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Iowa Model Revised: Research and Evidence-based Practice Application

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Introduction

Clinical problems or new evidence are triggers that drive clinicians to question their practice. Every day, in a variety of clinical settings, nurses ask: why do we do it this way? is there a better way to do it? what are the risks? Having a culture of inquiry is critical for point-of-care nurses' engagement in evidence-based practice (EBP). From there, a clear path for using evidence to guide practice is needed in order to optimize outcomes (Institute of Medicine, 2001). For decades, nurses at University of Iowa (UI) Hospitals and Clinics have partnered with academic partners at the UI College of Nursing to develop and optimize an application-oriented EBP process model, the Iowa Model©, for guiding clinicians from trigger to sustained outcomes and dissemination. This article will describe a practice change that used the Iowa Model Revised: Evidence-Based Practice to Promote Excellence in Health Care (Iowa Model Collaborative, 2017) to solve a clinical problem related to family presence in pediatric post-procedural care areas.

Background

The Iowa Model, first developed and published twenty-five years ago by Titler and others (Titler et al., 1994), is rooted in Diffusion of Innovations Theory (Rogers, 1983) and the Quality Assurance Model Using Research (Watson, Bulechek, & McCloskey, 1987). As such, it is a problem-solving approach developed by clinical leaders with expertise in research utilization for healthcare improvement. Over time, the term research utilization shifted to EBP and evidence expanded beyond research, to include other sources such as expert opinion and scientific principles prompting revisions (Titler et al., 2001). Broad reach was demonstrated by publications, permissions to use the model (3900 requests from 50 states and 43 countries) and translations (German, Japanese, and Portuguese). Recent sweeping healthcare changes, proliferation of research and synthesis reports, and emerging implementation science brought the need for further revisions and validation of the Iowa Model.

Research to develop the Iowa Model Revised

The Iowa Model Collaborative (2017) was formed to revise and validate the Iowa Model. In phase 1, the model was revised based on an extensive literature review, author experiences, and a survey of 431 users from a database of model requests with 2052 unique e-mails. In phase 2, the revised model was validated and refined based on group activities designed to capture feedback from 299 participants of the 22th National Evidence-Based Practice Conference. Both qualitative and quantitative data were used to guide authors through multiple rounds of model refinement until saturation was reached. Major changes to the model included the addition of a purpose statement, feedback loops and expansion of piloting, implementation, patient engagement and sustaining change. Since publication in 2017, the Iowa Model Revised has been one of Worldviews on Evidence-Based Nursing's top downloaded articles. As such, it has demonstrated wide popularity, withstood the test of time, and most importantly has proven useful for making and sustaining EBP change.

Clinical example

Opening of the UI Stead Family Children's Hospital facility included creation of a new procedure and imaging suite with a post anesthesia recovery area for children and families. The initial vision for the unit was to have parents present during recovery; however, as the unit evolved a different care model was implemented by the anesthesia department, who requested parents of children who received general anesthesia no longer be present during admission to first stage recovery. This change created two workflows, prompting nurses and families to question the practice. A nurse-led EBP internship (Cullen & Titler, 2004) provided an opportunity for mentoring and paid time to address this issue by applying the Iowa Model Revised.

Having identified the trigger, the next step in the Iowa Model Revised was to state the question or purpose. The initial purpose of the project was to offer parents the option to be present during anesthesia and nurse handoff in first stage post anesthesia recovery. This led to the first key decision point in the Iowa Model - *Is this project is a priority?* Selection of this project into the internship and linking it to strategic goals including patient preferences, safety practices and increased satisfaction made it clear that this project is priority for the organization.

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An interprofessional team of stakeholders including nurses and anesthesia providers were engaged to participate in the project.

Evidence was assembled by the team, with assistance of a health science librarian. The body of evidence was appraised for quality, quantity, consistency and risk and then synthesized for reporting. The next step in the Iowa Model Revised was for the team to determine- *Is there sufficient evidence?* Evidence supported that parents who received education and preparation could safely be present with their child post-procedure, (Chan & Molassiotis, 2002; Kamerling & Lawler, 2008; Nadeau et al., 2016). Few studies have evaluated parental presence during emergence from anesthesia or admission to recovery, so the team also reviewed literature on the positive effects of parental presence during invasive procedures and resuscitations (Curley et al., 2012; Dingeman, Mitchell, Meyer, & Curley, 2007; Mangurten et al., 2006; Meyers et al., 2000).

In the process of designing the practice change for pilot testing, some providers continued to voice concerns. Baseline survey data showed that nursing and anesthesia had opposing viewpoints for several key themes: legal issues, parent interference/distraction, increase risk for complication and comfort with hand-off in front of parents. A compromise was reached to change the workflow, thereby allowing handoff to occur in the procedure room and parents to stay in the child's room throughout the experience. Lean methodology was used as an implementation strategy to help map workflow changes and reduce the number of times nurses have to switch from one task to another. The new workflow created a prep and recovery team, which allows for one nurse to provide uninterrupted preparation and education; while another can be readily available to receive report and admit with the assistance of a "float" nurse. Having the second nurse available during the admission process allows for a family advocate in the event of an emergency or additional airway intervention. A variety of strategies that are part of a phased implementation plan (Cullen & Adams, 2012) were used, including: a new process for assigning patients, staff and family education, highlighting the advantages, and monitoring room turnover, among others. The evaluation plan includes post implementation process measures (knowledge, attitudes and behaviors), balancing measures (adverse events) as well as parent and staff outcomes (satisfaction).

Currently, the project is still in the pilot phase and collecting evaluation data. The next decision point will be to use evaluation data to determine- *Is change is appropriate for adoption in practice?* and if so, rolling out the practice for integration and hardwiring it to sustain change, followed by dissemination. If the change is not ready for adoption, feedback loops in the Iowa Model Revised guide other options including redesign, re-assembly or other triggers.

Implications for practice and emerging research

This clinical example demonstrates that the Iowa Model Revised is useful for guiding clinicians from a clinical problem to a sustainable EBP change. Critical to success of the project was following the systematic process outline by the model, linking to organizational priorities, team engagement, phased implementation and evaluative data for decision making. Partnering with a clinical leader and EBP mentor allowed the staff nurse to lead the team and answer a clinical practice question using Iowa Model Revised.

Emerging research is currently underway at UI to further explore and expand the Iowa Model. Visiting Fulbright Scholar, Dr. Jed Duff, is leading inquiry to better understand how to build an EBP culture and implement an EBP model in Australia. A bibliometric analysis of citations and publications related to Iowa Model is being conducted with assistance of a health science librarian to identify trends, relationships, and patterns of use. Application of the Iowa Model is being explored through qualitative interviews with users and authors. The information gained will lead to a greater understanding of the model and help inform its introduction into other practice settings. In addition, a mixed methods survey will be conducted to validate the phased implementation strategies (Cullen & Adams, 2012) commonly used with the model. New knowledge generated from these studies are expected to further help busy clinicians and scholars answer clinical questions and sustain EBP for improving outcomes.

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