



The Financial and Clinical Benefits of a Hospital-Based PhD Nurse Researcher

EXECUTIVE SUMMARY

- ▶ Aligning quality outcomes with cost effectiveness is the cornerstone of the direction of health care in the United States.
- ▶ Implementing and supporting an evidence-based practice (EBP) environment requires resources.
- ▶ Because research is a foundational element of the EBP process, resources allocated for nursing research are essential.
- ▶ As part of operational costs, PhD nurse researchers can affirmatively impact an organization by improving quality of care and patient outcomes.
- ▶ Incorporation of a PhD nurse researcher can favorably alter the organization in a pay-for-performance environment.



Beth A. Staffileno

LOSS OF PAYMENTS FOR hospital-acquired conditions (HAC) and proposed incentive pay for better outcomes should be a driving force to incorporate PhD nurse researchers as part of operational costs in health care settings, yet many organizations are reluctant to do so. This commentary describes how incorporating PhD nurse researchers into patient care settings will affirmatively impact the quality of care, patient outcomes, and the short and long-term financial operational costs for an organization.

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Why Is a PhD Nurse Researcher Needed?

Implementing and supporting an evidence-based practice (EBP) environment requires resources, and

BETH A. STAFFILENO, PhD, RN, FAHA, is Associate Professor, Department of Adult Health and Gerontological Nursing, Rush University Medical Center, Chicago, IL.

MARILYN WIDEMAN, DNP, RN-BC, is Associate Dean, Faculty Practice and Community Engagement, and Associate Professor, Department of Community Systems and Mental Health Nursing, Rush University Medical Center, Chicago, IL.

ELIZABETH CARLSON, PhD, RN, is Specialty Coordinator, Systems Leadership DNP Program, and Associate Professor, Department of Adult Health and Gerontological Nursing, Rush University Medical Center, Chicago, IL.

because research is a foundational element of the EBP process, resources allocated for nursing research are essential. Commonly, hospital-based nurses encounter several barriers with respect to research activities. Some of these barriers include lack of research knowledge, lack of skills necessary for research implementation, insufficient time allocated to independently plan for and implement research activities, and lack of research mentors (Barrett, 2011). Building an EBP infrastructure begins with staff education thereby enabling nurses to become research literate and develop skills to critically appraise evidence prior to implementing research findings into their practice.

Implementing research findings and conducting onsite EBP projects results in cost and efficiencies of patient care delivery as well as high-quality patient care outcomes. The Centers for Medicare & Medicaid Services (2011) elimination of reimbursement for HAC further substantiates the need for a PhD nurse researcher to foster an EBP environment. The resultant EBP and research helps improve the financial status of the organization by enhancing patient safety, improving patient outcomes and care efficiencies, and reducing the cost of care. These organizationally based outcomes have a broader impact by enhancing the hospital's reputation and status through recognitions, such as Magnet® designation, and produce a healthier financial climate.

What Is the Process for Incorporating a PhD Nurse Researcher?

A PhD nurse researcher, whether employed by the organization or brought in as a consultant, can serve as an educator and mentor (Staffileno & Carlson, 2010; Staffileno & McKinney, 2011), and often has a dual appointment within a clinical and academic setting (Currey, Considine, & Khaw 2011). In addition, the PhD nurse researcher serves as a consultant and change agent within the organization by (a) assessing the needs of nursing related to research and EBP; (b) raising awareness and developing excitement about nursing research; (c) presenting research-related information and education in a way that is understandable and meaningful to direct-care nurses; (d) building confidence and empowering nurses to engage in research-related activities; (e) assisting nurses with interpreting unit-specific data trends and facilitating quality improvement initiatives; (f) networking within the research community and facilitating interdisciplinary collaboration; (g) facilitating the

Table 1.
HAC Savings from EBP Projects

	HAC per Year	Cost per HAC	HAC Cost per Year	Research Outcome	Cost after EBP Reduction	Savings
Fall with Injury	100	\$6,000	\$600,000	59% reduction	\$246,000	\$354,000
Severe Pressure Ulcer	135	\$70,000	\$9,450,000	81% reduction	\$1,795,500	\$7,654,500
Uncomplicated Pressure Ulcer	135	\$2,000	\$270,000	81% reduction	\$51,300	\$218,700
CAUTI	500	\$600	\$300,000	51% reduction	\$147,000	\$153,000
CAUTI with Bacteremia	500	\$2,800	\$1,400,000	51% reduction	\$686,000	\$714,000
Total			\$12,020,000		\$2,925,800	\$9,094,200

NOTE: CAUTI = catheter-associated urinary tract infection, EBP = evidence-based practice, HAC = hospital-acquired condition

writing of proposals, abstracts, manuscripts, and plans for dissemination; and (h) developing a formal nurse research program (Albert & Siedlecki, 2008; Barret 2001; Ingersoll, Witzel, Berry, & Qualls, 2010; Staffileno & McKinney, 2011).

Currently there are few accepted standards as to the amount of time and effort required by a PhD nurse researcher in the hospital setting; however, a ratio of one PhD per 1,000 nurses has been reported in the literature (Albert & Siedlecki, 2008; Staffileno & McKinney, 2011) with a goal of one EBP/research project per 100 beds. Based on these ratios and recommendations, one full-time PhD nurse researcher should be sufficient for a 500-bed hospital.

How Can Nurse-Led EBP and Research Impact Patient Outcomes?

In our current health care environment of tightening fiscal demands, cost and efficiencies in patient care delivery highlights the importance of using the best evidence based on nursing research to improve quality outcomes and the financial status of hospital-based organizations. Some of the common HAC impacted by nursing care include patient falls, catheter-associated urinary tract infections (CAUTI), and pressure ulcers. The average cost of an inpatient fall with injury is over \$6,000 and without injury is \$425; falls result in an average of an additional 7.5 inpatient days per fall (Tzeng & Yin, 2008). Hospitals have a 20% fall with injury rate per bed per year (American Hospital Association [AHA], 2008). Approximately one in five patients admitted to an acute care setting has an indwelling urinary catheter and 5% of these patients develop a CAUTI (AHA, 2008). CAUTI is the most frequent HAC in the acute care setting in the United States; costs are \$600 per case and CAUTI-related bacteremia is \$2,800 per case (Saint, Meddings, Calfee, Kowalski, & Krein, 2009). Hospital costs per pressure ulcer range from \$2,000 to \$70,000 with the average hospital cost for HAC pressure ulcer treatment over \$400,000 annually

(Courtney, Ruppman, & Cooper, 2006). Incidence of severe HAC pressures is reported at 27% per patient bed (AHA, 2008) in acute care settings. Nurse-led EBP and research studies can provide tremendous outcomes in reducing HAC.

How Have PhD Nurse Researchers Impacted Patient Outcomes and Health Care Costs?

There are several instances in which a PhD nurse researcher provided the necessary skills and support to move a clinical question to research and help direct-care nurses design, implement, and disseminate key projects related to HACs and improve patient outcomes (Krill, Staffileno & Raven, 2011; Kril, Raven, & Staffileno, 2012; Lee, Staffileno & Fogg, 2010, 2013; Mahkne 2011; Oberman, Pawluk, Staffileno, & McCullum-Smith, 2011). One retrospective study showed a 59% reduction in falls after implementing staff education and a dedicated safety nurse (Oberman et al., 2011). Based on the average fall rate per bed reported by the AHA (2008), this would be an annual savings of \$354,000 for a 500-bed hospital (see Table 1). A recent study examining the effects of enhanced preoperative patient education on indwelling catheter removal rates postoperatively found a statistically significant improvement in catheters being removed according to protocol after the enhanced education (Mahkne, 2011)

Another nurse-led study examining the effects of decreasing the use of indwelling urinary catheters and limiting the number of overall catheter days resulted in a 51% reduction of CAUTIs (Conklin, 2004). A hospital with 500 beds averages 10,000 patients annually with indwelling urinary catheters (SHEA, 2007) and a 51% CAUTI reduction would yield annual savings of \$153,000 for uncomplicated CAUTIs and \$714,000 annual savings for CAUTIs resulting in bacteremia (see Table 1). A quasi-experimental study examining the effects of staff education on HAC among elderly patients found a statistically significant reduction in pressure ulcers (Lee et al., 2010, 2013) and a descrip-

Table 2.
Total Return on Investment for PhD
Nurse Researcher

Total HAC Cost per Year	Cost after EBP Reduction	Cost of PhD per EBP Nurse	Total Savings*
12,020,000	\$2,925,800	\$515,000	\$8,579,200

NOTES:

* Total Savings = Total HAC Cost per Year - Cost after EBP Reduction - Cost of PhD per EBP Nurse

EBP = evidence-based practice, HAC = hospital-acquired condition

tive study by McNerney (2008) resulted in an annual 81% decrease of HAC pressure ulcers. Based on the average HAC pressure ulcer rate per bed reported by the AHA, these significant decreases would attain an annual savings of \$218,700 for uncomplicated pressure ulcers and \$7,654,500 for complicated pressure ulcers. These are a few examples of how a PhD nurse researcher can save an organization over \$9 million (see Table 1) through cost avoidance by educating and facilitating direct-care nurses to take a clinical question and transform it into a meaningful research project that can ultimately provide substantial cost savings for the organization.

What Is the Return on Investment for a PhD Nurse Researcher?

The return on investment (ROI) of a PhD nurse researcher, whether on staff or serving as a consultant, in the acute care setting can be demonstrated through measurable tangible outcomes. An ongoing process of applying research findings at the point of care and enabling nursing staff to be part of the EBP process produces a rapid adoption of scientific knowledge for the purpose of improved patient care and cost saving. Goetz, Janney, and Ramsey (2011) demonstrated aligning improved quality with cost reductions to increase health care value through the use of EBP standards in care delivery. In a 4-year period their institution saved \$10 million while dramatically reducing patient falls, HAC pressure ulcers, and HAC infections; much of the savings were related to implementation of EBP standards in the delivery of care. The savings compared to cost would be significant over time by utilizing one nurse researcher working in a 500-bed setting. The HACs in Table 1 represent three EBP projects, a reasonable amount for one PhD research nurse to oversee in a 500-bed hospital (Staffileno & McKinney, 2011). The results outlined in Table 1 may not be achieved within 1-year, but significant results should be achieved within a few years. Based on a PhD researcher's total yearly salary cost of \$125,000 (salary and fringe benefits), a large savings

would be realized even if it took 4 years to realize the results achieved in the HAC reduction studies of Oberman and colleagues (2011), Conklin (2004), and McNerney (2008). After 4 years, an organization would have invested \$515,000 (see Table 2) into a PhD nurse researcher leading EBP projects. This is based on a first yearly salary and benefits cost of \$125,000 and a 4% salary increase yearly in years 2 through 4. If the same outcomes are achieved as the studies mentioned previously, the EBP/PhD nurse efforts would yield over \$8 million in savings in the 4th year (see Table 2) – a sizeable savings. The ROI was calculated by taking the total HAC cost for the targeted HACs minus the HAC cost after the savings from improved clinical outcomes minus the PhD salary cost to equal the savings. Cost of staff education and involvement in the projects would need to be factored into the project cost. Even with these costs, the ROI remains strong. In addition, outside of a PhD research nurse, organizations usually do not hire additional staff for EBP studies and projects to improve their outcomes.

What Is the Risk of Not Using a PhD Nurse Researcher to Enhance an EBP Culture?

The use of a PhD nurse researcher would seem to be the standard given the fact nursing care has the greatest impact on HAC and the examples of improved care that relate to cost savings through cost avoidance. Many CNOs recognize the need for a PhD nurse researcher role, but face resistance in acquiring the financial resources needed to support such services. Given the quality and financial benefits to the entire organization, why do CNOs need to underwrite a function that benefits the organization as a whole? Loss of payments for HAC and proposed incentive pay for better outcomes should be a driving force to incorporate the PhD nurse researcher role in health care settings as part of operational costs or organizational quality improvement expenses. Improving organizational outcomes takes collective accountability to avoid costs that, if incurred, would negatively impact the financial health of the organization.

Conclusion

Aligning quality outcomes with cost effectiveness is the cornerstone of the direction of health care in the United States. Incorporating the PhD nurse researcher role into patient care settings will affirmatively impact quality and short and long-term financial operational costs. \$

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