By the end of this session, the participant will be able to:

- Examine how teaching about acute care is enhanced by intentional use of educational theory.
- Describe four effective methods of delivering and assessing acute care content in the academic curriculum or clinical setting.
- Identify acute care content that would be appropriate for each teaching and assessment method.
- Develop a plan for integrating at least one new method of delivering or assessing acute care content.

Defining Acute Care Education


Challenge of Teaching Acute Care

An acutely ill patient is a moving target

Approach to a patient with myriads of “constantly moving” signs & symptoms is “scarcely” taught at entry-level

• Challenge of time
• Challenge of adequately trained faculty

Constant need for differential diagnosis

Why the Need for Differential Diagnosis

The Rationale for hospital admission

The approach to a patient with Signs of Symptoms of Clinical, OR subclinical disease

The relative unfamiliarity of physicians with what PTs do:
• The challenge of the PCP consult

The relative unfamiliarity of the non-acute care specialist with what they are supposed to be addressing

The incomplete medical chart

Others...
**What Needs to be Taught in Acute Care?**

Acute care therapists think differently than other types of physical therapists in part because they often make decisions when patients are in medical crisis (Masley et al., 2011).

This decision making process relies heavily on the therapist’s interprofessional relationships with the medical team, management of emotions, and ability to make judgments in action that are best for an individual patient’s circumstances (Holdar, Wallin, & Heiwe, 2013; Masley et al., 2011; M. Smith, Higgs, & Ellis, 2010).

Acute care practice requires emotional intelligence and professional behaviors which have been identified in physicians and other health professions (Galal, Carr-Lopez, Seal, Scott, & Lopez, 2012).

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**What Is Out There to Guide How to Teach Acute Care?**

Each individual physical therapist curriculum is guided by the *Normative Model of Physical Therapist Education* (American Physical Therapy Association, 2006).

Nationwide Acute Care Practice Analysis (Gorman, 2010).

Core Competencies of Entry-Level Practice in Acute Care Physical Therapy (Greenwood et al.).
Learning

1. Involves:
   - Making connections
   - Linking to prior experiences

2. Each new connection
   - Influences approach to future situations

3. Educators need to:
   - Identify & acknowledge experiences of the learner
   - Help establish those connections

Filters – Individual Factors that Influence Teachers & Learners*

All learning is grounded in our own experiences, which influences how we learn

How Does Learning Occur?

Active Process

- Requires learner’s interaction with the environment
- Incorporate new information or experiences with what they already know or learned
Environmental Factors that Affect Learning

- Society & Culture
- Structure of Pattern of Stimuli
- Effectiveness of Role Models & Reinforcements
- Feedback for Correct & Incorrect Responses
- Opportunities to Process and Apply Learning to New Situations

At the Core of What We Do...

A working knowledge & understanding of key learning theories is essential

Helps inform teaching practice by providing

- Rational basis for selection of specific instructional strategies
- Fostering articulation of important learning objectives
- Facilitating implementation of evaluation strategies well matched to curricular goals
Learning Theories for Medical Educators*

- Behaviorist Orientation
- Cognitivist Orientation
- Humanistic Orientation
- Social Learning Orientation
- Constructivist Orientation
- The Socratic Method

Behaviorist Orientation

Useful in:
- Development of Competencies
- Demonstrating Technical or Psychomotor Skills

GOAL:
- Change in behavior is desired outcome of educational endeavor

Teacher Center Approach
- Manipulate environment for learners to elicit specific response
- Delineate specific behavioral objectives

Locus of Learning Based on:
- How various stimuli are presented or arranged in external environment

Implications of Behaviorist Orientation in Acute Care/Medical Education

Development and evaluation of
- COMPETENCY BASED CRITERIA – e.g.:
  - Clinical skills instruction
  - Simulated case scenarios

Teachers model specific behaviors
- Learners observe the exact manner or technique
- Perform the exact behavior as instructed
- Graded on a scoring rubric – e.g. checklist, rating forms, direct observation…
Behavioral Objectives Should Include

**Performance or Behavior**
- What the learner will be able to do... or what behavior will be performed

**Conditions**
- Which are necessary for the performance, or, under which the performance must be performed

**Criteria**
- What measure of criteria defines unacceptable performance

**Example**
- Given a simulated patient with Myocardial Infarction and Troponin elevation with T-wave inversion (condition), learner will identify ECG-change (performance), with 80% accuracy (criteria)

Cognitive Orientation

**Locus of Learning:**
- Learner’s internal environment and cognitive structures
- Learners seek to understand the structure of knowledge

**Approach:**
- Learner uses cognitive tools (insight, information processing, perceptions, memory) to facilitate learning by assigning meaning to events

**Teacher’s Role:**
- Facilitate cognitive processing...
- Help learner “learn how to learn” – Self-directed learning

Cognitive Orientation

**Ausubel:**
- Individuals learn with concepts
- Meaningful learning results from relating new knowledge to what is already known

**Concepts are:**
- Objects, events, situations, or, properties that possess common criteria

**Brookfield:**
- Develops critical thinking by reflection
Applying Cognitive Orientation in Acute Care/Medical Education

- **Concept Maps**: Intent is for learners to connect new concepts to what they already know.
- **Reflective Thinking**: Recall events and reflect back.
- **Problem-based Learning**: A student-centered, active learning process surrounding a problem (case).

Humanist Orientation

- **Self-directed**: Learning is viewed as a personal act necessary to achieve learner’s full potential.
- **Goal: Learner to become**: Autonomous via internal drive to achieve highest potential.
- **Learner endeavor**: Plan, carry out, evaluate.

Implications of Humanist Orientation to Acute Care/Medical Education

- Use of well-designed, technology-based assist.
- Computer-assisted simulations.
- Problem-based learning scenarios:
  - Drill & practice exercises with immediate feedback (e.g., BLS & ACLS training).
- Role playing exercises:
  - Interprofessional training events (helps in understanding specific roles in healthcare team).
Social Learning Orientation

**Hypothesis Based on Observation & Modeling in a Social Context**
- Acquire a cognitive representation of a modeled or observed experience
- Form and store an image of the modeled behavior
- Retrieve that image when the learner is motivated to act

**Locus of Learning - Interaction between:**
- The person
- The learning environment
- Desired behavior

**Teacher Responsibility:**
- Modeling new roles
- Guiding behaviors
- Providing opportunities to practice these new roles & behaviors

Implications of Social Learning to Acute Care & Medical Education

- Role modeling/mentoring
- Collaborative learning
- Teaching with case studies

Constructivist Orientation

**Integrating learning activities & experiences in knowledge & beliefs**

**Locus of learning:**
- Developing meaning
- Achieving understanding
- Assigning significance to others

**Teacher’s role - foster critical reflection and negotiate meaning:**
- Assist learners in understanding how they developed certain assumptions
- Question learners whether those assumptions remain valid
Strategies in Applying the Constructivist Orientation to Acute Care Education

Reflective Journaling
Problem-based Learning (PBL)
Writing Practice Narratives
Developing Course Portfolios

5 Key Strategies Used by This Faculty

Use of Concept Maps in Acute Care Education

Facilitates:
- Acquisition and recall of ideas and meanings about a topic
- Direct complex relationships among ideas
- Extract core concepts from textbook/journal articles/clinical case study
- Plan presentations/papers
- Aid in brainstorming & sharing ideas

Process involves:
- Learners identify key issues – a central concept
- Draw relationships between concepts
- Identify connections with linking words
Concept Mapping

Central idea

Branching thoughts

Infinite levels deep*

Allows any level of critical thinking

Tools for Concept Mapping

Mindmeister - http://www.mindmeister.com

Bubble.us - https://bubbl.us/

Coggle.it - https://coggle.it/

Lucidchart - https://www.lucidchart.com/pages/education/K12

Mindmap 2 - https://app.mindmap.com/

Grify - http://grify.com/


Concept Map Example

HPI: Pt is an 38 year old female with bronchiectasis admitted to the hospital with increased cough and secretions. On admission revealed a LL pneumonia and diffuse changes associated with bronchiectasis throughout the both lungs. Her ABG was taken on admission and it revealed 7.32/81/90/29 on 1L. She reports she is coughing up 1 cup of yellow mucus per day. Pt was referred to inpatient PT for an evaluation on day #1 of her admission. Pt was 35% of predicted, FVC was 55% of predicted and her FEV1/FVC ratio was 45%

PMH: Cystic fibrosis, pancreatic insufficiency, CF related diabetes, osteoporosis

Medications: Creon, Domase Alfa, Albuterol Inhaler, IV Tobramycin, Novolog, Fosamax (for her osteoporosis)

Social History: Lives with her husband in a house with 2 steps to enter and 13 within the house. She is a full time mother of 2 kids (6 year old daughter and 8 year old son). She is independent with ADL, but slower due to DOE. She reports she is using percussion and vibration with postural drainage performed by her husband twice daily and does not participate in aerobic activity. She increases this if she is more congested (which she required for the last 2 weeks). Her baseline mucus production is about 1/2 cup of yellow mucus.
Concept Map Rubric

The 3-minute version, which can be helpful on clinical and in the classroom

What are the top three things I want to see this student thinking about?

Have they considered all factors for safety and efficacy?

Is there evidence they are extending their thoughts beyond today's evaluation to be prepared?

Simulation Training

Identify & Overcome Barriers
<table>
<thead>
<tr>
<th>Objectives</th>
<th>Scenario</th>
<th>Assessment vs.</th>
<th>Safe</th>
<th>Useful</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specific</td>
<td></td>
<td>Limited</td>
<td>Planned</td>
<td>Targeted</td>
</tr>
<tr>
<td>Limited</td>
<td></td>
<td>Formative</td>
<td>Facilitated</td>
<td>Multi-modal</td>
</tr>
<tr>
<td>Targeted</td>
<td></td>
<td>Summative</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Knowledge → Behaviors → Performance

Acute Care Confidence Survey & ICU skills self-Efficacy Survey

Performance Assessment of Communication & Teamwork (PACT)

Interprofessional Collaborative Competencies Assessment Survey (ICCAS)

Debriefing Assessment for Simulation in Healthcare (DASH)

Teaching strategies to enhance acute clinical reasoning - ACEC 2018. Bose, et al. 37

“I’m on my lunch break on my first day of my IC and just had to email you! I had to write everything you taught us because my first patient of the day was a bilateral lung transplant in the ICU. Yellow Swan line and everything and I felt very prepared to thank you! I do think that my CI was a little impressed too!”

Teaching strategies to enhance acute clinical reasoning - ACEC 2018. Bose, et al. 38

Online Reflection

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Developing Critical Thinking by Reflection

Boud & Walker: Three stages to reflective learning

- Returning to, & replaying the experience
- Attending to the feelings that the experience provoked
- Re-evaluating the experience

Process of reflection may occur during or after the experience in question

Reflection ON action
- Thinking through a situation AFTER it has happened

Reflection IN action
- Thinking about actions AS they are performed

Reflection in Acute Care/Medical Education

- Students identify a significant clinical experience
- Student describes the event
- Summarizes what was learned (from event)
- What could have been done differently

Speculate on –
- Hospital floors
- Lecture settings
- Small group sessions
- Simulated environments (Standardized, OR, Virtual Patients)

Use in:

Teaching strategies to enhance acute care clinical reasoning

Reflective Journaling Example

- Column 1 – Describe a Case
- Column 2 – Articulate thoughts and feelings about that case
- Column 3 – Return at later date – Reflecting on their learning
- Small group discussions: similarities & differences in their cases & impact of the case
2 Types of Reflective Thinking Approaches

1-minute Preceptor Approach

SNAPPS Approach

One-Minute Preceptor

1. Get a commitment
2. Probe for supporting evidence
3. Teach general rules
4. Reinforce what was done right
5. Correct mistakes

SNAPPS* – 6 Steps to Reflective Thinking (Learner-centered Model)

S: Summarize briefly the history & findings
N: Narrow the differential to two or three relevant possibilities
A: Analyze the differential by comparing and contrasting the possibilities
P: Probe the preceptor by asking questions about uncertainties, difficulties, or alternate approaches
P: Plan management for the patient’s problem issues
S: Select a case-related issue for self-directed learning
**Video – SNAPPS Introduction**

Summarize
Narrow differential
Analyze differential
Probe preceptor
Plan management

**Video – SNAPPS Conclusion**

Source: [https://youtu.be/BPNOdPKUFDE](https://youtu.be/BPNOdPKUFDE)

**Problem- based Learning**

- Development of hypotheses
- Self-directed learning and use of evidence
- Research in books, articles, media, and electronic resources
- Self-assessment and acceptance of feedback
- Integration, formulation, and comparison
- Peer evaluation, self-evaluation, and evaluation by tutor
Problem-based Learning vs. Traditional Curriculum

<table>
<thead>
<tr>
<th>Problem-based Learning</th>
<th>Traditional Curriculum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student-centered</td>
<td>Teacher-centered</td>
</tr>
<tr>
<td>Active learning</td>
<td>Passive learning</td>
</tr>
<tr>
<td>Problem (case) is stimulus for learning</td>
<td>Learn content in silos within individual courses. A case may be used to &quot;tie things up&quot; afterward</td>
</tr>
<tr>
<td>Students seek out appropriate resources and learn to use research literature effectively</td>
<td>Students have &quot;required&quot; readings</td>
</tr>
<tr>
<td>Facilitates communication &amp; interpersonal skill development</td>
<td>Doesn’t specifically develop affective skills.</td>
</tr>
</tbody>
</table>

Creating a Curriculum Using PBL

1. **Objectives**
   - What do you want the learner to learn?

2. **Create case**
   - Cases should stimulate students to seek out information
   - Embed "teasers" to provoke students to investigate topics
   - Create a small number of guiding questions to assist

3. **Case content**
   - Simple to complex
   - Multiple layers: anatomy, physiology, medical/surgical management, labs, pharmacology, psychosocial issues, PT exam & intervention, decision making dilemmas

Case Construction

1. **Purposes of Case**
   - Provides context for learning
   - Connects basic science & clinical content
   - May provoke discussion of controversial issues
   - Promotes retention of learned information

2. **Start with Objectives [Issues List]**
   - What do you want students to learn?
   - "Triggers" for critical issues
   - Cases reflect realities of practice
   - Supporting info?
   - Labs, videos, EMR, info available if requested

3. **Resources**
   - Guiding Questions
   - Access to the issues list?
   - Provision of key resources vs. self-directed research after info literacy orientation
Unique Considerations in Problem-based Learning

- Role and training of tutors
- Other class structures: large group discussion, labs, etc.
- Tutee evaluation mechanisms:
  - Tutee evaluation (context and process in tutorial)
  - OSCEs (Objective structured clinical examinations)
  - Triple Jump
- How and when to use PBL:
  - Consistent vs. inconsistent – module, course, curriculum, year

Team-based Learning

- Student-centered, active learning but managed by teacher
- Pre-assigned reading/preparation
- Students take Individual Readiness Assurance Test (IRAT)
- Each group takes Group Readiness Assurance Test (GRAT)
- Faculty teaches based on difficulties encountered in IRAT/GRAT
- Problem-solving activity using a clinical case

The Socratic Method
Application of the Socratic Method in Health Profession Education

01 Cooperative argumentative dialogue using question & answer format

02 Dialectical Method in which:
- Two or more people holding different POVs about a subject but wish to establish the truth through reasoned arguments

03 Method involves
- Hypothesis elimination, with better & stronger hypothesis being revealed step-wise and in due course

Closing Summary


Summarizing the Session

1 Challenges in acute care practice
2 Learning theories that inform teaching of acute care content
   - Application Examples of the Learning Theories into actual Acute Care Education
3 Explored 5 strategies (stemming from the learning theories) that you can immediately apply in your teaching
Patient at the Center

He who studies medicine without books sails an uncharted sea….But he who studies medicine without patients, does not go to sea at all.

- Sir William Osler


References – *Slide Courtesy

Reference Examples of Some Concept Maps

Conceptualize History & Physical –
https://mm.tt/721487197?t=B9P4Zvy5jd

Steps in Symptomatic Differential Diagnosis –
https://mm.tt/718685883?t=7a7pXRJjGX
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Bose, et al. 64

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