Assessment of IPE to Move Beyond Attitudes: Featured tools and case studies from the field
Thursday, February 12, 2015
Moderator & Presenter

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Assessment of IPE to Move Beyond Attitudes: Featured Tools and Case Studies from the Field

Part 2

February 12, 2015

Sarah Shrader, PharmD, FCCP, BCPS, CDE (moderator)
Assessment Beyond Attitudes

• Intensifying interest to assess IPE beyond attitudinal measures

• Quantitative, qualitative, and mix-methods approach

• Cochrane Review Updated 2013:
  “To improve the quality of evidence relating to IPE and patient outcomes or healthcare process outcomes, the following three gaps will need to be filled: first, studies that assess the effectiveness of IPE interventions compared to separate, profession-specific interventions; second, RCT, CBA or ITS studies with qualitative strands examining processes relating to the IPE and practice changes; third, cost-benefit analyses.”

Evaluation Outcomes Measured

Assessment Methods

- **Attitude/satisfaction survey**: 63 (75.9%)
- **Interview/focus group/debrief**: 37 (44.6%)
- **Program evaluation/feedback**: 37 (44.6%)
- **Knowledge test**: 15 (18.1%)
- **Skill performance ratings**: 8 (9.6%)
- **Other**: 14 (16.9%)
A Point to Ponder

• Interprofessional Activity/Program Evaluation VS.
• Interprofessional Learner Assessment
Kirkpatrick/Barr’s Evaluation Framework

Level 1a: Reaction
• Learners’ views on the learning experience and its interprofessional nature

Level 2a: Modification of attitudes/perception
• Changes in reciprocal attitudes between participant groups. Changes in perception or attitude towards the value and/or use of team approaches to caring for a specific patient/client group.

Level 2b: Acquisition of knowledge and/or skills
• Including knowledge and skills linked to interprofessional collaboration.

Level 3: Behavioral change
• Identifies individuals’ transfer of interprofessional learning to their practice setting and their changed professional practice

Level 4a: Change in organizational practice
• Wider changes in the organization and delivery of care

Level 4b: Benefits to patients/clients
• Improvements in health or well-being of patients/clients

Miller’s Pyramid of Assessment

Additional Resources


National Center for Interprofessional Practice and Education Measurement Instruments

https://nexusipe.org/measurement-instruments
Additional Resources

http://hbswk.hbs.edu/item/6727.html.


• Article accepted for publication in the Journal of Allied Health

• Webinar from 2014 posted on National Center Resource Exchange.
Development, Validation and Reliability of the Interprofessional Collaborator Assessment Rubric (ICAR)

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Outline

• Rationale

• ICAR Construction

• Pilot Study

• Field Test - Multi-Source Feedback
Rationale

• Need for reliable and valid assessment tools to evaluate competency achievement in the area of IPE.

• Assessment rubrics are becoming increasingly popular in post-secondary education as educators move toward more authentic, competency-based assessments that rely on performance indicators.
Methodology - ICAR Development & Validation

- **Stage I: Competency Development**
  - Typological analysis of peer-reviewed and grey literature
  - Delphi Survey (English/French)
    - Importance/Clarity of competencies

- **Stage II: Rubric Development**
  - Draft rubric constructed
  - Multi-site focus groups
    - Faculty and Students
    - English/French
Interprofessional Collaborator Assessment Rubric (ICAR)

Competency Categories:

1. Communication
2. Collaboration
3. Roles and Responsibility
4. Collaborative Patient/Client-Family Centred Approach
5. Team Functioning
6. Conflict Management/Resolution
Collaboration: Ability to establish/maintain collaborative working relationships with other providers, patients/clients and families.

1. Establishes collaborative relationships with others in planning and providing patient/client care.
2. Promotes the integration of information from others in planning and providing care for patients/clients.
3. Upon approval of the patient/client or designated decision-maker, ensures that appropriate information is shared with other providers.

<table>
<thead>
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<td>care.</td>
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Comments:
Goal: Interprofessional Collaboration

A partnership between a team of health providers and a client in a participatory, collaborative and coordinated approach to shared decision-making around health and social issues.

- **Role Clarification**: Learners/practitioners understand their own role and the roles of those in other professions, and use this knowledge appropriately to establish and meet patient/client/family and community goals.

- **Interprofessional Conflict Resolution**: Learners/practitioners actively engage self and others, including the patient/client/family, in dealing effectively with interprofessional conflict.

- **Team Functioning**: Learners/practitioners understand the principles of team dynamics and group processes to enable effective interprofessional team collaboration.

- **Collaborative Leadership**: Learners and practitioners work together with all participants, including patients/clients/families, to formulate, implement and evaluate care/services to enhance health outcomes.

- **Interprofessional Communication**: Learners/practitioners from varying professions communicate with each other in a collaborative, responsive and responsible manner.

- **Contextual Issues**: Quality Improvement.

- **Complex**: Simple.
Methodology – Reliability Testing

• Stage I: Pilot

• Stage II: Field Test – Multi Source Feedback
Pilot Study –
Discipline of Anaesthesia

• Original 31-item ICAR reduced to 17-items
  ❖ Face validity assessed by Anaesthesia faculty members

• Participation
  ❖ 24 attending physicians (60% of faculty)
  ❖ 11 residents (55% of residents).
    • 7 (64%) received at least 3 assessments
    • Range: 3 – 7 raters per resident
Field-test - Multi-Source Feedback

- ICAR was expanded from 4-point scale to a 9-point scale (+ Not Observable)

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<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
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<tr>
<td></td>
<td>Well Below Expected</td>
<td>Below Expected</td>
<td>Expected</td>
<td>Above Expected</td>
<td>Well Above Expected</td>
<td>Not Observable</td>
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</tbody>
</table>

**Communication**: Ability to communicate effectively in a respectful and responsive manner with others ("others" includes team members, patient/client, and health providers outside the team).

<table>
<thead>
<tr>
<th>Resident...</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>N/O</th>
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<tbody>
<tr>
<td>Communicates with others in a confident, assertive, and respectful manner.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Communicates opinion and pertinent views on patient care with others.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td></td>
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<tr>
<td>Uses communication strategies (verbal &amp; non-verbal) appropriately in a variety of situations.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
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<tr>
<td>Communicates in a logical and structured manner</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
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</table>
Field-test - Multi-Source Feedback

Participation:
- **80** Raters:

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<th>Consented</th>
<th>Completed</th>
<th>Response Rate</th>
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<tr>
<td>Physicians</td>
<td>11</td>
<td>10</td>
<td>90.9%*</td>
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<tr>
<td>Nurses</td>
<td>76</td>
<td>57</td>
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<tr>
<td>Allied Health</td>
<td>18</td>
<td>13</td>
<td>75.2%</td>
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<tr>
<td>Professionals</td>
<td>105</td>
<td>80</td>
<td>76.2%</td>
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</table>

- **6 Residents:**
  - 3 – Orthopedic
  - 2 – Internal medicine (one assessed in ICU)
  - 1 – Anesthesia (assessed in ICU)
## Internal Consistency Reliability

- Cronbach’s Alpha
- > 0.7 is considered suitable reliability within tool

<table>
<thead>
<tr>
<th>Competency Domain</th>
<th>Cronbach’s Alpha</th>
<th>Pilot</th>
<th>MSF</th>
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<tr>
<td>Communication (4 items)</td>
<td>.768*</td>
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<td>.963*</td>
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<tr>
<td>Collaboration (3 items)</td>
<td>.876*</td>
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<td>.950*</td>
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<tr>
<td>Roles and Responsibility (3 items)</td>
<td>.667</td>
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<td>.899*</td>
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<tr>
<td>Collaborative Patient/Client – Family</td>
<td>.800*</td>
<td></td>
<td>.881*</td>
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<tr>
<td>Centred (2 items)</td>
<td>.708*</td>
<td></td>
<td>.932*</td>
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<tr>
<td>Team Functioning (2 items)</td>
<td>.851*</td>
<td></td>
<td>.907*</td>
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<tr>
<td>Conflict Management / Resolution (2 items)</td>
<td>.939*</td>
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<td>.981*</td>
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*Significant at p < 0.05
## Proportion of Non-Observable / Missing Data

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<tr>
<th>Item #</th>
<th>Item Category (# in Category)</th>
<th>Pilot (%)</th>
<th>MSF (%)</th>
<th>Difference (%)</th>
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<tr>
<td>17</td>
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<td>54.8</td>
<td>26.5</td>
<td>-28.3</td>
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<td>16</td>
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<td>25.8</td>
<td>18.7</td>
<td>-7.1</td>
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<td>8</td>
<td>Roles and Responsibility (1)</td>
<td>19.4</td>
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<td>-2.6</td>
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<td>10</td>
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<td>19.4</td>
<td>15.5</td>
<td>-3.9</td>
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<td>15</td>
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<td>19.4</td>
<td>8.4</td>
<td>-11.0</td>
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<tr>
<td>12</td>
<td>Patient/Client – Family Centred (2)</td>
<td>16.1</td>
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<td>+2.6</td>
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<td>14</td>
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<td>16.1</td>
<td>3.9</td>
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<td>9.7</td>
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<td>-3.9</td>
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<td>6</td>
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<td>6.5</td>
<td>3.2</td>
<td>-3.3</td>
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**Total Missing:** 13.1%  | 8.8%  | -4.3%  

* Significant at α = 0.05 (Paired samples t-test)
# Inter-rater Reliability (IRR)

## Percent Agreement
- > 80% considered suitable agreement

## Fleiss’ Kappa
- > 0.7 considered suitable reliability within tool

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<thead>
<tr>
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<tr>
<td></td>
<td>Value</td>
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<tr>
<td>Percent Agreement</td>
<td>66.8%</td>
<td>64.5 – 69.2</td>
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<td>Fleiss’ Kappa</td>
<td>.003</td>
<td>.000 – .038</td>
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One-way ANOVA Between Rater Groups of ICAR Mean Score

- Physician (n=22): Mean Score = 6.64
- Nurse (n=107): Mean Score = 6.21
- Allied Health (n=26): Mean Score = 6.09

p = .297
t-tests Between Gender on ICAR Mean Score

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<td>Male Rater (n=29)</td>
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<td>.008*</td>
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<tr>
<td>Female Resident (n=2)</td>
<td>6.23</td>
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<tr>
<td>Male Resident (n=4)</td>
<td>6.26</td>
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<td>.297</td>
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</table>

* Significant at α = 0.05
Comparison of Mean Item Score Between Rater Genders

*Two-way repeated measures ANOVA

**p = 0.036
t-tests between Rater Experience on ICAR Mean Score

- Total Years of Experience
  - <10 (n=62): 6.12
  - 10+ (n=93): 6.33
  - p = .331

- Years of Experience (Current Unit)
  - <10 (n=86): 6.24
  - 10+ (n=69): 6.26
  - p = .917
t-test between Rater Interaction Frequency on ICAR Mean Score

≥ 1 per shift (n=102)  6.3

< 1 per shift (n=52)  6.18

p = .579
Comparison of Mean Item Score Between Interaction Frequency

*Two-way repeated measures ANOVA
**p = .025
Where is ICAR being used? Workplace Assessment
References


Examining Teamwork Skills in Simulated Settings

Amy V. Blue, PhD
Associate Vice President for Interprofessional Education - Health Sciences
Associate Dean for Educational Affairs
College of Public Health and Health Professions
Project Collaborators

- Donna Kern, MD
- Sarah Shrader, PharmD*
- James Zoller, PhD

Medical University of South Carolina
*South Carolina College of Pharmacy
Background

• How effectively can learners apply their interprofessional skills?
  – Acquisition of knowledge/skills
  – Transfer to practice setting
  – Practice behavior and patient outcomes

• Evidence indicates that team training, including use of health care simulation, is associated with better patient outcomes$^2,3$

• With learners, outcomes less clear…
Study Questions

In a high-fidelity simulated learning environment:

1) How are IP team skills associated with clinical outcomes?

2) How are attitudes toward IP collaboration associated with clinical outcomes?
Subjects

• 24 IP student teams of 5 participants (N=120)
  – 4th yr medicine, 3rd yr pharmacy, 1st yr physician assistant students

• Newly formed teams – no prior experience working together
Setting

- Teams manage an unstable patient (simulator mannequin) with a gastrointestinal bleed caused by a medical error and medicine interaction

- Team functions in an inpatient rounds setting
  - Patient Interview
  - Physical Exam
  - Order diagnostic tests, labs, medications
Measures

- Clinical Outcomes (COS)
  - Expert faculty determined with modified Delphi

- Attitudes toward IP Collaboration
  - Interdisciplinary Education Perception Scale (IEPS)\(^5\)

- Teamwork skills (TWS)
  - TeamSTEPPS\(^6\) modified for setting; instrument structure used
Analyses

- Descriptive statistics for demographic, COS, IEPS, and TWS scores
- Regression analysis
  - COS dependent variable
  - IEPS and TWS scores as independent variable
Results - Subjects

- Female (71%)
- Ages 20-25 (56%)
- Caucasian/White (89%)
## Results

<table>
<thead>
<tr>
<th>Measure</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical Outcomes</td>
<td>25.22</td>
<td>7.44</td>
</tr>
<tr>
<td></td>
<td>(maximum=43)</td>
<td></td>
</tr>
<tr>
<td>Teamwork Score</td>
<td>80.75</td>
<td>11.13</td>
</tr>
<tr>
<td></td>
<td>(maximum=110)</td>
<td></td>
</tr>
<tr>
<td>Total IEPS Score</td>
<td>73.42</td>
<td>3.31</td>
</tr>
<tr>
<td></td>
<td>(maximum=82)</td>
<td></td>
</tr>
</tbody>
</table>
### Regression Results

<table>
<thead>
<tr>
<th>Model</th>
<th>B</th>
<th>Std. Error</th>
<th>$\beta$</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>-60.276</td>
<td>25.526</td>
<td>0.028</td>
<td>.028</td>
</tr>
<tr>
<td>TWS</td>
<td>0.440</td>
<td>0.099</td>
<td>0.659</td>
<td>.000*</td>
</tr>
<tr>
<td>IEPS</td>
<td>0.680</td>
<td>0.333</td>
<td>0.303</td>
<td>.054</td>
</tr>
</tbody>
</table>

*p<.0001; $R^2=.539$
Discussion

• In a simulated clinical setting, students’:
  – Attitudes toward IP collaboration were not significant predictors of clinical outcomes
  – Teamwork skills were significant predictors of clinical outcomes
Limitations

• Non-randomized teams and teams unequally distributed amongst professions
• Teamwork scale was a modified version
• Other instruments may have found stronger relationship between attitudes, teamwork and clinical outcomes
Conclusions

• Effective IP teamwork by students is associated with positive clinical outcomes in a simulated clinical environment.
• IP curricular models can improve students’ teamwork skills and likely positively affect patient care outcomes.
References


Thank you!

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