a frustrating and fruitless effort. This is not to say research does not require hard work, but rather that the process is often rife with pitfalls and traps from which students struggle to escape. This article aims to offer a focused perspective on the identification and navigation of some common challenges faced during research.

Starting Research:

The process of starting research is a challenge in itself. The traditional approach has been to send a battery of identical emails to all faculty members in the department and hope at least one may feel enough pity to send a reply. Admittedly, this can be an effective method, but it is generally best to look at the specific research interests of each faculty member in the department and really narrow down the ones which you feel align most closely with your own. However, you may be surprised at what you can learn to become interested in, so never discount any specific area because it does not immediately sound appealing. Overall, when picking who to contact, start first with individuals who have recent and regular publications in areas you are interested in (a quick search on Google Scholar or PubMed is all it takes), then expand your reach after this initial query.

Once you have decided who to contact, you must then understand what the life of typical faculty member is like. They are more busy than you can imagine and do not have the time to read long-winded emails that require long-winded answers. Your first email will be to set up a meeting, and it is likely they have received dozens of similar emails over the years. To begin, state your name and year, state that you are interested in their field, and that you would like to meet soon. Make sure to provide your phone number. If you have previous research experience, you can mention this, but it is

not necessary.

For determining a date and time, it may be tempting to list weeks of open times you have and wait for a response, but the key here is to make the meeting feel like a real event that will actually happen and will fit into their schedule. On Epic, look up when they are in clinic/OR/on service to determine which times they would likely be less busy. Of course, they may have other obligations not listed, but it is certain they will not be able to meet during listed hospital/clinic duties. Offer to meet in-person or over Zoom. Paradoxically, it may be more effective to suggest a range of times which is sooner and more narrow than one which is more broad. Again, the goal is to make the meeting feel as if it will already happen, and presenting a long list of dates will make it feel more abstract. Moreover, if you already have just a few specific dates listed, all they will have to do is reply “yes” or “no”, rather than check which times match up with your schedule. With this all in mind, know that it is still possible you will not get a meeting and that some faculty really have neither the time nor the desire to meet. Never take this personally, and move on.

Asking for Help When One is Stuck:

The number of issues can only increase after the project is begun. It is tempting to ask for help right away, and this may end up being the solution, but here are some suggestions for what to do first when you encounter some roadblock.

If the issue is one of understanding, truly try to read relevant literature on your topic. Look in the citations of papers you have already read for review articles or introductions to the topic you are studying. Even if you do not find the answer, you will at least gain a better intuitive understanding of the topic (since you researched it yourself), and you will also have a more well-formed question, since you will likely have gained at least some knowledge. Most of all, never be afraid to look foolish, since the residents and faculty already understand you do not know everything. In fact, a well-formed question shows that you are truly curious and are driven to learn more on the topic.

If you encounter a technical issue, such as requiring access to certain software, first contact UK Healthcare IT Helpdesk, either through email (ukhcit.service@uky.edu), or phone (859-218-4357). They are generally very quick to respond, and even if the issue is not resolved, this again demonstrates your motivation to solve problems on your own.

Another common issue is uncertainty on how to complete your part of the project. In other words, you have the means to proceed, but are unsure

which way would be best. This can include not being sure of how to organize data, which parts need to be included or excluded, and how best to summarize findings. If you can ask a senior medical student or resident, do that first. If the faculty member is the only one who can answer the question, it is best to first carry out each possible solution to the problem you are facing so that no matter what their preference is, you already have the answer.

In general, if you need to ask a question, the ranking of communication methods is as follows:

In-person > Phone Call/Zoom > Text message > Email

Of course, the availability of these methods varies, so use the advice above for how to effectively set up a meeting.

Some “Minor” Issues

Unreasonable Expectations/Deadlines

Research is typically hard enough, but this can be worsened by a seemingly unreasonable workload or unexpected deadlines. Unfortunately, there is not much that can be done once these things occur, so the best solution is prevention. Work early and finish things ahead of schedule so that if you receive more work or an earlier deadline, you will not be scrambling to finish your earlier work and can focus exclusively on the new work.

Getting People to Do Things

Oftentimes, the most challenging aspect of a project is the coordination of individuals who have their own busy schedules. As mentioned above, if you require something from anyone, make the task feel real and set a definite date that is within reason. Offer to meet that day or in the next few days if they require more information. Always be polite and show gratitude.

No Response

This can be an issue at all stages. Faculty may not respond for many reasons, but a common one is that the last email you sent required some time/effort to respond to, and even though they intended to respond, they did not do so immediately, and then moved that email far down on their list of things to get done in the future. To avoid this, make sure all emails/messages can be answered with short responses, such as “Yes”, “No”, or “Looks Great”. If a more complicated answer is required, use the strategies listed above to set up a meeting, preferably within the next day or two. Furthermore, try to have each of your emails

contain something of substance, such as a draft of the abstract or manuscript you are working on. Seeing an attached Word document is a great incentive for someone to actually read the email. As always, keep in mind that there are many other reasons faculty and residents would stop responding. One or two follow-up messages may be all it takes to get things moving, but be ready to accept that the project may go nowhere.

Authorship

This is a delicate topic (Fig. 6.1) and must be approached as such. First authorship is highly desirable and may become a point of contention within a team. As a medical student, there is unfortunately not much that can be done if your own perceived level of contribution does not match the determined byline. However, it is always best to read the room, and only you can advocate for yourself if you feel strongly about this issue. As always,

be polite, grateful, and do not go in with any expectations. Also, know that “Equal Contributions” exists for published works, and this can be a useful suggestion to bring up if needed. Like anything else, communicating your feelings and having an actual conversation as human beings is the best way to get around this issue.

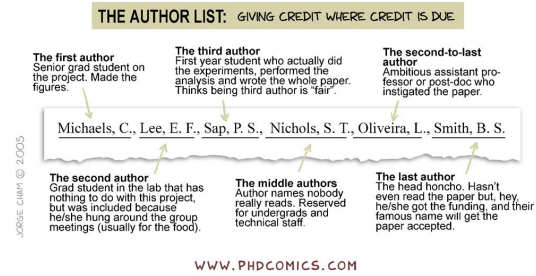


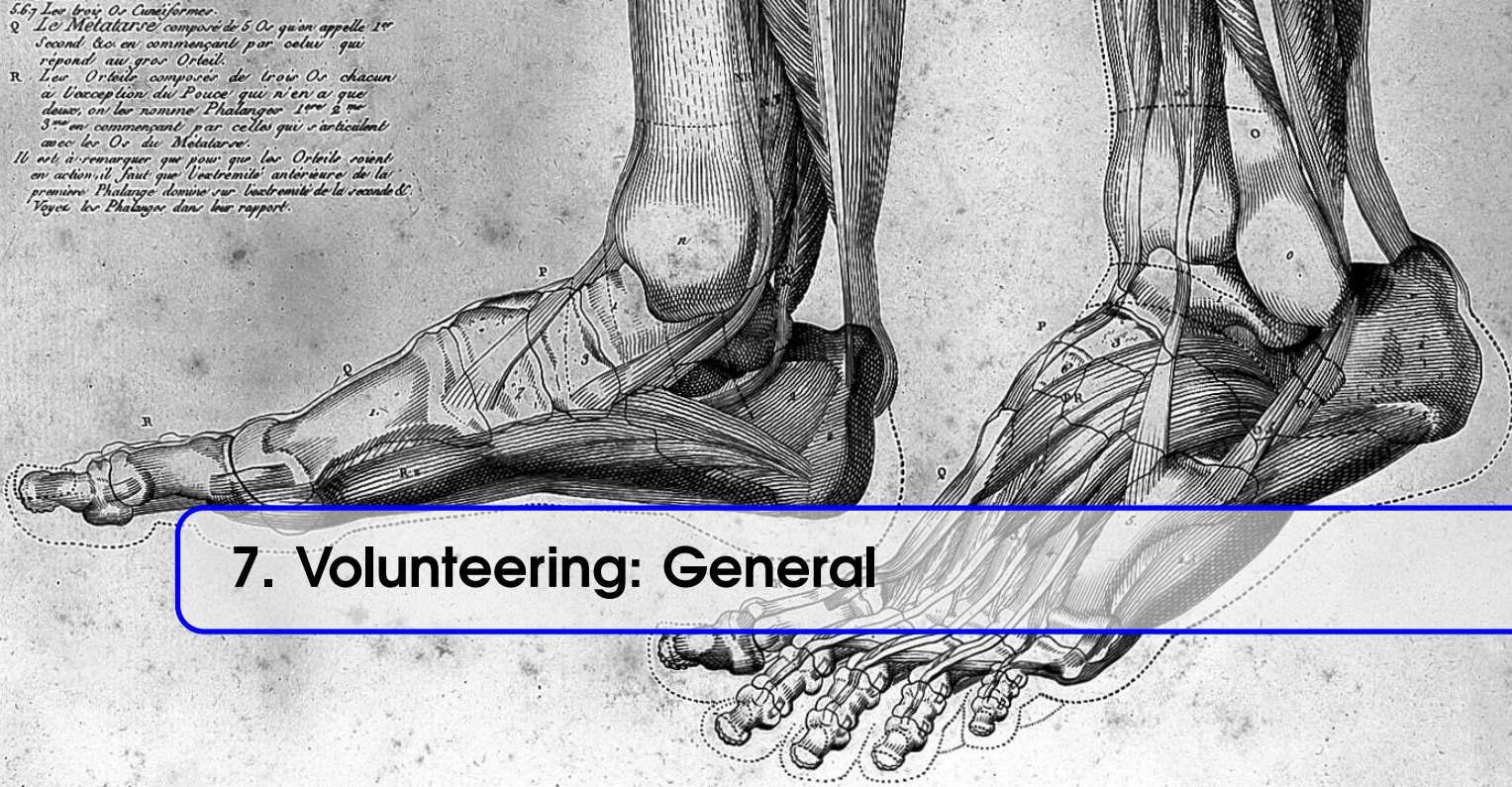
Figure 6.1: Sample representation of research contributions [1].

IV

Volunteering

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567 Les trois Os Cuneiformes.
 Q Le Métatarsse composé de 5 Os qu'on appelle 1^{er}
 Second &c. en commençant par celui qui
 répond au gros Orteil.
 R Les Orteils composés de trois Os chacun
 à l'exception du Pouce qui n'en a que
 deux; on les nomme Phalanges 1^{re} 2^{me}
 3^{me} en commençant par celles qui s'articulent
 avec les Os du Métatarsse.
 Il est à remarquer que pour les Orteils soient
 en action, il faut que l'extrémité antérieure de la
 première Phalange donne sur l'extrémité de la seconde &c.
 Voyez les Phalanges dans leur rapport.



7. Volunteering: General

7.0.1 SAC Smoking Cessation: “Your desire to volunteer is a 5? Why not a 4?”

Author: [Kiah Gledhill](#)

Interest: General Surgery

Submitted: 3/25/22

I’m a procrastinator, and its bad. So, when it came time to fill out the Salvation Army Clinic volunteer sheet for the first time as an M1, the only opportunity that was available was with the smoking cessation clinic. Let’s be honest, there is a reason why that slot was still unfilled by the time I got to it. I had no choice but to put my name down. I was not thrilled to commit to talking about “pack years” for an hour on a Thursday. However, after being there for a while, I started to realize that I may have found the hidden gem. I may have procrastinated my way into a volunteering opportunity that is relevant, fulfilling, and fruitful. I may have procrastinated my way into making a difference in patients’ lives as an M1/M2. I may have even procrastinated my way into an opportunity that I feel so passionate about, I’d be willing to stay up past my bedtime to write an article on just how shiny I think this gem is.

WHO, WHAT, WHEN, WHERE?

The Salvation Army smoking cessation clinic is a specialty clinic that is ran by two nurse practitioners who have dedicated the better part of their careers to smoking cessation. Let me restate that, the clinic is led by two providers who have sacrificed time and money to tailor their careers around helping underserved people to make the best decision they can for their health. Their names are Audrey Darville and Karma Bryan, and their awesome. The basic workflow of this clinic is to see

as many patients as you can between the hours of 6 and 7pm on Thursday nights. Who can’t spar 1 hour? During this hour you employ motivational interviewing techniques to help people along their journey toward smoking cessation and provide nicotine replacement therapy if needed. Audrey and Karma also give you pro tips along the way to help you hone your skills.

There are a handful of ways to get involved with this clinic. The first and easiest is signing up for spots as an M1. Another way to get involved is to be a clinic leader/coordinator as an M2. From my experience as a coordinator, this spot isn’t too highly desired so it shouldn’t be too hard to get. I think they’ve taken anywhere from 2-3 students in the past. Then, as an M3 or 4, you can simply volunteer your time as you please. There is a final way to get involved with this clinic, but it’s so good that I’m saving it for the “Why” section below.

WHY?

Now this... this is where you get your money’s worth. Let’s start with the obvious and most important “why”. The most important “why” is the same “why” that pushed us all toward medicine in the first place. You get to help people. How many times during 1st and 2nd year did you think “I’m not sure if studying for 12+ hrs/day is what I meant by helping people.” Volunteering at the smoking cessation clinic as an M1/M2 is a great way to fulfill your desire to help others. The smok-

ing cessation clinic offers the unique opportunity to talk with patients 1 on 1, come up with a plan, and offer treatment. I challenge you to find another volunteering opportunity that allows you to interview, assess, and treat a patient as an M1/M2. I certainly can't think of one.


Above, I outlined how this experience can be fulfilling, but a "why" that comes in close second is how relevant the skills you obtain are. At this point, I thought about inserting some statistic about how many people smoke, or how many diseases are associated with smoking, or whatever. But, I woke up today and decided I'd rather not preach to the choir. We all know smoking is bad. Real bad. I'm confident that whether I'm typing to the future surgeon or the future PCP, I'm also talking to someone who will have patients that can benefit from smoking cessation. The smoking cessation clinic allows you to practice motivational interviewing at a fast pace. The experience you get from volunteering with this clinic is directly transferable to clinical rotations and beyond. Many times, I've been with a resident who has told a patient "You know you've got to quit smoking." This comment is almost universally ineffective. I understand that residents are busy and don't think they have (and often don't have) the time to do motivational interviewing. But, you know who often does have time? Medical students. Volunteering with the smoking cessation clinic will give you the skills and confidence needed to sit down with a patient for 3-5 extra minutes and tease out their barriers to quitting and how these can be addressed. This

gesture is appreciated by patients, residents, and attendings.

I alluded to a final way to get involved with this clinic in the previous section, and that final way is through research. Audrey, one of the aforementioned NPs that run the clinic, has done and currently does, extensive research in the field, and she is always looking for people to help with research. She is also willing to help students with projects that are directly related to the SA smoking cessation clinic. Research is clearly good for furthering the knowledge base of a particular field, but the reason I'm putting it in the "why" section of this article is because it is also good for making your CV sexy. Combining a longitudinal volunteering experience, with some relevant research to show for it, is about as sweet as it gets in CV world. I realize this "why" isn't the most altruistic "why", but who wants to eat a cake with no icing on top?

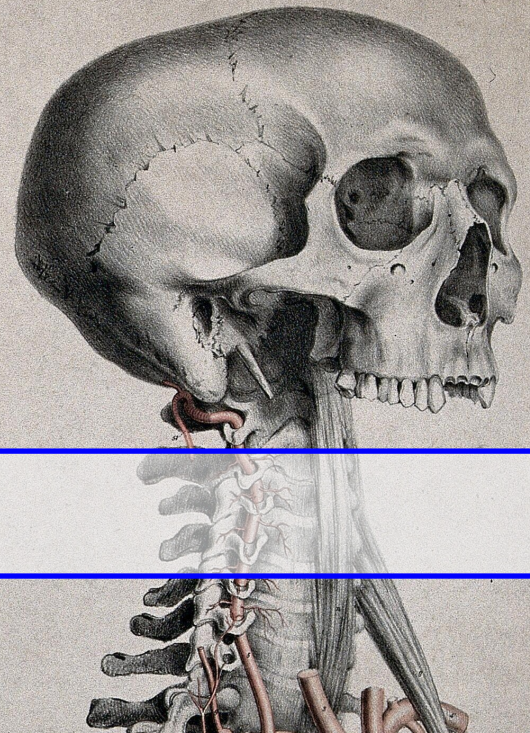
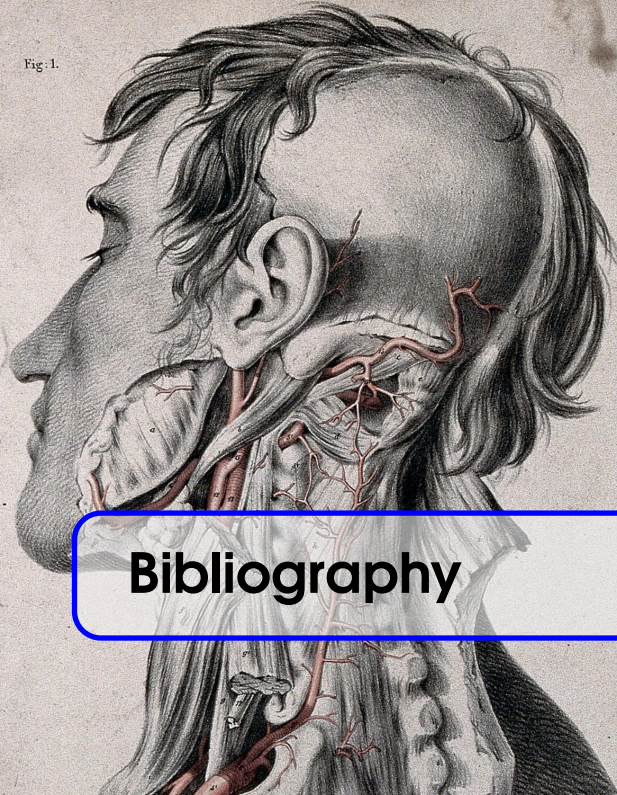
CONCLUSION

In conclusion, the Salvation Army smoking cessation clinic is the hidden gem of volunteering opportunities. I'll admit, on its surface, it's not very attractive. However, once you realize the impact you can have on patients' health and the impact the clinic can have on your skills, it is hard to imagine a better gig... and if you want the icing on top, it's all yours.

Please reach out to me via [email](#)  if you have any questions related to this article or would like to get in touch with Audrey or Karma. Thank you.



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