The Webinar will begin at 10:00 a.m. CST

Connect to audio by dialing:
Domestic: 866-767-9978
Outside of US: 850-429-1381
Code: 8862652#
Assessment of IPE to Move Beyond Attitudes: Featured tools and case studies from the field
Thursday, February 12, 2015
Moderator & Presenter

Sarah Shrader, PharmD
Clinical Associate Professor,
University of Kansas, School of Pharmacy
Presenters

**Amy Blue, PhD**
Associate Vice President for Interprofessional Education, Health Sciences Associate Dean for Educational Affairs, College of Public Health and Health Professional, University of Florida

**Vernon Curran, PhD**
Associate Dean of Educational Development Professor of Medical Education Faculty of Medicine, Memorial University of Newfoundland
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.”

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

Adapted from: Ramani S, Leinster S, AMEE Guide no 34: Teaching in the clinical environment. 
Additional Resources


National Center for Interprofessional Practice and Education Measurement Instruments

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


Additional Resources


• 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)

Vernon Curran, MEd, PhD
Associate Dean of Educational Development
Professor of Medical Education
Faculty of Medicine

Mark Hayward, MSc, MD Student
Faculty of Medicine
ICAR Development Team

Vernon Curran, MEd, PhD, Memorial University
Lynn Casimiro, PhD, PT, Montfort Hospital
Valerie Banfield, RN, MN, Registered Nurses Professional Development Centre
Pippa Hall, MD, CCFP, MEd, FCFP, University of Ottawa
Tracy Gierman, MA, Academic Health Council-Champlain Region
Kelly Lackie, RN, MN, CNCC(C), Registered Nurses Professional Development Centre
Ivy Oandasan, MD, MHSc, CCFP, FCFP, University of Toronto
Brian Simmons, BM, FRCPC, University of Toronto
Susan Wagner, MSc(CD), Reg. SLP(C), University of Toronto
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>
<tr>
<th>Dimensions</th>
<th>Not Observable</th>
<th>Minimal 1</th>
<th>Developing 2</th>
<th>Competent 3</th>
<th>Mastery 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collaborative Relationship</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Integration of Information from others</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Information Sharing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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.

Contextual Issues
Quality Improvement
Interprofessional Communication
Patient/Client/Family/Community-Centred Care
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)

<table>
<thead>
<tr>
<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>
</tr>
</thead>
<tbody>
<tr>
<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>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</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>
</tr>
</thead>
<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>
</tr>
<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>
<td></td>
</tr>
<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>
<td></td>
</tr>
</tbody>
</table>
Field-test - Multi-Source Feedback

Participation:

• **80 Raters:**

<table>
<thead>
<tr>
<th></th>
<th>Consented</th>
<th>Completed</th>
<th>Response Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physicians</td>
<td>11</td>
<td>10</td>
<td>90.9%*</td>
</tr>
<tr>
<td>Nurses</td>
<td>76</td>
<td>57</td>
<td>75.0%</td>
</tr>
<tr>
<td>Allied Health Professionals</td>
<td>18</td>
<td>13</td>
<td>75.2%</td>
</tr>
<tr>
<td>Total</td>
<td>105</td>
<td>80</td>
<td>76.2%</td>
</tr>
</tbody>
</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>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pilot</strong></td>
<td><strong>MSF</strong></td>
</tr>
<tr>
<td>Communication (4 items)</td>
<td>.768*</td>
</tr>
<tr>
<td>Collaboration (3 items)</td>
<td>.876*</td>
</tr>
<tr>
<td>Roles and Responsibility (3 items)</td>
<td>.667</td>
</tr>
<tr>
<td>Collaborative Patient/Client – Family</td>
<td>.800*</td>
</tr>
<tr>
<td>Centred (2 items)</td>
<td>.708*</td>
</tr>
<tr>
<td>Team Functioning (2 items)</td>
<td>.851*</td>
</tr>
<tr>
<td>Conflict Management / Resolution (2 items)</td>
<td>.939*</td>
</tr>
<tr>
<td><strong>ICAR (17 items)</strong></td>
<td></td>
</tr>
</tbody>
</table>
## Proportion of Non-Observable / Missing Data

<table>
<thead>
<tr>
<th>Item #</th>
<th>Item Category (# in Category)</th>
<th>Pilot (%)</th>
<th>MSF (%)</th>
<th>Difference (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>17</td>
<td>Conflict Management / Resolution (3)</td>
<td>54.8</td>
<td>26.5</td>
<td>-28.3</td>
</tr>
<tr>
<td>16</td>
<td>Conflict Management / Resolution (2)</td>
<td>25.8</td>
<td>18.7</td>
<td>-7.1</td>
</tr>
<tr>
<td>8</td>
<td>Roles and Responsibility (1)</td>
<td>19.4</td>
<td>16.8</td>
<td>-2.6</td>
</tr>
<tr>
<td>10</td>
<td>Roles and Responsibility (3)</td>
<td>19.4</td>
<td>15.5</td>
<td>-3.9</td>
</tr>
<tr>
<td>15</td>
<td>Conflict Management / Resolution (1)</td>
<td>19.4</td>
<td>8.4</td>
<td>-11.0</td>
</tr>
<tr>
<td>12</td>
<td>Patient/Client – Family Centred (2)</td>
<td>16.1</td>
<td>18.7</td>
<td>+2.6</td>
</tr>
<tr>
<td>14</td>
<td>Team Functioning (2)</td>
<td>16.1</td>
<td>3.9</td>
<td>-12.2</td>
</tr>
<tr>
<td>11</td>
<td>Patient/Client – Family Centred (1)</td>
<td>12.9</td>
<td>17.4</td>
<td>+4.5</td>
</tr>
<tr>
<td>9</td>
<td>Roles and Responsibility (2)</td>
<td>9.7</td>
<td>7.1</td>
<td>-2.6</td>
</tr>
<tr>
<td>13</td>
<td>Team Functioning (1)</td>
<td>9.7</td>
<td>5.8</td>
<td>-3.9</td>
</tr>
<tr>
<td>6</td>
<td>Collaboration (2)</td>
<td>6.5</td>
<td>3.2</td>
<td>-3.3</td>
</tr>
<tr>
<td></td>
<td><strong>Total Missing</strong></td>
<td><strong>13.1</strong></td>
<td><strong>8.8</strong></td>
<td><strong>-4.3</strong>*</td>
</tr>
</tbody>
</table>

* Significant at $\alpha = 0.05$ (Paired samples t-test)
Inter-rater Reliability (IRR)

Percent Agreement
• > 80% considered suitable agreement

Fleiss’ Kappa
• > 0.7 considered suitable reliability within tool

<table>
<thead>
<tr>
<th></th>
<th>Pilot</th>
<th>MSF</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Value</td>
<td>95% CI</td>
</tr>
<tr>
<td>Percent Agreement</td>
<td>66.8%</td>
<td>64.5 – 69.2</td>
</tr>
<tr>
<td>Fleiss’ Kappa</td>
<td>0.003</td>
<td>0.000 – 0.038</td>
</tr>
</tbody>
</table>
One-way ANOVA Between Rater Groups of ICAR Mean Score

Physician (n=22) 6.64
Nurse (n=107) 6.21
Allied Health (n=26) 6.09

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

- **Female (n=126)**: Mean Score = 6.12, p = .297
- **Male (n=29)**: Mean Score = 6.82, p = .008*
- **Female (n=2)**: Mean Score = 6.23
- **Male (n=4)**: Mean Score = 6.26

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

*Two-way repeated measures ANOVA
**p = .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\(^4\)
- 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>β</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>-60.276</td>
<td>25.526</td>
<td></td>
<td>.028</td>
</tr>
<tr>
<td>TWS</td>
<td>.440</td>
<td>.099</td>
<td>0.659</td>
<td>.000*</td>
</tr>
<tr>
<td>IEPS</td>
<td>.680</td>
<td>.333</td>
<td>0.303</td>
<td>.054</td>
</tr>
</tbody>
</table>

*p<.0001; R²=.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


Questions?
Save the Date

Empowering Students. Empowering Communities: Interprofessional Campus-to-Community Learning Opportunities

Presented by Kerry Dunn, JD, PhD,
Shelley Cohen Konrad, PhD, LCSW, FNAP
Jennifer Morton, DNP, MS, MPH, RN

Thursday, March 5
1:00 – 2:00 p.m. CST
Thank you!

Please visit us at www.aihc-us.org for more information on future AIHC Webinars.