MOCA-Peds 2017 Pilot Results: Outcomes, Learning, Clinical Practice Changes, and What is to Come

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The American Board of Pediatrics
Conflict of Interest

• All presenters work for the American Board of Pediatrics
• No conflicts of interest to declare
Agenda

• Overview of MOCA-Peds Pilot
• Demo
• Participant Performance and Scores
• Research & Evaluation
• Lesson Learned
• Future Plans
• Question & Answer
Overview of MOCA-Peds Pilot

Pilot Model and Design
What is MOCA-Peds?

• Continuous assessment tool
• Series of questions at quarterly intervals
• Delivered over the web or mobile device
• Focuses on assessment and learning
Registration and Stakes

• Eligibility: Part 3 exam due in 2017
• Registration period: September 6 – October 7, 2016
  • If registered, Part 3 due date postponed to 2018
  • If not registered, Part 3 due date remains 2017
• If meeting passing standard by end of 2017, Part 3 requirement met (2018 participation was voluntary)
• If not meeting passing standard by end of 2017, proctored exam in 2018
2017 Pilot Model

- 20 multiple-choice questions per quarter
- 40 Learning Objectives
- 2 “partner” questions per Learning Objective
- 5 minutes per question
- 3 Practice Profiles
  - General Pediatrics
  - General Pediatrics with Inpatient Focus
  - General Pediatrics with Outpatient Focus

- Flexibility to answer one-at-a-time or in batches
- Immediate feedback (correct response, rationale, references)
- Confidence and relevance ratings
- Peer comparison
Use of books, online references, resources is allowed, but should not be needed.

Discussing, sharing of questions is NOT allowed.
MOCA-Peds Demonstration

https://mocapeds.abp.org/
Participant Performance and Scores

Participation, Timing, and Performance
Participation

• Participants received 80 questions in 2017
  • 2 questions per learning objective (40 x 2 = 80)
  • 20 questions per quarter
• 5,071 participants in the 2017 pilot
  • 5,031 (99%) answered at least one question
  • 4,924 (97%) answered at least 60 questions
  • 4,801 (95%) answered at least 70 questions
Participation by Quarter

- Most participants waited until the latter half of each quarter to complete their questions.
- Participants waited later in the quarter as the year progressed, with the exception of Q4*. 

![Graph showing participants completing quarter by weeks remaining.](image-url)
Question Batching Behavior

- As the year progressed, more participants responded to their quarterly questions in batches.
- Fewer and fewer participants spread their questions out over the full quarter.
Question Timing

- Each participant was allotted five (5) minutes to respond to a given question.
- Half of the question responses took 86 seconds or less.
- The average response time was 114 seconds.
- No item had an average response time of more than 196 seconds (less than 3.5 minutes).
- However, all questions did have at least one person take all 5 minutes.
Question Response Time Distributions

Percentage of Responses

Time Taken in Minutes

Average Number of Responses by Time Across All Questions
Performance

Measurement Model
• Item and person parameters were estimated using the Rasch model.
• A pseudo-linear on the fly testing (LOFT) delivery was used, with 191 total questions in the pool.

Scaled Scores
• Scaled scores were provided to participants in January 2018.
• The ABP uses a 1-300 scale for reporting exam scores.
• For the 2017 MOCA-Peds pilot, a passing standard of 160 was used.
• Beginning in 2019, the passing standard will be 180, consistent with all other ABP exams.
• 2017 MOCA-Peds items were pretested on the 2016 proctored exam.
• A strong correlation was found between item difficulties on the proctored exam vs. MOCA-Peds.
• On average, items were found to be slightly easier when seen in MOCA-Peds; however, there were some interesting interactions.
2017 MOCA-Peds Pilot Score Distribution

Pilot Passing Standard
160

2019 Passing Standard
180

All Participants
N = 5071
Mean = 221
SD = 34
• The plot to the right shows the relationship between age and percent correct in MOCA-Peds.

• The peaks in the age distribution are expected based on MOC cycle dates.

• While performance does appear to decline in the plot, the performance at the age peaks appears to be consistent.
Research and Evaluation of MOCA-Peds

Participant Experience on the Platform, Learning, and Practice Change
## Preparation Time – Prior to Questions

<table>
<thead>
<tr>
<th>Time Range</th>
<th>Quarter 1</th>
<th>Quarter 2</th>
<th>Quarter 3</th>
<th>Quarter 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>I did not prepare in advance</td>
<td>54.7%</td>
<td>55.8%</td>
<td>55.4%</td>
<td>50.9%</td>
</tr>
<tr>
<td>&lt; 2 hours</td>
<td>14.1%</td>
<td>16.9%</td>
<td>18.1%</td>
<td>20.8%</td>
</tr>
<tr>
<td>2 to &lt; 10 hours</td>
<td>17.2%</td>
<td>17.8%</td>
<td>18.7%</td>
<td>19.9%</td>
</tr>
<tr>
<td>10 to &lt; 20 hours</td>
<td>7.1%</td>
<td>5.1%</td>
<td>4.6%</td>
<td>4.6%</td>
</tr>
<tr>
<td>&gt; 20 hours</td>
<td>6.9%</td>
<td>4.3%</td>
<td>3.3%</td>
<td>3.8%</td>
</tr>
</tbody>
</table>

*Data from Quarter 1-4 Surveys (n=varies by quarter).*

- About half studied and half did not
- Study time shifted over time and with experience
## Preparation Time – Prior to Questions – Quarter 4 by Age

<table>
<thead>
<tr>
<th>Age (group)</th>
<th>30-39</th>
<th>40-49</th>
<th>50-59</th>
<th>60+</th>
</tr>
</thead>
<tbody>
<tr>
<td>I did not prepare in advance</td>
<td>60.6%</td>
<td>51.5%</td>
<td>46.0%</td>
<td>34.9%</td>
</tr>
<tr>
<td>&lt; 2 hours</td>
<td>22.3%</td>
<td>22.1%</td>
<td>18.7%</td>
<td>15.3%</td>
</tr>
<tr>
<td>2 to &lt; 10 hours</td>
<td>13.7%</td>
<td>21.0%</td>
<td>21.8%</td>
<td>23.3%</td>
</tr>
<tr>
<td>10 to &lt; 20 hours</td>
<td>2.3%</td>
<td>2.7%</td>
<td>7.8%</td>
<td>12.2%</td>
</tr>
<tr>
<td>&gt; 20 hours</td>
<td>1.0%</td>
<td>2.7%</td>
<td>5.8%</td>
<td>14.3%</td>
</tr>
</tbody>
</table>

*Data from Quarter 4 Survey (n=4,016).*
Resource Use – During Questions

- Use of resources has been allowed for all questions (5 minutes)
- Use of resources increased over time

*Data from Quarter 1-4 Surveys (n=varies by quarter).
## Resource Use – During Questions by Age

<table>
<thead>
<tr>
<th></th>
<th>Age (group)</th>
<th>30-39</th>
<th>40-49</th>
<th>50-59</th>
<th>60+</th>
</tr>
</thead>
<tbody>
<tr>
<td>I did NOT use resources during this quarter</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quarter 1</td>
<td></td>
<td>12.5%</td>
<td>17.3%</td>
<td>23.0%</td>
<td>43.9%</td>
</tr>
<tr>
<td>Quarter 2</td>
<td></td>
<td>10.0%</td>
<td>16.4%</td>
<td>20.5%</td>
<td>41.1%</td>
</tr>
<tr>
<td>Quarter 3</td>
<td></td>
<td>9.3%</td>
<td>13.7%</td>
<td>19.7%</td>
<td>39.0%</td>
</tr>
<tr>
<td>Quarter 4</td>
<td></td>
<td>8.1%</td>
<td>12.9%</td>
<td>18.7%</td>
<td>34.0%</td>
</tr>
<tr>
<td>With 1 to 5 questions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quarter 1</td>
<td></td>
<td>42.1%</td>
<td>44.5%</td>
<td>41.8%</td>
<td>32.3%</td>
</tr>
<tr>
<td>Quarter 2</td>
<td></td>
<td>41.9%</td>
<td>42.3%</td>
<td>40.5%</td>
<td>34.5%</td>
</tr>
<tr>
<td>Quarter 3</td>
<td></td>
<td>40.8%</td>
<td>40.7%</td>
<td>38.6%</td>
<td>35.6%</td>
</tr>
<tr>
<td>Quarter 4</td>
<td></td>
<td>39.1%</td>
<td>39.9%</td>
<td>38.8%</td>
<td>34.4%</td>
</tr>
<tr>
<td>With 6 to 10 questions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quarter 1</td>
<td></td>
<td>24.7%</td>
<td>23.0%</td>
<td>20.0%</td>
<td>16.9%</td>
</tr>
<tr>
<td>Quarter 2</td>
<td></td>
<td>24.7%</td>
<td>22.1%</td>
<td>21.9%</td>
<td>13.7%</td>
</tr>
<tr>
<td>Quarter 3</td>
<td></td>
<td>27.1%</td>
<td>26.7%</td>
<td>22.3%</td>
<td>16.4%</td>
</tr>
<tr>
<td>Quarter 4</td>
<td></td>
<td>28.3%</td>
<td>25.8%</td>
<td>21.8%</td>
<td>19.0%</td>
</tr>
<tr>
<td>With more than 10 questions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quarter 1</td>
<td></td>
<td>20.7%</td>
<td>15.2%</td>
<td>15.2%</td>
<td>6.9%</td>
</tr>
<tr>
<td>Quarter 2</td>
<td></td>
<td>23.4%</td>
<td>19.1%</td>
<td>17.1%</td>
<td>10.7%</td>
</tr>
<tr>
<td>Quarter 3</td>
<td></td>
<td>22.8%</td>
<td>18.8%</td>
<td>19.4%</td>
<td>9.0%</td>
</tr>
<tr>
<td>Quarter 4</td>
<td></td>
<td>24.4%</td>
<td>21.5%</td>
<td>20.7%</td>
<td>11.6%</td>
</tr>
</tbody>
</table>
Why were pediatricians using resources?

The most popular resources were:
- Search engines (eg, Google, Yahoo)
- UpToDate
- Government website (eg, CDC, NIH, NICHD)
- Professional sites (eg, AAP)

*Data from Quarter 4 Survey (n= 4,016)
## Were questions relevant?

<table>
<thead>
<tr>
<th>Agree/Strongly Agree - Questions were relevant to general pediatrics</th>
<th>GP Certificate Only</th>
<th>GP + Subspecialty Certificate(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>30-39</td>
<td>84.7%</td>
<td>88.9%</td>
</tr>
<tr>
<td>40-49</td>
<td>81.1%</td>
<td>87.9%</td>
</tr>
<tr>
<td>50-59</td>
<td>76.1%</td>
<td>83.4%</td>
</tr>
<tr>
<td>60+</td>
<td>70.1%</td>
<td>78.4%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Agree/Strongly Agree - Questions were relevant to my practice</th>
<th>GP Certificate Only</th>
<th>GP + Subspecialty Certificate(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>30-39</td>
<td>75.0%</td>
<td>33.6%</td>
</tr>
<tr>
<td>40-49</td>
<td>68.8%</td>
<td>33.9%</td>
</tr>
<tr>
<td>50-59</td>
<td>65.6%</td>
<td>31.8%</td>
</tr>
<tr>
<td>60+</td>
<td>52.6%</td>
<td>40.0%</td>
</tr>
</tbody>
</table>
Test Anxiety

I am less anxious about taking an exam using the online MOCA-Peds system compared to taking a proctored exam at a secure testing center.
Will Pediatricians Choose MOCA-Peds?

MOCA-Peds for General Pediatrics is Preferred

- Of those meeting the pilot standard and responding by survey, 96.2% (n=2,748) said they would rather use the operational version of MOCA-Peds to maintain their General Pediatrics certification than the proctored exam.

The Subspecialist version of MOCA-Peds is Preferred.

- Of the 720 subspecialists passing the pilot and responding by survey, 95.3% (n=686) said they would rather use the operational version of MOCA-Peds (once available in their subspecialty) than the proctored exam.

*End of Pilot Survey data (n= 2,856)
How do learning opportunities compare among assessments?

**Proctored Exam**
- “I cram for the exam and forget everything after the fact”
- “No feedback is given on how I did on the exam except a score”

**MOCA-Peds**
- 40-45 learning objectives offered prior to completing any questions
- Resources use permitted
- Rationale and references following each question.
- Similar question and repeated questions
- Question history page to review past questions and answers.
- Peer benchmarking for each question.
How did MOCA-Peds effect learning and practice change?

“Did you learn, refresh, or enhance your medical knowledge based on using MOCA-Peds in the 2017 pilot?”

2.4% (n=69) said “No”  
97.6% (n=2,787) said “Yes”

Those answering “Yes” were then asked, “Were you able to apply any of what you learned to your clinical practice?”

21.2% (n= 592) said, “No, because my practice area is not general pediatrics focused” or “No for any other reason”

16.8% (n=464) said “No, but I plan to moving forward”

62.0% (n=1,727) said “Yes, I have already”

*Data from End of Pilot Survey (n= 2,856)
Did Practice Change Occur?

Over 1,400 responded to “What was the most significant practice change(s) you made as a result of participation in the 2017 pilot?”

Preliminary analyses highlight the most common areas of practice improvement

<table>
<thead>
<tr>
<th>Practice Change</th>
<th>Number of times mentioned in free text</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plan the management of a child with otitis...</td>
<td>99</td>
</tr>
<tr>
<td>Manage a child with an acute asthma...</td>
<td>47</td>
</tr>
<tr>
<td>Plan the management of a child with influenza.</td>
<td>46</td>
</tr>
<tr>
<td>Plan the evaluation of a child with hypertension.</td>
<td>37</td>
</tr>
<tr>
<td>Distinguish between causes of short stature.</td>
<td>32</td>
</tr>
<tr>
<td>Plan immunizations for a patient with egg...</td>
<td>21</td>
</tr>
<tr>
<td>Evaluate and manage a child with proteinuria.</td>
<td>21</td>
</tr>
</tbody>
</table>

*Data from End of Year Survey data (preliminary analysis of the 1,464 responses to the “most significant practice change” question).*
"I identified a Kawasaki pt based on review - not common in our practice – potentially life saving; that is just one instance...”

"1. I became aware of my deficiency in acute drug intoxication 2. Honestly, I thought I was better at behavioral pediatrics than this assessment indicated; I will work on that 3. Excellent review of allergies”

“Started to pay attention to features of Autism”

“[…In many areas I realized that some of my practice in the clinic might have been dated. I now have far more frequent discussions with both my general and subspecialty peds colleagues regarding the outpatient care of my former patients seen in their clinics. Having to go read up on the topics I got wrong in my answers was also enlightening[...]I truly believe that this should be the way of the future to ensure practitioners keep up to date.”

*Data from End of Year Survey (1,464 response to the "most significant practice change question).
Pediatrician Feedback on Practice Change

“Spending more time taking family history.”

“Listening to history details from the patients”

“Ask more screening questions on histories”

“Taking a more thorough history and physical to make it easier to make an accurate diagnosis.”

“aware of current literature, treatment guidelines that otherwise I would not have been made aware of through other means of CME.”

“It reinforced some important clinical areas for me, and gave me even more confidence as I provide clinical care to patients.”

“Realizing that I need to constantly read to keep up to date to be the best I can be.”

“Realization I need a lot of regularly scheduled time for study and self-assessment other than conference/webinar CME.”

*Data from End of Year Survey (1,464 response to the “most significant practice change question).
Lessons Learned

Using a Continuous Improvement Model
Lessons Learned

WHAT WORKED WELL?
• User experience and acceptance
• Participation rate
• Informational webinars prior to launch
• Experienced item writers
• Content relevancy
• Participation affected practice
• Learning objectives
• Identified as high-priority at ABP
• Dedicated position for program management
• Dedicated IT/development team
• Stakeholder involvement

WHAT COULD HAVE BEEN BETTER?
• Consistent vision for the program
• Timeline
• Partner questions
• Customer support
  • Training
  • Full-time technical support
  • Ongoing check-in with support team
  • Weekend support at quarter deadline
• Communications/messaging
• Practice profiles
Future Plans

2019 and Beyond
MOCA-Peds Operational Model: 2 to 3 Components

**CORE KNOWLEDGE**
- Fundamental knowledge
- Map to content outline
- Map to learning objectives
- Main focus - *assessment*

**NEW KNOWLEDGE**
- Staying up-to-date
- Information provided in advance
- Recent articles/guidelines
- Link to content outline not critical
- Main focus - *learning*

Optional 3rd Component:
Emerging, time-sensitive topic(s)
MOCA-Peds Operational Model Design

CORE KNOWLEDGE
- 45 learning objectives
- 1 question per learning objective
- 45 total questions

NEW KNOWLEDGE
- Up to 4 articles/guidelines
- Up to 2 questions per article
- 0-8 total questions

15 repeat questions
Based on confidence/relevance ratings and questions missed

Up to 4 “time-sensitive” questions
Quickly developed and delivered questions based on current events

Total Number of Questions
- Annually: 60 to 72
- Quarterly: 15 to 18 (up to 20)
MOC Cycle and Life Circumstances

• Scoring process will drop the lowest 4 quarters of performance in a 5-year MOC cycle
  • Reduces burden
  • Eliminates the appeal process
  • Accounts for –
    • Life events and extenuating circumstances
    • Technical issues (eg, slow internet, dropped questions)
## Five-Year MOC Cycle

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤ 72 questions</td>
<td>≤ 72 questions</td>
<td>≤ 72 questions</td>
<td>≤ 72 questions</td>
<td>Take the proctored exam</td>
</tr>
</tbody>
</table>

What if I did not pass at the end of Year 4, or if I chose not to participate in MOCA-Peds?
## Five-Year MOC Cycle

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤ 72 questions</td>
<td>≤ 72 questions</td>
<td>≤ 72 questions</td>
<td>≤ 72 questions</td>
</tr>
</tbody>
</table>

Because of the 4 lowest quarters rule, those performing well enough may be able to stop at end of Year 3*

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What if I am meeting the passing standard at the end of Year 4?

**Year 5**

Options:
- Take a break until the next 5-year MOC cycle
- Continue learning and receive MOC Part 2 credit

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*Diplomates may choose to continue participating for MOC Part 2 credit*
### Pediatric Subspecialties

<table>
<thead>
<tr>
<th>Year</th>
<th>Topics</th>
</tr>
</thead>
</table>
| 2019 | - Child Abuse Pediatrics  
      - Pediatric Gastroenterology  
      - Pediatric Infectious Diseases |
| 2020 | - Developmental-Behavioral Pediatrics  
      - Neonatal-Perinatal Medicine  
      - Pediatric Nephrology  
      - Pediatric Pulmonology |
| 2021 | - Pediatric Critical Care Medicine  
      - Pediatric Endocrinology  
      - Pediatric Hospital Medicine  
      - Pediatric Rheumatology |
| 2022 | - Adolescent Medicine  
      - Pediatric Cardiology  
      - Pediatric Emergency Medicine  
      - Pediatric Hematology-Oncology |
Q & A

More questions?

Come visit our table during the exhibits tonight from 5-5:45.
THANK YOU