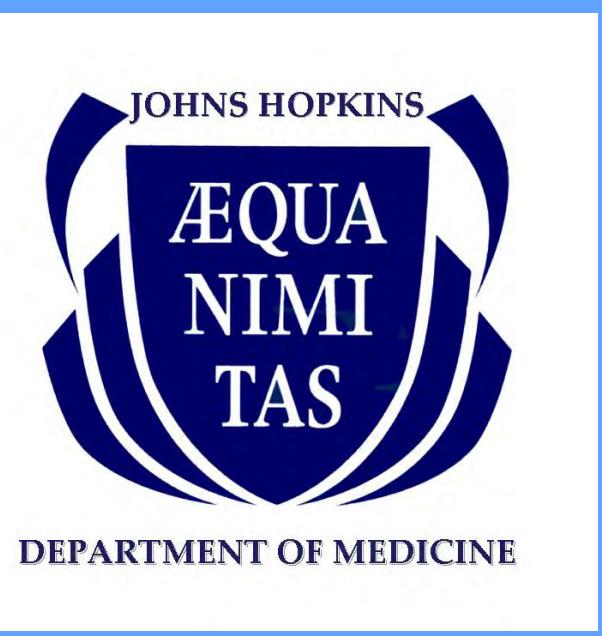




# Rekindling the Culture of Bedside Medicine: A Novel Methodology to Assess and Teach Physical Examination Skills

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## Introduction

- Physicians spend more time with the electronic medical record than they do at the bedside, leading to a decline in physical exam skills.
- There are fewer practitioners with the necessary skills and confidence to teach the physical exam to trainees.
- There is no standardized curriculum to teach physical exam skills to U.S. residents.
- There are limited tools to assess physical exam skill.
- Direct observation, while valuable, does not routinely occur and is qualitative and subjective.
- Objective Structured Clinical Examinations (OSCEs) provide some measure of exam technique, but do not directly assess accuracy in the context of real patients.
- We adapted the framework of the MRCP Practical Assessment of Clinical Examination Skills (MRCP-PACES) to create a novel assessment and teaching activity for U.S. graduate medical trainees.



Figure 1. Intern examining a patient at the pulmonary station



Figure 2. Intern receiving feedback and instruction at the cardiac station

Station	Inter-rater Reliability	p-value
Cardiac	0.78	$p < 0.001$
Pulmonary	0.789	$p < 0.001$

Table. Inter-rater reliability at the cardiac and pulmonary stations

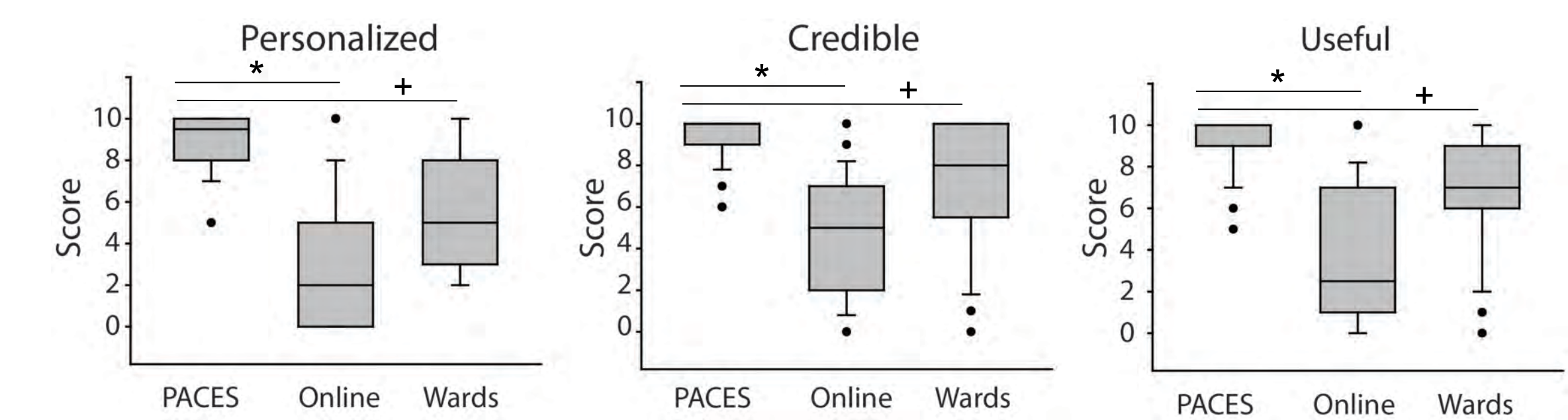


Figure 4. Resident survey on usefulness of PACES compared to online and ward attending feedback

## Materials & Methods

- Internal medicine interns from the Johns Hopkins Hospital were invited to participate in the modified PACES activity.
- Interns rotated through one cardiovascular and one pulmonary station.
- At each station, two faculty preceptors examined a patient and agreed on the physical findings that were present before the start of the assessment.
- Interns were given 6 minutes to examine the patient and 4 minutes to present their findings to the faculty, and answer questions about differential diagnosis and management.
- Interns were assessed in five areas using a 3-point scale: exam technique, identification of physical signs, differential diagnosis, clinical judgment, and maintaining patient welfare.
- Inter-rater reliability was calculated for each station.
- Faculty provided 5-10 minutes of feedback and bedside teaching in real time.
- Scores were compared between those who had rotated through a dedicated clinical skills curriculum (Intervention) and those who had not received the curriculum (No Intervention).
- Scores were compared to performance on the Blaufuss Multimedia Cardiovascular Exam, a validated online cardiovascular skills assessment.

## Results

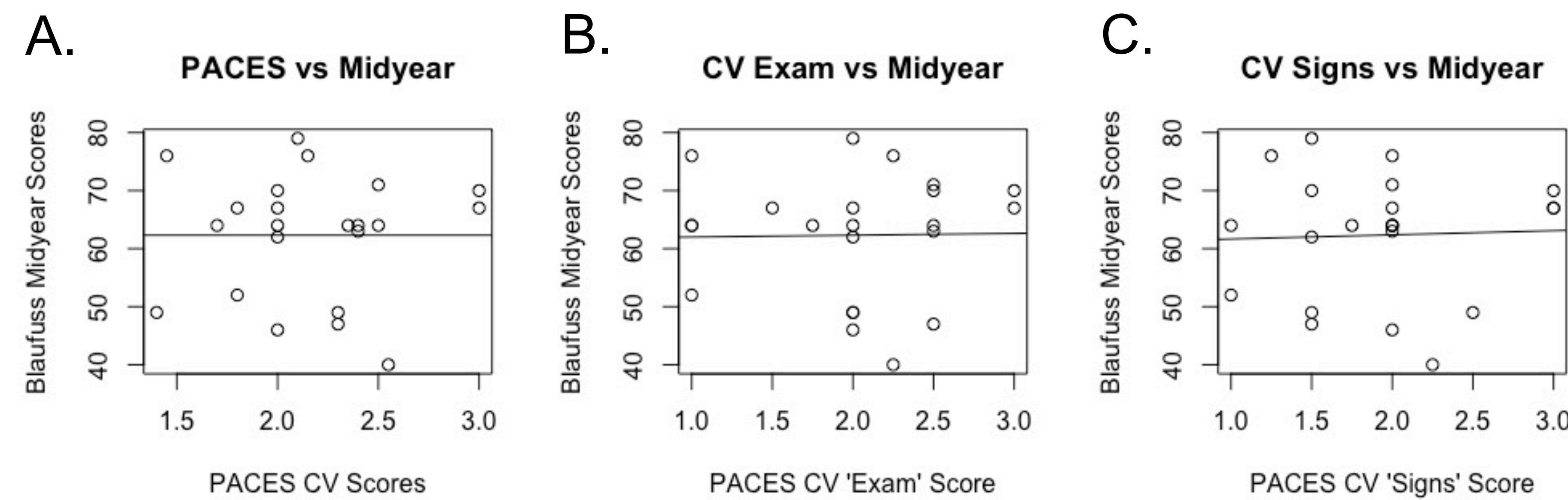


Figure 3. Intern mid-year Blaufuss Cardiovascular Exam scores compared to A. Overall PACES Cardiac score, B. PACES Cardiac Exam technique score, C. PACES Cardiac Exam accuracy score (n=20 interns)

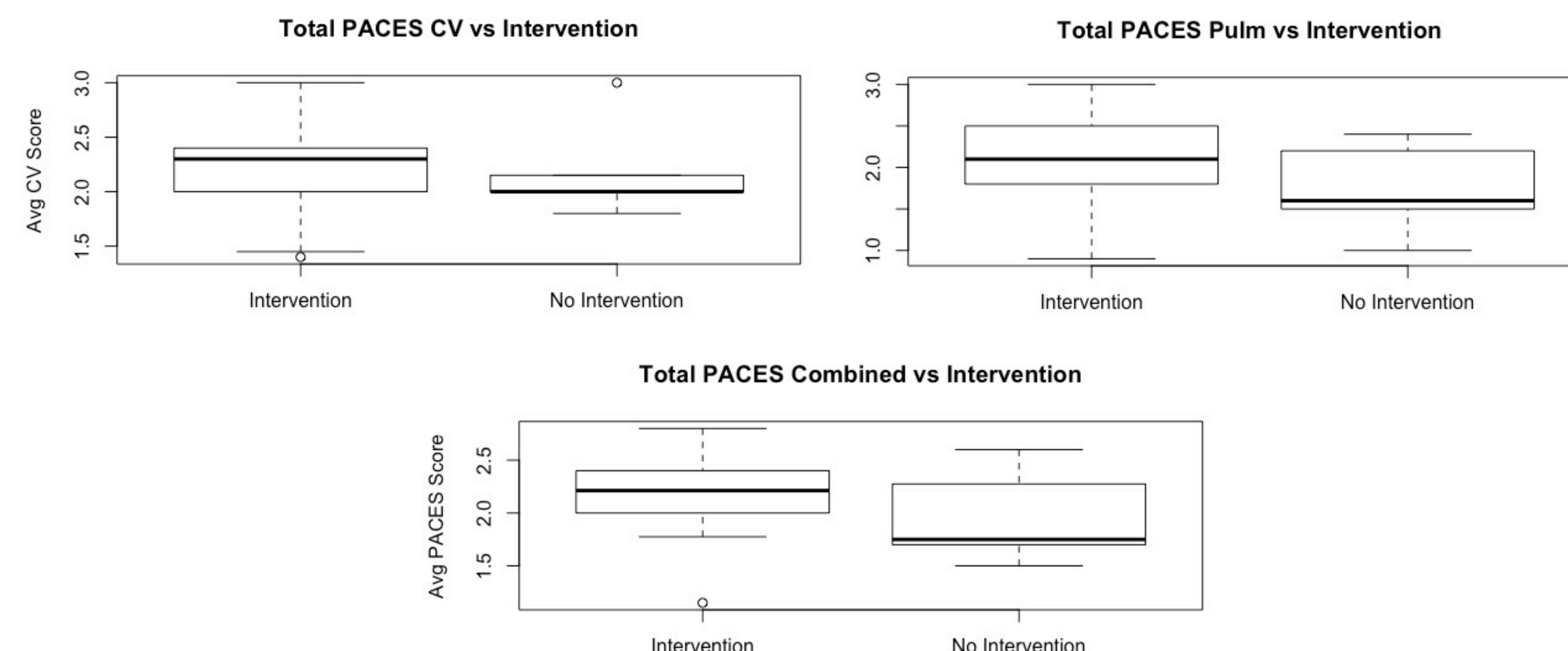


Figure 4. PACES scores comparing interns who rotated through the ACE physical diagnosis curriculum (Intervention) vs. those who did not. A. PACES cardiac station scores, B. PACES pulmonary station scores, C. PACES overall scores (n=23 for Intervention, 5 no intervention)

## Conclusions

- This pilot study demonstrates the feasibility of conducting a PACES-style assessment for U.S. trainees.
- Inter-rater reliability was high, suggesting that this methodology is a valid way to assess physical exam performance.
- There was no correlation between performance on the PACES cardiac station and an online Cardiovascular Exam, suggesting a possible disconnect between virtual and live patient assessment.
- The direct feedback and education delivered by the faculty preceptors was appreciated by both trainees and patients.
- This combination of assessment and education could form the basis of a Maintenance of Certification (MOC) activity, and is the subject of a project in the American Board of Medical Specialties (ABMS) Visiting Scholars Program.

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