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## Factors Affecting Emergency Medicine Residency Applicant Perceptions of Competitiveness and Number of Applications Submitted

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## Methotrexate Is Associated With Reduced Cardiovascular Risk in U.S. Veterans With Rheumatoid Arthritis Independent of Disease Activity Modification

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**Mentor:** Bryant R. England

**Program:** Internal Medicine, Division of Rheumatology

**Type:** Original Research

**Background:** Rheumatoid arthritis (RA) patients are at increased risk of cardiovascular disease (CVD). Methotrexate, a mainstay in RA treatment, appears to mitigate this risk, though the mechanism of this benefit is unclear.

**Methods:** We observed a cohort of Veterans with RA for incident CVD from 4/2005 to 4/2015. A composite of acute myocardial infarction (AMI), coronary revascularization, stroke, and heart failure hospitalization

(CHF) was identified using administrative data and validated by medical record review. Baseline and time-varying covariates were assessed using registry and administrative data. Methotrexate exposure was defined by linkage with pharmacy dispensing data. Marginal structural models, incorporating time-varying confounders into the propensity to receive methotrexate, were used to assess the association of methotrexate with CVD. To examine whether association of methotrexate with CVD was mediated through disease activity modification, we used sequential Cox models including post-methotrexate disease activity.

**Results:** Over 9,490 person-years of follow up, incidence of composite CVD events (n=357) was lower in methotrexate-exposed

patients (incidence rate ratio 0.82). In marginal structural models, methotrexate was associated with reduced risk of composite CVD (hazard ratio [HR] 0.72) and CHF (HR 0.40). In sequential Cox models, adjustment for post-methotrexate disease activity did not alter its association with CVD events (range  $\Delta$  HR -0.03 to 0.01).

**Conclusion:** Methotrexate was associated with reduced composite CVD and CHF, independent of disease activity. Modification of RA disease activity was not a primary driver of lower CVD risk, suggesting a directly beneficial effect of methotrexate that should be considered when modifying treatment regimens in RA patients. ■

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## Factors Affecting Emergency Medicine Residency Applicant Perceptions of Competitiveness and Number of Applications Submitted

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**Mentor:** Aaron Barksdale

**Program:** Emergency Medicine

**Type:** Original Research

**Background:** Applicants to emergency medicine (EM) residency applied to an average of 56.6 programs each in 2018, more than double the number compared to one decade ago.

**Methods:** Fourth-year medical students (n=132) attending the Emergency Medicine Residents' Association Medical Student Forum at the 2018 Scientific Assembly were asked to complete a 24 question survey. Response rate was 80.2%. Students who were IMGs, couples or military matching, had not taken Step 1, or had not completed or received their grade from at least one EM rotation were excluded (leaving n=72). Descriptive and summary statistics were used.

**Results:** The median Step 1 score was 226.3, and 15.9% were AOA. Students were 61.1% MD and 38.9% DO. Step 1 scores decreased perceptions of competitiveness for 53%, while increasing perception in 35%. Feedback from EM mentors and rotations (75% and 71%), leadership and

extracurricular activities (67% and 66%), and Standardized Letter of Evaluation (SLOE) strength (65%) contributed to increased perception of competitiveness (Figure 1). The most common factors increasing applications submitted included; EM is becoming more competitive (83%), lack of SLOE transparency (70%), belief they are less competitive than the average applicant (69%), or unsure about their competitiveness (66%).

**Conclusions:** Step 1 scores caused more than half of applicants to decrease their perception of competitiveness. Feedback from EM mentors and EM rotations increased applicants' perception of competitiveness. The top three factors increasing residency applications were the belief that EM is becoming more competitive, lack of SLOE transparency, and an applicant's belief that they are less competitive. ■

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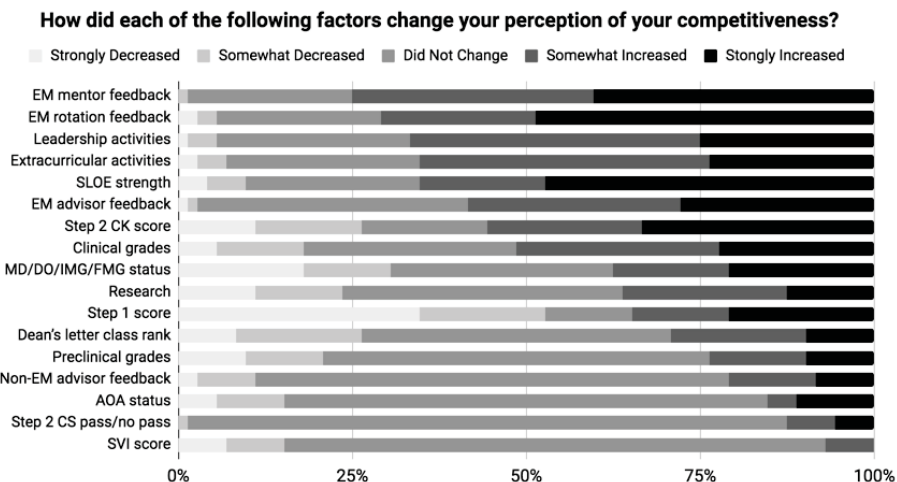


Figure 1. Factors that changed applicants' self-perception of competitiveness. (n=72)