Integrating Interprofessional Practice
Teachers in Quality Session
East Carolina University

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Assistant Vice President of Health Sciences for Interprofessional Education and Collaborative Care
Virginia Commonwealth University
Objectives

• To identity the core competencies for interprofessional education that contribute to successful teams.

• To describe strategies to teach and assess interprofessional competencies.

• To explore lessons learned from embedding IPE into student learning.
About me

• General internist employed by VCU and VCU Health System
• Primary interests are teams, communication, systems, and populations
• Funded by Macy Foundation, Reynolds Foundations, HRSA

• I have a pending conflict of interest related to the virtual case system.
About Virginia Commonwealth University

- 53 acre Health Science campus
- 5 health professional schools: allied health, dentistry, medicine, nursing, pharmacy
- Tertiary academic medical center
- 3200 clinical learners

- Monroe Park campus
- School of social work, departments of psychology and health & human performance, others
- Distant training sites
- > 700 faculty who train health professionals
About the Center for Interprofessional Education and Collaborative Care

• Official center at VCU in January of 2013
• >1,500 learners participate in Center programs annually
• Students and faculty from all five health science Schools, the School of Social Work, & Dept of Psychology
<table>
<thead>
<tr>
<th>Values/Ethics (n = 10)</th>
<th>Roles/Responsibilities (n = 9)</th>
<th>Interprofessional Communication (n = 8)</th>
<th>Teams and Teamwork (n = 11)</th>
</tr>
</thead>
</table>

Interprofessional Collaborative Practice Competencies

Goals of the IPEC Competencies:

- create a coordinated effort for IPE
- guide curriculum
- provide a foundation for learning
- structure research
- promote dialogue between health professions
- shape accreditation, licensing, and credentialing

Values and Ethics Domain: “Work with individuals of other professions to maintain a climate of mutual respect and shared values.”

Roles and Responsibilities Domain: “Use the knowledge of one’s own role and those of other professions to appropriately assess and address the healthcare needs of the patients and populations served.”

Interprofessional Communication Domain: “Communicate with patients, families, communities, and other health professionals in a responsive and responsible manner that supports a team approach to the maintenance of health and the treatment of disease.”

Teams and Teamwork Domain: “Apply relationship-building values and the principles of team dynamics to perform effectively in different team roles to plan and deliver patient-/population-centered care that is safe, timely, efficient, effective, and equitable.”

Assesses student self-efficacy using a Likert scale

Administered as an online survey with invitation email

Sent to students by program leader

Dow AW et al. 2014. JIC
Survey Population

- All students enrolled in clinical degree programs on VCU’s Health Science Campus

  **Allied Health**
  Nine Departments

  **Dentistry**
  DDS and Dental Hygiene

  **Medicine**
  MD and non-MD students

  **Nursing**
  BSN, MSN, PhD

  **Pharmacy**

Dow AW et al. 2014. JIC
Results: 2012

481 completed surveys
Overall response rate: 14.9%
Response rate by School:
  ◦ Allied Health – 4.1%
  ◦ Dentistry – 7.0%
  ◦ Medicine – 25.4%
  ◦ Nursing – 7.8%
  ◦ Pharmacy – 26.3%

Dow AW et al. 2014. JIC
Factor Analysis and Reliability

Four forced domains:
- accounted for 79% of the variance in responses
- aligned with four IPEC domains

Overall scale reliability: $\alpha=.99$

Reliability by domain-associated factor
- Values and Ethics: $\alpha=.98$
- Roles: $\alpha=.95$
- Communication: $\alpha=.95$
- Teamwork: $\alpha=.97$

Dow AW et al. 2014. JIC
Mean Scores by IPEC Domain versus Year of Study

- ‘Value and Ethics’ significantly higher (p < 0.01)
- ‘Teams and Teamwork’ significantly lower (p < 0.01)

Dow AW et al. 2014. JIC
Effective, efficient, appropriate collaborative practice

Build core knowledge (Roles & Responsibilities, Communication, Teams)

Maintain high attitudes (Value & Ethics)

Collaboration skills (Communication, Teams & Teamwork)

Center for Interprofessional Education and Collaborative Care

Early Learners → Advanced Learners → Practitioners

- Early Learners
- Advanced Learners
- Practitioners

- Effective, efficient, appropriate collaborative practice
- Maintain high attitudes (Value & Ethics)
- Build core knowledge (Roles & Responsibilities, Communication, Teams)
- Collaboration skills (Communication, Teams & Teamwork)
IPEC Multi-Center Competency Survey: Participating Institutions

**Institution 1:** large southern public university with a comprehensive health science campus

**Institution 2:** large midwestern public university with a college of health professions (dentistry, nursing, PA, allied health)

**Institution 3:** smaller health system-associated health professional school (nursing, allied health)

**Institution 4:** large midwestern public university with a comprehensive health science campus
### Results: Demographics

#### Students by Institution

<table>
<thead>
<tr>
<th>Institution</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institution 1</td>
<td>624</td>
<td>71%</td>
</tr>
<tr>
<td>Institution 2</td>
<td>94</td>
<td>11%</td>
</tr>
<tr>
<td>Institution 3</td>
<td>85</td>
<td>10%</td>
</tr>
<tr>
<td>Institution 4</td>
<td>80</td>
<td>9%</td>
</tr>
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</table>

#### Students by Profession

<table>
<thead>
<tr>
<th>Profession</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allied Health</td>
<td>256</td>
<td>29%</td>
</tr>
<tr>
<td>Dentistry</td>
<td>74</td>
<td>8%</td>
</tr>
<tr>
<td>Medicine</td>
<td>190</td>
<td>22%</td>
</tr>
<tr>
<td>Nursing</td>
<td>159</td>
<td>18%</td>
</tr>
<tr>
<td>Pharmacy</td>
<td>15</td>
<td>2%</td>
</tr>
<tr>
<td>Public Health</td>
<td>28</td>
<td>3%</td>
</tr>
<tr>
<td>Unknown</td>
<td>161</td>
<td>18%</td>
</tr>
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</table>

#### Students by Gender

<table>
<thead>
<tr>
<th>Gender</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>242</td>
<td>27%</td>
</tr>
<tr>
<td>Female</td>
<td>641</td>
<td>73%</td>
</tr>
</tbody>
</table>

Age Range: 19 - 65 (M=28, SD = 8)
Comparisons between institutions:

- Values and Ethics (p=.014)
- Teams and Teamwork (p=0.18)
- Roles and Responsibilities (p=0.69)
- Interprofessional Communication (p=0.69)
## Results: Domain Scores by Profession

<table>
<thead>
<tr>
<th>Profession</th>
<th>Values and Ethics</th>
<th>Roles and Responsibilities</th>
<th>Interprofessional Communication</th>
<th>Teams and Teamwork</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allied Health</td>
<td>4.37</td>
<td>4.13</td>
<td>4.21</td>
<td>4.05</td>
</tr>
<tr>
<td>Dentistry</td>
<td>4.23</td>
<td>4.01</td>
<td>4.15</td>
<td>3.93</td>
</tr>
<tr>
<td>Medicine</td>
<td>4.37</td>
<td>4.13</td>
<td>4.21</td>
<td>4.03</td>
</tr>
<tr>
<td>Nursing</td>
<td>4.45</td>
<td>4.19</td>
<td>4.25</td>
<td>4.12</td>
</tr>
<tr>
<td>Pharmacy</td>
<td>4.25</td>
<td>4.06</td>
<td>4.37</td>
<td>4.32</td>
</tr>
<tr>
<td>Public Health</td>
<td>4.59</td>
<td>4.34</td>
<td>4.38</td>
<td>4.21</td>
</tr>
<tr>
<td>Unknown</td>
<td>4.31</td>
<td>4.13</td>
<td>4.13</td>
<td>4.03</td>
</tr>
</tbody>
</table>

**No significant differences between professions**
Center for Interprofessional Education and Collaborative Care

- Early Learners
  - Advanced Learners
  - Practitioners

Maintain high attitudes (Value & Ethics)

Build core knowledge (Roles & Responsibilities, Communication, Teams)

Collaboration skills (Communication, Teams & Teamwork)

Effective, efficient, appropriate collaborative practice
What are the collaboration behaviors we want our practitioners and graduates to have?

Think-Pair-Share: What do great teams do well? What do great team members do well?
Debriefing
Improved patient outcomes and community health

Increased inter-professional competency

Engage in shared problem solving
Communicate in context
Resolve conflict
Enhance team performance
Be a change agent

Sequence of learning activities

Medium-term goal

Inputs
Students
Faculty
Resources

Outputs

Long-term goal

Activities
Context-Specific Experiences

Profession-Specific Experiences

Foundational Health Professions Experiences

Pre-Curricular Experiences

Engage in Shared Problem Solving

Solve Healthcare Problems Interprofessionally

Experience Interprofessional Problem Solving

Be Exposed to Interprofessional Problem Solving
Pre-Curricular Experiences

INTER HEALTH PROFESSIONALS ALLIANCE
Inter Health Professional Alliance (IHPA)

- Student-initiated and student-run group
- 4 years old
- Over 200 members
- A number of peer-reviewed publications and national presentations
- School of Allied Health Professions
- School of Dentistry
- School of Medicine
- School of Nursing
- School of Pharmacy
- School of Social Work
- School of Engineering
- VCU Dietetics Internship program
QUITTING SMOKING: FOR YOU AND YOUR BABY.

It has been shown that smoking during pregnancy can hurt both the mother and the baby. Smoking or being pregnant can cause stillbirth, miscarriage, sudden infant death syndrome (SIDS), placenta previa (placenta over the baby); and low birth weight. In addition, smoking is linked with numerous cancers in the mother (including lung, throat, mouth, voice box, cervix and more) and stroke, lung disease, heart disease, atherosclerosis, eye disease, gum disease, and osteoporosis. Smoking also exposes infants to secondhand smoke, which has also been linked to pneumonia, bronchitis, ear infections, wheezing, and coughing in children.

For many people, one of the hardest and most challenging things they will ever do is quit smoking. If you are pregnant, smoke, and want to quit, intensive counseling may increase your chances of quitting. There are many community resources that can help you quit; remember, you are not alone. For more information on how to quit, please visit:

http://www.nichcy.org/smoking/how-to-quit/how-to-quit

3. Women’s health.gov(Smoking and How to Quit...available at http://www.womenshealth.gov/smoking/how-to-quit/how-to-quit

WHAT TO DO BEFORE GETTING PREGNANT.

Thinking about having a baby? Did you know that a baby’s health begins to form in the first few weeks of pregnancy? At this time, you may not even know you are pregnant, so it is very important that you are physically and emotionally ready for a pregnancy before it even happens. Here are a few tips and things to think about if you are thinking about having a child, or are having uncertainties and are at risk of getting pregnant:

1. Talk with your healthcare provider about possibly getting pregnant, and any risk factors associated with your pregnancy.

2. Eat a balanced diet, including plenty of fruits and vegetables. Folates, found in leafy green vegetables and many fortified breakfast cereals, is needed to prevent birth defects of the spine and skull. Fresh, frozen, canned, and dried beans, lentils, and enriched pasta, prevent anemia. People who are anemic are not able to produce enough healthy red blood cells, and lowers the amount of oxygen that is carried in the blood. Look for vitamins that have both folic acid and iron.

3. Stop smoking, any drugs, using alcohol and tobacco products.

These things can put you and your baby at risk for a number of problems. Please talk with your healthcare provider or other community resources.

2. Consider your financial resources. Can you afford to have a baby? Do you have health insurance that will support you and your baby’s medical needs?

3. Are you and your partner ready to have a baby? Are you and your partner ready to put another person above everything else? Have an open dialogue with your partner about being a baby and the changes and challenges that it will bring.

For more information please visit:

www.fidanswers.org

PLAN FIRST – FAMILY PLANNING SERVICES PROGRAM

(C) Virginia Department of Health Services

The Virginia Plan First program pays for family planning services for men and women over the age of 15 who earn equal to or less than 138% of the federal poverty level and are uninsured. This means if you are an uninsured, single

continued on next page
Lessons Learned

1. Engage your learners
Foundational Health Professions Experiences

Interprofessional Case Series
• >600 students
• Pericurricular sessions → full 1-credit course
• Student feedback: more!

Foundations of Quality and Safety
• ~500 students
• Full 1-credit course
2012-2013

Extracurricular Interprofessional Case Series

- Meet your peers
- Learn something (roles)
- Encouraged but not required
- Pizza
- Positive evaluations with suggestions
2012-2013
Extracurricular Interprofessional Case Series
• Meet your peers
• Learn something (roles)
• Encouraged but not required
• Pizza
• Positive evaluations with suggestions

2013-2014
Pericurricular Interprofessional Case Series
• Meet your peers
• Learn something (roles, teams)
• Required*
• Positive evaluations with suggestions
Sample item: *I am able to respect the unique cultures, values, roles/responsibilities, and expertise of other health professions.*
**2012-2013**

Extracurricular Interprofessional Case Series
- Meet your peers
- Learn something (roles)
- Encouraged but not required
- Pizza
- Positive evaluations with suggestions

**2013-2015**

Pericurricular Interprofessional Case Series
- Meet your peers
- Learn something (roles, teams)
- Required*
- Positive evaluations with suggestions

**2015-2016**

Curricular Foundations Course
- Meet your peers
- Learn something (roles, teams, systems)
- Required 1-credit course
Lessons Learned

1. Engage your learners
2. Have a strategy for broad integration of your program
Profession-Specific Experiences

Interprofessional Critical Care Simulations

- All N4s and M4s (320 students)
- Three two-hour sessions around simulators: how do you manage a patient with an acute clinical deterioration?
- Student feedback: more!
Effect Sizes between Retrospective Pre and Post Ratings by Item

All comparisons significantly different at $p < 0.01$.

Cohen’s $d$ Effect Size:
- Small: $0.2-0.49$
- Medium: $0.5-0.79$
- Large: $\geq 0.8$

Interprofessional objectives
Critical care objectives
Lessons Learned

1. Engage your learners
2. Have a strategy for broad integration of your program
3. Assess your intervention and iterate
Profession-Specific Experiences

Interprofessional Virtual Case

- Homegrown case system for asynchronous collaboration
- ~600 participants annually (SOM, SON, SOP, SOSW)
- Now being used at several other institutions
Receive case information

Summarize case data in EHR

Complete peer evaluations

Answer individual questions

Answer group questions

High-value learning
Case of Mattie Johnson

PANENT CASE

Vital Signs
[01/22/2012] today BP 150/85 pulse 92 respirations 20 per min...
[01/22/2012] vital signs on Tuesday for first day of therapy: temp 37.4 C respiration 18 BP 135/60 pulse 80...
[01/21/2012] T 37.8C BP 160/60 HR 96 R 28 92% 4LNC...
[01/12/2012] In hospital; BP is 160/90 Heart rate of 95 Respirations of 28 Oral Temperature of 37.8 Celsius Satting 92% on 4 liters of oxygen by...

Recent Medical History
[01/22/2012] - right bipolar total hip arthroplasty on Monday for severe OA - on Tuesday for her first day of therapy: muscles were atrophic thin, loose
[01/21/2012] 79yo AAF who is Post op day 3 from right total hip replacement. Called for concerns of AMS. Pt is very confused and is trying to escape.
[01/20/2012] Mattie Johnson is a 79 yo AAF with PMH significant for HTN, DM2, CKD stage IV, hyperlipidemia, OA of knees, hands, and R hip, mild

Past Medical and Surgical History
[01/22/2012] Also PMH includes urinary incontinence...
[01/22/2012] cataracts surgically removed and a lens implant placed which improved her vision...
[01/22/2012] right bipolar total hip arthroplasty on Monday for severe OA..
[01/21/2012] On top of chronic problems (see problem list) Pt has had one hospital admission 6 months ago for a complicated UTI with sepsis and
[01/20/2012] Past Medical Hx: hospital admission for complicated UTI w/ sepsis s/p CLF HTN DM2 CKD stage IV Hyperlipidemia progressive OA

Social History
[01/22/2012] * in the hospital for hip surgery * out of town POA * most of family living out of town * niece * struggling with the amount of time
[01/21/2012] Addition to problem list: urinary incontinence per electronic health record..
[01/21/2012] Chronic: Hypertension, DMII, CKD Stage IV, Hyperlipidemia, Osteoarthritis of the knees, hands and right hip, GOut, mild cognitive

General Physical Exam

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Of the following, which would be true of surrogate decision-makers in Mattie’s case when it comes to tube feeding? (Select all that apply)

- Sadie knows Mattie best and her opinion should have the greatest weight
- State laws vary in the way they address this issue and not all states have applicable statutes or case law bearing directly on this issue
- In many states, a majority of the living children would be legally authorized to make this decision
- Surrogate decision-makers usually make the same decisions that patients would make for themselves based on formal research
- Family members tend to pursue less aggressive care strategies than the treating physician
- Being DNR means that Mattie (and her family) would not want tube feeding

When family members make a choice that is clearly different from what the treating physician recommends in this situation the physician’s decision should be the one that is followed.

Submit Answer(s)
## Case Activity Measures

<table>
<thead>
<tr>
<th>Case activity measures</th>
<th>Medical Students (n=194)</th>
<th>Nursing Students (n=146)</th>
<th>Pharmacy Students (n=60)</th>
<th>Social Work Students (n=122)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Logins</td>
<td>21 (2-98)</td>
<td>28 (5-197)</td>
<td>25 (2-86)</td>
<td>22 (1-114)</td>
</tr>
<tr>
<td>EHR entries</td>
<td>11 (0-44)</td>
<td>14 (2-53)</td>
<td>5 (0-19)</td>
<td>7 (0-43)</td>
</tr>
<tr>
<td>Message board posts and replies</td>
<td>8 (0-157)</td>
<td>8.5 (0-131)</td>
<td>9.5 (0-81)</td>
<td>5 (0-108)</td>
</tr>
<tr>
<td>Message board posts viewed</td>
<td>24 (0-659)</td>
<td>27 (0-675)</td>
<td>36.5 (0-335)</td>
<td>17.5 (0-460)</td>
</tr>
</tbody>
</table>
Correlations between Case Activity Measures and Scores

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Individual Score</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>2. Individual Logins</td>
<td>0.32*</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>3. Individual EHR</td>
<td>0.33*</td>
<td>0.32*</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Entries</td>
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<td></td>
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</tr>
<tr>
<td>4. Individual</td>
<td>0.39*</td>
<td>0.50*</td>
<td>0.28*</td>
<td>—</td>
<td>—</td>
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<tr>
<td>Message Board Posts/</td>
<td></td>
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<tr>
<td>Replies</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>5. Individual</td>
<td>0.35*</td>
<td>0.46*</td>
<td>0.25*</td>
<td>0.80*</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Message Board Views</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Team Score</td>
<td>0.18*</td>
<td>0.23*</td>
<td>0.07</td>
<td>0.34*</td>
<td>0.27*</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>7. Team Size</td>
<td>-0.03</td>
<td>-0.01</td>
<td>-0.10</td>
<td>-0.12</td>
<td>-0.03</td>
<td>0.02</td>
<td>—</td>
</tr>
</tbody>
</table>
Lessons Learned

1. Engage your learners
2. Have a strategy for broad integration of your program
3. Assess your intervention and iterate
4. Think about how to apply behavioral assessments
Context-Specific Experiences
Richmond Health and Wellness Program
• Nursing, Pharmacy, Social Work, Medicine, Psychology
• HRSA-funded
• Community-focused care coordination in an indigent setting
• Patient and student impact
• “Hotspotting”
Lessons Learned

1. Engage your learners
2. Have a strategy for broad integration of your program
3. Assess your intervention and iterate
4. Think about how to apply behavioral assessments
5. Embrace the tension between breadth and depth
Scholarship and Dissemination

**Emswiller Symposium**
- Regional interprofessional symposium
- >150 attendees past two years

**Interprofessional Virtual Case**
- Patent pending
- Licensing to other institutions

**RHWP**
- Dissemination to other institutions

**Grant funding**
- HRSA
- Macy Foundation
- Reynolds Foundation
- SGEA

**National Presentations or Manuscripts**
(*=student/trainee)
- Melissa Abell
- Nital Appelbaum*
- Nathaniel Arnold*
- Peter Boling
- Antoinette Coe
- Ann-Marie Conlon
- Steve Crossman
- Jeff Delafuente
- Deborah DiazGranados
- Alan Dow
- Alex Enurah*
- Jessica Evans*
- Moshe Feldman
- Cheryl Garland
- Sarah Hobgood
- Susan Johnson
- Tanya Huff
- Sharon Lanning
- Kelly Lockeman
- Gary Matzke
- Paul Mazmanian
- Letitia Mocyzgemba
- Natalie Nguyen*
- Kelechi Ogbonna
- Shelley Orr
- Darshan Pandya*
- Pamela Parsons
- Sheldon Retchin
- Andrew Rock*
- Lana Sargent
- Lyubov Slashcheva*
- Stephanie Umphlette*
- Lynn VanderWeilen*
- Jean Ellen Zavertnik
Lessons Learned

1. Engage your learners
2. Have a strategy for broad integration of our program
3. Assess your intervention and iterate
4. Think about how to apply behavioral assessments
5. Embrace the tension between breadth and depth
6. Be scholarly
Pre-Curricular Experiences

Foundational Health Professions Experiences

Profession-Specific Experiences

Context-Specific Experiences

Engage in Shared Problem Solving

Solve Healthcare Problems Interprofessionally

Experience Interprofessional Problem Solving

Be Exposed to Interprofessional Problem Solving
Lessons Learned

1. Engage your learners
2. Have a strategy for broad integration of your program
3. Assess your intervention and iterate
4. Think about how to apply behavioral assessments
5. Embrace the tension between breadth and depth
6. Be scholarly
7. Consider the developmental continuum
Think-pair-share
For your project, what aspects are or could be interprofessional?
What interprofessional objectives do you or could you have?
How might you assess progress toward interprofessional goals?
Debriefing, Questions and Discussion

Alan Dow
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