Evidence-Based Practice: Improving Care with Nursing Science

Connecticut Nursing Research Alliance
16th Annual Evidence-Based Practice Conference

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Key Points

• Model of Knowledge Transformation
• Prepare the Workforce
• The Science of Improvement
Evidence to Guide Quality Improvement

Evidence-Based Clinical Decision Making:

• Choices based on the idea that research-based care improves outcomes.

• What intervention will most likely diminish the health problem?
Array of Clinical Evidence

Tradition Experience Policy Trial & Error Patient Preference

Multiple Research Reports

Impact-Quality Indicators

AHRQ Health Care Innovations Exchange

Agency Specific Guideline & Innovations

Systematic Review

Evidence Synthesis

USPSTF

Preventive Recommendations

Guidelines from Associations
Quality of Care

DEFINED:
“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)
THE CHALLENGE OF MOVING RESEARCH INTO PRACTICE

\[ t = \frac{\text{Signal}}{\text{Noise}} = \frac{\overline{y_1 - y_2}}{\overline{1/n_1} \overline{1/n_2}} \]
Quality of Care

• Quality of care lags behind knowledge

• Evidence-Based Practice is seen as a solution

• How is it a solution?
Data from 36 databases

Health care quality in America is suboptimal

Gap between best possible and routine care is substantial

Small gains are being made
“STEEEP” Redesign:

Safe
Timely
Effective (EBP)
Efficient
Equitable
Patient-Centered

National Academies Press
http://books.nap.edu
Evidence Hurdles

**VOLUME** of literature:
No unaided human being can read, recall, and act effectively on the volume of clinically relevant scientific literature. (IOM, 2001, 25)

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

1. Discovery Research
2. Evidence Summary
3. Translation to Guidelines
4. Practice Integration
5. Process, Outcomes, Evaluation
ACE Star Model of Knowledge Transformation

OUTCOMES
Getting the outcomes measured

EVIDENCE
Getting the evidence straight

ACTION
Getting the straight evidence used
Knowledge Transformation

--the conversion of research findings from single research studies, through a series of stages, to impact on health outcomes.
Premises of Star Model

- Knowledge transformation is necessary before research results are useable in quality improvement

- Knowledge derives from a variety of sources

- The most stable and generalizable knowledge is discovered through systematic processes (research)

- The form of knowledge determines its usability in clinical decision making
Discovery
Research

1
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).

• 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

Located 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

Smoking Interventions for Pregnant Women

Located 64 randomized and quasi-randomized trials including over 20,000 women:
There was a significant reduction in smoking in the intervention groups of the 48 trials included; the authors concluded that smoking cessation programs in pregnancy reduce the proportion of women who continue to smoke, and reduce low birthweight and preterm birth.

Lumley, J; Oliver, SS; Chamberlain, C; Oakley, L. (2005). Interventions for promoting smoking cessation during pregnancy. Cochrane Pregnancy and Childbirth Group Cochrane Database of Systematic Reviews.
Evidence-based Practice

Sign Up for Evidence-based Practice E-Mail Updates

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

## Rating Strength of Evidence-NHS

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<thead>
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<tbody>
<tr>
<td>1A</td>
<td>SR with homogeneity of RCTs</td>
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<tr>
<td>1B</td>
<td>Individual RCT with narrow CI</td>
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<tr>
<td>1C</td>
<td>All or none</td>
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<tr>
<td>2A</td>
<td>SR with homogeneity of cohort studies</td>
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<tr>
<td>2B</td>
<td>Individual cohort study</td>
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<tr>
<td>3A</td>
<td>SR with homogeneity of case-control studies</td>
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<tr>
<td>3B</td>
<td>Individual case-control study</td>
</tr>
<tr>
<td>4</td>
<td>Case-series, poor quality cohort &amp; case-control</td>
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<tr>
<td>5</td>
<td>Expert opinion, theory, bench research</td>
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</tbody>
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Evidence Summaries

Experimental Research Studies (RCTs)

Non Experimental Studies

Qualitative Studies, Expert Opinion, Theory, Basic Science

Strength of Evidence Rating

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Translation to Guidelines
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)

- Systematic Reviews: Central link between research and clinical decision making
- Guidelines: Guide practice
- Both must be resource-wise and rigorous
Practice Integration
Agency for Healthcare Research and Quality (AHRQ)

Available:

http://www.ahrq.gov/

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
Patient- and Family-Activated Response Team Averts Potential Problems and Generates High Levels of Patient, Family, and Staff Satisfaction

Team-Developed Care Plan and Ongoing Care Management by Social Workers and Nurse Practitioners Result in Better Outcomes and Fewer Emergency Department Visits for Low-Income Seniors

What is the evidence rating?
Mission

ISRN mission is to

• increase the scientific foundation of healthcare quality improvement, safety, and efficiency
• through transdisciplinary research focused on
• healthcare systems, patient-centeredness, and integration of evidence into practice.
Improvement Research Priorities

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
Colorectal Cancer Screening

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


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

- **Fall Risk Management:** % of Medicare members who discussed falls problems w/ provider
  - 75 years of age or older; or
  - 56 to 74 years of age w/ balance or walking problems or a fall in past 12 months
  - Seen by provider in past year and
  - Discussed falls or balance problems

- **Collected using Medicare Health Outcome Survey (HOS)**

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

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

The numerator is the number of members who indicated they discussed falls or problems with balance or walking with their current provider.

The denominator is the number 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.


Stevens, KR. (2009). *Essential competencies for evidence-based practice in nursing 2nd ed*. San Antonio: Academic Center for Evidence-based Practice (ACE) of The University of Texas Health Science Center.
