

# Measuring Clinical Decision Support Influence on Evidence-Based Nursing Practice

Susan Cortez, BSN, MBA/HCM, PhD, Mary S. Dietrich, PhD, and Nancy Wells, DNSc, RN, FAAN

Cortez is an information services consultant for Health Information Systems and Technologies at the Vanderbilt University Medical Center, Dietrich is a professor in the School of Nursing and School of Medicine at Vanderbilt University and Vanderbilt Ingram Cancer Center, and Wells is the director of Nursing Research at the Vanderbilt University Medical Center, all in Nashville, TN.

No financial relationships to disclose.

All authors contributed to the conceptualization and design, data collection, statistical support analysis, and manuscript preparation.

Cortez can be reached at [susan.cortez@vanderbilt.edu](mailto:susan.cortez@vanderbilt.edu), with copy to editor at [ONFEditor@ons.org](mailto:ONFEditor@ons.org).

Submitted June 2015. Accepted for publication October 20, 2015.

**Key words:** evidence-based practice; decision making; nursing informatics; clinical decision support

*ONF*, 43(4), E170–E177.

doi: 10.1188/16.ONF.E170-E177

**Purpose/Objectives:** To measure the effect of clinical decision support (CDS) on oncology nurse evidence-based practice (EBP).

**Design:** Longitudinal cluster-randomized design.

**Setting:** Four distinctly separate oncology clinics associated with an academic medical center.

**Sample:** The study sample was comprised of randomly selected data elements from the nursing documentation software. The data elements were patient-reported symptoms and the associated nurse interventions. The total sample observations were 600, derived from a baseline, posteducation, and postintervention sample of 200 each (100 in the intervention group and 100 in the control group for each sample).

**Methods:** The cluster design was used to support randomization of the study intervention at the clinic level rather than the individual participant level to reduce possible diffusion of the study intervention. An elongated data collection cycle (11 weeks) controlled for temporary increases in nurse EBP related to the education or CDS intervention.

**Main Research Variables:** The dependent variable was the nurse evidence-based documentation rate, calculated from the nurse-documented interventions. The independent variable was the CDS added to the nursing documentation software.

**Findings:** The average EBP rate at baseline for the control and intervention groups was 27%. After education, the average EBP rate increased to 37%, and then decreased to 26% in the postintervention sample. Mixed-model linear statistical analysis revealed no significant interaction of group by sample. The CDS intervention did not result in an increase in nurse EBP.

**Conclusions:** EBP education increased nurse EBP documentation rates significantly but only temporarily. Nurses may have used evidence in practice but may not have documented their interventions.

**Implications for Nursing:** More research is needed to understand the complex relationship between CDS, nursing practice, and nursing EBP intervention documentation. CDS may have a different effect on nurse EBP, physician EBP, and other medical professional EBP.

To achieve the best patient outcomes, meet patient expectations, and achieve government mandates for improving patient outcomes and increasing the quality of health care, integrating the highest level of evidence into practice is integral (Berner, 2009; Health and Medicine Division of the National Academies of Sciences, Engineering, and Medicine [HMD], 2012; Mitchell, Beck, Hood, Moore, & Tanner, 2007). Clinical decision support (CDS) is an intervention specifically designed to increase evidence-based practice (EBP) integration by displaying pertinent evidence when healthcare professionals and patients make healthcare decisions (Brokel, 2009). Healthcare organizations can implement CDS in various ways, depending on technology capabilities. CDS can be provided via email or paper reminders and also can be placed in computerized physician order entry or documentation software.