

## Residency Selection Criteria: What Medical Students Perceive as Important

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**Abstract – Background:** Little is known about medical students' perceptions of which criteria are important in residency selection. Student knowledge of this process may affect their education and their ability to obtain the residency of their choice.

**Objective:** To determine the perceived importance among medical students of various selection criteria for residency.

**Design, Setting and Participants:** Medical students at three institutions were asked to rate the importance of various residency selection criteria using a web-based survey instrument.

**Main Outcome Measures:** Sixteen residency selection criteria were included in the survey.

**Results:** The overall response rate was 49.2%. Criteria perceived as extremely important by the majority of students were the interview (80.6%), grades in third and fourth year courses in their chosen specialty (73.3%), letters of recommendation excluding the Dean's letter (65.3%), and grades in third and fourth year clerkships (55.9%). USMLE Step 1 score (46.7%) was viewed as extremely important by many students. Moderately important: grades in fourth year electives not in their chosen specialty (57.3%), medical school's reputation (50.5%), number of honor grades (49.0%), USMLE Step 2 score (42.3%), and Dean's letter (41.1%). Mildly/not important: grades in the first and second years (56.8%), academic awards (55.2%), extracurricular activities (52.6%), research (50.9%), class rank (49.3%), and AOA (46.5%). Students in the clinical years of training were more likely to place importance on honors grades ( $p=0.04$ ) and AOA ( $p=0.009$ ) and were less likely to place importance on grades in fourth year electives not in their chosen specialty ( $p<0.0001$ ), scores on USMLE Step 1 ( $p=0.0003$ ), USMLE Step 2 ( $p<0.0001$ ), and Dean's letter ( $p<0.0001$ ).

**Conclusions:** Misperceptions about which criteria are important in residency selection are common among medical students. Many overestimate the importance of subjective criteria while undervaluing objective criteria.

The process of residency selection can be mysterious to medical students and anxiety provoking for applicants and residency programs alike. Today's students face a more strenuous path to residency than their predecessors. The average amount of debt accrued during medical school has increased, often prodding students to pursue specialties and residency programs that they otherwise might not have considered.<sup>1</sup> The declining interest in primary care nationally has also resulted in increased competition for positions in many residency programs across the country.<sup>2</sup>

The competitive environment surrounding the process of obtaining a residency has developed gradually over the past 20 years, and the criteria which program directors use to select candidates have changed. A survey of residency program directors conducted in 1979 found that the interview was construed as the most important selection criterion.<sup>3</sup> Other important criteria at that time included the

Dean's letter, other letters of recommendation, and honors grades in clinical clerkships. Scores on the national board examination and membership in Alpha Omega Alpha Honor Medical Society (AOA) were considered to be of lesser value.

By the 1980's, academic criteria had become more important. In a 1986 survey of program directors, the interview was still considered the most heavily weighted variable. However, 46% of program directors said that they relied primarily on academic records to select candidates for an interview, and 86% claimed that they would not rank a candidate who had failed part 1 of the national board examination and had not passed it prior to the interview.<sup>4</sup>

The emphasis on quantitative academic criteria has continued to increase. Previous studies identify criteria such as honors in the rotation of the chosen specialty as highly important, and more weight has

been placed on United States Medical Licensing Exam (USMLE) Step 1 scores in both primary care and non-primary care residencies.<sup>5-10</sup> More competitive surgical specialties value quantitative data even more than their less competitive counterparts.<sup>5,7,9</sup> In recent years, program directors view Dean's letters and other letters of recommendation as unimportant and in need of improvement.<sup>9,10</sup>

Very little is known about what current criteria students perceive as important to obtaining a residency position. Earlier studies have tried to assess student perceptions of which selection criteria are important.<sup>11,12</sup> A 1983 study of 100 students interviewing for a residency position at a single psychiatry program found that students rated the interview and letters of recommendation from clerkship supervisors as most important.<sup>11</sup> A later study in 1992, which surveyed third year medical students at one institution, found that students believed that the interview, letters of reference, attitude, academic skills, and communications skills were most important.<sup>13</sup> Finally, a 1995 survey of graduating seniors at one institution found that students rated the interview, letters of recommendation, academic performance, and communication skills as the most important factors of their applications.<sup>5</sup>

As students begin to focus on career decisions, it is important to discern which criteria they feel are important for obtaining the residency of their choice. A better understanding of students' perceptions and misconceptions about resident selection can enhance student advising and their approach to applying for residency. The aim of this study is to investigate the attitudes of medical students towards specific residency selection criteria.

## Methods

An anonymous web-based questionnaire was distributed via electronic mail during the fall of 2002 to all medical students at a convenience sample of 3 medical schools: University of Colorado School of Medicine, University of Utah School of Medicine, and Vanderbilt University School of Medicine. Students were asked to rate how important they think various criteria are for obtaining the residency position of their choice on a 4-point Likert scale: extremely, moderately, mildly, or not important. Students were also asked their year in medical school and which specialty they were planning to enter, if known. The questionnaire and survey protocol were

**Table 1 – Medical Student Characteristics**

Year in medical school*	N (%)
1	143 (21.0)
2†	171 (25.1)
3	165 (24.2)
4	178 (26.1)
Chosen Specialty‡	
Unknown	111 (16.3)
Surgery/Surgical Subspecialty	107 (15.7)
Internal Medicine/Medical Subspecialty	99 (14.5)
Family Medicine	63 (9.3)
Pediatrics/Pediatric Subspecialty	62 (9.1)
Emergency Medicine	59 (8.7)
Other	48 (7.0)
Anesthesiology	31 (4.6)
OB	19 (2.8)
Radiology	18 (2.6)
Psychiatry	15 (2.2)
Dermatology	12 (1.8)
Neurology	11 (1.6)

\*Missing = 24 (3.5%) did not identify year of training

†Includes MD/PhD students who have not started their clinical clerkships = 67 (9.8%)

‡Missing = 26 (3.8%) did not identify planned specialty

approved by the institutional review boards at all three institutions.

Results were analyzed using SAS (version 8, SAS Institute, Inc., Cary, NC). Respondents' impressions of level of importance for each item were compared across institutions using chi-square tests. Results from all schools were then combined and were analyzed using three Likert scale levels, with responses of mildly and not important combined. Competitiveness of chosen specialty was determined using data from the National Residency Matching Program 2002.<sup>14</sup> Those considered to be most competitive were those which had greater than 90% fill rates in 2002 and included anesthesiology, dermatology, radiology, orthopedic surgery, otolaryngology, and ophthalmology. Student responses were also analyzed by year in school (first and second years versus third and fourth years) as well as by competitiveness of chosen specialty, excluding those who were undecided.

## Results

Questionnaires were distributed to 1,383 students at the 3 schools and were returned by 681 students for an overall response rate of 49.2%. The

respondents included 338 of 528 students at the University of Colorado (response rate 64.0%), 205 of 412 students at the University of Utah (response rate 49.8%), 115 of 443 students at Vanderbilt University (response rate 26.0%) and 24 (3.5%) respondents did not indicate their medical school but were included in the analyses. Students were approximately evenly distributed between the 4 years of medical school, with those in MD/PhD programs being included in the second year group since they had not started clerkships (Table 1). The largest proportion of students (16.3%) indicated that they had not yet decided on a specialty, with the next largest groups of intended specialties being surgery/surgical subspecialties (15.7%), internal medicine (14.5%), family medicine (9.3%), pediatrics (9.1%), and emergency medicine (8.7%). There were no significant statistical differences in the responses between students at different schools. Thus, we chose to combine the data for all students in order to maintain clarity (Table 2).

Criteria perceived as extremely important by the majority of students were the interview (80.6%), grades in courses in their chosen specialty (73.3%), letters of recommendation excluding the Dean's letter (65.3%), grades in third and fourth year clerkships (55.9%), and USMLE Step 1 score (46.7%). Those considered moderately important included grades in other fourth year electives not in their chosen specialty (57.3%), their medical school's reputation (50.5%), total number of honor grades (49.0%), USMLE Step 2 score (42.3%), and the Dean's letter (41.1%). Criteria considered mildly or not important by most students included grades in the first and second years of medical school (56.8%), academic awards (55.2%), extracurricular activities (52.6%), published research (50.9%), class rank (49.3%), and membership in AOA (46.5%).

Students in the clinical (third and fourth) years of training were more likely to place importance on number of honors grades (67.7% rated as extremely or moderately important vs. 60.0% of preclinical students,  $p=0.04$ ) and AOA membership (57.6% vs. 47.5%,  $p=0.009$ ) and were less likely to place importance on grades in fourth year electives not in their chosen specialty (34.4% rated as mildly or not important vs. 20.3% of preclinical students,  $p<0.0001$ ), scores on USMLE Step 1 (16.4% vs. 7.3%,  $p=0.0003$ ), USMLE Step 2 (47.1% vs. 26.8%,  $p<0.0001$ ), and the Dean's letter (26.0% vs. 10.8%,  $p<0.0001$ ). There were no significant differences among students by competitiveness of chosen specialty.

## Discussion

This survey demonstrates that misperceptions about criteria important in residency selection are common among medical students. Criteria that students rate as important include letters of recommendation, grades in the clinical years, USMLE scores, number of honor grades, and students' self assessment of medical school reputation. Criteria not felt to be important by students include grades in the preclinical years, medical school awards, extracurricular activities, research, class rank, and AOA status. In addition, perceptions of what is important do appear to change between the preclinical and clinical years. Preclinical students are more likely to understand the importance of scores on USMLE Step 1, which is important to note, given that they have not yet taken the exam. Clinical students placing less value on USMLE Step 1 may be a reflection of the fact that the exam is behind them, and they cannot change their score. However, a lack of understanding of its importance, and how it may affect their selection, may lead to inaccurate understanding of how competitive they are as residency candidates.

How well students understand the importance of their overall academic performance is more complex. Most students understood that grades in third year clerkships, especially in their chosen specialty, are extremely important. However, most placed little value on other criteria which reflect overall academic performance such as grades in the first 2 years, class rank, and membership in AOA. Only a small minority felt that the number of honors grades is extremely important. Students focus most importance on performance in their clinical years and especially in their chosen specialty. If such selective emphasis causes students to work less hard in other areas, it could be to the detriment of their overall achievement and to their desirability as applicants.

The study has several limitations. The potential for non-response bias is significant because the survey was anonymous, and there is no information on non-responders. However, the response rate of nearly 50% does allow conclusions to be drawn about the beliefs of many students. Only students at 3 schools were surveyed, and thus the findings cannot be generalized to all students at all institutions. No information on the age, gender, or ethnicity of students and how perceptions may vary in association with these characteristics was collected.

**Table 2 - Students' Perceived Importance of Criteria for Residency Selection\***

<b>Criteria</b>	<b>Extremely important N (%)</b>	<b>Moderately Important N (%)</b>	<b>Mildly or Not Important N (%)</b>	<b>Items rated as more (+) or less (-) important by clinical students than non-clinical students</b>
Interview	549 (80.6)	105 (15.4)	20 (2.9)	Not significant (NS)
Grades in Courses in Chosen Specialty	499 (73.3)	157 (23)	21 (3.1)	NS
Other Letters of Recommendation (not Dean's Letter)	445 (65.3)	199 (29.2)	33 (4.8)	NS
Grades in Required 3 <sup>rd</sup> and 4 <sup>th</sup> Year Clinical Clerkships	381 (55.9)	268 (39.4)	26 (3.8)	NS
USMLE Step 1 Score	318 (46.7)	276 (40.5)	83 (12.2)	-
Dean's Letter	265 (38.9)	280 (41.1)	129 (18.9)	-
USMLE Step 2 Score	135 (19.8)	288 (42.3)	252 (42.7)	-
Medical School Reputation	111 (16.3)	344 (50.5)	218 (32)	NS
AOA Membership	103 (15.1)	257 (37.7)	317 (46.5)	+
Grades in Other 4 <sup>th</sup> Year Electives	98 (14.4)	390 (57.3)	187 (27.5)	-
Number of Honors Grades	100 (14.7)	334 (49)	241 (35.4)	+
Published Research	91 (13.4)	237 (34.8)	247 (50.9)	NS
Class Rank	63 (9.3)	272 (39.9)	336 (49.3)	NS
Extracurricular Activities	62 (9.1)	254 (37.3)	358 (52.6)	NS
Academic Awards	35 (5.1)	264 (38.8)	376 (55.2)	NS
Grades in First 2 Years	36 (5.3)	252 (37)	387 (56.8)	NS

\* Not all respondents answered every item on the questionnaire.

The most recent surveys of program directors clearly show that greater value is uniformly assigned to academic criteria by all specialties.<sup>4, 5, 8</sup> The 1999 study separates medical specialties into 3 categories (very competitive, moderately competitive, or mildly competitive) based on fill rates of the residency programs.<sup>2</sup> The most competitive specialties rank grades in required clerkships, total number of honors grades, and class rank as the 3 most important factors

in considering a candidate. These specialties also place a great deal of importance on membership in AOA and scores on USMLE Step 1. Likewise, both the moderately and mildly competitive specialties rank grades in required clerkships, grades in senior electives of the student's chosen field, number of honors grades, and class rank as the most important criteria used in selecting students.

There are significant differences between program directors' and medical students' perceptions of which factors are important in the residency selection process. Students undervalue the objective criteria favored by residency directors while overvaluing subjective criteria. Specifically, students place less importance on USMLE scores, number of honors grades, class rank, and membership in AOA, while overestimating the importance of the interview and letters of recommendation. Even though a majority of students (55.9%) indicate that grades in required third year clerkships are extremely important, a significant minority (39.4%) indicate that these grades are only moderately important. Most students do appear to understand the importance of grades in their chosen specialty, but not as many recognize the overall importance of grades in other clerkships or of grades in the preclinical years.

The reasons for many students' lack of understanding of the criteria which program directors find important cannot be ascertained from our study. One possibility is a lack of appropriate advising, but it is also possible that students do not process advice they receive from advisors. In addition, they may gather information from other sources such as residents, students, or others who are not directly involved in residency selection or do not have knowledge of what program directors value most. Further study to ascertain the reasons for students' perceptions is warranted.

Medical students have perceptual differences about the importance of criteria in residency selection. Many overestimate the importance of subjective criteria while undervaluing objective criteria. Knowledge of students' differing perceptions can assist medical schools in orienting students to the importance of certain aspects of their education throughout medical school, and more importantly, can be useful in advising students during the stressful residency selection process. Education of students regarding the criteria by which they will be judged when applying for residency should begin early in their training. Emphasis on students' performance in the classroom, on the wards, and on the national boards should be emphasized. Those in the role of advising students should also be made aware of potential misperceptions among their advisees.

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### **Acknowledgements**

We would like to acknowledge the assistance of the Associate Deans of Student Affairs at the University of Utah School of Medicine, Elizabeth Allen, MD and at Vanderbilt Medical School, Bonnie Miller, MD.

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