Creation and Validation of Entrustment Scales for the Common Pediatric Subspecialty Entrustable Professional Activities

Richard B. Mink MD MACM, Alan Schwartz PhD, Bruce Herman MD, Megan L. Curran MD, Deborah C. Hsu MD MEd, Jennifer C. Kesselheim MD EdM, Angela L. Myers MD MPH, David A. Turner MD FCCP FCCM and Carol L. Carraccio MD MA for the Subspecialty Pediatrics Investigator Network (SPIN)
Disclosures

• Financial support provided by the American Board of Pediatrics Foundation
• Resources provided by CoPS and APPD LEARN
Introduction

• Entrustable Professional Activities (EPAs)
  ▪ describe essential routine tasks that a practicing physician is expected to execute independently

• EPAs for the pediatric subspecialties include
  ▪ 7 common to all
  ▪ 3-6 subspecialty-specific

• Scales have been proposed to assess the level of supervision as a trainee progresses
  ▪ e.g. direct versus indirect supervision

• No supervision scales have been validated

• Single scale may not be applicable to all EPAs
### 7 Common Pediatric Subspecialty EPAs

<table>
<thead>
<tr>
<th>EPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apply public health principles and improvement methodology to</td>
</tr>
<tr>
<td>improve care for populations, communities, and systems</td>
</tr>
<tr>
<td>Provide for and obtain consultation from other health care providers</td>
</tr>
<tr>
<td>caring for children</td>
</tr>
<tr>
<td>Contribute to the fiscally sound and ethical management of practice</td>
</tr>
<tr>
<td>(e.g., through billing, scheduling, coding, and record keeping</td>
</tr>
<tr>
<td>practices)</td>
</tr>
<tr>
<td>Facilitate handovers to another health care provider</td>
</tr>
<tr>
<td>Lead and work within interprofessional health care teams</td>
</tr>
<tr>
<td>Lead within the subspecialty profession</td>
</tr>
<tr>
<td>Engage in scholarly activities through the discovery, application,</td>
</tr>
<tr>
<td>and dissemination of new knowledge</td>
</tr>
</tbody>
</table>
Objectives

The objectives of this study were to:

1. Develop supervision scales for 6 of the 7 EPAs common to all of the pediatric subspecialties

2. Assess their reliability and validity in a multi-subspecialty, multi-centered study conducted by the Subspecialty Pediatrics Investigator Network (SPIN)
Methods: SPIN

SPIN Steering Committee comprised of representatives from each pediatric subspecialty
• all 14 pediatric subspecialties with ABP certification
• experts in medical education
• used a modified Delphi process to develop supervision scales
Goals for the level of supervision scales:

• consistent with current approach to fellow supervision
• intuitive to minimize need for faculty development
• 5 levels
• progressive levels of supervision leading to entrustment
Methods: Data for Validity Determination

• One week before Clinical Competency Committee (CCC) meeting, Fellowship PDs assigned a level of supervision for each fellow for each of the 6 EPAs
• At CCC meeting, CCC assigned a level of supervision for each fellow for the EPAs
• No additional faculty development
• Data collection
  ▪ fall 2014
  ▪ spring 2015
Methods: Data Analysis

Reliability
• Internal reliability: Cronbach’s alpha
• Multivariate inter-rater reliability: Jason & Olsson’s iota

Construct Validity
• Compared level of supervision across training years: Kruskal-Wallace & Wilcoxon tests
• Compared levels of supervision in fall and spring for each year of fellowship: Wilcoxon signed rank
Results: Supervision Scale “Handovers”

<table>
<thead>
<tr>
<th>FACILITATE HAN DOVERS TO ANOTHER HEALTHCARE PROVIDER</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Trusted to <strong>observe</strong> only</td>
</tr>
<tr>
<td>2 Trusted to execute with <strong>direct supervision</strong> and coaching</td>
</tr>
<tr>
<td>3 Trusted to execute with <strong>indirect supervision</strong> with verification of information after the handover for selected <strong>simple and complex cases</strong></td>
</tr>
<tr>
<td>4 Trusted to execute with <strong>indirect supervision</strong> with verification of information after the handover for <strong>selected complex cases</strong></td>
</tr>
<tr>
<td>5 Trusted to execute <strong>without supervision</strong></td>
</tr>
</tbody>
</table>
## Results: Supervision Scale “Lead Team”

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Trusted to <strong>participate</strong> only</td>
</tr>
<tr>
<td>2</td>
<td>Trusted to lead with <strong>direct supervision and coaching</strong></td>
</tr>
<tr>
<td>3</td>
<td>Trusted to lead with <strong>supervisor occasionally</strong> present to provide advice</td>
</tr>
<tr>
<td>4</td>
<td>Trusted to lead <strong>without supervisor present</strong> but requires <strong>coaching</strong> to improve <strong>member and team performance</strong></td>
</tr>
<tr>
<td>5</td>
<td>Trusted to lead <strong>without supervision</strong> to improve <strong>member and team performance</strong></td>
</tr>
</tbody>
</table>
Results: Study Participation

<table>
<thead>
<tr>
<th></th>
<th>Fall 2014</th>
<th>Spring 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Programs</td>
<td>208</td>
<td>209</td>
</tr>
<tr>
<td>1&lt;sup&gt;st&lt;/sup&gt; year fellows (n)</td>
<td>352</td>
<td>369</td>
</tr>
<tr>
<td>2&lt;sup&gt;nd&lt;/sup&gt; year fellows (n)</td>
<td>332</td>
<td>336</td>
</tr>
<tr>
<td>3&lt;sup&gt;rd&lt;/sup&gt; year fellows (n)</td>
<td>327</td>
<td>331</td>
</tr>
</tbody>
</table>
Results: Reliability

- Cronbach’s alpha
  - Fall: 0.92
  - Spring: 0.92

- Jason & Olsson’s iota
  - Fall: 0.70
  - Spring: 0.74
Results: CCC Level of Supervision in Fall

- Consultation
- Leadprof
- Pubhealth

Proportion within Fellow Year

EPA Rating

Fellow Year
1
2
3
Results: Construct Validity

For All 6 EPAS:

• In both the fall and spring, 2\textsuperscript{nd} year fellows scored higher than 1\textsuperscript{st} year fellows and 3\textsuperscript{rd} year fellows scored higher than 2\textsuperscript{nd} years (p<0.001 for all comparisons)

• For all training years, spring scores were higher than those in the fall (p<0.001)

• Data were similar whether the evaluations were performed by the fellowship PD or CCC
Conclusions

• Supervision scales for 6 common pediatric subspecialty EPAs were developed
• Internal and inter-rater reliability were high
• Both content and construct validity were demonstrated
• These scales are valid, reliable and feasible for use in EPA-based assessment of pediatric subspecialty fellows
SPIN Steering Committee

Adolescent Medicine  
  Sarah Pitts
Cardiology  
  Gina Baffa
Child Abuse  
  Bruce Herman
Critical Care Medicine  
  David Turner
Developmental and Behavioral Pediatrics  
  Jill Fussell & Pam High
Emergency Medicine  
  Deb Hsu
Endocrinology  
  Dianne Stafford & Tandy Aye
GI  
  Cary Sauer
Hematology-Oncology  
  Jennifer Kesselheim
Infectious Diseases  
  Angie Myers & Kammy McGann
Neonatology  
  Christiane Dammann & Patricia Chess
Nephrology  
  John Mahan
Pulmonary Medicine  
  Pnina Weiss
Rheumatology  
  Megan Curran
APPD LEARN  
  Alan Schwartz
ABP  
  Carol Carraccio
APPD Fellowship Committee  
  Bruce Herman
CoPS  
  Richard Mink
Collaborators

Acknowledgement

• Special thanks to Alma Ramirez BS
Thank you!

Subspecialty Pediatrics Investigator Network