

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



Indiana University  
School of Health and Rehabilitation Sciences  
Department of Physical Therapy  
Doctor of Physical Therapy Program

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## *Welcome to the “Family”*

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***Integrated Longitudinal Case-Based Learning Team***

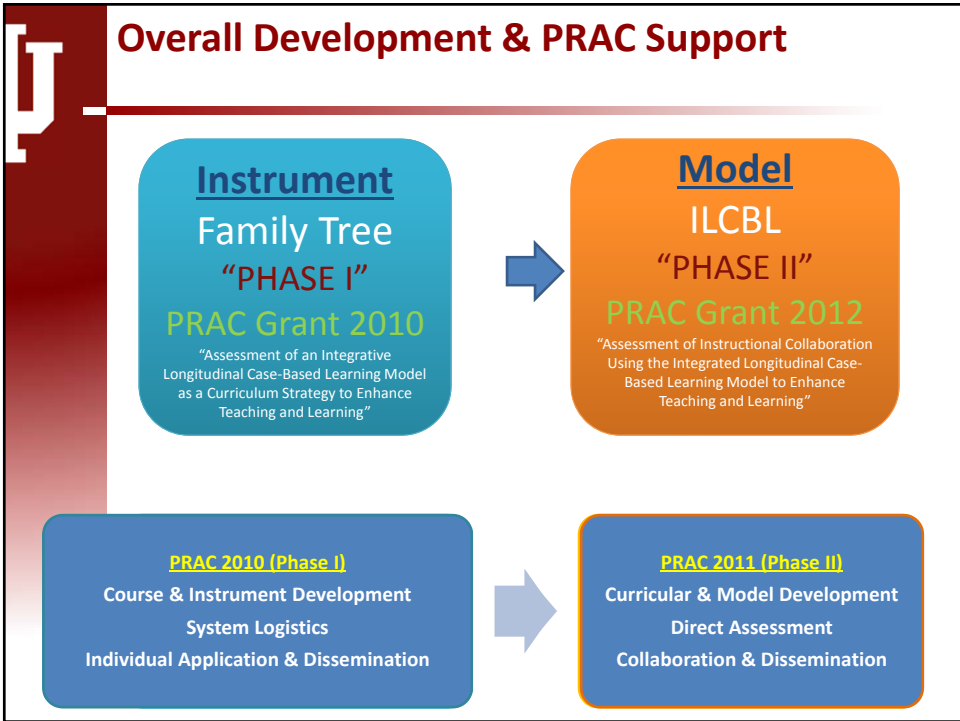
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- Valerie Strunk, PT, MS
- Amy Bayliss, PT, DPT

**Acknowledgments**

- Jamie Grogg, DPT
- Lynn Taylor-Glass, DPT

## Outline

- Development of the instrument:  
“IU DPT Case Family Tree”
- Evolution of the model:  
“Integrated Case-Based Learning Model” (ILCBL)
- Outcomes (Phase I)
- Limitations and future directions (Phase II)



# The "Family" History

INSTRUMENT

**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

**The IU DPT Family Tree**  
 An Integrated Case Series  
 Second Edition

2 families; 4 generations; 37→45 Inter-Related Cases  
 Copyrighted; Multi-cultural; Life Span; Practice Pattern

**IU DPT Family Tree**

## 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 sweet heart 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, sometime alone and sometimes with friends.

## Implementation Example

### Old scenario

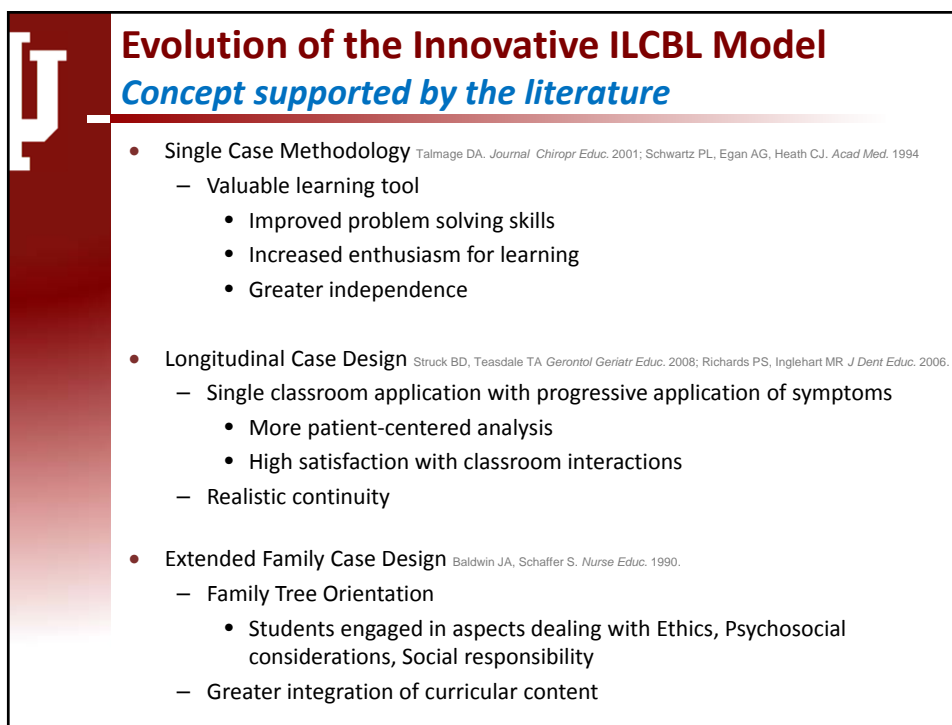
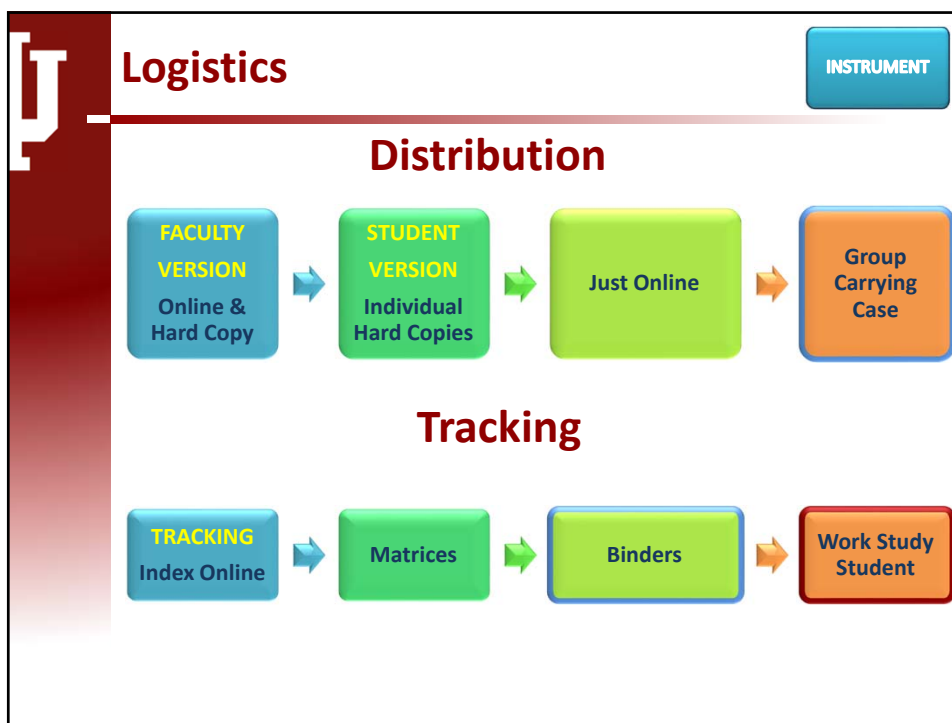
- You new patient is a 25-year-old man who presents with a right anterior cruciate ligament autograft reconstruction. He is 5'11" and weighs 185 lb. His resting blood pressure is 116/76 mmHg and his lipid profile is total cholesterol of 185 mg/dL, LDL of 110 mg/dL, and HDL of 56 mg/dL. His fasting glucose is 89 mg/dL. His grandfather died of heart disease at the age of 75.

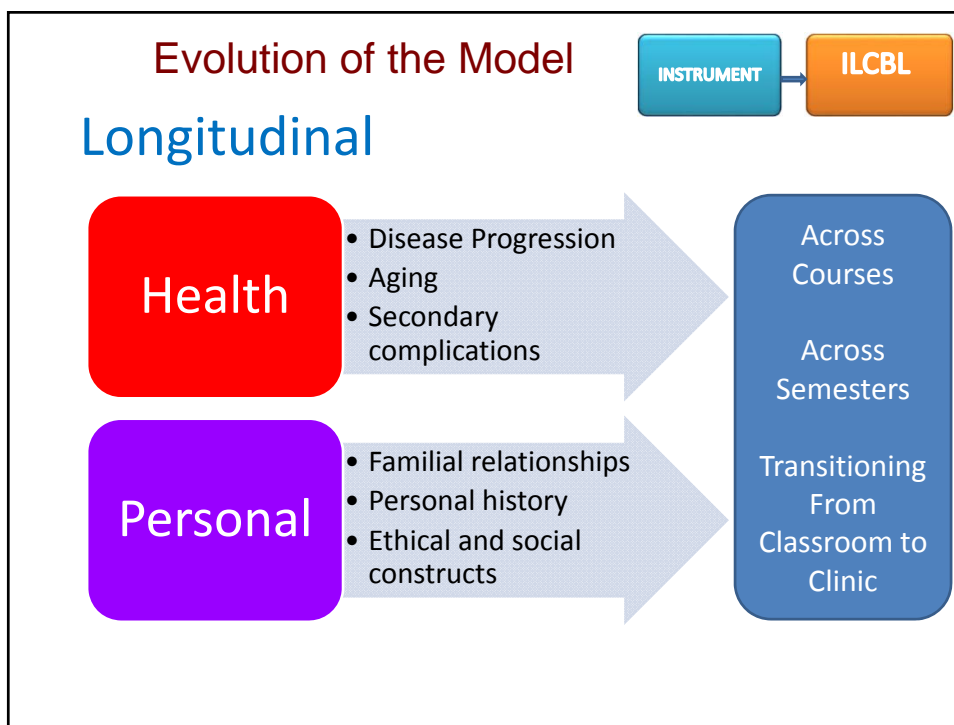
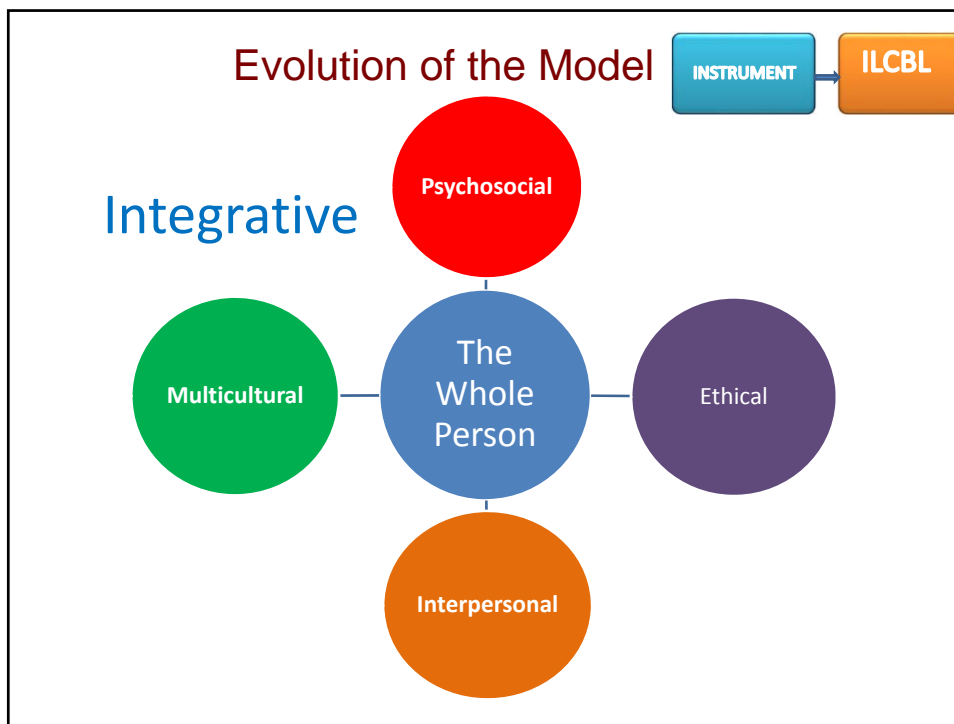
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## ILCBL Strategic Development

ILCBL

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

### Case Family Integration & Implementation Across the Curriculum


#### The 'Matrix'



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

## A Targeted Case Sample

**Daleela Jafari**



Class	Course Content	Learning Objective
P511	Clinical Decision Making	Application of CDM models in POC design
P515	Examination I	Patient interview and functional mobility
P530	Clinical Pathophysiology	Pathophysiology of osteoporosis
P526	Examination II	Spinal tests & measures
P646	Therapeutic Exercise	Treatment design & prescription
P643	Psychosocial	Cultural competency
P622	Musculoskeletal	Spinal fusion, post surgical management
P660	Selected Topics	Complex management & cultural proficiency


"It's all in the family..."

The diagram illustrates a family network with five members: Daleela Jafari (top left), a man in a checkered shirt (top right), a woman in a black top (middle right), a man in a pool (bottom center), and a woman with long dark hair (bottom left). Blue double-headed arrows connect all members to each other, forming a complete graph that represents the interconnected family unit.



## Outcomes (Phase I)

- Journal Article
  - Feitelberg Journal Founders' Award
- Multiple Presentations
  - Local
  - National
- At least 9 other university programs adopting case family



<b>COURSE RELATED OUTCOMES</b> Student Affirmative response rates for survey questions [Likert Scale (1-5)] concerning use of the Family Tree within individual courses across a single semester	P511	P643	P532	AVERAGE
1. The integrated case series facilitated consideration of multiple aspects of patient care.	96.8%	93.9%	88.0%	92.9%
2. The integrated case series facilitated consideration of psychosocial issues related to patient care.	80.6%	90.9%	92.0%	87.8%
3. The integrated case series facilitated consideration of diversity issues, including race, culture and lifestyle, involved in patient care.	67.7%	90.9%	92.0%	83.5%
4. Recommend use in this course in the future.	90.3%	69.7%	84.0%	81.3%
5. The integrated case series facilitated consideration of patient care across the lifespan.	64.5%	90.9%	73.3%	76.2%
6. Overall, the Integrated case series facilitated learning.	83.9%	72.7%	72.0%	76.2%
7. Recommend using the cases in other courses in the curriculum.	80.6%	66.7%	73.0%	73.4%
8. The integrated case series facilitated consideration of the legal, ethical and economic aspects of patient care.	58.1%	69.7%	92.0%	73.3%
9. The integrated case series facilitated development of clinical decision making abilities.	87.1%	57.6%	72.0%	72.3%
10. The integrated case series facilitated development of critical thinking and problem solving skills.	80.6%	51.5%	80.0%	70.7%
11. Cases from the case series were used frequently during this course.	71.0%	53.8%	84%	69.6%
<b>AVERAGE FOR INDIVIDUAL COURSES</b>	<b>78.2%</b>	<b>73.5%</b>	<b>82.0%</b>	

**STUDENT CLINICAL EDUCATION COMMENTS**

## Clinical Education Outcomes from On-Line Discussion Forum

*"Using the case family book allows us to more specifically consider all aspects of a person's life and health before trying to make decisions about the best plan of care for that patient...which greatly impacts how long they need to stay in the unit and what level of independence they need to achieve."*

*"The most instrumental way that the case studies impacted my clinical rotation is learning how families, friends, and medical providers interact, and how the patient's history with each of these could impact the course of therapy."*

*"I feel the cases in the family tree helped me to practice pulling together a patient's full picture. My initial instinct throughout the first year of school may have been to stay 'within the box' and only worry about what was physically wrong with a patient. Introduction to the person as opposed to the diagnosis is closer to real life situations. In my clinical now, I have noticed that it really takes an understanding of a patient's psychosocial dimension to even effectively be able to initiate treatment."*

*"In a way, using the case series prevented tunnel vision when looking at a patient's condition."*

**CONSTRUCTIVE COMMENT THEMES**

Underuse; overuse; lack of consistent use

## Faculty Based Outcomes

1. Efficiency
2. Authenticity (Realism)
3. Multi-factorial considerations
4. Student learning objectives
5. Faculty collaboration

## 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


### PRAC Grant 2012 (Phase II) ILCBL Learning Model

- Continue to develop collaborative implementation of the ILCBL model and evaluate its effectiveness of promoting learning of material across a progressive curriculum (case coordinator)
- Strengthen exploration of “family ties”
- 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 use as substrate for IPE→IPC

## Thank You!

*It's All in the Family!*

Wooahoo!!  
Are we  
havin' fun!



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

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