

# Student Ability Estimates in High and Low-Performing EMS Education Programs

Remle P. Crowe, MS, NREMT<sup>1</sup>, Rebecca E. Cash, MPH, NRP<sup>1</sup>, Severo A. Rodriguez, PhD, NRP<sup>1,2</sup>, Ashish R. Panchal, MD, PhD<sup>1,2</sup>

<sup>1</sup>The National Registry of EMTs, <sup>2</sup>Center for EMS, Wexner Medical Center, The Ohio State University



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## BACKGROUND

- Student success has often been tied to the quality of educational programs.
- In EMS, scant research exists evaluating education program quality and student cognitive ability.
- Further, the definition of high-performing program is subjective and varies widely.

## OBJECTIVE

To assess the relationship between program quality (high/low performing) and student cognitive ability estimates measured through the National EMS Certification examination.

## METHODS

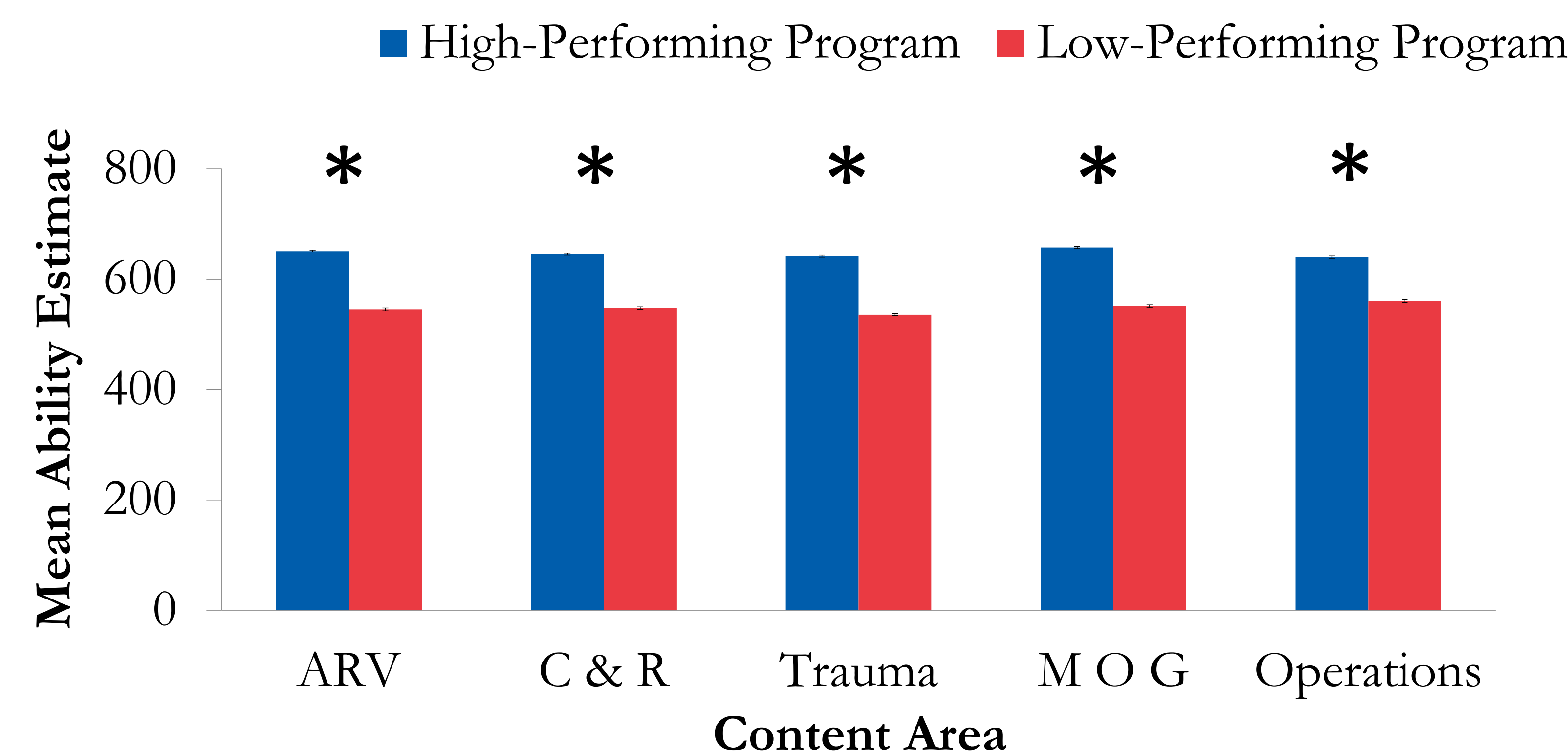
- Study Population: EMTs and paramedics who graduated in 2013 and attempted the National EMS Certification cognitive examination.
- Independent Variable: Programs were classified as high-performing (HP) or low-performing (LP) if the program first-time pass rate was greater than or equal to the 2012 national average:  
EMT: 65%, Paramedic: 68%
- Outcome: Cognitive mean ability estimate (MAE) from National EMS Certification exam. The Rasch logit measures from Computer Adaptive Test were transformed to a scale of 0-1000.
- Data Analysis: Descriptive and comparative statistics

## RESULTS

Population: 2013 Graduates

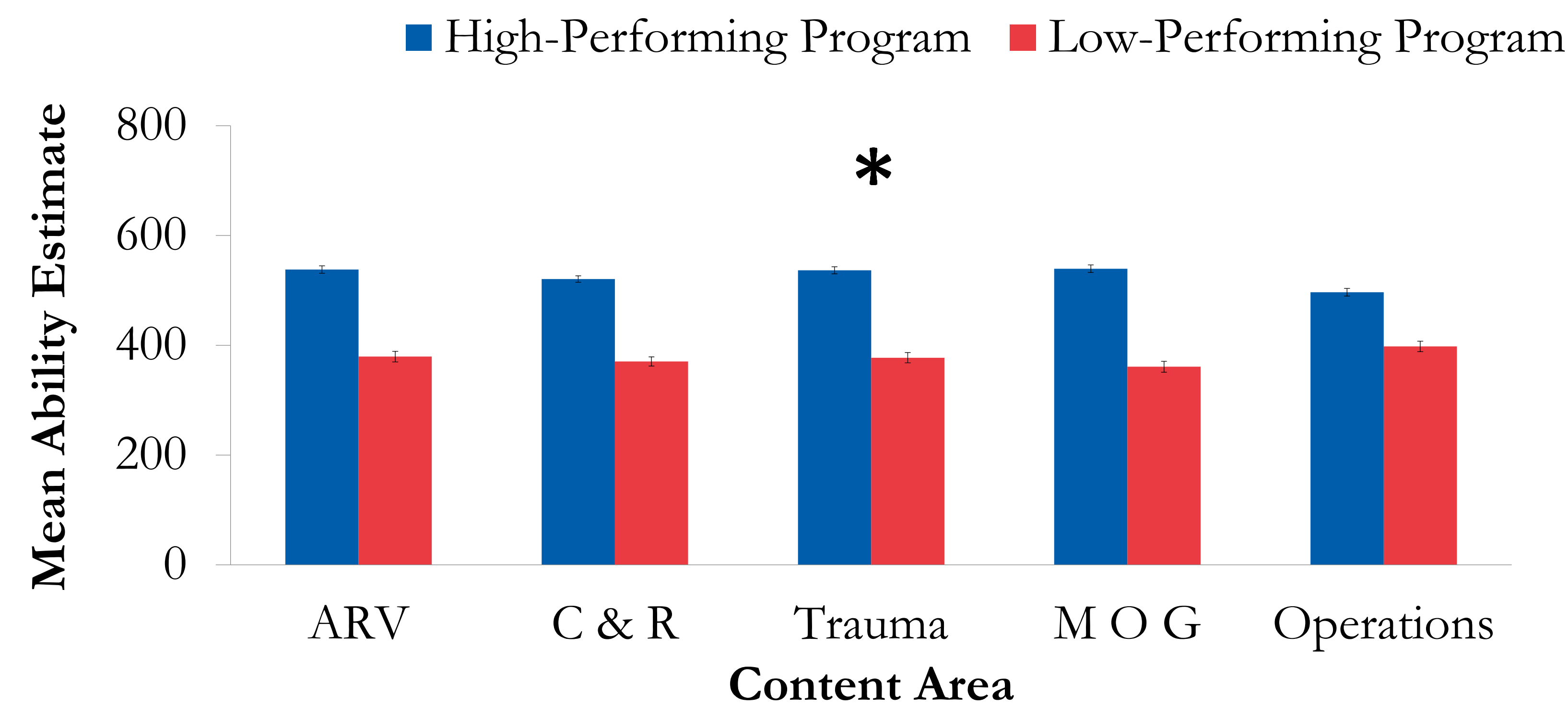
- EMT: 67,716 graduates (59% attended HP programs)
- Paramedic: 11,177 graduates (65% attended HP programs)

### Emergency Medical Technician



**Figure 1.** EMT graduate mean ability Estimates on the National EMS Certification cognitive examination by program performance status. Abbreviations: Airway, Respiration & Ventilation (ARV); Cardiology & Resuscitation (C & R); Medical/Obstetrics/Gynecology (M O G). (\*, p<0.01)

### Paramedic



**Figure 2.** Paramedic graduate mean ability Estimates on the National EMS Certification cognitive examination by program performance status. Abbreviations: Airway, Respiration & Ventilation (ARV); Cardiology & Resuscitation (C & R); Medical/Obstetrics/Gynecology (M O G). (\*, p<0.01)

## RESULTS

**Table 1.** Overall mean ability estimates from the National EMS Certification cognitive examination by program performance status. Abbreviations: High-performing (HP); Low-performing (LP); Emergency Medical Technician (EMT); Mean ability estimate (MAE).

	HP Program	LP Program	p-value
<b>EMT</b>			
Overall MAE (0-1000)	540	515	p<0.01
<b>Paramedic</b>			
Overall MAE (0-1000)	639	365	p<0.01

## LIMITATIONS

- Some small program sizes (<5 graduates) increased variability in MAE
- Does not include those who did not graduate or did not attempt the National EMS Certification exam
- Does not include programs that were established in 2013

## CONCLUSIONS

Students graduating from high-performing EMS education programs exhibited higher first-attempt cognitive ability scores overall, and across all content areas.