Sacred Cow Gone to Pasture: A Systematic Evaluation and Integration of Evidence-Based Practice

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ABSTRACT

Background: Sacred cows (SC) are old habits in practice, considered routine and above dispute, regardless of evidence to the contrary.

Purpose: This is the first known report that aims to conduct a systematic evaluation of practices that have been described in the literature as SC and strategies for planned implementation of evidence-based practices (EBP).

Methods: A large, complex, academic medical center department of nursing compared SC to EBP. Nurses systematically reviewed and rated the degree to which current practices adhered to best-evidence versus SC. This initiative, “Sacred Cow: Gone to Pasture,” was developed, structured, and implemented according to the Iowa Model of Evidence-Based Practice to Promote Quality Care, as well as Everett Rogers’ Diffusions of Innovations Theory. Implementation of EBP followed a phase plan using the Implementation Strategies for Evidence-Based Practice to help to support adoption and integration.

Results: Review of organization-specific policies and procedures and reports of actual practices revealed that SC persist, even in a center internationally recognized as a leader in EBP. The SC initiative caught the attention of busy clinicians, and raised awareness of SC and the importance of adherence to EBP. The SC initiative resulted in policy and practice changes and sparked new EBP and research, resulting in numerous improvements, including a significant decline in catheter-associated urinary tract infections and shifting from basins to commercially prepared cloths for patient bathing.

Linking Evidence to Action: A strategic approach is crucial to eliminating SC and integrating EBP. This report calls nurses globally to action, to identify and abandon ineffective healthcare practices. Further research should compare and test the efficacy of implementation strategies, in particular how to sustain EBP in clinical settings.
interest to clinicians and organizations wanting to expand EBP.

BACKGROUND

Struggles with diffusing healthcare innovations are common, limiting progress and hindering optimal patient outcomes. SC develop from misconceptions, old habits, difficulties with change, and holding on to ineffective practices (Nilsen, Roback, Brostrom, & Ellstrom, 2012; Prasad & Ioannidis, 2014). SC have been identified in various specialty areas, including intensive care units (Gordon, Bartruff, Gordon, Lofgren, & Widness, 2008; Makic, Rauen, & VonRueden, 2013; Rauen, Chulay, Bridges, Vollman, & Arbour, 2008; Robertson, 2001), emergency departments (Wolf et al., 2012), and operating rooms (Mellinger & McCanless, 2010; Wicker, 1997). Despite concerted efforts to institute EBP, problems with over-use, under-use, and incomplete use persist. Examples include antibiotic stewardship (Lee et al., 2014), hand hygiene (Garus-Pakowska, Sobala, & Szatko, 2013), and healthcare worker vaccination (Centers for Disease Control and Prevention, 2013; Edelstein & Pebody, 2014; Lee et al., 2014).

Challenging established practice requires leadership and evaluation of current evidence. Nurses are uniquely suited to promote EBP and eliminate SC; they comprise the largest group of international healthcare professionals (World Health Organization, 2012). Published reports highlight nurses who champion EBP and challenge SC in many areas including those in organization systems (Curran, 1992) and management (Muller-Smith, 1999). Nurses question long-held, SC beliefs about theory (Donnelly, 1986), care plans (Palmer, 1988), education programs (Hegge & Hallman, 2008), and perhaps most importantly, SC in clinical practice, where they are directly improving patient outcomes (Makic et al., 2013).

The key to eliminating SC and moving toward EBP is understanding how new knowledge diffuses (Figure S1, available with the online version of this article). Everett Rogers (2003) defined diffusion as “the process in which an innovation is communicated through certain channels over time among the members of a social system” (p. 5). Rogers’ diffusion theory describes five stages of an organization’s innovation-decision process:

- stage 1—agenda-setting
- stage 2—matching
- stage 3—redefining
- stage 4—clarifying
- stage 5—routinizing

Rogers’ (2003) theory posits that prior conditions, the decision-making unit, and the innovation itself all influence the rate of diffusion. Key attributes of innovations (e.g. relative advantage, compatibility, complexity, trialability, and observability) are known to influence adoption (Rogers, 2003). Particular habits, like preventive practices, can be difficult to change because of a host of factors: a long lag before seeing an impact, low observability, an uncertain relative advantage, a desired outcome that is a non-event or an avoided problem, cost and effort that are mismatched to the perceived benefit, or change that is inconsistent with previous practice or with beliefs and values (Rogers, 2003). While this sheds light on why some might resist EBP and follow SC, experts agree that ineffective practices must be abandoned or de-implemented (Garner et al., 2013; Prasad & Ioannidis, 2014).

Innovative methods for eliminating SC and promoting EBP are needed. Creative ideas that capture and sustain the attention of clinicians are essential. Some have developed a “sacred cow contest” to question tradition-based practices and generate interest in EBP (Brown, 1993; Mick, 2011). Others (Mellinger & McCanless, 2010) have used SC themes to meet standards for nursing excellence (e.g., Magnet). What remains unclear, however, is how to move from SC to EBP.

Our SC initiative used a comprehensive approach to eliminate SC and integrate select EBPs following “The Iowa Model of Evidence-Based Practice to Promote Quality Care” (Titler et al., 2001). Integration and evaluation of selected EBP was further informed by Rogers’ (2003) Diffusions of Innovations Theory as well as Cullen and Adam’s (2012) Implementation Strategies for Evidence-Based Practice (Implementation Guide; see Figure 1).

METHODS

Evaluation of Practice Framework

The Iowa Model (Titler et al., 2001) provides a systematic and application-oriented roadmap for EBP that our organization uses extensively to guide nursing practice and EBP educational programs (Cullen & Titler, 2004; Cullen, Titler, & Rempel, 2011). Reports of SC published in Critical Care Nursing, or CCN (Makic, VonRueden, Rauen, & Chadwick, 2011; Rauen, Chulay, Bridges, Vollman, & Arbour, 2008), triggered us to develop the SC initiative. Our Chief Nursing Officer (CNO) charged nursing leaders to evaluate whether our own practices included SC. A work group was formed, the “Sacred Cow Rustlers,” which was represented by each nursing specialty and leaders of the policy and education committees (May 2011). The aims were to raise nurses’ awareness about EBP versus SC, identify areas for improvement related to SC, and provide resources and support for EBP and implementation.

Evaluation Process

Rogers’ (2003) stages of innovation process was followed, which offers a careful review of practice, to analyze the past impact of SC. All patient and nurse identifiers were removed from data to maintain privacy and confidentiality. The data for the SC initiative were collected to improve quality; therefore, institutional review board approval was not required. An
approval was obtained for research questions that subsequently emerged. The evaluation process consisted of the following five steps.

**Step 1. Summarize the evidence-based recommendations.** The initial step was to synthesize evidence for each SC reported in CCN. This was completed by two content experts, with recommendations developed by group consensus (September 2011). SC topics were separated into essential elements: 45 EBP statements (e.g., unit visitation is open and flexible) and 13 SC statements (e.g., unit visitation is restricted during certain hours). These were used to evaluate performance (Table S1, available with the online version of this article). Evidence gaps were flagged for further exploration.

**Step 2. Audit organizational standards.** Existing policies were thoroughly reviewed (Fall 2011) for each SC, to determine whether they were consistent with EBP or SC. Of the 60 relevant policies, 45 (75%) aligned with EBP and 15 (25%) with SC (managing hypotension n = 6, visitation n = 8, and neurological assessment n = 1).

**Step 3. Survey of nurse managers about actual practices.** Nurse managers (NM) were asked to rate (routine, occasional,
never or non applicable) occurrences of 45 EBP and 13 SC statements. Statements were intermixed to decrease response bias. Electronic surveys were distributed (October 2011) through Qualtrics 360 survey software (Qualtrics, Provo, Utah) to 60 NM (70% return rate; 30 inpatient and 12 ambulatory clinics).

Results were evaluated to determine practice patterns. Areas of strength (EBP) and weakness (SC) were identified. For the 45 EBP statements, reports from unit NM as to how “routine” the practices were ranged from 0%–98% (100% optimal). Eleven of the 45 EBP statements were reported as “routine” for ≥ 75% of units. For the 13 SC statements, 13%–75% were rated by NM as never practiced (100% optimal). In summary, the majority of the specific EBPs were not followed routinely, SC persisted, and practices were highly variable.

**Step 4. Grade performance.** As work progressed and staff became familiar with identifying SC, questions regarding other practices emerged. A rubric (Table 1) was developed to grade policies and NM reported practices related to 16 SC (14 in CCN, plus 2 identified at our hospital). The rubric was applied to current practice reports from NM and written policies. Each SC topic was evaluated using the rubric and group consensus. Potential improvement strategies were noted. The cumulative evaluation was reported at the Nurse Management Council and via the CNO’s weekly blog (February 2012). An electronic interactive report card allowed staff to view results and drill down to supportive data and evidence for each practice.

For the first group of SC identified in CCN (Rauen et al., 2008), our organization’s report card was promising (Table S2, available with the online version of this article). Instillation of normal saline for endotracheal suctioning, gastric tube placement verification, accurate blood pressure measurement, and managing intracranial hypertension were practiced according to the best evidence, with evidence built into the policies as well. We did find the evidence-based policies for patient positioning and mobility needed updates. Our neurological assessment was under evaluation as relevant literature requiring critical review had recently emerged. Our ECG lead placement policy showed the most opportunity, because a practice change was under development, but not yet implemented.

For the second group of SC (Makic et al., 2011), our report card indicated that newer evidence was not fully adopted in some areas of practice. Managing diarrhea and fecal incontinence rated as evidence-based, in both policy and practice. Although the recommended practices related to gastric residual volumes were evidence-based, the citations of evidence for these practices were lacking. Areas for improvement included visitation, prevention of catheter-associated urinary tract infections (CAUTI), and temperature assessment; these categories received C grades. Visitation practices were widely variable, as reflected by 12 different policies. An evidence-based CAUTI bundle was not yet in place. Temperature assessment was graded a C because evidence was not clear for this practice. Cell phone policies had been reviewed and evidence updated but, in practice, the recommended changes were not fully implemented. Finally, in one subspecialty clinic, hypotension was managed by use of the Trendelenburg position, an SC approach contrary to best evidence.

**Step 5. Set priorities and create an action plan.** The final step was to set priorities and create an action plan to eliminate SC (March 2012). Criteria were:
Figure 2. Implementation Plan: Build Nurses Knowledge of Research and Evidence-Based Practice

- Nursing and organization priorities
- Magnitude of problem and applicability
- Likelihood to be effective (e.g., improve care or satisfaction, decrease length of stay)
- Body of evidence
- Report card grade

Criteria were each scored ($1 = \text{low}$, to $5 = \text{high}$, for a total possible score of between 9 and 45) by the SC Rustlers, who prioritized the top SC.

1. Visitation restrictions: Remove restrictions and implement a house-wide standard of open, patient, and family-centered visitation.
2. CAUTI: Develop, promote, and implement EBP bundle.
3. Basins for bed baths: Evaluate barriers to EBP, increase use of basinless bath cloths.

The grading rubric guided improvements (i.e., policy change vs. implementation in practice). Action plans were used to prioritize, and coordinate efforts with existing work groups (e.g., the CAUTI task force) and assign responsibilities for improving practice and tracking outcomes (Table S3, available with the online version of this article).

**INTEGRATION OF EVIDENCE-BASED PRACTICE**

De-implementation often results in practice change. We paid particular attention to diffusing EBP through a planned structure using the Implementation Guide (Cullen & Adams, 2012). Figure 2 shows the details. Key strategies engaged nurses through four phases: creating awareness and interest, building knowledge and commitment, promoting action and adoption, and pursuing integration and sustained use. Strategies targeted clinicians (i.e., nursing), leaders, and key stakeholders, as well as the organizational system. Real-world implementation is not linear, so strategies from multiple stages were used concurrently and are not necessarily sequential.
Create Awareness and Interest
Multiple strategies stimulated staff interest in the initiative. A logo and slogan “Sacred Cow: Gone to Pasture” branded the concept to promote adoption. Stickers were distributed at Nursing Grand Rounds and Recognition Day. The CNO blog brought humor, while disseminating information about the initiative. Blog topics included: “Have you Herd?” (Cell phones), “Leading Sacred Cows to Pasture” (ECG lead placement), and “Restricted Visitation Policies—A Thing of the Pasture.” The SC initiative was promoted whenever possible (Image S1, available with online version of this article).

Build Knowledge and Commitment
Phase two included building nursing knowledge and enlisting their commitment to EBP. Grand rounds were used to build nursing knowledge. Report cards were presented to shared governance committees, demonstrating gaps between evidence and SC. A poster, designed to resemble a cow, promoted the SC initiative at nursing events and conferences (Image S2, available with the online version of this article). A guidebook, Evidence-Based Practice Building Blocks, was used to build knowledge of EBP with strategies, tools, and tips (Cullen, Hanrahan, Tucker, Rempel, & Jordan, 2012). To foster unit-level commitment, unit leaders were engaged to review evidence and plan implementation.

Promote Action and Adoption
The third phase of implementation makes practice change actionable. SC Rustlers, as change agents, led adoption of new practices by matching policies, decision algorithms, equipment, practice prompts, and documentation with the desired changes. Education and skill competencies were addressed. Scripting and patient education were used to enhance understanding (i.e., regarding the benefits of basinless baths and early mobilization). Organizational strategies included using the EBP guidebook (Cullen et al., 2012), partnering with a vendor for an electronic evidence-based nursing skills and procedure manual (Wagner, Matthews, & Cullen, 2013), and internal funding for grass roots EBP and nursing research. Quality, satisfaction, and utilization reports measured action and adoption. Progress was reported and celebrated at unit huddles, quality meetings, grand rounds, and recognition events. Senior leaders were kept informed of improvements.

Pursue Integration and Sustained Use
Implementation strategies must be used to integrate and sustain EBP. To promote sustainability, we included research and EBP knowledge development into the strategic plan. SC and EBP work were reported in Magnet documents, committee updates, and annual reports. Successes continue to be celebrated. To keep procedures current, updates from the electronic nursing skills and procedure manual are reviewed and distributed monthly (Wagner et al., 2013).

OUTCOMES
At the healthcare system level, the SC initiative changed policy and practice, and sparked new EBP and research, resulting in numerous improvements (Table S2). To evaluate outcomes, we used a number of existing databases, surveyed staff nurses, and accessed product utilization reports. Existing monitoring and tracking systems provided data for measuring pre- and post-SC related policy and practices changes (e.g., CAUTI rates). Staff surveys provided information about knowledge, attitudes, and behaviors related to practices (e.g., bathing) and product utilization reports allowed us to evaluate changes in practices (e.g., use of bath basins).

Over the course of our initiative, we noted improvement in the clinical processes and outcomes linked to the SC we targeted. For example, the first year (2012) we implemented our CAUTI plan, catheter use decreased by 3%, and use of non-indwelling products increased (condom and straight catheters, 41% and 13% respectively). Thereafter, each month showed significantly declining CAUTI rates, which fell by 31% or 1.43 infections per 1,000 catheter days, between January 2012 and February 2014 ($R^2 = .3026; p = .0003$). Similarly, we followed use of basinless bath cloths, an EBP alternative to the traditional basin bath (an SC). Staff surveys demonstrate increased knowledge related to the effectiveness of basinless bathing (correct responses, pre: 67% and post: 91%). Nurses increased use of basinless baths as their primary method for bathing patients, from 26% (September 2012) to 75% (March 2013). By 2014, annual use of basinless baths increased by nearly 10,000 and use of plastic disposable basins, which increase the risk for infections, decreased by about 12,500.

The SC initiative supports the goals of the Nursing Research and EBP Committee, building nursing research and EBP skills. In 2013, a nursing research internship program was launched providing support for four studies including an 18-month educational program on research concepts and methods. One study focuses on an SC practice where evidence of safety is lacking, milk and molasses enemas. The EBP Staff Nurse Internship Program (Cullen & Titler, 2004) established in 2001, expanded with five new projects. One, early mobilization for critically ill children, is also tied to SC practices. Our Nurse Residency Program has likewise generated EBP projects, including work on ECG lead placement. Our overall comprehensive and systematic process for EBP and research has earned us exemplary recognition by Magnet reviewers.

DISCUSSION
Sacred Cow: Gone to Pasture is the first reported systematic evaluation of SC practices. Other organizations have used SC concepts to identify practice gaps (Makic et al., 2011; Mellinger & McCanless, 2010; Rauen et al., 2008; Robertson, 2001; Wicker, 1997; Wolf et al., 2012), identify tradition-based practice through contests (Brown, 1993; Mick, 2011), or meet standards for nursing excellence (Mellinger & McCanless, 2010).
Establish a common EBP process model to promote group work and communication. Use Diffusion of Innovation Theory to plan change. Use multiple strategies across implementation phases to achieve full integration of EBP and sustain gains. Evaluate changes for continuous process improvement.

LINKING EVIDENCE TO ACTION

IMPLICATIONS FOR PRACTICE

Innovative strategies and systematic processes must be used to move health care from tradition to EBP. This work creates an international call for healthcare workers to identify and abandon SC practices and promote application of evidence-based knowledge into patient care. Nurses worldwide are in a pivotal position to lead the movement toward EBP; as new SC are identified, they should leverage their position to improve healthcare processes and outcomes (Makic, Rauen, Watson, & Poteet, 2014). In the future, national and international research should evaluate culturally specific implementation strategies for eliminating SC in diverse settings. WVN

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Evidence to guide practice continues to evolve. Practice traditions continue to be challenged (Greenway, 2014; Makic, Rauen, Watson, & Poteet, 2014). Nurses in areas with limited access to scientific reports may find staying current to be particularly challenging. Nevertheless, all nurses must question routine practices and continually seek practice improvements. Partnerships with academic organizations, governmental agencies, and health ministries play an important role in supporting EBP and movement away from SC practices.
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Accepted 26 October 2014
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doi 10.1111/wvn.12072
WVN 2015:12:3–11

SUPPORTING INFORMATION
Additional supporting information may be found in the online version of this article at the publisher’s web site:

Figure S1 Systematic Sacred Cow Process Mapped to Roger’s Five Stages of Innovation Process in Organizations
Table S1 Evidence-Based and Sacred Cow Summary Statements and Frequency of Practice
Table S2 Report Card Grades and Action Plan Steps Related to Sacred Cow Subjects
Table S3 Example of an Action Plan: Visitation
Image S1 Sacred Cow Planter at Magnet® Event
Image S2 Sacred Cow Poster at National Evidence-Based Practice Conference