The background of the slide features a large, circular seal of the University of Nebraska College of Medicine. The seal is composed of various colored segments (red, blue, green, yellow) and contains several smaller circular emblems. One central emblem depicts a building, and another shows a caduceus. The text "COLLEGE OF MEDICINE" and "UNIVERSITY OF NEBRASKA" is visible within the seal's design.

Investigating a Method to Compensate  
for the Selectivity of Undergraduate  
Colleges in Medical Education  
Research: A Study from One School

Hugh Stoddard, M.Ed., Ph.D.  
University of Nebraska  
College of Medicine

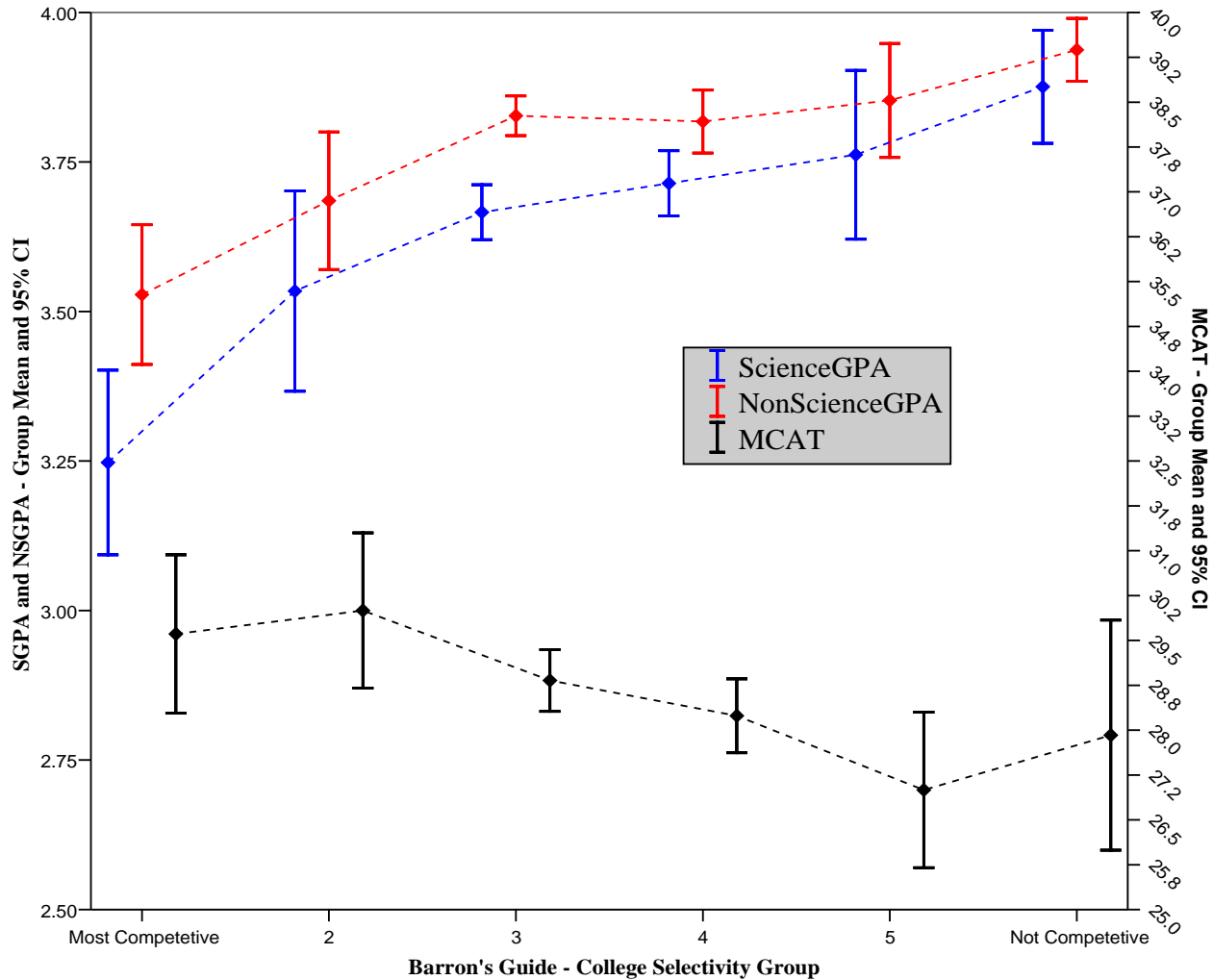


# CONTEXT OF THE STUDY

- Not an admissions study
  - population includes only *admitted and matriculated* students
  - results cannot be generalized to applicant pool
- Conducted to facilitate educational research
  - for use in medical school program evaluation
  - objective is to know the “starting point” for each student when entering medical school
    - isolate student outcomes which can be attributed to medical school education
      - *ceteris paribus* for incoming students
    - evaluate differential impact of programs on diverse students

# PRIMA FACIE

*Mean GPA and MCAT by Undergraduate College Selectivity*



# ADJUSTING THE GPA

$$\text{adjustedGPA} = \text{actualGPA} * \text{multiplier}$$

$$\text{multiplier} = \frac{\text{harmonic grand mean of GPA}}{\text{mean GPA of Barron's group}}$$

e.g. for *Barron's* "Most competitive" group

$$\text{multiplier} = \frac{3.704891}{3.391304} = 1.092468$$

a student with actualGPA = 3.50 has adjGPA = 3.82

# CORRELATIONS WITH OUTCOMES

**Figure 2**

Zero Order Pearson Correlation Coefficients for GPA and adjGPA

		SGPA	adjSGPA	NSGPA	adjNSGPA
MCAT	r value	0.07	0.14	0.03	0.09
	sig. (2 tail)	0.202	0.012	0.564	0.108
Basic Science grades	r value	0.45	0.47	0.26	0.26
	sig. (2 tail)	0.000	0.000	0.000	0.000
Clinical grades	r value	0.17	0.19	0.12	0.13
	sig. (2 tail)	0.002	0.001	0.029	0.020
Step 1 score	r value	0.28	0.31	0.15	0.17
	sig. (2 tail)	0.000	0.000	0.007	0.003

For all cells:  $df = 301$

# PARTIAL CORRELATIONS WITH MCAT

**Figure 3**

Partial Correlation Coefficients for GPA and adjGPA;  
controlling for MCAT

		SGPA	adjSGPA	NSGPA	adjNSGPA
Basic Science grades	r value	0.44	0.45	0.26	0.24
	sig. (2 tail)	0.000	0.000	0.000	0.000
Clinical grades	r value	0.16	0.16	0.12	0.11
	sig. (2 tail)	0.005	0.005	0.037	0.049
Step 1 score	r value	0.28	0.28	0.15	0.14
	sig. (2 tail)	0.000	0.000	0.007	0.014

For all cells:  $df = 301$

# CONCLUSIONS

- Including MCAT as a statistical control accounted for much of the same variability for which institutional selectivity accounted
  - When MCAT scores are included in a model, adjusted GPAs do not account for any more variation than actual GPAs do
- Adjusting GPAs doesn't hinder statistical models, but the benefit of doing so is *probably* not worth the effort

# CAVEATS

- These data do not generalize to students who did not matriculate
- Small N; a single institution
  - method can be generalized, but results don't generalize to other colleges
  - context of study (public college)
- Alternate metrics of undergraduate institutions' quality may yield different results
  - Exploration of Carnegie classification did not suggest further pursuit

# THANKS

- To Clare Kreiter for extensive feedback and sharing his work in this area
  - Didier T, Kreiter CD, Buri R, Solow C. *Investigating the utility of a GPA institutional adjustment index.* Adv Health Sci Educ Theory Pract. 2006 May;11(2):145-53