

**Title:**

Data Management Strategies to Enhance the Evaluation of Evidence-Based Nursing Practice

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**Session Title:**

Enhancing Data Quality Using Data Management Strategies, Performance Measures, and Technology to Support Evidence-Based Practice

**Keywords:**

data management strategies, data quality and evidence-based practice

**References:**

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**Abstract Summary:**

This presentation will demonstrate how to implement data management strategies for effective utilization of a robust nursing data system that supports healthcare organizations in evidence-based guideline implementation. It reviews the longitudinal analysis that evaluated the impact on guideline implementation, to demonstrate the effect on patient care and cost effectiveness.

**Content Outline:**

Purpose

- Background
- Objectives

Methods

- Data quality framework

1. Conceptual framework

2. Dimensions identified

- Data Quality Assessment

1. Subjective and objective assessment

2. Periodic assessment and reflections

- Technical Advancement

1. System enhancements and technical advancements

Conclusion

- Direct impact for nursing practice

- Enrichment of a database

**Topic Selection:**

Enhancing Data Quality Using Data Management Strategies, Performance Measures, and Technology to Support Evidence-Based Practice (25542)

**Abstract Text:**

**Purpose:** An internationally recognized nursing best practice guidelines program is advancing implementation science through its data system that was launched in 2012. This data system enables organizations to evaluate the processes and outcomes resulting from guideline implementation, and articulate the impact of evidence-based nursing practice on the health of patients and the quality of health services. More than 138 health service organizations from different sectors and academic institutions across the globe submit unit level data to the data system in accordance with the selected performance measures (indicators) to evaluate guideline implementation process. The data reporting system is the formal monitoring and evaluation mechanism for these organizations (Grinspun, Lloyd, Xiao, & Bajnok, 2015; Grdisa et al., 2018). Intense cost-containment pressures coupled with growing public demand for increased institutional and health provider accountability require health systems to actively invest in quality improvement efforts. It follows that health care organizations are experiencing increasing pressure to demonstrate their performance on various health-related indicators as a main component of these quality improvement activities. The nursing data system collects, compares, and reports data on human resource structural indicators and guideline-based nursing-sensitive process, and outcome indicators resulting from guideline implementation in healthcare organizations across the globe. Due to the complexity and dynamics of the data structures in healthcare organizations, data quality is a key priority to organize and maintain variety and volume of the data reported in the system.

A rigorous data management process was initiated for the data system to track the ongoing information lifecycle. This resulted in the development of a formalized data quality framework. Through the use of the data quality framework, modifications were made to the data collection process. Over the past years, technological advancements and system enhancements have enriched the data management process. This presentation describes data management strategies for effective utilization of a robust nursing data system that supports healthcare organizations in evidence-based guideline implementation. It also reviews the results of the longitudinal analysis that evaluated the impact on guideline implementation, to demonstrate the effect on patient care and cost effectiveness.

**Methods:** A data quality framework supports and maintains high quality data to demonstrate the impact of guideline implementation (Cabitza & Batini, 2016; Keller, Korkmaz, & Orr, 2017). A formalized data quality framework was developed in 2015, for addressing issues and challenges in data collection and submission strategies (Grinspun, 2018). By analyzing the information lifecycle, considerable attention was given to address: the difference in data collection procedures, heterogeneity in sampled data, outdated data collection strategies, documentation errors in different practice settings, duplication of data within organizations and fluctuations in data collection time frame. Different aspects of healthcare organizations and data quality frameworks from other health organizations also informed the development of data quality framework. Consistent with all aspects of guideline implementation program, perception and need of healthcare organizations were highly prioritized to develop the data quality framework to ensure program fidelity. A semi-structured questionnaire was used to lead the direction for focus group discussion and validated the identified dimensions. A comprehensive thematic analysis was conducted to the data collection challenges. Based on the overall analysis the following dimensions are six data quality dimensions were identified; integrity, relevance, timeliness, coherence, interpretability, and institutional environment. The goal was to assure the quality of the data reported based on the performance measures.

Periodic data quality assessments are an important strategy to identify errors and root causes of data collection procedures (Guy, Prager, Turris, & Lund, 2017). A series of activities were performed to monitor the data quality periodically which sustains quality of data received in the system. The initial focus was to identify root causes of data quality issues, advocate a culture of data quality assessment in practice, draw conclusions based on understanding the data system, and remediate the challenges and problems associated. In the past two years, the data quality assessment using simple analysis and a rigorous approach enhanced the data system by identifying emerging patterns, unconstrained data points and outliers. The dimensions of the data quality framework were assessed both subjectively and objectively to monitor data qualities periodically. The subjective assessments included: documentation review, consultation for indicator selection procedures, reduce reporting errors and assessing and segmenting consultation reports for further analysis. An objective assessment has been conducted annually to assess completeness, timeliness reports, and accuracy of the data. The complete assessment was made using a three-point Likert scale characterized as met, partially met and not met. Data quality was continuously monitored through the development of dashboards. The data management also

included system enhancements and web-based data submission procedures to reduce the data submission burden.

**Results:** Integrating data quality assessment into practice helped health organizations evaluate evidence-based nursing practice by submitting data on a regular basis with better accuracy. Improvements have been observed during the past three years by continuously monitoring data quality assessments. A dramatic reduction in missing data submission, increased data accuracy and less time lags were noted which highlight the potential contribution of nursing involvement.

Providing immediate help for consultation and education sessions on data requirements and data quality issues supported the organizations with the data collection/submission processes from electronic/manual charts. The integration of order sets in practice helped healthcare organizations to improve data quality and reduce data collection burden. The longitudinal evaluation of the quality of data in the nursing data system was monitored by the system-generated reports.

**Conclusion:** Continuously monitoring data quality, identifying appropriate measures of data collection, technological advancements and system enhancement opens a new avenue to support evidence-based practice. The data quality assessment resulted in improvement of data collection process with better accuracy and reliability. By continuously monitoring the data quality, health care organizations were able to identify gaps in measurement and improvements in nursing practice, cost effectiveness and better outcomes.