WONDERFUL WORLDS OF RESEARCH, EBP, AND QI

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LEARNING OBJECTIVES

• At the end of this presentation, the learner will be able to:
  • State 3 differences between the worlds of nursing research, EBP, and QI
  • Describe 2 methods to achieve the unique objectives of research, EBP, and QI worlds
CONCEPT OF RESEARCH

The world of research is not isolated activities or tasks

- Surveys, interviews, and observations
- Data collection
- Statistical analysis
- Improvement processes
- Evidence-based practice changes
Research is a rigorous, reproducible, and systematic process that may involve all or part of those tasks and activities.
RESEARCH

A rigorous & systematic process

- Generates new knowledge through the application of basic scientific principles and theory development

- Overarching intent of research is description, prediction, and control

- Asks “What is not known?”

- Final Product: New knowledge that can be generalized in appropriate patient populations

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THE PROCESS OF KNOWLEDGE DEVELOPMENT

(OMERY, 1998)

Analysis

Synthesis

Systematic Process

Data (Organized Data)

Facts (Structured & Integrated Facts that are Meaningful)

Information

Scientific Knowledge

The quality process IS the systematic process that produces information.

The research process IS the systematic process that produces scientific knowledge.
A systematic process

- Implements and evaluates interventions stemming from new knowledge generated by research
- Overarching intent of EBP changes is to integrate scientific discoveries into healthcare practice
- Asks “What is known?” and “What can be done with this knowledge?”
- Final Product: Systems change and outcome improvement in patient populations
QUALITY IMPROVEMENT

A structured process that:

- **Evaluates** a specific system’s strengths and limitations, systems parts, and resulting outcomes
- **Overarching intent:** Improve processes specific to local systems + patient outcomes
- **Asks** “What is happening?” and “How can it be improved?”
- **Final Product:** Information; may contribute new learning & practices
TRANSLATIONAL RESEARCH

A systematic process

- **Investigation** sourced from evidence (including theory testing) or previous research
- **Overarching intent** is the application of new knowledge
- **Asks** “What is safe?” and “What works?”
- **Final Product**: New knowledge to explain or improve clinical practice
Successful research studies, EBP projects, QI projects always have these 2 elements:

- **A committed team** (not 1 or 2 people) with a passion for the clinical problem
  - Teams members with various talents, expertise, and research experience
FACTORS NECESSARY FOR SUCCESS: #2

An expert researcher, EBP mentor, or QI/PI mentor to ensure a systematic and evidence-based approach, who is either:

• Part of team OR
• A consultant for the team
**RESEARCH, EBP, QI**

**Similarities**
- Start with data and analysis
- Have a defined process
- Committed team for success
- Contributes to knowledge & outcome improvement

**Differences:**
- Structures
- Processes
- Intent
- Outcomes
- Data required

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<table>
<thead>
<tr>
<th>Structure</th>
<th>Questions</th>
<th>Process</th>
<th>Intent</th>
<th>(Final Product)</th>
<th>Examples</th>
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<tbody>
<tr>
<td>QI</td>
<td>What is happening?</td>
<td>Structured process that evaluates a specific system’s strengths and limitations, systems parts, and resulting outcomes</td>
<td>Improve processes specific to a local system and patient outcomes</td>
<td>Information</td>
<td>Simulation-based Small Tests of Change or plan, do, study, act (PDSA cycle) to develop a rapid response team (RRT) protocol</td>
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<tr>
<td></td>
<td>Can it be improved?</td>
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<tr>
<td>EBP</td>
<td>What is known?</td>
<td>Systematic process that implements and evaluates interventions stemming from new knowledge generated by research</td>
<td>Integrate scientific discoveries into healthcare practice</td>
<td>Systems change</td>
<td>Simulation-based education/training of RRT members, as based on the results of high-quality research studies</td>
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<tr>
<td></td>
<td>What can be done with this knowledge?</td>
<td></td>
<td></td>
<td>Outcome improvement</td>
<td></td>
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<tr>
<td>Research</td>
<td>What is not known?</td>
<td>Rigorous and systematic process that generates new knowledge through the application of basic scientific principles and theory development</td>
<td>Description, prediction, and control</td>
<td>New knowledge</td>
<td>Simulation-based research study to generate new knowledge regarding the efficacy of an RRT program that is generalizable for medical/surgical patients</td>
</tr>
<tr>
<td>Translational research</td>
<td>What is safe?</td>
<td>Systematic investigation sourced from evidence (including theory testing) or previous research</td>
<td>Investigation for the purpose of new application of knowledge</td>
<td>New knowledge to explain or improve clinical practices</td>
<td>Simulation-based comparison and assessment of evidence-based RRT protocols in a virtual environment for medical/ surgical patients</td>
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<tr>
<td></td>
<td>What works?</td>
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<tr>
<th>Aspect</th>
<th>Improvement</th>
<th>Research</th>
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<tr>
<td><strong>Aim</strong></td>
<td>Improvement of care</td>
<td>New knowledge</td>
</tr>
<tr>
<td><strong>Methods:</strong></td>
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<tr>
<td>Test Observability</td>
<td>Test observable</td>
<td>Test blinded or controlled</td>
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<tr>
<td>Bias</td>
<td>Accept consistent bias</td>
<td>Design to eliminate bias</td>
</tr>
<tr>
<td>Sample Size</td>
<td>Small sequential samples</td>
<td>Sample adequate (powered) for generalizability of data</td>
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<tr>
<td>Flexibility of Hypothesis</td>
<td>Hypothesis flexible, changes as learning takes place</td>
<td>Fixed hypothesis</td>
</tr>
<tr>
<td>Testing Strategy</td>
<td>Sequential tests</td>
<td>One large test</td>
</tr>
<tr>
<td>Determining if a change is an improvement</td>
<td>Run charts or Shewhart control charts</td>
<td>Hypothesis, statistical tests (t-test, F-test, chi square, p-values)</td>
</tr>
<tr>
<td>Confidentiality of the data</td>
<td>Data used only by those involved with improvement</td>
<td>Research subjects’ identities protected</td>
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<thead>
<tr>
<th>Component/Phase</th>
<th>Activities</th>
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<tr>
<td>First Component:</td>
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<tr>
<td>Development of Study/</td>
<td>• Topic/Problem</td>
</tr>
<tr>
<td>Project</td>
<td>• Framework/Theory Model</td>
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<tr>
<td></td>
<td>• Team Creation</td>
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<tr>
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<td>• Protocol Development</td>
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<td></td>
<td>• IRB Review</td>
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<td></td>
<td>• Protocol Operationalization</td>
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<tr>
<td>Phase 1: Conceptualization</td>
<td></td>
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<td>Phase 2: Design &amp; Planning</td>
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## RESEARCH/EBP/QI PROCESS

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<th>Component/Phase</th>
<th>Activities</th>
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</table>
| Second Component: Implementation | • Quantitative/Qualitative Data  
• Data Collection Team  
• Data Entry/Storage  
• Data analysis with statistician/analyst |
| Phase 3: Data Collection | *
| Phase 4: Data Analysis  | *
| Phase 5: Data Identification | *
### Component/Phase Activities

#### Third Component: Dissemination of Results

- **Phase 6: Data Interpretation**
- **Phase 7: Dissemination of findings**

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<th>Component/Phase</th>
<th>Activities</th>
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<tr>
<td><strong>Identification of themes</strong></td>
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<tr>
<td><strong>Interpretation of findings</strong></td>
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<td><strong>Organizational Spread</strong></td>
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<td><strong>Podium/Poster Presentations</strong></td>
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<td><strong>Publication</strong></td>
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CASE STUDY: HOSPITAL ACQUIRED PRESSURE ULCERS

Research • Intent: Learn via retrospective chart review

EBP • Intent: Integrate new scientific knowledge into clinical practice

QI • Intent: Identify changes to achieve goals
A systematic process

- **What is not known:** 2010 Unavoidable Pressure Ulcers: A Causal Model (Primary Investigator, SCAL PI Anna K. Omery, NCAL PI Gretchen Summer)
  - Retrospective chart review
  - Adult ICU patients
  - Statistical analysis of variables

- Descriptive, predictive, & controlled
RESEARCH EXAMPLE

- Scientific knowledge via a rigorous and systematic research process
  - Data
  - Facts
  - Synthesized Information
  - Knowledge

**Final Product** = New knowledge that can be generalized for adult ICU patients in the U.S. at risk of HAPU development
EBP EXAMPLE

Pre-albumin Screening to Decrease Hospital Acquired Pressure Ulcers

• KP Los Angeles Medical Center

• What is known: Monitoring pre-albumin levels can be used as a screening tool to identify patients at risk for HAPU and plan nutritional interventions
EBP EXAMPLE

Pre-albumin Screening to Decrease Hospital Acquired Pressure Ulcers

Final Outcomes:
• Decreased HAPU hospital-wide
• Improved QOL, decreased pain, cost, & LOS

• Systematic integration of new knowledge into nursing practice
• Maximize patient’s nutritional regime
1. Analyzed baseline data = **12 in 4 months**
2. Set SMART goal: **PCU will reduce the number of HAPUs from average of 2 / month to no more than 1 / month by Sept 30, 2010**
3. Assessed current practices and identified potential changes
   - **Better skin assessment skills**: Use 2 nurses
   - **Better risk assessment**: Create assessment tool
   - **WOCN as clinical expert and resource**
   - **Investigated other practices/interventions**
Learning about patients actively dying

PCU HAPU Project

Set 1: UCL = 1.89, Mean = 0.28, LCL = none (4/1/2010 - 10/1/2010)

- HAPUs developed in last 24 hours on patients that were actively dying
- Began using tool on all pts. (admits, transfers & weekly)
- Project Start
- Started UBT project
- Began doing 4 eyes on all patients
FOOD FOR THOUGHT

• How have YOU used research, EBP, or QI to improve nursing care?

• What challenges have YOU faced determining when to use research or EBP or QI?
SAN DIEGO SOLAR SYSTEM

Research
- Charge Nurses (CNs) and Patient Safety (Heather Cathro, PhD, RN)

EBP
- Bathing with CHG wipes in ICU

QI
- VAP Bundle
Question: What actions and processes do CNs on medical-surgical nursing units implement to keep patients safe?

Intent: Explore actions processes CNs implement to keep patients safe.
Using semi-structured interviews + observations, 3 themes and a substantive theory were created.

**Final Outcome: Navigating through Chaos**

CNs balance multiple rules, maintain a watchful eye, and work with and leading health care teams to keep patients safe.
CHG BATHING WIPES IN ICU

2010: Implemented CLASBI evidence-based protocol
- CHG bathing wipes

4th Q 2010-2015: 2 CLABSI incidents, with 3 consecutive years of 0 incidents
VAP BUNDLE

• Implemented evidence-based VAP Bundle in 2011, Qtr 1
• NO ventilator associated pneumonia since Oct 2011
Nurses ensure high quality and safe patient care through the worlds of research, EBP, and QI
GALACTIC SUMMARY

• Research, EBP, and QI vary in structure, intent, processes, outcome, data requirements

• Both have similarities:
  • Start with data
  • Conduct an analysis
  • Need a committed team
  • Rely on experts for guidance
WONDERFUL WORLD OF DATA

• Data transcends international boundaries, cultures, language

• The wonderful world of data offers nurses the opportunity to see the quantitative and qualitative results of research, EBP, and QI related to patient care...But...
WONDERFUL WORLD OF DATA

...Nurses see yet another world...

We see a world with human beings - patients, families, and others - who are hidden in the data

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CECELIA’S RABBIT HOLE

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• Standard Operating Procedures
• Applications, Forms, Reports
• IRB Guidance
• Link: http://irb.kp-scalresearch.org/
RESEARCH RESOURCES

• KPSC - Nursing - Research@kp.org
• http://kpsc nursingresearch.org/
RESEARCH RESOURCES

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• Feinstein Institute (2009). Quality management/quality improvement (qm/qi) activities vs. research activities subject to irb review. Available at http://www.feinsteininstitute.org/Feinstein/IRB+Guidance


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