The Changing Dynamic of Specialty Decision Making in Medical Schools: Staying Ahead of the Curve

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INTRODUCTION:

Medical training has become more specialized over the past twenty years with new residency programs being added and other programs becoming more competitive. As a result, medical schools have, at times, struggled to keep up with the rapid changes in graduate medical education. Students at CWRU school of medicine have reported feeling overwhelmed with the decision-making process. Additionally, they report not feeling confident about starting their third (clinical) year. A chief challenge is that different subspecialties have varying research components and faculty recommendations. If a student decides to enter a completely different specialty at the end of their third year, they must strongly consider a taking an extra year after 3rd year in order to successfully match. Due to the competitive nature of the match, the students feel pressure in their first two years to identify a specialty and not change.

CHOOSING A SPECIALTY

Since the early 1990's, researchers have strived to determine factors that drive medical student decision making to various specialties within medicine. With the emergence of a shortage of primary care physicians in the United States and significant changes on health policy over the past two decades, various institutions began to dedicate resources to determine what drives students to pick primary care vs non-primary care, surgery vs a non-surgical specialty, and so forth.[1]

Institutional characteristics like attending a private medical school vs a public medical school, specific curricula such as immersion weeks into different fields, summer workshops, extra-curricular opportunities, mentorship and faculty role models, lifestyle

factors, future workload and salary, and prestige have all been implicated in ultimately specialty interest.[2,3,4,5]

In 2003, Compton et al analyzed data from surveys from 942 US medical students at various points in their medical career –at first year orientation, orientation to the wards, and at the final year of medical school. Compton results showed that only 20-45% of medical students in their study chose the specialty that they had been initially most interested in. Additionally, of the students who started medical students undecided, about 70% were planning on going into a non-primary care specialty by fourth year of medical school, most of which actually fall out of the core clerkships rotated by third year medical students prior to applying to residency.[6]

One of the most critical aspects to many of the factors that influence specialty choice is the timing in which a student is exposed to these factors such as clinical experiences or mentorship within medical school. Early exposure to a particular field, even as early as prior to medical school, appears to be extremely influential on the likelihood that a student will pursue a career in that specialty.[7] Additionally, early exposure and decision allows students to not only confirm their choice with various away rotations and electives, but more specifically, the students are able to prepare for their residency application with more focused research and clinical work.

CURRENT CAREER GUIDANCE PROGRAMS

Current career guidance at Case Western Reserve University School of Medicine

1) Case Western Reserve University School of Medicine's advising core/career guidance is chiefly made up of the "society system". This system deems that students are assigned to academic societies, which are managed by a senior physician. This society dean serves as mentor, comprehensive support system, and career advisor. The society dean system allows for broad advising and support on a personal level. The deans' chief role as an advisor is to facilitate networking with mentors in one's own subspecialty. Students meet with their dean for an annual dean's meeting in the first-through third years and multiple times during the senior year of medical school. This arrangement is largely dependent on a student's initiative in making more appointments as needed for advising and assistance.
2) Pre-clinical curriculum: In an attempt to expose students to a myriad of specialties, the school of medicine has introduced a pre-clinical curriculum. This curriculum allows for longitudinal experiences during the first and second years. Students can request any specialty with the potential to identify mentors and research opportunities early.
3) Research opportunities: Previously, research opportunities were emailed by PIs to various medical school classes in a haphazard fashion. Last year, the medical school introduced a weekly research email organized by subspecialty. Anecdotally, students have found these emails helpful.
4) Partnerships with sub-specialties: Case medical school, like many schools depends heavily on sub-specialty interest groups in order to help facilitate career planning. These groups are responsible for having faculty and resident

meet-and-greets, and advising time with graduating medical students.

Standard and emerging practices in medical schools across the country

Of peer institutions in the top thirty of the US News and World Report, the majority employ a similar society dean system. This system has been shown as an effective way to give students more personal advising over a long period of time.

An emerging trend is a dual approach pairing senior medical students and faculty with incoming first year students. A study published in BMC research notes that including the vertical mentoring component increased satisfaction with career mentoring and planning. This gives students insight into the lived experiences of senior students and more 1:1 experience.[8]

Another emerging trend at Weil Cornell School of medicine is to assign faculty advisor two to three students at the beginning of the first year. This advisor serves as a career guidance and personal coach. As this program was piloted at Cornell, the majority of students met with their advisors and contacted them with regularity.[9]

Career Exploration program: Faculty at Quillen College of medicine use a three course large-group session to introduce different career choices, and small group subspecialty choices. This program targeted first year students in order to introduce them to career planning from the beginning of medical school.[10]

CURRENT CHALLENGES IN CAREER DECISION MAKING

Challenges involving curriculum

There are a few challenges unique to Case Western Reserve University. First, there are four different hospitals that a third year student can do clerkships. Each hospital has different strengths and weaknesses. Students often rely on passed down information as opposed to formalized information to identify which hospital to choose based on their specialty interests. This has been mitigated slightly in recent years with faculty giving a presentation on third year clerkships prior to selecting a hospital.

Additionally, CWRU allows students sixteen weeks of protected research time. This block is assigned in advance at different times. As a result, the students must plan and identify research mentors (ideally in specialty of interest) and plan for that time.

Furthermore, there is little-to-no advising for students who graduate with remaining uncertainty regarding their futures. Upon graduation, the new interns may have remaining doubts and there is a significant lack of advising regarding how to approach a program director with plans to change specialties.

Program Directors as a Primary Resource

One challenge for medical students is finding the best mentors who know the process of residency applications and can provide objective perspectives on a certain specialty, as well as a medical student's competitiveness in that specialty. Program directors at the home hospital(s) often fill that role for medical students, due to their ability to provide

perspectives on what residency programs are “looking for” in applicants and the established focus on teaching that comes along with the title of “Program Director.” However, there is an inherent conflict of interest when medical students seek the advice of their home hospital’s residency program directors. Even when the program director is acting in a mentor role, a medical student may be hesitant to be completely honest about their concerns about pursuing that specialty, for fear of being perceived as having a lack of passion for that field. This issue is further complicated once medical students begin the interview and rank list process, when discussing other programs with the home program director may influence the student’s standing at the home residency program.

HOW DO MEDICAL STUDENTS CHOOSE THEIR SPECIALTY?

There has been a great deal of research into the evolving process that medical students go through when choosing their medical specialty.

In 2016, CWRU School of Medicine student Ian Drummond started the “Undifferentiated Med Student” Podcast to help educate medical students on various specialties and to further empower students to independently make decisions about their future. When polling medical students on the questions they would like to know about each specialty, he found that there are three general areas that medical students seem to consider and would like to understand better:

1) The physician’s description of their specialty in their own words (including day-to-day activities, exciting vs mundane parts of the field, future changes/challenges)

2) How the physician decided their specialty was right for them (including personal/professional considerations when they were medical students, pros/cons compared to other specialties they were choosing and best ways to get exposed to their field)
3) Long term career guidance (including common mistakes experienced or seen in the field, problems that can be avoided with proper preparation)

A TALE OF TWO MEDICAL STUDENTS...

What follows are real stories of two medical students towards their specialty choice while at CWRU SOM, intended to portray the variety of ways that students can come to their final decision about specialty choice.

Medical Student 1

A first medical student, with a minor in Women's health from her undergraduate institution, comes to CWRU SOM intending to specialize in obstetrics and gynecology. Early in her first year, she participates in RAMP, an introductory rotating clinical course offered to first year medical students. For one session, she spends the day on Labor and Delivery service and experiences a delivery. The student eagerly requests women's health for her CPCP experience, a more intense clinical experience offered to rising second year students, in which students spend a half day per week with an outpatient provider. She is assigned to a high-risk obstetrician. After CPCP, the student starts to question her future in obstetrics but does not want to rule out obstetrics from one clinical experience. At the end of second year, she participates in the CWRU neuroscience

course where neurology residents participate in small group cases throughout the week. Heading into third year, the student approaches the resident from her small group for guidance on research within neurology and quickly becomes connected with research mentors and her future PI. The student starts her third year with internal medicine, which she loved and then rotated through obstetrics and gynecology, quickly confirming a career in that field was not for her. She continued her research in neurology, using Case's 4-month research block to publish a case report, work on a clinical trial, and develop and independent research project to be finished in fourth year. She finished off her third year with her neurology core clerkship, fortunately confirming that neurology was a great field for her. She completed her sub-internships and electives and matched into neurology.

Medical Student 2

A first-year medical student comes to CWRU SOM with no idea what specialty he is going to pursue. The medical student participates in RAMP and spends days on labor and delivery, in a hospice center/nursing facility, and out in the community. He signs up for various interest groups throughout first year but has yet to determine a direction to go in. He liked the cardiology block during first year so emails the internal medicine interest group leaders and gets hooked up with a distinguished cardiologist at Case affiliated hospital. The student did not request a specific CPCP experience and was placed at a family medicine practice outside of Cleveland. During second year, there was a session on disaster preparedness that seemed to intrigue the student. Third year rolls around and the student is still unsure of what specialty they want to pursue. He

liked all subjects and had interest in both surgery and medicine. The patient started his third year with internal medicine and OB/GYN and pediatrics. He continued to like everything but had still had not had a gut feeling that he had chosen the right specialty for him. The final quarter of his third year, he rotated through his core surgery clerkship. In his final week, he was assigned emergency medicine and spent a week in the emergency room. He quickly felt that emergency medicine was for him, but was unsure after only a week of rotation. He began to think about his overall application and questioned his research, his relationships and mentors, or clinical experience. Ultimately, he decided to take a year off to spend additional time exploring emergency medicine, ultimately paying the ultimate price of time and money to continue to pursue the right path.

Lessons

In the first case, the curriculum and the system worked to provide resources and mentorship at various points in medical school to guide the student to a specialty within the four-year time frame of medical school. However, the second case represents the significant amount of cases in which medical school fails to provide enough time or resources to really help students develop interest in all specialties available in today's medicine, at the pace required to build a quality residency application in a completive resident market.

NEW DEVELOPMENTS IN CAREER CHOICE AND GUIDANCE

Direct Subspecialty Residency Programs

In recent years, there has been an ongoing trend towards earlier specialization during residency. Although the decision between surgical and medical fields is often referenced as the most important early decision for medical students, there are countless possibilities for subspecialty choices after that initial decision.[11,12]

Residency Program	Year Incepted	Current Number of Residency Training Spots
Emergency Medicine	1970	1,895
Integrated Plastic Surgery	2002	152
Integrated Vascular Surgery	2006	56
Integrated Cardiothoracic Surgery	2007	42
Integrated Interventional Radiology	2013	123

POTENTIAL ADDITIONS TO GUIDANCE PROGRAMS

Utilizing Technology

The influence of technology on information gathering in the modern era has had a significant impact on the way medical students make decisions about their future specialties. Previously, there were no traditional “rankings” for residency programs, unlike research medical schools or undergraduate universities ranked by US News & World Report. However, websites like Doximity now provide rankings in a variety of specialties. Furthermore, although word of mouth remains an important factor in information gathering, more formal online career guidance options for medical students

now exist. Podcasts, such as the aforementioned “The Undifferentiated Medical Student” and “Behind the Knife,” which focuses on general surgery and surgical subspecialties, give medical students constant and expanded access to perspectives from physicians in a variety of fields. As a result, the onus is on medical school leadership to stay up-to-date on the ways technology are influencing medical specialty decision making and advise students accordingly. With boundless information, it will be crucial for students to understand which resources to value most highly and which to ignore.

Assigned Non-Program Director Advisors/Mentors

While many students seek guidance from research mentors, faculty members that they worked closely with on rotation or program directors, there is currently no formalized process for students to get career advice from a physician in the field that they are interested in. A potential solution could involve the creating formalized positions where faculty members at one of the four main hospitals, one per specialty, acts as the unbiased point person for students interested in that field. This faculty member would ideally be someone not on one of the selection committees and would therefore be in the best position to give unbiased advice. This paradigm would allow students to share their hesitations about a field and goals for residency locations without having to worry about the impact on their chances to match at a home institution. Due to such advisory positions being big time investments, it may be worthwhile to consider giving these faculty members formalized titles as advisors. While these faculty members could be helpful to all students, they likely would be most helpful to students who seek to change

fields late in their medical school career.

POTENTIAL ADJUSTMENTS TO PRE-CLINICAL CURRICULUM

Expanded Exposure and "Immersion"

With increased early specialization and the new training tracks developing in recent years, it has become difficult for medical students to even know that a specific field exists, let alone gain adequate exposure to make an informed decision about some fields as a potential future career. Therefore, we believe it should be the goal of every medical school to provide brief exposure to all major specialties during the pre-clinical years.

One option, when this goal is applied to CWRU School of Medicine, is the expansion of the Rotating Apprenticeship in Medical Practice (RAMP) Program. This pre-clinical curriculum is designed to provide early exposure to fields, such as Obstetrics/Gynecology, Palliative Medicine and Pediatrics, which are not typically addressed with a clinical focus during the first two years of medical school. A crucial facet of this program is that students learn the importance of communication with patients at difficult and important times in their lives, such as during development, during pregnancy and during their final months of life. We believe there is a natural opportunity for expansion of this program while maintaining the quality of the current RAMP experiences. Some fields with the most competitive residencies, such as Radiation Oncology, Dermatology and some surgical subspecialties, lend themselves to one day or even one afternoon observerships, given the proper commitment from

medical school faculty. The simple act of shadowing in clinic and speaking to an expert in the field may open a medical student's eyes to a field they would not otherwise consider, at a crucial time in their medical education.

Other paradigms for broad pre-clinical exposure to the various specialties in medicine exist across the country, although the evidence to support their success is lacking in the literature. Many medical schools require two or four week rotating preceptorships during or after the second pre-clinical year. At some programs, students spend just one or two days shadowing in a wide variety of specialty clinics. The logistics of these programs seem to be quite effective, because a faculty member can expect to have a different medical student, all of whom are at the same point in their education, rotating with them every day during that period of time. This allows faculty members to tailor their teaching and even schedule their clinics accordingly.

Again, applying these paradigms to CWRU School of Medicine, the current "Clinical Immersion Week" structure offers many similar opportunities to pre-clinical rotating preceptorships. Students are encouraged to make connections between basic science and clinical medicine in all the systems and associated medical fields being studied during that block. Adjustments and expansion to current "Clinical Immersion" programs could create excellent opportunities for medical students to be exposed to more broad specialties and the daily routines associated with each of them. For example, during Block 2 Clinical Immersion, it could be a goal to have students shadow for a half day each in Medical Oncology, Radiation Oncology and Surgical Oncology clinics, in

addition to sitting in on Tumor Board at one of the affiliated hospitals that week. Currently, a student may be interested in cancer care, but not realize until their third year that there are three different residency tracks that lead to a career in Oncology. Not only would students be able to make more educated decisions about their future specialties, but they would also have a better understanding of the various physicians that make up a patient care team.

POTENTIAL ADJUSTMENTS TO CLINICAL CURRICULUM

One challenge for all medical schools is how to best fulfill the LCME requirements of the core clinical curriculum, while allowing time for advanced clerkships and other rotations that are commonly scheduled for the final year of medical school. According to the NRMP's survey of program directors in 2016, 88% of PD's cited "Letters of recommendation in the specialty" and 66% cited "Audition elective/rotation within your department" as important factors when considering an applicant to their medical school. However, most rotations that lead to letters of recommendation, such as acting/sub-internships and nearly all audition electives occur after the core clinical curriculum.[13] Depending on the schedule of each medical student's core rotations, this may leave only two or three months before the residency application deadline to complete crucial advanced electives in a specialty, travel for externships and acquire strong letters of recommendation, all of which are some of the most important factors considered by evaluators of medical students.

One clear strength of the CWRU School of Medicine clinical curriculum is the

opportunity to defer part of the required sixteen-week research block into the fourth year of medical school and schedule earlier acting internships and externships, most commonly during May and June of the third year. Members of our AOA class who elected to utilize this option cited decreased stress about their residency applications, better opportunities to schedule away electives at their program of choice and perceived stronger relationships with the faculty members who wrote their letters of recommendation.

CONCLUSIONS

The process of choosing a medical specialty is more complex than ever before, with more specialties requiring an early interest and commitment, and with competitiveness at an all-time high. Researchers and medical educators are only just beginning to understand the dynamic process that students must go through in deciding which residency, and therefore lifelong career path, to pursue. When examining the experience of large groups of medical students or simply listening to individual anecdotes, it becomes clear that there are crucial steps and even specific moments that have a profound impact on future decision making. Case Western Reserve University School of Medicine, and many highly regarded medical schools like it, are poised to lead students to the correct future path both directly via targeted mentorship and indirectly via broad experiences. As medical specialties and their associated training paradigms evolve, so too must medical schools in order to best serve their students and stay ahead of the curve.

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