Assessment of Instructional Collaboration
Using the Integrated Longitudinal Case-based Learning Model to Enhance Teaching and Learning

Indiana University
School of Health and Rehabilitation Sciences
Department of Physical Therapy
Doctor of Physical Therapy Program
Welcome to the “Family”

Integrated Longitudinal Case-Based Learning Team

- Peter Altenburger, PT, PhD
- Terry Loghmani, PT, PhD
- Valerie Strunk, PT, MS
- Amy Bayliss, PT, DPT
Outline

- **Review of Phase I**
  - Development of the **instrument**:
    - “IU DPT Case Family Tree”
  - Evolution of the **model**:
    - “Integrated Case-Based Learning Model” (ILCBL)

- **Current progress with Phase 2**
  - Case matrix development
  - Student learning outcomes
  - Assessment plan

- Current outcomes

- Future Directions
Overall Development & PRAC Support

**Instrument**

Family Tree

"PHASE I"

PRAC Grant 2010

"Assessment of an Integrative Longitudinal Case-Based Learning Model as a Curriculum Strategy to Enhance Teaching and Learning"

**Model**

ILCBL

"PHASE II"

PRAC Grant 2012

"Assessment of Instructional Collaboration Using the Integrated Longitudinal Case-Based Learning Model to Enhance Teaching and Learning"

**PRAC 2010 (Phase I)**

Course & Instrument Development

System Logistics

Individual Application & Dissemination

**PRAC 2011 (Phase II)**

Curricular & Model Development

Direct Assessment

Collaboration & Dissemination
WHY?
Initially developed to help individual faculty with facilitating students’:
- problem-solving & clinical decision making skills
- cultural & ethical competence
- preparation for entry-level clinical practice
Biography Example
‘Troy Coleman’

- **Age:** 25
- **Gender:** Male
- **Race:** Caucasian
- **Work History:** Troy is a factory worker and has been working with the same company since graduating from high school.
- **Living Environment:** He lived with his wife in a modest home in the country until the divorce. After his wife left, he moved into a friend’s third story 2-bedroom apartment.
- **Social History:** He had married his high school sweetheart right after graduation. After six years of marriage, his wife abruptly left him without an explanation.
- **Lifestyle:** He does not exercise because his job is physically demanding and he is worn out by the time he’s finished with work. The last thing he wants to do when he gets home is work-out. After his wife left, he started drinking up to 10 beers/day on the weekends, sometimes alone and sometimes with friends.
<table>
<thead>
<tr>
<th>Type of method</th>
<th>Lecture Based Cases</th>
<th>Case-based Lectures</th>
<th>Case Method</th>
<th>Modified Case Method</th>
<th>Problem Based</th>
</tr>
</thead>
<tbody>
<tr>
<td>Definition</td>
<td>Case presented in confines of lecture</td>
<td>Cases used as adjuncts to lecture</td>
<td>Case used as a medium for learning</td>
<td>Student group work with case</td>
<td>Student groups work on case from scratch</td>
</tr>
<tr>
<td>Student/instructor role</td>
<td>Instructor centered</td>
<td>Instructor centered</td>
<td>Student and instructor shared</td>
<td>Student centered w/ faculty facilitation</td>
<td>Student centered with faculty feedback</td>
</tr>
<tr>
<td>Case/problem given</td>
<td>Complete case given as example</td>
<td>Complete case given as foundation for lecture material</td>
<td>Complete case given for discussion</td>
<td>Partial case given with stimulus questions</td>
<td>Small case vignette or problem provided</td>
</tr>
</tbody>
</table>

Barrows, HS. *Med Educ.* 1986
Integrative Evolution of the Model

- Psychosocial
- Multicultural
- The Whole Person
- Interpersonal
- Ethical

INSTRUMENT

ILCBL
Evolution of the Model

Longitudinal

Health
- Disease Progression
- Aging
- Secondary complications

Personal
- Familial relationships
- Personal history
- Ethical and social constructs

Across Courses
Across Semesters
Transitioning From Classroom to Clinic
ILCBL Strategic Development

1. Target curricular objectives
2. Identify specific cases for integration (6)
3. Develop longitudinal case progression
4. Attach specific learning objectives to the case progression
   – Consider all domains of learning
   – Consider course objectives
5. Identify course implementation
   – Develop an application matrix
   – Course instructor responsible for application
### 2: Identify Specific Cases for Integration

<table>
<thead>
<tr>
<th>Case Family Member</th>
<th>Diagnoses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daleela Jafari, 72</td>
<td>Osteoporosis, Type II Diabetes</td>
</tr>
<tr>
<td>Jack “Friendly Eagle” Ball, 83</td>
<td>Congestive Heart Failure</td>
</tr>
<tr>
<td>Carly Wishard, 38</td>
<td>Wrist and hand pain/dysfunction, Breast Cancer</td>
</tr>
<tr>
<td>Maria Lopez, 31</td>
<td>Type I Diabetes</td>
</tr>
<tr>
<td>William Emerson, 39</td>
<td>TBI</td>
</tr>
<tr>
<td>Troy Coleman, 25</td>
<td>ACL injury, burn</td>
</tr>
</tbody>
</table>
### Case Family Integration & Implementation Across the Curriculum

**The ‘Matrix’**

<table>
<thead>
<tr>
<th>Case</th>
<th>Semester 1 Fall First Year</th>
<th>Semester 2 Spring First Year</th>
<th>Sum 1</th>
<th>Semester 3 Fall Second Yr</th>
<th>Semester 4 Spring Second Yr</th>
<th>Summer II</th>
<th>Semester 5 Fall Third Yr</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carly Wishard</td>
<td>P511 Clinical Decision Making</td>
<td>P515 Exam and Intervention I</td>
<td></td>
<td>P526 Exam and Intervention II</td>
<td>P680 Health Promotion</td>
<td>P532 Legal and Ethical Issues in PT</td>
<td>P642 Neurological Rehab II</td>
</tr>
<tr>
<td>Course</td>
<td>Introduction</td>
<td>Carpel Tunnel Syndrome</td>
<td></td>
<td>Dx = CMC Form of compensation from CTS</td>
<td>Risk factors for cardiac involvement</td>
<td>Beneficence (Burnout)</td>
<td>Her son diagnosed with CP (Finn)</td>
</tr>
<tr>
<td>Content</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Course</td>
<td>P646 Therapeutic Ex &amp; Modalities</td>
<td>P643 Psychosocial Dimensions of PT</td>
<td></td>
<td>P524 Cardiopulmonary Practice</td>
<td>P660 Special Topics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Content</td>
<td>Carpel Tunnel Syndrome</td>
<td>Burnout (PT)</td>
<td></td>
<td>Angina</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Course</td>
<td>Pathophysiology</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Content</td>
<td>Breast Cancer Development</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Students will be able to:

- **Year 1**
  - demonstrate applied cultural sensitivity

- **Year 2**
  - apply psychosocial and cultural concepts to various aspects of patient care
  - apply accurate clinical decision-making with respect to patient examination and intervention

- **Year 3**
  - assimilate information from various courses when managing patients with multiple system involvement
## Assessment Plan

<table>
<thead>
<tr>
<th>Assessment Tool</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Measurement Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Survey (Likert Scale and Open ended)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>Indirect</td>
</tr>
<tr>
<td>Electronic Portfolio Reflection</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>Indirect</td>
</tr>
<tr>
<td>Clinical Performance Instrument</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>Direct</td>
</tr>
<tr>
<td>Faculty Course Outcomes</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>Direct</td>
</tr>
<tr>
<td>Complex Case Application</td>
<td></td>
<td></td>
<td>X</td>
<td>Indirect/Direct</td>
</tr>
<tr>
<td>Digital Story</td>
<td></td>
<td></td>
<td>X</td>
<td>Indirect</td>
</tr>
</tbody>
</table>
“It’s all in the family...”
Clinical Preparation (36 second year DPT Students)

Student Perception of the Impact of Integrated Case Studies

Facilitated my clinical decision-making with patients

Psychosocial and cultural preparation for clinical internships

- 69%
- 56%
Student Outcomes

- Clinical Preparation (36 second year DPT Students)

Student Perception of the Impact of Integrated Case Studies

Integration of psychosocial and cultural aspects into Plan of Care

Facilitated my problem solving and critical thinking skills

- 75% Integration of psychosocial and cultural aspects into Plan of Care
- 69% Facilitated my problem solving and critical thinking skills
Student Outcomes

- Complex Case Analysis

Student Perception of Complex Case Assignment

Progressive case design provided me with an awareness of my strengths and weaknesses

- 57%

Complex cases provided a realistic clinical challenge

- 86%

Complex cases required synthesis from multiple courses

- 91%
Dissemination

- National Talk (2012)
  - Physical Therapy National Research Conference
- Concept Translation
  - 11 programs have adopted our model
- Research presentations
  - State and local presentations
Limitations

- Direct assessments of the model
  - Difficult to isolate the true impact
- Without faculty buy-in it will not be successful
- Sustainability of the model – e.g. adjusting to curriculum changes, faculty turnover
- Consistent approach to application
- Purpose must be clearly introduced to students
- Does not replace “live patient” exposure
Future Directions

- Continue to evaluate effectiveness of integration and progression within and across courses.
- Evaluate classroom to clinic impact (Phase III).
- Add layers to interactive aspect – e.g. video clips, electronic clinical documentation records.
- Assess use at other institutions.
- Explore impact on student professional development.
Thank You!

It’s All in the Family!

Woohoo!!
Are we havin’ fun!

If you have any questions, please do not hesitate to contact us!

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