Exploring Opportunities for Change and Improvement in Acute Care Physical Therapy: Lessons from the Science of Health Care Improvement

Outline

- Acute Care Practice
- Current state of healthcare
- Change in complex systems
- Quality care and quality improvement

Health Care Landscape: Challenges Facing Hospitals

- Rising demand/costs of care
  - 30% increase
- Growing workforce shortage
  - Vacancy rate:
    - PT: 13.8%; PTA: 12.0%
- Downward pressures on payment rates
- Transparency
- Financial
- Quality outcomes

Acute Care:

What are the characteristics?

- Care delivery:
  - Patient-centered
  - Context of illness/setting
  - Multidisciplinary care model
- Fundamental elements:
  - Collaboration
  - Accountability
  - Health care as a process/system
  - Leading, following and making changes

Top Health Industry Issues in 2009

- Back to basics approach
  - Deliver value and service
  - Innovation (do more with less)
- Focus on performance
  - Process improvement
  - Preventing “never events”
  - Adequate staffing
- Preventive care
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Practice/Change in Complex Systems:
- Structure of physical therapy
  - variable in numbers/roles,
  - Different documentation/productivity/system/guidelines
- Process of Physical Therapy
  - Consult service
  - Integration of medical/rehabilitation goals
  - Short length of stay/Older patients
- Outcomes

Practice/Change in Complex System: Quality Improvement
- Work force focused
  - Staff development/retention
- Work process focused
  - Systems and processes
  - Patient centered
  - Evidence based practice
  - Commitment to quality care
    - Align with hospital matrix
    - Manage by facts and not intuition
    - Continuous process
  - Committed leadership
    - Engage and empower

Science of Quality Improvement

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Combined Section Meeting 2009
Las Vegas, NV February 9-12, 2009

Definition: Quality
- Institute of Medicine (IOM):
  “Quality of care” is the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge.

Reports in Health Care Quality
- Publishing of IOM reports with specific recommendations to congress: To Err is Human, 1999; Crossing the Quality Chasm, 2001
- CMS & Joint Commission’s Public Reporting on Quality Measures on Internet, 2002
- IHI 100,000 Lives Campaign, December 2004
- CMS P4P4, forthcoming

Reports on Health Care Quality/IOM
- Level A: Experience of patient
- Level B: “Microsystems”, small units of care delivery
- Level C: organizations that house the small units
- Level D: environment of policy, payment, regulations, accreditations……
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Health Care Quality/IOM

- Basic Principles:
  - Knowledge based care
  - Patient-centered care
  - System minded care

- Message:
  - Work is a process
  - Process is the main source of quality defect (not human error)
  - Understand variability

IOM Specific Aims for Quality in Healthcare:

- Healthcare should be:
  - Safe
  - Effective
    - Evidence based
    - Patient-centered
      - Seamless between levels of care
      - Respect and compassion
  - Timely
    - Without delay
  - Efficient
    - Done without waste (resources, time, people)
  - Equitable

10 Simple Rules

- Care is based on continuous healing relationships
- Care is customized according to patients’ needs and values
- The patient is the source of control
- Knowledge is shared freely
- Decision making is based on evidence
- Safety is a system property
- Transparency is necessary
- Needs are anticipated
- Waste is continuously decreased
- Cooperation among clinicians is a priority

Quality Improvement

- A planned, systematic, reliable approach to monitoring, analysis, and improvement of performance

Comparison of QA & QI

<table>
<thead>
<tr>
<th>QA</th>
<th>QI</th>
</tr>
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<tbody>
<tr>
<td>Focus</td>
<td></td>
</tr>
<tr>
<td>Catch “Bad”</td>
<td>Improve Processes</td>
</tr>
<tr>
<td>Apple” or Detect</td>
<td>Not Fault</td>
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<tr>
<td>Serious Problems</td>
<td>Finding</td>
</tr>
<tr>
<td>Goal</td>
<td></td>
</tr>
<tr>
<td>Most Minimal Standards</td>
<td>Ongoing Process Improvement</td>
</tr>
<tr>
<td>Who Is Involved</td>
<td></td>
</tr>
<tr>
<td>Usually 1-2 individuals</td>
<td>Teams</td>
</tr>
<tr>
<td>Driven By</td>
<td></td>
</tr>
<tr>
<td>Regulation</td>
<td>Accreditation</td>
</tr>
<tr>
<td>Accreditation</td>
<td>Organization</td>
</tr>
<tr>
<td>When Occurs</td>
<td></td>
</tr>
<tr>
<td>Monthly or Quarterly</td>
<td>Continuous</td>
</tr>
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</table>

Quality Improvement Is…

- The philosophy that employees want to do their best
- Focused on improving systems and processes
- Based on measurement, data, and facts
- Dependent on teamwork and participation by all
- Supported by the facility’s culture, practices, and shared values

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Quality Improvement Dimensions

<table>
<thead>
<tr>
<th>Empowerment</th>
<th>Clinical</th>
<th>Quality</th>
<th>Monitoring</th>
<th>Communication</th>
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<tbody>
<tr>
<td></td>
<td>management strategies</td>
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<td></td>
</tr>
<tr>
<td>Online</td>
<td>Tools</td>
<td>Methods</td>
<td>Data collection</td>
<td>Policies</td>
</tr>
<tr>
<td>responsibility</td>
<td></td>
<td></td>
<td>Data analysis</td>
<td>Actions</td>
</tr>
<tr>
<td>Skill</td>
<td></td>
<td></td>
<td>Data reporting</td>
<td>Goals</td>
</tr>
<tr>
<td>development</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evaluation</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Feedback</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recognition</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

FOCUS

- Find a process that needs improvement
- Organize a team knowledgeable about process
- Clarify the knowledge about the process
- Understand the causes of variations in the process
- Select the improvement

Thank You
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Culture of Change
American Physical Therapy Association (APTA)
Combined Section Meeting 2009
Las Vegas, NV February 9-12, 2009

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Objectives

1. Review key components of change theory
2. Discuss strategies to accelerate the change
3. Describe two steps in cultivating your change project

Lewin’s Change Theory

Basis of many approaches applied today
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Lewin’s Change Theory
- Unfreezing, when the change agent is accepted, the necessity understood and accepted
- Moving to ward the change or “cognitive redefinition”.
- Refreezing occurs when change is adopted

Stages of Change Model
- Prochaska and DiClemente model- developed more than 20 years ago
- Used in health care education
- Cycle of attitudes ranging from denial to solidly established commitment to change

Prochaska and Diclemente

Rogers’ Diffusion of Innovation
Most important elements effecting acceptance of new ideas:
1. Perception of value
2. Communication method of ideas
3. Sufficient time to understand, change attitudes, and make decision
4. Anticipating how people respond to change

Rogers’ Diffusion of Innovations Model

Onion Patch
Lonely little petunia?
- Think big but stay close to your roots
- Select efforts within your control
- Be patient
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Take-Aways
- Identify your team early
- Communicate vividly
- Communicate regularly
- Strategies to “Hold the Gains”

Dimensions of Quality
- Five Quality rights
  - The right care
  - For the right person
  - In the right place
  - At the right time
  - At the right price

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Reorganization of In-Patient Physical Therapy Service:
Service Based Care

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CSM 2009
February 11, 2009
Las Vegas, Nevada

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Applying Concepts of Quality to Delivery of Physical Therapy in Acute Care

- Quality design
  - Structure
    - Acute care in-patient physical therapy
    - Align organizational structure with hospital
    - Create a new staff role: “Lead Therapist”
  - Process
    - Case load management
  - Outcome
    - Right care at the Right time for the Right patient
    - Staff development, accountability
    - Interdisciplinary collaboration

Structure:

  - Level I Trauma and Burn Care Center.
  - Comprehensive Cancer Center
  - Average Length of stay = 4.5 days

In-Patient rehabilitation department

- Physical therapy
  - Leadership
  - Staffing
    - Staff level
    - Senior level
    - Clinical specialists
  - Roles and responsibilities
  - Occupational therapy
  - Physical therapy supervisor
  - Blue Team
  - Green Team
  - Yellow Team

Structure: Improvement Plan

- Introduction of “Service Based Care”
  - Alignment of our practice with the hospital organizations’ goals and service delivery model
  - Clustering of service lines into teams managed by “Lead Therapists”
  - Improved dissemination of information
  - Collaborative Supervision

Process: Improvement Plan

- Transparency
- Staff driven
  - Program development
  - Staff mentoring/competencies
  - Standardizing care
  - Identify areas for improvement
- Resource allocation by leadership
  - Time
  - Space
  - “walk the talk”
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Process: Improvement Plan
- “Staff empowerment is achieved in an environment of interdependence and accountability.”
- The goal is to create an environment consisting of mutual respect and unity within the staff and leadership.
- Every staff member should feel accountable for their individual efforts and expertise, taking professionalism to a new level.


Outcome: What was Improved?
- Efficiency and timeliness of care
- Interdisciplinary care
- Program development
- Staff clinical experience
- Staff retention
- Resource allocation

APTA Vision Statement for Physical Therapy 2020

“...Guided by integrity, life-long learning, and a commitment to comprehensive and accessible health programs for all people, physical therapists and physical therapist assistants will render evidence-based services throughout the continuum of care and improve quality of life for society. They will provide culturally sensitive care distinguished by trust, respect, and an appreciation for individual differences. While fully availing themselves of new technologies, as well as basic and clinical research, physical therapists will continue to provide direct patient/client care. They will maintain active responsibility for the growth of the physical therapy profession and the health of the people it serves.”

Tools for Quality Improvement

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Quality Care/Big Question
- How do we go from “the evidence that says this is the correct way to manage a patient’ to “how can we make it happen consistently for each patient?”

Thank You & Questions
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Outline
- Major improvement methodology
- Starting point for improvement projects
- Improvement tools
  - Plan-Do-Study-Act (PDSA)
  - Lean strategy
- Measuring quality

Dimensions of Quality

Model for Quality Improvement

Key Steps: Starting a Quality Improvement Initiative
- Do background work
- Prioritize potential projects
- Prepare for the project
- Do an environmental scan
- Create a data collection system
- Create a data reporting system
- Change behavior
- Clarify expectations, responsibilities and accountability

PDSA Road Map

http://www.IHI.org/

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LEAN Method

- Driving out waste
- Looking at processes
  - Eliminating non-value added steps
  - Focusing on value

Lean Method: Key Concept

- Leadership
- Culture
  - Interdisciplinary
  - Managers teach/enable
  - Seek ultimate performance
  - Root cause analysis
  - Rewards: groups
  - Share information
  - Customer focus
  - Process driven

Lean Method: Key Concepts

- Process
  - Available
  - Adequate
  - Valuable
  - Capable
  - Flexible
  - Linked to continuous flow

Lean Methodology

- 5S strategy:
  - Sort
    - What do we need? What can we remove?
  - Set in order
    - Better system, better organization, better work habits
  - Shine
  - Standardize
    - Document and communicate guidelines
  - Sustain

Measurement Guidelines

- Key measures should clarify the aim and make it tangible
  - Don’t track too many process measures (vs outcomes)
  - Use sampling
  - Integrate measurement in daily routine
  - Plot data on measures over time
  - Visually display results

Successful measurement = successful improvement

What Should We Measure

- Outcome measures
  - Clinical outcomes
    - Impairment
    - Functional/QoL
  - Interdisciplinary care/communication
  - Staff development/education
  - Hiring and retention rates
- Process measures
  - Patient flow/assignment/waiting lists
  - Organizational design
  - Referral response
  - Demand and resources
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Outline
- Creation of the Trauma Quality Improvement Initiative
- Improvement model
  - Plan-Do-Study-Act (PDSA)
- Results
- Lessons learned

Background
- BWH Trauma Service
- BWH Inpatient Physical Therapy Service
- Established care model

Bringing Evidence to Practice
- Pendleton et al. (2007) “Factors affecting length of stay after isolated femoral shaft fractures”
  - Patients seen by PT >1 day after surgery stayed an average of 1 day longer than patients seen by PT in 1 day or less.
- Chiang et al. (2006) “Effects of physical training on functional status in patients with prolonged mechanical ventilation”
  - Muscle strength improved significantly
  - Total BI and FIM scores increased significantly

Improvement Model
- Aims: Integrate rehabilitation services into the interdisciplinary care model.
  - Process improvement
  - Standard of care
- Identify a measure to assess outcomes
- Test changes and see if they are promising
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Change Cycle- PDSA Road Map

**PLAN**
- Delivery system:
  - New order entry system
  - New departmental criteria for response to consults
  - Within 24 hours of receiving consults
- Education:
  - Hospital wide education and introduction of project
  - Departmental educational rounds
  - Emphasis on continuity of care
- Outcome assessment:
  - Identification of an outcome measure tool

**DO**
- From August-October 2006
- Continuous monitoring of data and educational needs

**STUDY**
- Data analysis
- Ongoing re-evaluation

**ACT**
- New referral response criteria
- Expanded clinical practice

Change Cycle- PDSA Road Map

**STUDY**
- Data analysis
- Ongoing re-evaluation

**ACT**
- New referral response criteria
- Expanded clinical practice

Outcome Tool

**Acute Care Index of Function (ACIF)**
- Developed to standardize the assessment of functional status in patients with acute neurological impairment
- Found to detect change in functional status in patients with lower extremity orthopedic problems
- Established as a valid and reliable tool for patients with neurological deficit


DEMOGRAPHICS

<table>
<thead>
<tr>
<th>Variable</th>
<th>Prospective (N=96)</th>
<th>Retrospective (N=67)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td>Mean: 49.15 (SD 20.9)</td>
<td>Mean: 46.85 (SD 20.4)</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td>F=22 (23%)  M=74 (77%)</td>
<td>F= 24 (36%)  M= 43 (64%)</td>
</tr>
<tr>
<td><strong>Race</strong></td>
<td>White= 71 (74%)  Other= 25 (26%)</td>
<td>White= 49 (73%)  Other= 18 (27%)</td>
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</table>

<table>
<thead>
<tr>
<th>Variable</th>
<th>Prospective (N=96)</th>
<th>Retrospective (N=67)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ISS</strong></td>
<td>11.94</td>
<td>14.67</td>
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<tr>
<td><strong>GCS</strong></td>
<td>12.79</td>
<td>13.56</td>
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<tr>
<td><strong>LOS</strong></td>
<td>8.02</td>
<td>9.45</td>
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</table>
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**QUESTIONS**

- How many patients were evaluated within 24 hours of admission
  - Prospective data: 80 patients
- What was the difference between evaluation time in the prospective and retrospective data?
  - Prospective: 2.19 days from admission
  - Retrospective: 4.23 days from admission

**Question**

Who was appropriate for an early evaluation and who was not?

<table>
<thead>
<tr>
<th>Variable</th>
<th>Within 24 hours</th>
<th>Greater than 24 hours</th>
</tr>
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<tbody>
<tr>
<td>GCS</td>
<td>12.91</td>
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<tr>
<td>ISS</td>
<td>10.96</td>
<td>16.81* (p=0.0041)</td>
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<tr>
<td>Age</td>
<td>48.51</td>
<td>52.31</td>
</tr>
<tr>
<td>LOS</td>
<td>7.49</td>
<td>10.69</td>
</tr>
</tbody>
</table>

**Question**

What were the reasons for delayed evaluation by physical therapy?

- Patients in OR/other procedures
- Hemodynamically unstable
- Rule out tests

**Questions**

- What is the frequency of physical therapy interventions and each therapeutic approach?
  - Prospective: Mean 4.5 days
  - Retrospective: Mean 3.3 days
- Frequency of type of interventions:
  - 57% therapeutic exercise
  - 63% Bed mobility
  - 58.7% transfer training
  - 43% gait training
  - 15% pulmonary therapy
  - 68.9% patient and family education
  - 19% splinting

**Questions**

- Does ACIF show change over time for patient outcomes?
  - At initial evaluation:
    - Mean ACIF score: 44.93
  - At discharge:
    - Mean ACIF score: 65.01* (p<0.0001)
- What was the ACIF score of patients going home versus those going to rehab?
  - Home discharge:
    - Mean: 85.73
  - Rehab discharge:
    - Mean: 41.69

**Discharge destination**

<table>
<thead>
<tr>
<th></th>
<th>Chronic care</th>
<th>Home with SVC</th>
<th>Jail</th>
<th>Morgue</th>
<th>NH/SNF</th>
<th>Psych hosp.</th>
<th>Rehab</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pros</td>
<td>0 (41.6%)</td>
<td>19 (59.3%)</td>
<td>2 (6.7%)</td>
<td>1 (1%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>14 (49.2%)</td>
</tr>
<tr>
<td>Retro</td>
<td>1 (1.5%)</td>
<td>22 (32.8%)</td>
<td>17 (25.3%)</td>
<td>1 (1.5%)</td>
<td>2 (3%)</td>
<td>1 (1.5%)</td>
<td>23 (34.3%)</td>
</tr>
</tbody>
</table>

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Lessons learned

- Process improvement
  - Streamlining of consult
- Quality care
  - Early involvement of physical therapy was beneficial
    - Referral response criteria will be within 24 hours of admission
  - More frequent therapy was possible
- Functional outcome assessment
  - Use of the ACIF to assess change over time
- Interdisciplinary collaboration & education
  - Involvement in multidisciplinary rounds
  - Visibility of the role of physical therapy
  - Education of our own staff

Challenges along the way…

- Staff support
- Use of the order set
- Educational deficiencies
- Amount of data collected
- Data analysis
- Resource allocation

Catalysts for Success

- Sufficient planning
- Support from leadership
- Committed individuals
- Teamwork

Steps that Followed

- Continued PDSA cycle for adherence to improvement initiative
- Continued data collection on ACIF
- Evaluation of our interventions and assessment of the need to expand or improve our care
  - Continued use of evidence for patient management
- Development of other rehabilitation programs for patients following trauma:
  - Mild TBI Program

Thank You & Questions
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Tools for Assessing Outcome
American Physical Therapy Association (ATPA)
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Objectives

1. Discuss database construction and management as a foundation for outcomes

2. Apply two creativity tools:
   - Concept Mapping
   - Twenty Questions

"You must try to understand truthfully what makes you do things or feel things. Until you have been able to face the truth about yourself you cannot be really sympathetic or understanding in regard to what happens to other people."

(Gerber, 2002. Leadership the Eleanor Roosevelt Way: Timeless strategies from the First Lady of Courage.)

Ask the Questions

- Reflection
- Honesty
- Leadership
- Commitment

Your Sources, Your measures...

- Peer to Peer
- Internal
- External

Applying a Scientific Approach

- Systematic
  - Beyond hunches
  - Objective and not reactive
- Core
  - Data collection
  - Data application

Healthy People 2010

- Increase quality and years of life
- Eliminate health disparities
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Other useful examples
- Solucient 100 Top Hospitals
  - [http://www.100tophospitals.com/](http://www.100tophospitals.com/)
- University Health Consortium
  - [http://www.uhc.edu/](http://www.uhc.edu/)
- National Trauma Databank
  - [http://www.facs.org/trauma/ntdb.html](http://www.facs.org/trauma/ntdb.html)
- National Burn Repository
  - [http://www.ameriburn.org/](http://www.ameriburn.org/)

Data Can Help
- Powerful problem-solving tool
- Helpful in avoiding pitfalls
- Drills down understanding to a deeper level:
  - Process
  - Service
  - Product
- Efficient

Core Epidemiology Principles
- Study of how disease is distributed in populations.
- What factors influence or determine the distribution?
- Why does a disease develop in some and not others?
- Disease and illness is not randomly distributed.

Brigham and Women’s Hospital Trauma Registry
- Established in 1991
- Nearly 21,000 cases
- Key members:
  - Medical director
  - Program manager
  - Data coordinator
  - Data abstractor
  - Partners in care
- Inclusion and exclusion criteria
- Sustainability

Data Elements
- Demographics
- Injury Events
- Phases of Care
- Surgeries and Procedures
- Disposition
- Outcomes

Core for Consistency
- Data dictionary
- Data validation
- Inter-rater reliability
- Forms to keep data collection and entry efficient
- Smaller is better

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How Will You Build It?
- Gather your team
- Interdisciplinary approach
- Creative Thinking models:
  - Concept Mapping
  - Twenty Questions
- Establish a realistic timeline

Why Concept Map?
- Enhances internalization of knowledge using multiple senses
- Allows one to experience connections or visualize inter-relationships
- Assists in the organization of information: “chunking”

Why Concept Map?
- Illustrates simple to complex concepts
- Creative and innovative thinking
- Promotes critical thinking

The 7 Right Question…
1. What do I look for?
2. What did I find?
3. What is most important?
4. What are the connections or relationships?
5. What outcomes do I want related to each diagnosis?
6. What interventions do I use?
7. Was my outcome met?

Glenden & Ulrich, (2004). Dear Mapped Out, Nurse Educator, 29(5); 175-178. See Figure 1.

Guide sheet
- Unlined paper
- Print
- Be creative
- Keep the flow of ideas going
- Write down everything you and your group comes up with; No criticism or editing

Guide sheet…
- Use colored markers/pencils
- Identify the most general concepts first; place @ the top of the map
- Identify the more specific concepts; place below the general concepts
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Venn Diagram

Spider Map 1

Twenty Questions

○ Challenge assumptions

○ Supports early team development of understanding and options

Twenty Questions

<table>
<thead>
<tr>
<th></th>
<th>What</th>
<th>Where</th>
<th>When</th>
<th>Who</th>
<th>How</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Method</td>
<td>What happens?</td>
<td>Where is it done?</td>
<td>When is it done?</td>
<td>Who does it?</td>
<td>Why is it done?</td>
</tr>
<tr>
<td>Reason</td>
<td>Why do it?</td>
<td>Why do it there?</td>
<td>Why do it then?</td>
<td>Why them?</td>
<td>Why do it this way?</td>
</tr>
<tr>
<td>Better Way?</td>
<td>Can we do some thing else</td>
<td>Can we do it some where else?</td>
<td>Can we do it some other time?</td>
<td>Can some body else do it?</td>
<td>Can we do it some other way?</td>
</tr>
</tbody>
</table>

Physical Therapy Trauma Project Timeline 2007

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Does it fit into the budget?
- Startup cost
- Maintenance
- Wiggle room

Summary
- Reflected on the delivery of care using the scientific process.
- Reviewed key concepts of database construction.
- Applied two techniques to ensure success.