

2016 American Nurses Association Annual Conference
 Connecting **Quality, Safety** and **Staffing** to Improve Outcomes



Using Implementation Science to Further Evidence-based Practice in Quality, Staffing and Safety
 C113

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Objectives

- Integrate 3 complimentary perspectives to translate knowledge and evidence into practice to improve outcomes
- Examine the relationship of implementation, fidelity and reliability sciences
- Apply methodology rigor to advance evidence-based practice
- Showcase at least 2 examples of implementation science from pilot test to enculturation



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Challenges to improve the conduct and reporting of patient safety interventions are keys to evaluation

- Describe the theory: theory or logic why patient safety practice works
- Describe the patient safety practices in detail
- Detail implementation process
- Assess outcomes and the influence of context (external factors, organizational characteristics, teamwork and leadership, management tools)

Shekelle, et al., (2011). Advancing the science of patient safety. Annual of Internal Medicine. 154(10): 693-696

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Integration of Complementary Perspectives

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    graph LR
      Knowledge --> InnovationDiffusion[Innovation Diffusion]
      Knowledge --> KnowledgeTransfer[Knowledge Transfer]
      Knowledge --> EvidenceBasedPractice[Evidence-based Practice]
      InnovationDiffusion --> Outcome
      KnowledgeTransfer --> Outcome
      EvidenceBasedPractice --> Outcome
  
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Three Perspectives



Evidence-based Practice (Sackett)
“...the conscientious use of current *best evidence* in making decisions about the care of individual patients or the delivery of health services.”

Innovation Diffusion (Rogers)
The *process of communicating new ideas* through certain channels over time among members of a social system

Knowledge Transfer (Dixon)
Sharing of *common knowledge*, that is the knowledge that employees learn from doing the organization’s tasks.

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Remember Research Utilization?

- Research utilization refers to **the use of some aspect of scientific investigation in a clinical application unrelated to the original research**. The ultimate responsibility for research utilization rests within the entire nursing community. There is tremendous potential for the utilization of research throughout the nursing process” (Poit & Hungler, 1999).



Models

- **THE CURN MODEL:** The Conduct and Utilization of Research in Nursing (CURN) project. Developed in 1975-1980 by the Michigan State Nurses Association with 34 hospitals participating. This model exemplifies a structure, formal organizational process that requires organizational commitment, resources, and research expertise.
- **THE STETLER MODEL:** The Stetler Model design is a structure for using the research conducted and create a vehicle for changing policies and procedures. Individual nurses, such as practitioners, educators, and policymakers, summarize research and use the knowledge to influence educational programs, make practice decisions, and impact political decision making (Burns & Grove, 1997).
- **THE ACE STAR MODEL:** The Cycle of Knowledge Transformation® is a new model for evidence-based practice (EBP) that organizes both old and new concepts of improving care into a whole and provides a framework with which to organize EBP processes and approaches" (Stevens, 2002).
- **THE IOWA MODEL:** The Iowa Model of Research in Practice permeates research into practice to improve the overall quality of healthcare, and is a product of the Quality Assurance Model Using Research. Research utilization is viewed as an organizational process through which principles are utilized to merge research and practice. The Iowa model includes both multidisciplinary team approach evidence-based healthcare.

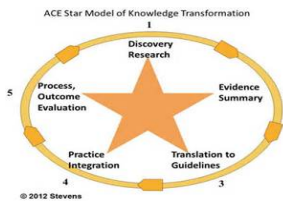


Examples of EBP Models

- <http://www.bing.com/images/search?q=examples+of+ebp+models&qpv=Examples+of+EBP+Models&qpv=Examples+of+EBP+Models&FORM=IGRE>



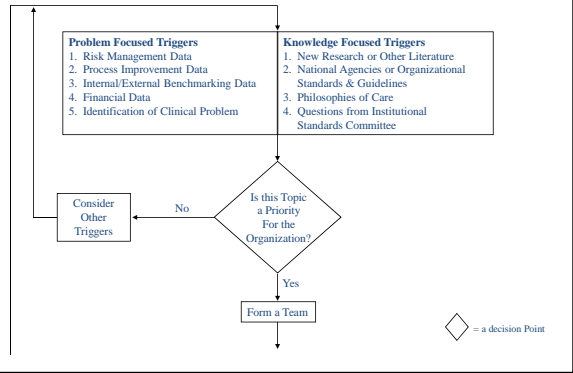
Ace Model
Stevens, K. R. (2012). *ACE Star Model of EBP: Knowledge Transformation*. Academic Center for Evidence-based Practice.

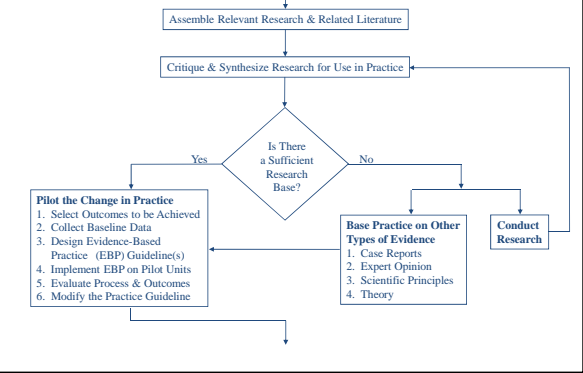


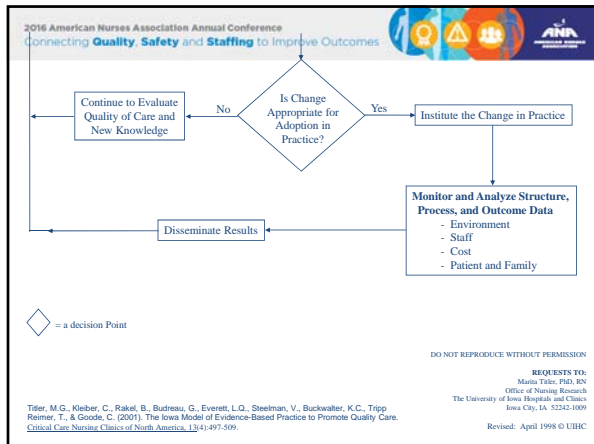
Iowa Model of Evidence-Based Practice to Promote Quality Care

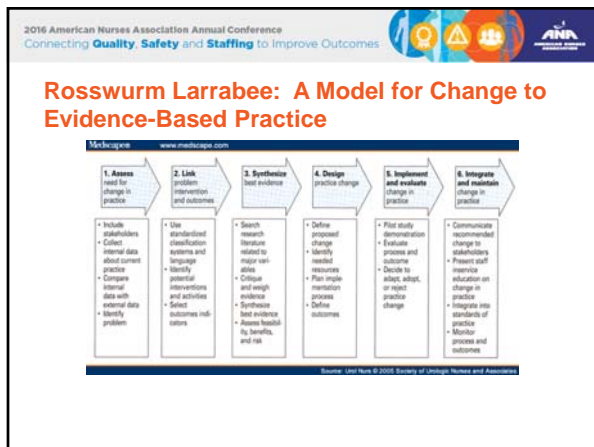
Titler, M.G., Kleiber, C., Steelman, V., Rakel, B., Budreau, G., Everett, L.Q., Buckwalter, K.C., Tripp Reimer, T., & Goode, C. (2001). The Iowa Model of Evidence-Based Practice to Promote Quality Care. *Critical Care Nursing Clinics of North America*, 13(4):497-509.

The Iowa Model of Evidence Based Practice to Promote Quality Care









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Implementation Science

- *The study of methods to promote the integration of research findings and evidence into healthcare policy and practice.*
- It seeks to understand the behavior of healthcare professionals and other stakeholders as a key variable in the sustainable uptake, adoption, and implementation of evidence-based interventions.



Questions Asked

Implementation science creates generalizable knowledge that can be applied across settings and contexts to answer central questions.

- Why do established programs lose effectiveness over days, weeks, or months?
- Why do tested programs sometimes exhibit unintended effects when transferred to a new setting?
- How can multiple interventions be effectively packaged to capture cost efficiencies and to reduce the splintering of health systems into disease-specific programs?



Implementation Matters

- Identifying and adopting what works is not enough to achieve successful outcomes
- Evidence-based programs and practices still have to be delivered with fidelity / integrity in diverse and complex real-world settings
- One of the strongest messages coming from the research is fidelity—the quality with which the treatment is delivered – in crucial to successful outcomes (Lipsey et al. 2010)



Program Effectiveness AND Implementation Effectiveness



+ program, - implementation = inconsistent, unsustainable, or poor outcomes

- program, + implementation = poor outcomes



Research Examples

- Comparisons of multiple evidence-based interventions
- Identification of strategies to encourage provision and use of effective health services
- Identification of strategies to promote the integration of evidence into policy and program decisions.
- Appropriate adaptation of interventions according to population and setting
- Identification of approaches to scale-up effective interventions
- Development of innovative approaches to improve healthcare delivery
- Setting up an impact evaluation for a population based intervention



Why invest in Implementation Science

- Implementation science recognizes and address the multitude of gaps that impede evidence-based interventions from producing optimal health outcomes. These knowledge and practice gaps include:
- "Research-to-policy" gaps which exist when research evidence is not adequately or appropriately considered and integrated in the development of health outcomes.
- "Research-to-program" gaps which exist when research evidence is not adequately or appropriately considered and integrated in the development of health policy.



Fidelity Assessments

Fidelity may be defined as the extent to which delivery of an intervention adheres to the protocol or program model originally developed. (Mowbray et al., 2003)

Establish Fidelity Criteria and Measuring Fidelity

Critical to achieve positive outcomes

Should be concerned with...

- Structure (framework for service delivery) and process (way in which services are delivered)–
- Adherence, exposure/dosage, quality of delivery, participant responsiveness (Mihalic et al., 2004)
- Context, compliance and competency (Fixsen et al., 2005)



Answer these questions

- If you change structure, what is the effect on process and outcomes?
- If you implement a change in practice, what approach to implementation did you use?
- How confident are you what you are testing is being done?
- How do you measure reliability (accuracy, timeliness) of implementation?
- How do you know the change is being effective?



Reliability Science

- Reliability defined as "the capability of a process, procedure or health service to perform its intended function in the required time under existing conditions."
- developed out of industries such as nuclear power and aviation, which place great emphasis on reducing error rates to protect the public.
- a measure of the internal consistency and stability of a measuring device.
- how often does something: happen when it is supposed to happen?
- It has been applied to health care only recently but is quickly being recognized as one of the underpinnings of quality improvement.



Quantifying Reliability

- Reliability can be quantified as the number of actions that achieve the intended result divided by the total number of actions taken.
- The defect rate is often expressed as an index based on an order of magnitude.
- For example, 10^{-1} means that approximately 1 time in 10, the action fails to achieve the intended result.

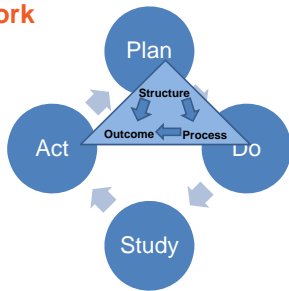


How can reliability science help?

- Standardize your approach
- Build decision aids and reminders into your systems
- Take advantage of pre-existing habits and patterns
- Make the desired action the default, rather than the exception
- Create redundancy
- Bundle related tasks
- Encourage teamwork, feedback and training

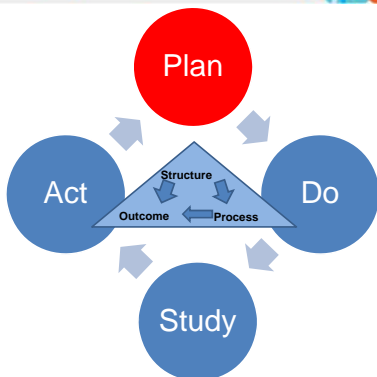


Performance Improvement Model Incorporating Donabedian's Quality Framework

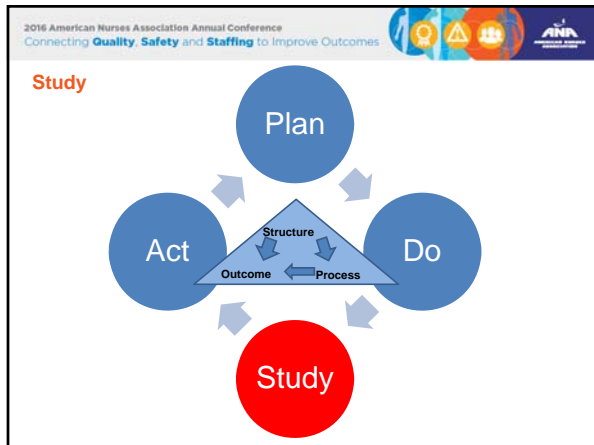




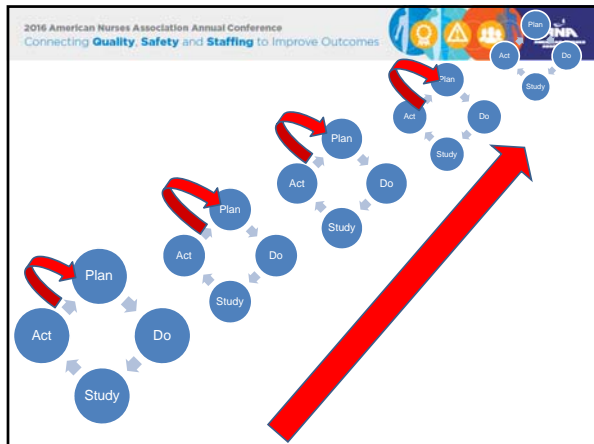
Plan

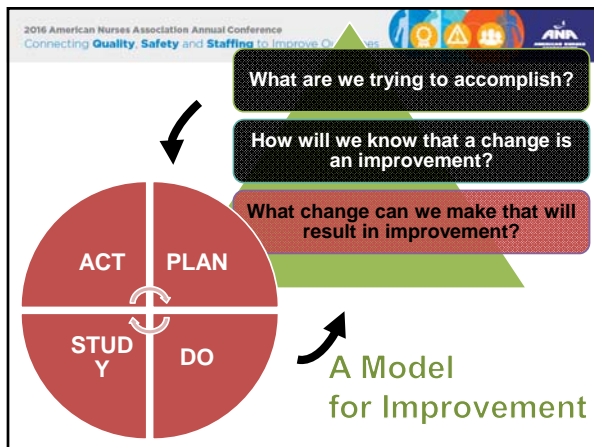








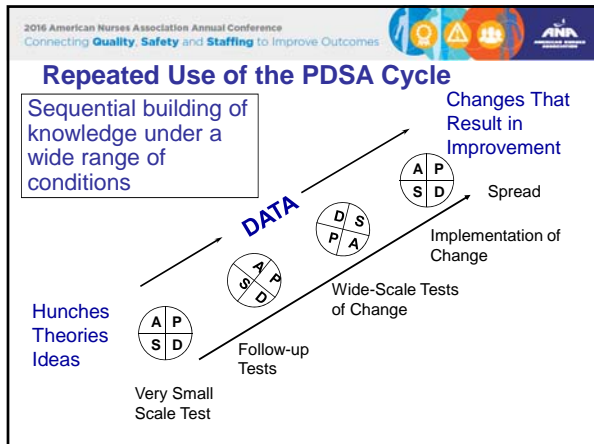




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Principles & Guidelines for Testing

- A test of change should answer a specific question
- A test of change requires a theory and prediction
- Test on a small scale
- Collect data over time
- Build knowledge sequentially with multiple PDSA cycles for each change idea
- Include a wide range of conditions in the sequence of tests



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- ### Implementation Science and Strategies
- Empirically-based insights and tools that can be used to support high-quality implementation in diverse and complex real world settings
 - Unit-based Champions
 - Manuals and Guidelines
 - Meetings to assure adherence

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- ### Making Health Care Safer II 2013
- Co-Principal Investigators:**
- Paul G. Shekelle, M.D., Ph.D., RAND Corporation Evidence-based Practice Center
 - Robert M. Wachter, M.D., University of California, San Francisco
 - Peter J. Pronovost, M.D., Ph.D., Johns Hopkins University
- Since 2001 report, a vast amount of new information on PSPs has emerged; *more agreement is now evident on what constitutes evidence of effectiveness and the importance of implementation and context.*



Evidence Reviews: Rating

Evidence of Effectiveness (low, moderate, high; benefits outweigh harm)

Evidence of on potential for harmful unintended consequences (high, moderate, low, negligible)

Estimate of costs (low, moderate High)

Implementation issues: How Much Do We Know? How Hard Is It to Implement?



Obj: To review important patient safety practices for evidence of effectiveness, implementation, and adoption.

Results: From an initial list of over 100 patient safety practices, the stakeholders identified 41 practices as a priority for this review: 18 in-depth reviews and 23 brief reviews. Of these,

20 PSPs had their strength of evidence of effectiveness rated as at least "moderate"

26 PSPs had at least "moderate" evidence of how to implement them



Results con't:

- 10 practices were classified by the stakeholders as having sufficient evidence of effectiveness and implementation and should be "strongly encouraged" for adoption
- An additional 12 practices were classified as those that should be "encouraged" for adoption. This includes **Multicomponent interventions to reduce falls**



Falls at Bedside





Hip Protector Toolkit



- This web-based toolkit will include:
 - prescribing guidelines,
 - standardized CPRS orders,
 - selection of brands and models,
 - sizing guidelines,
 - protocol for replacement,
 - policy template,
 - laundering procedure,
 - stocking procedure,
 - monitoring tools,
 - patient education materials,
 - provider education materials.



Technology Resource Guide: Bedside Floor Mats



- Bedside floor mats protect patients from injuries associated with bed-related falls.
- Targeted for VA providers, this web-based guidebook will include: searchable inventory, evaluation of selected features, and cost.



SQUIRE

- Standards for Quality Improvement Reporting Excellence
- Writing is part of safety and quality work
- The guidelines provide an explicit framework for sharing the knowledge acquired by examining those interventions closely, carefully, and in detail.



Main Sections

- Title and Abstract
- Introduction: Why did you start?
- Methods: What did you do?
- Results: What did you find?
- Discussion: What do the findings mean?
- Other Information: Were other factors relevant to conduct and interpretation of the study?



Stages of Implementation: 1-4 takes 2-4 years

1. Exploration
 - Awareness, acquisition of information
 2. Installation
 - Active preparation, behind the scene tasks
- Fixsen et al. (2005)
3. Initial implementation
 - Initial change in practice; many forces at play, including resistance, push-back
 4. Full implementation:
 - New learning becomes integrated into practitioner, organizational, and community practices, policies, and procedures. Full staffing and client loads. The innovation becomes accepted practice.
 5. Innovation
 6. Sustainment



Key Implementation Supports

- Implementation teams
- Communities of practice
- Data-driven feedback
 - To support coaching; development of staff competencies
 - To support fidelity assessments, formative program evaluation
- Practice to policy feedback mechanisms
- Leadership



HRO

- High Reliability Organizations are those that achieve a high degree of safety or reliability despite dangerous or hazardous conditions¹
- Minimize errors and achieve exceptional performance in patient safety and quality
- Some studies indicate that core processes in health care are defective 50% of the time , *and*
- Patients receive only approximately 55% of the care that they should when entering the health care system ²

1. Weick, K. E., & Sutcliffe, K. M. (2007). *Managing the Unexpected: Resilient Performance in and Age of Uncertainty*. Second Edition. San Francisco, CA: Jossey-Bass.
2. Rouse, R.K. (2006, August). Making Noncatastrophic Health Care Processes Reliable: Learning to Walk before Running in Creating High-Reliability Organizations. *Health Services Research*, 41(4p2): 1677-1689



Unified Goals

- Across organizations to support a culture for **patient safety** and *quality of care* through continuous improvement and systems, which must also include measurement systems
- Demonstrate organizational behaviors that demonstrate anticipation, resilience, and constant improvement



Refer you to:

- Quigley, P., & White, S. (2013). Hospital-Based Fall Program Measurement and Improvement in High Reliability Organizations. *OJIN*, 18(2). Manuscript 5. DOI: 10.3912/OJIN.Vol18No02Man05



Resources

- [NIH Resources on Dissemination and Implementation Research in Health \(DIRH\)](#)
- [Knowledge Translation Resources from Canadian Institutes of Health Research](#)
- [WHO's Implementation Research Platform](#)
- [NIH's New and Early Stage Investigator Policies](#)
- [UNC Chapel Hill's North Carolina Translational and Clinical Sciences Institute: Dissemination & Implementation portal](#)
- [UNC Chapel Hill's Active Implementation Hub](#)
- [NIH Fogarty International Center's Implementation Science resource site](#)
- [WHO/UNICEF et al's Training in Tropical Diseases site](#)
- Journal: <http://www.implementationscience.com>



Thank you!