

110 The Right Stuff: Can Selection Criteria Predict Success in Emergency Medicine

Residency Training?

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Background: The resident selection process involves consideration of multiple criteria to predict which applicants will successfully complete residency and become competent physicians. Many studies have sought to determine which of these criteria predict success, with only limited data in the field of Emergency Medicine (EM).

Objectives: This study sought to identify medical student characteristics that predict success in and completion of an EM residency.

Methods: This was a retrospective review of medical student and resident data from a large academic 3-year EM residency.

Subjects: All EM residents who matched between the years 2004-2013.

Observations: A single reviewer reviewed ERAS applications to extract 19 variables from each application. This same individual interviewed 16 faculty and asked them to assign each resident an overall assessment score – from 1 (best) to 3 (worst) as well as a ranking of each individual from 1 (best) to number of residents in their graduating class (worst). Simple linear regression models were used to determine which variables predicted higher rankings by the faculty. Wilcoxon Rank Sum and Fisher's Exact tests were used to compare residents who did not complete the program.

Results: A total of 152 residents met our study criteria; 25 were excluded due to incomplete data available, leaving a total of 127 subjects. Total application score, Step 2 CK score, AOA status, outstanding Dean's letter and medicine clerkship grade were significant ($p < 0.05$) predictors of overall assessment and class rank in univariate models. Mean interview score ($p = 0.003$) and basic science scores ($p = 0.04$) were predictors of overall assessment alone in univariate models. No variables predicted failure to complete residency ($n = 6$).

Conclusions: Some applicant variables may show predictive value of resident clinical competency as measured by faculty assessment. The limitations of this study include its sample size and retrospective nature.

Table 1: Selection Criteria

Variable	Level	N	Mean ± SD (min,max) or N (%)
Total Sheet Score		124	63.7 ± 9.0 (40.6, 90.0)
Mean Interview Score		122	19.6 ± 2.4 (13.0, 25.0)
Mean Letter of AOA		119	3.8 ± 0.5 (2.5, 5.0)
	1	127	11 (8.7%)
	0		116 (91.3%)
Step 1 Score	Above Mean	126	64 (50.8%)
	Below Mean		62 (49.2%)
Step 2 Score	Above Mean	111	75 (67.6%)
	Below Mean		36 (32.4%)
Medical School Rank	Foreign/Unknown/Osteopathic	124	19 (15.3%)
	Low Reputation		8 (6.5%)
	Fair Reputation		22 (17.7%)
	Good Reputation		70 (56.5%)
	Outstanding Reputation		5 (4.0%)
Basic Science	Any marginal or failing grades	124	10 (8.1%)
	All pass grades		30 (24.2%)
	Mix of pass, high pass, and rare honors		59 (47.6%)
	Mostly high pass and honors		18 (14.5%)
	Mostly honors, AOA		7 (5.7%)
Overall Performance Clerkships	Any marginal or failing grades	124	8 (6.5%)
	All pass grades		14 (11.3%)
	Mix of pass, high pass, and rare honors		62 (50.0%)
	Mostly high pass and honors		36 (29.0%)
	Mostly honors, AOA		4 (3.2%)
EM Clerkship	Fail	115	0
	Pass		15 (13.0%)
	High Pass		52 (45.2%)
	Honors		48 (41.7%)
Med Clerkship	Fail	117	1 (0.9%)
	Pass		50 (42.7%)
	High Pass		43 (36.8%)
	Honors		23 (19.7%)
Surgery Clerkship	Fail	118	3 (2.5%)
	Pass		53 (44.9%)
	High Pass		40 (33.9%)
	Honors		22 (18.6%)
Exemplary Characteristics	Yes	127	28 (22.1%)
	No		99 (78.9%)
Dean's Letter	Concerns Raised, lower 10%	124	0
	Good Candidate, lower 1/3		26 (21.0%)
	Very Good Candidate, middle 1/3		50 (40.3%)
	Excellent Candidate, upper 1/3		35 (28.2%)
	Outstanding Candidate, AOA top 10%		13 (10.5%)
Research/Leadership Roles	No research background; or no known leadership roles	124	5 (4.0%)
	2		41 (33.1%)
	Some research background and at least 1 publication; or some leadership roles		59 (47.6%)
	4		16 (12.9%)
	Strong background with publications; or many leadership roles in diverse endeavors		3 (2.4%)
Personal Statement	Poorly Written, questions are raised concerning intent	124	23 (18.6%)
	Adequate or typical statement		92 (74.2%)
	Clear, well-written, impressive		9 (7.3%)

Table 2: Simple Linear Regression Univariate Models

Variable	Level	Overall Assessment (p-value)	Class Rank (p-value)
Total Sheet Score (percentile)	--	0.0106*	0.0037*
Mean Interview Score	--	0.0029*	0.0812
Mean Letters of Recommendation	--	0.2989	0.1462
Step 1 Score	Above Average	0.5014	0.6953
Step 2 Score	Above Average	0.0246*	0.0181*
AOA	In AOA	0.0038*	0.0010*
Exemplary Characteristics	Yes	0.1213	0.3479
Medical School Rank (baseline Outstanding Reputation)	Foreign/Unknown/Osteopath	0.8267	0.9096
	Low Reputation	0.7748	0.8265
	Fair Reputation	0.8775	0.6583
	Good Reputation	0.6865	0.8290
Basic Science (baseline 'All Pass Grades')	Any marginal or failing grades	0.8073	0.4789
	Mix of pass, high pass, and rare honors	0.3615	0.8952
	Mostly high pass and honors	0.3862	0.2888
	Mostly honors, AOA	0.0402*	0.1144
Overall Performance Clerkship (baseline 'All Pass Grades')	Any marginal or failing grades	0.7278	0.5078
	Mix of pass, high pass, and rare honors	0.4978	0.5079
	Mostly high pass and honors	0.3658	0.3993
	Mostly honors, AOA	0.0835	0.0535
Dean's Letter (baseline 'Very Good Candidate (middle 1/3)')	Good Candidate, lower 1/3	0.8022	0.8716
	Excellent Candidate, upper 1/3	0.6319	0.9046
	Outstanding Candidate, AOA top 10%	0.0191*	0.0393*
Research/Leadership Roles (Baseline 'Some research background and at least 1 publication; or some leadership roles')	No research background; or no known leadership roles	0.9106	0.9782
	2	0.7743	0.3822
	4	0.6937	0.8183
	Strong background with publications; or many leadership roles in diverse endeavors	0.6537	0.8028
Personal Statement (Baseline 'Adequate or typical statement')	Poorly Written, questions are raised concerning intent	0.5538	0.6957
	Clear, well-written, impressive	0.9706	0.7735
Med Clerkship (Baseline Honors)	Fail or Pass	<0.0001*	0.0003*
	High Pass	0.2908	0.2425
EM Clerkship (Baseline Honors)	Pass	0.7975	0.7504
	High Pass	0.8152	0.4318
Surg Clerkship (Baseline Honors)	Fail or Pass	-0.20	0.9660