The Relationship between Performance on the International Foundations of Medicine® (IFOM®) Clinical Science Examination and the United States Medical Licensing Examination® (USMLE®) Step 2 Clinical Knowledge Examination for International and US Medical Students and Graduates
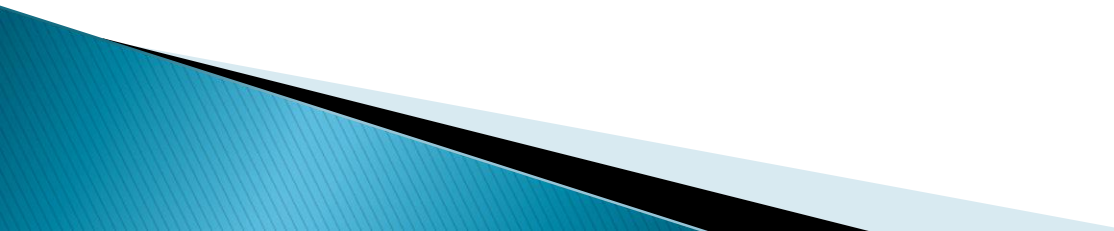
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Background

- NBME® International Foundations of Medicine® (IFOM®) program provides medical schools internationally with tools for measuring examinees' understanding of the medical sciences

- IFOM Clinical Science Examination (CSE) assesses the medical knowledge and understanding of clinical science considered essential for the provision of safe and effective patient care
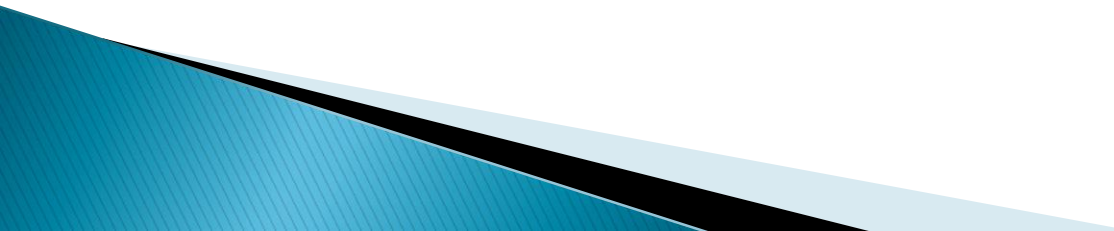
Background

- IFOM CSE is intended to determine an examinee's relative areas of strength and weakness in general areas of clinical science

- Medical schools use for both formative and summative purposes – low stakes

- Also used to make decisions for residency program selection – high stakes

Background

- Examinees receive a total test scale score and graphical profiles that show strengths and weaknesses in various content areas

- Medical schools receive various reports about performance of their students relative to an international comparison group that includes examinees from various regions of the world

- Many IFOM CSE items were previously used on USMLE® Step 2 Clinical Knowledge (CK) and there is substantial overlap in content coverage

Research Questions

- What is the relationship between performance on IFOM CSE & USMLE Step 2 CK?

- Does the relationship differ for students/graduates of international medical schools (IMGs) vs. students/graduates of US medical schools (USMGs)?

- Does the relationship differ when the exam is taken in a high stakes context vs. a low stakes context?

Method

- Matched IFOM CSE score data to USMLE Step 2 CK score data
    - Selected IFOM CSE attempts between 5/13/2010 and 11/20/2013
    - Selected records in which first Step 2 CK attempt was after IFOM CSE attempt
    - Eliminated IFOM CSE records with >20% missing responses
    - Final N=665

Method

- Linear regression analyses to investigate relationship between IFOM CSE and Step 2 CK performance based on IMGs vs. USMGs

- Linear regression analyses to investigate relationship between IFOM CSE and Step 2 CK performance based on IMG/USMG status and stakes

- Logistic regression analyses to investigate probability of passing first Step 2 CK attempt based on IFOM CSE score for IMGs (high and low stakes) and USMGs (low stakes)
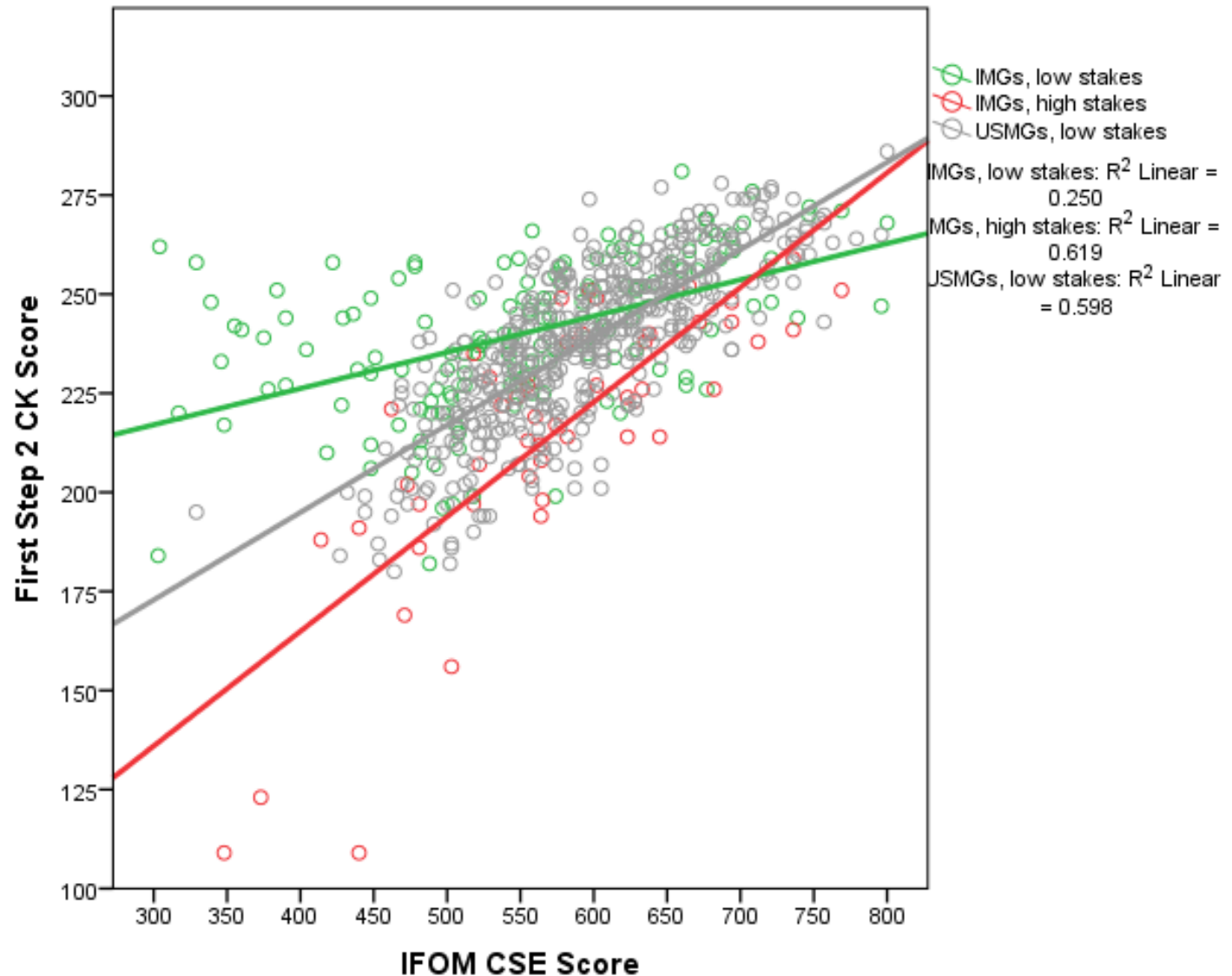
Results

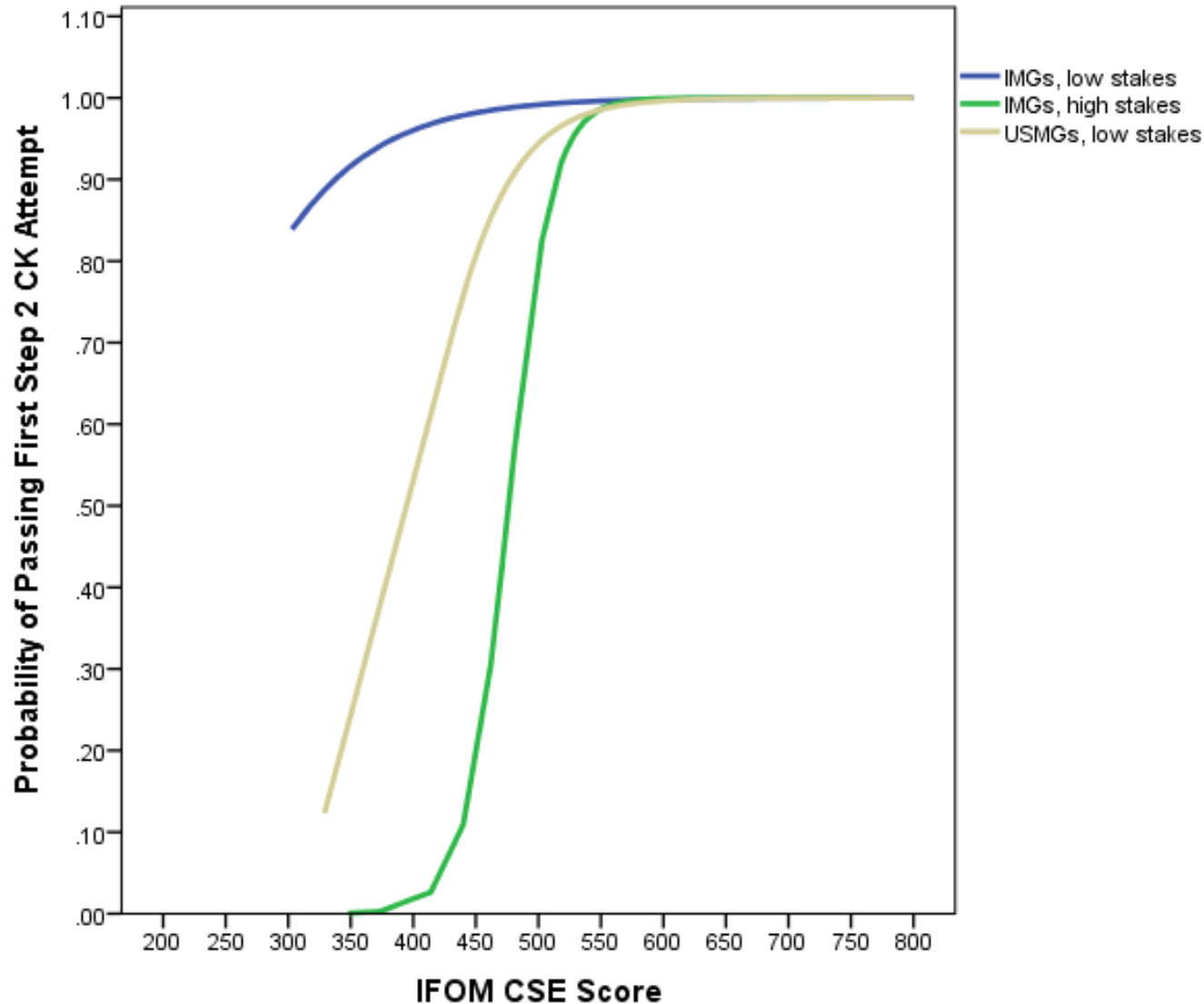| Group	N	IFOM CSE Score Mean	IFOM CSE Score SD	Step 2 CK Score Mean	Step 2 CK Score SD
IMGs	201	557	102	234	26
Low Stakes	151	553	105	240	19
High Stakes	50	572	92	215	34
USMGs	464	595	71	238	20
Low Stakes	464	595	71	238	20
Total Group	665	583	84	237	22

Results

- USMGs only: $R^2 = .60$ – only low stakes
- IMGs only: $R^2 = .23$ – low & high stakes

- IMGs low stakes: $R^2 = .25$
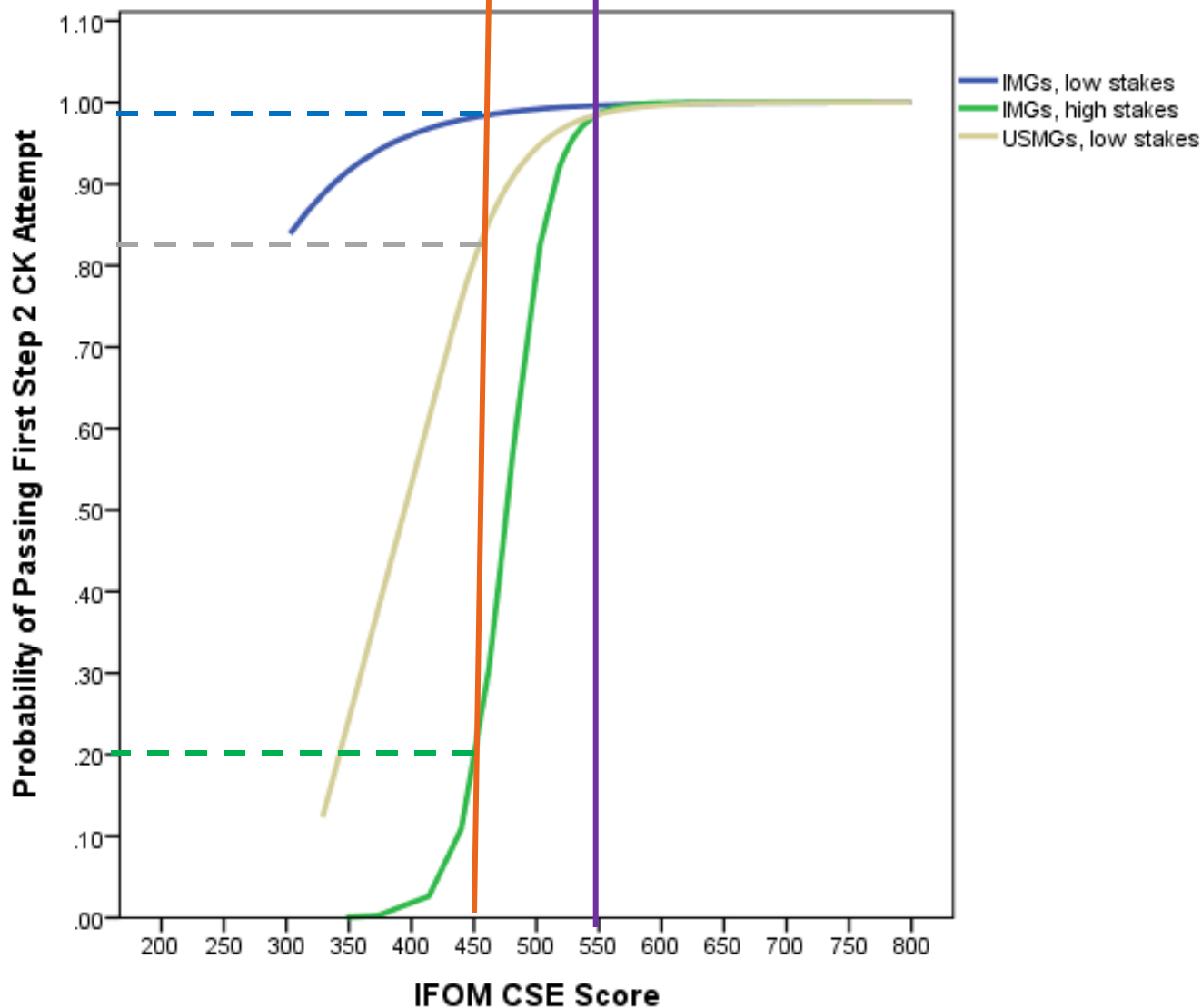- IMGs high stakes: $R^2 = .62$

Relationship between IFOM CSE Score & Step 2 CK Score

Probability of Passing First Step 2 CK based on IFOM CSE Score

Probability of Passing Step 2 CK based on IFOM CSE Score

Conclusions

- Stakes important when interpreting relationship for IMGs

  ○ IMGs testing in low stakes context are a diverse group in terms of training and curriculum

  ○ Motivation may also be an issue for some IMGs testing in low stakes context

- Moderate relationship between IFOM CSE performance and Step 2 CK performance for IMGs testing in high stakes context

  ○ Magnitude similar to magnitude found for USMGs testing in low stakes context in this study as well as for USMGs and IMGs who took NSAS Clinical Science Self-Assessment prior to Step 2 CK (Morrison et. al, in press, *Teaching and Learning in Medicine*)

Limitations

▸ Generalizability

  ◦ Select group of international and US medical schools that use IFOM CSE

  ◦ Select group of international residency programs that use IFOM CSE

  ◦ Select group of international students who take USMLE Step 2 CK

  Thank you!

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