Evolving Evidence to Excellence

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NATIONAL NURSES WEEK 2014

Nurses Leading the Way ............

AMERICAN NURSES ASSOCIATION
Let’s Discuss

Connection between evidence and improved nursing practices, better outcomes, better value

Strategies, models, and tools for moving evidence into practice: Improve care, safety, and outcomes
Evidence-Based Clinical Decision Making

What intervention will most likely diminish the health problem?

Choices based on the idea that research-based care improves outcomes.
Quality of Care
“degree to which health services to individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge”
(IOM, 1990)
Current Professional Knowledge

Tradition
Experience
Policy
Trial & Error
Patient Preference
THE CHALLENGE

**Bench Research Results**

\[ t = \frac{\text{Signal}}{\text{Noise}} = \frac{\bar{Y}_1 - \bar{Y}_2}{s_p \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}} \]

\[ V_{sh} = \frac{\sum_d \left( \frac{\sum_{\text{shd}} y_{\text{shd}}}{n_{\text{sh}}} \right)^2}{n_{\text{sh}} - 1} \]

**Bedside Care**
Quality of Care—Where are we?

• Quality of care lags behind current knowledge.

• Evidence-based practice is seen as a solution.

• How is it a solution?
Health care quality in America is suboptimal

47% of MI patients did not receive beta blockers

63% of smokers – were not advised to quit smoking

Substantial gap exists between best possible and routine care

Small gains are being made

(Data from 36 databases)
Crossing the Quality Chasm: A New Health System for the 21st Century

(IOM, 2001)

“STEEEP” Redesign:

Safe
Timely
Effective (EBP)
Efficient
Equitable
Patient-Centered

National Academies Press
http://books.nap.edu
EBP DEFINED
Integration of research evidence, expertise, and patient preference

Sackett et al
**VOLUME** of literature: No unaided human being can read, recall, and act effectively on the volume of clinically relevant scientific literature.  
(IOM, 2001)

**FORM** of knowledge: Not every knowledge source is suitable for informing clinical decisions.  
(ACE Star Model, 2004)
Hurdle

EBP Solution

Volume of Literature

Evidence Summary

Evidence summaries, systematic reviews reduce volume and complexity of evidence by integrating all research results into a meaningful whole.
Hurdle

Form of Knowledge

Literature contains a variety of knowledge FORMS, many of which are NOT suitable for direct practice application.

EBP Solution

Knowledge Transformation

Conversion increases utility in clinical decision making.

This conversion is explained by the ACE Star Model of Knowledge Transformation.
A MODEL to Structure the EBP Enterprise
ACE Star Model of Knowledge Transformation

1. Discovery Research
2. Evidence Summary
3. Translation to Guidelines
4. Practice Integration
5. Process, Outcome Evaluation

© Stevens 2004
Knowledge Transformation

--the conversion of research findings from single research studies, through a series of stages, to impact health outcomes.
• Literature search on FALLS PREVENTION
  • 1,076 citations
• Limit search to “research”
  • 414 citations
There were 22% fewer falls during the trial in the group exercise group than in the comparison group (IRR = 0.78, 95% CI = 0.62–0.99).

ACE Star Model of Knowledge Transformation

EVIDENCE SUMMARY

All research is synthesized into a single, meaningful statement of the state of the knowledge.
Literature search on FALLS PREVENTION
- 1,076 citations

Limit search to “research”
- 414 citations

Limit to “systematic reviews”
- 21 citations

Focus on “Prevention in Elderly”
- 1 systematic review
Interventions for Preventing Falls in Elderly People

Systematic Review of 62 trials involving 21,668 people

Interventions likely to be beneficial:
- Multi factor health/environmental risk factor screening/intervention
- Muscle strengthening and balance retraining
- Home hazard assessment and modification
- Withdrawal of psychotropic medication
- Tai Chi group exercise intervention

Evidence-based Practice

You Are Here: AHRQ Home > Clinical Information > Evidence-based Practice

Evidence-based Practice Program
- EPC Program Overview
- Participating EPCs
- Topic Nomination and Selection
- Resource Material
- Continuing Education Opportunities for Health Professionals

Effective Health Care Program

EPC Evidence Reports

- Topics In Progress
- Completed Reports: Clinical / Health Care Services / Technical
- Topic Index: A-Z
- List of Reports by Number
- Archived Reports
- Related Issues
Advantages of Evidence Synthesis

★ Reduce information into a manageable form
★ Establish generalizability--participants, settings, treatment variations, study designs
★ Assess consistencies across studies
★ Increase power in cause and effect
★ Reduce bias and improves true reflection of reality
★ Integrate information for decisions
★ Reduce time between research and implementation
★ Offer basis for continuous updates

Evidence Summaries

Experimental Research Studies (RCTs)

Non Experimental Studies

Qualitative Studies, Expert Opinion, Theory, Basic Science

© 2007 Stevens & Clutter
ACE Star Model of Knowledge Transformation
National Guideline Clearinghouse

- Sponsored by AHRQ
- Clinical Practice Guidelines

http://www.guideline.gov
Multifactorial Interventions

A - All older people with recurrent falls or assessed as being at increased risk of falling should be considered for an individualized multifactorial intervention.

(Evidence level I)

A - In successful multifactorial intervention programs the following specific components are common

(Evidence level I):

- Strength and balance training
- Home hazard assessment and intervention
- Vision assessment and referral
- Medication review with modification/withdrawal
Knowing What Works in Health Care: A Roadmap for the Nation

(IOM, 2008, 2011)

- Systematic Reviews: Central link between research and clinical decision making
- Guidelines: Guide practice
- Both must be resource-wise and rigorous
ACE Star Model of Knowledge Transformation

Practice
Integration
If we continue to do what we’ve always done, we will get the results we have always gotten.

--Plsek 2007
Watermelon Squared
Agency for Healthcare Research and Quality (AHRQ)

Available:
http://www.innovations.ahrq.gov/
Fall Prevention Toolkit Facilitates Customized Risk Assessment and Prevention Strategies, Reducing Inpatient Falls

- **What They Did:**
  - Periodic assessment, specific risk factors, customized interventions
  - Computerized program produces tailored prevention recommendations
  - Individualized care plan, educational handout, bedside alert poster

- **Did It Work?**
  - Significantly reduced falls, particularly in > 65.

- **Evidence Rating**
  - Strong: Cluster randomized study comparing fall rates.

*Patricia Dykes, RN, PhD,*
*RWJ Interprofessional Nursing Quality Research Initiative*
**Will It Work Here? A Decisionmaker's Guide to Adopting Innovations**

Users will be able to answer the 4 questions

- Does this innovation fit?
- Should we do it here?
- Can we do it here?
- How can we do it here?

*http://www.innovations.ahrq.gov*
Innovations Exchange Users By Role

- Nurse, 31%
- Health Administrator, 15%
- Other (Quality Improvement Professionals, NPs, etc.), 15%
- Researcher, 9%
- Educator, 9%
- Other Clinician, 6%
- Physician, 6%
- Student, 5%
- Patient or consumer, 2%
- Policy Maker, 3%

N = 654
Data Source: American Customer Satisfaction Index (ACSI)
Based on period April 2011 - March 2012
Updated April 2, 2012
Innovation is the one competence needed in the future

--Peter Drucker
Getting to Outcomes

Process, Outcome, Evaluation
Colorectal Cancer Screening

- Colon cancer screening: % of patients receiving timely colorectal cancer screening


http://www.qualitymeasures.ahrq.gov
Score for Fall Risk Management

\[
\% = \frac{\text{numerator}}{\text{denominator}}
\]

\text{numerator} \quad \# \text{ of members who indicated they discussed falls or problems with balance or walking with their current provider}

\text{denominator} \quad \# \text{ of members:}

- 75 years of age and older as of December 31 of the measurement year who had a visit in the past 12 months
- or
- 65 to 74 years of age and older as of December 31 of the measurement year who had a visit in the past 12 months and who indicated they had a fall or problems with balance or walking in the past 12 months
Bake-a-Cake
RESOURCES for Increasing EBP Engagement
EBP Competencies:

- Essential Competencies for EBP in Nursing (2009)
- ACE EBP Readiness Inventory
Measuring EBP Competencies

Measure twice, Cut once

Carpenters' Memorial Teaching Hospital
ACE-EBP Readiness Inventory

<table>
<thead>
<tr>
<th>QUESTIONNAIRE</th>
<th>Very little</th>
<th>A great deal</th>
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<tr>
<td><strong>1.</strong> From specific evidence summary databases (e.g., Cochrane Database of Systematic Reviews), locate systematic reviews and evidence summaries on clinical topics.</td>
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<td><strong>2.</strong> Using existing critical appraisal checklists, identify key criteria in well-developed evidence summary reports.</td>
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<td><strong>3.</strong> List advantages of systematic reviews as strong evidentiary foundation for clinical decision making.</td>
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<td><strong>4.</strong> Identify examples of statistics commonly reported in evidence summaries.</td>
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<td><strong>5.</strong> With assistance and existing criteria checklist, identify the major facets to be critically appraised in clinical practice guidelines.</td>
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<td><strong>6.</strong> Using specified databases, access clinical practice guidelines on various clinical topics.</td>
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<td><strong>7.</strong> Participate on team to develop agency-specific evidence-based clinical practice guidelines.</td>
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<td><strong>8.</strong> Compare own practice with agency’s recommended evidence-based clinical practice guidelines.</td>
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<td><strong>9.</strong> Describe ethical principles related to variation in practice and EBP.</td>
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<td><strong>10.</strong> Participate in the organizational culture of evidence-based quality improvement in care.</td>
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<td><strong>11.</strong> Deliver care using evidence-based clinical practice guidelines.</td>
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<td><strong>12.</strong> Utilize agency-adopted clinical practice guidelines while individualizing care to client preferences and needs.</td>
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Online Survey Available: ACESTAR@uthscsa.edu
NEW RESOURCES for CONDUCTING RESEARCH
Strategies for Implementing EBP
…require an evidence base of their own

(Shojania & Grimshaw. 2005)
Mission:
To advance the scientific foundation for quality improvement, safety, and efficiency through transdisciplinary research addressing healthcare systems, patient-centeredness, and integration of evidence into practice.

The only NIH-supported Improvement Science Research Network.
Catalysts

• Improving our work is our work.

• *Future of Nursing* calls for “…nurses to lead and manage collaborative efforts with … other members of the health care team to conduct research and to redesign and improve practice environments and health systems.” (IOM, 2011)

• Lead with evidence of ‘what works’
New Resource: A Unique Research Laboratory

What is the Improvement Science Research Network?
The Improvement Science Research Network is the only National Institutes of Health-supported improvement research network. Our primary mission is to accelerate interprofessional improvement science in a systems context across multiple sites. More...

ISRN Blog

Where to Publish Your Results... What’s Your Opinion?
QUESTION: In what journals can articles on translational science, quality improvement initiatives, dissemination and implementation research, delivery systems science and other emerging healthcare fields be published? More...

Call for Abstracts - Submission Closes March 4

Clinicians, Educators and Researchers share your EBP successes. Nurses, Physicians, Pharmacists, Dieticians, Infection Control, Business, Administration, and more...
Research Focus and Activities

…more on www.ISRN.net

Improvement Research **PRIORITY**

A. Coordination and transitions of care  
B. High performing clinical systems and Microsystems approaches to improvement  
C. Evidence-based quality improvement and best practice  
D. Learning organizations and culture of quality and safety

**Network STUDIES**

Frontline Engagement in QI  
Med Errors  
Team Performance

**Improvement Research MEMBERS**

1. 230 Members/Agencies  
2. Capacity Building AHRQ R13  
3. Online Resources  
4. Research Study Support via virtual collaboratory
ISRN Steering Council

Kathleen R. Stevens, RN, EdD, MSN, FAAN, ANEF (ISRN Director)
UT Health Science Center San Antonio
Carolyn M. Clancy, MD
US Department of Veterans Affairs
Heidi King, MS, FACHE, BCC, CMC, CPPS
TRICARE Management Activity
Vivian Low, MPH, BSN, RN-BC, FPCNA
El Camino Hospital
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Oncology Nursing Society
Jack Needleman, PhD, FAAN
UCLA School of Public Health
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Department of Veterans Affairs
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The Cedar Institute, Inc.
Lily Thomas, PhD, RN
North Shore-Long Island Jewish Health System
Anita Tucker, DBA
Harvard School of Business
ISRN Coordinating Center Team
RESEARCH PRIORITIES

To focus and speed the work of testing improvement strategies, Research Priorities were set. These were based on environmental scans, literature reviews, major health care organizations’ priorities, and survey of stakeholders. The Research Priorities reflect consensus on the most important and urgent gaps in improvement knowledge, according to clinical and academic scholars, leaders, and change agents in health care settings. The priorities inform decisions about the scope and focus of the work of the Improvement Science Research Network.

Coordination and Transitions of Care

This category emphasizes strategies for improving care processes in specific clinical conditions, to ensure good care coordination and transitions of care.

Priority Topics: Evaluate strategies and methods to ensure coordination and continuity of care across transitions in given clinical populations; test and refine methods of handoffs and other strategies to ensure safe, effective, and efficient transitions in given clinical populations.

Examples of Improvement Strategies and Research Issues: Interprofessional team performance, medication reconciliation, discharge for prevention of early readmission, patient-centered care, and measurement of targeted outcomes.

High-Performing Clinical Systems and Microsystems Approaches to Improvement

This category emphasizes structure and process in clinical care and health care as complex adaptive systems.

Priority Topics: Determine effectiveness and efficiency of various methods and models for integrating and sustaining best practices in high-performing care processes and patient outcomes; investigate strategies to engage frontline providers in improving quality and patient safety; evaluate strategies for preventing targeted patient safety incidents; establish reliable quality indicators to measure the impact of improvement and isolate nursing care impact on outcomes.

Evidence-Based Quality Improvement and Best Practice

This category emphasizes closing the gap between knowledge and practice through transforming knowledge and designing and implementing best practices.

Priority Topics: Evaluate strategies and impact of employing evidence-based practices in clinical care of process and outcomes improvement; determine gaps and bridge gaps between knowledge and practice; transform evidence for practice through conducting systematic reviews, developing practice guidelines, and integrating evidence into clinical decision making; and develop new research methods in evidence-based quality improvement, including comparative effectiveness research and practice-based evidence.


Learning Organizations and Culture of Quality and Safety

This category emphasizes human factors and other aspects of a system related to organizational culture and commitment to quality and safety.

Priority Topics: Investigate strategies for creating organizational environments that support cultures fully linked to maintaining quality and patient safety; in order to maximize patient outcomes, determine effective approaches to developing organizational climates for change, innovation, and organizational learning.

Examples of Improvement Strategies and Research Issues: Professional practice environments, protecting strategy from culture, shared decision making and governance, patient-centered models, leadership to instill values and beliefs for culture of patient safety, and organizational design (e.g., root cause failure).

Available: www.ISRN.net
Small Troubles, Adaptive Responses (STAR-2):

Frontline Nurse Engagement in Quality Improvement
Missed Learning Opportunities

Quote:
“We never told the pharmacy when we got a dose of medicine that was more than we requested. We just squirted out the extra because we figured they were busy, they had not intended to make the mistake, and they wouldn’t do anything about it anyway.”
-Nurse Hosp #8

Tucker, 2008
Missed Learning Opportunities

“…It was sad really because we weren’t letting them have the information so they could fix their own problems.”
– Nurse Hosp #8

Tucker, 2008
Research Approach

- Conduct in the ISRN “research laboratory”
- Multisite, cross-sectional, multivariate research
- 14 sites, 41 med/surg units, ~840 RNs
  - 4 Pediatric units
  - 10 Adult units
- Analyze data using descriptive, multivariate, and path analysis methods
Map of STAR-2 and STAR-2+ Research Collaborative
Pocket Card

Small Problems in Providing Care Today

Date: ___/___/___   Shift: ______
Unit: ____________   Title: ______________
ID: _____________

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<tr>
<th>Equipment/Supplies</th>
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<th>Physical Unit/Layout</th>
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<th>Information/Communication</th>
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<th>Staffing/Training</th>
<th>Description</th>
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<th>Medication</th>
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<th>Other</th>
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## Operational Failures Per 12 hr Shift

(N=2,930 Shifts)

<table>
<thead>
<tr>
<th>Category</th>
<th>Average Number of Failures</th>
<th>Standard Error</th>
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<tbody>
<tr>
<td>Equipment</td>
<td>1.55</td>
<td>0.45</td>
</tr>
<tr>
<td>Layout</td>
<td>0.45</td>
<td>0.2</td>
</tr>
<tr>
<td>Information</td>
<td>1.21</td>
<td>0.6</td>
</tr>
<tr>
<td>Staffing</td>
<td>0.91</td>
<td>0.4</td>
</tr>
<tr>
<td>Medication</td>
<td>1.07</td>
<td>0.9</td>
</tr>
<tr>
<td>Other</td>
<td>0.96</td>
<td>0.6</td>
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Note that each Network Study is open for ISRN members to become Site Investigators

<table>
<thead>
<tr>
<th>Study</th>
<th>Priority</th>
<th>Status</th>
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<tbody>
<tr>
<td>STAR-2</td>
<td>B-Microsystem</td>
<td>PHASE 2 ACTIVE: Currently building research collaborative with 12 hospitals. Phase 1 complete in 14 hospitals. 20,000+ data points gathered and analyzed.</td>
</tr>
<tr>
<td>Medication Errors and Cognitive Load</td>
<td>B-Microsystems</td>
<td>PHASE 2 ACTIVE: Currently building research collaborative with 4 hospitals. Phase 1 near finalizing data entry. Data analysis currently underway</td>
</tr>
<tr>
<td>STAR-RT</td>
<td>B-Microsystem</td>
<td>IN DEVELOPMENT: Project is under development by Network PI. Call for interested hospitals to participate in this study will be released 1st quarter of 2014.</td>
</tr>
<tr>
<td>TeamSTEPPS®</td>
<td>B-Microsystems D-Macrosystems</td>
<td>IN DEVELOPMENT: Project is under development by Network PI. Call for interested hospitals to participate in this study will be released 1st quarter of 2014.</td>
</tr>
<tr>
<td>Care Coordination</td>
<td>A-Transitions and Coordination in Care</td>
<td>IN DEVELOPMENT: Archived Web Seminar August 2012 to activate ISRN member interest. Potential intervention identified for Network testing.</td>
</tr>
<tr>
<td>Care Transition</td>
<td>A-Transitions and Coordination in Care</td>
<td>IN DEVELOPMENT: Archived Web Seminar July 2012 to activate ISRN member interest.</td>
</tr>
<tr>
<td>STAR-3</td>
<td>B-Microsystems</td>
<td>IN DEVELOPMENT: Project to test interventions for STAR-2 are currently being developed.</td>
</tr>
<tr>
<td>Improvement Collaborative</td>
<td>C-Uptake of Evidence-Based Practice</td>
<td>IN DEVELOPMENT: Project is on the drawing board</td>
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</table>

You are invited to design a Network Study for launch across our 200+ member network.
Resources
Quality of care lags behind knowledge

We *can* do something about it!
“To move the world we must first move ourselves.”

-- Socrates
Resources


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• National Institute of Nursing Research-Grand Opportunities ARRA ($3.2M)
  • 1RC2NR011946-01
  • 3RC2NR011946-01S1
  • 3RC2NR011946-01S2
• RWJF INQRI grant ID: 63510
• National Center for Research Resource Clinical and Translational Science Award UL1 TR001120
• Site PIs at 14 hospitals across the US who became partners in this study
• NIH/NINR Award Number RC2NR011946
• This content is solely the responsibility of the authors and does not necessarily reflect the official views of the funding agency.

Thank You

• Thanks to ISRN Coordinating Center team for their essential support of this study.
• Thanks to ISRN associates that formed the Research Collaborative for STAR-2.
PURPOSE: To advance cutting evidence-based nursing practice, research, and education within an interdisciplinary context.

GOAL: To turn research into action, improving health care and patient outcomes through evidence-based practice, research, and education.
Contact Information

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Thank You