MEDICAL UNIVERSITY OF SOUTH CAROLINA
VALUE INSTITUTE
Evidence-Based Practice Brief
Standardized Nursing Documentation

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**ASK THE QUESTION**

**Question:**

Would the creation of a nursing guideline for EPIC documentation help support standardization of charting for assessment and vital signs of critical care patients?

**SEARCH FOR EVIDENCE**

**Databases:** PubMed, CINAHL

**PubMed search strategy:** ("Intensive Care Units"[Mesh] OR “intensive care” OR “critical care” OR ICU) AND ("nursing assessment"[mesh] OR assessment OR “vital signs” OR “fluid balances”) AND (“Documentation”[Majr] OR documentation[ti] OR charting) AND standard*

**CINAHL search strategy:** (assessment OR vitals) AND (documentation OR charting) AND standard* AND nurs*

**Filters:** English, published last 10 years
CRITICALLY ANALYZE THE EVIDENCE

Three studies contained information relevant to standardized nursing documentation. All three related standardized documentation to improving patient safety and to making data more easily accessible for extraction and analysis. A systematic review (Saranto, K., et al., 2009) explored three types of documentation: patient-centered, nursing and standardized. The authors concluded that structured nursing terminology could extend the scope of documentation research from assessing documentation quality to measuring patient outcomes. A study in Finland (Mykkanen, M., et al., 2016) audited nursing documentation to demonstrate that structured and standardized nursing documentation can affect evidence-based nursing management. A quality improvement study (Fuller, T. et al., 2018) focused on real-time documentation of vital signs. The project linked documentation of vital signs to patient safety by triggering action based on changes in a patient’s clinical condition. An editorial in Nursing Management (not included below) (Barthold M., 2009) discussed the need to standardize nursing documentation as a way to increase communication between providers and improve patient safety. The author recommended using a Magnet council structure to define the standards based on clinical research of existing professional standards, regulatory requirements and evidence of best practice.

PICO Question: Would the creation of a nursing guideline for EPIC documentation help support standardization of charting for assessment and vital signs of critical care patients?

<table>
<thead>
<tr>
<th>Author/Date/ Journal</th>
<th>Purpose of Study</th>
<th>Study Design</th>
<th>Sample &amp; Setting</th>
<th>Outcomes</th>
<th>Design Limitations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saranto K., et al., 2009, Journal of Advanced Nursing</td>
<td>To assess research methods applied in the evaluation of nursing documentation</td>
<td>Systematic review</td>
<td>41 studies classified into 3 themes: -8 nursing documentation -19 patient-centered documentation -14 standardized documentation</td>
<td>Studies on standardized documentation classified into 5 categories with positive and negatives effects. 1. Quality and content of nursing documentation a. Reported improvements in documentation as a result of training/education b. Direct effect on pain care; no evidence in nursing practice or patient outcomes 2. Nursing process a. Documentation according to nursing process increased b. No negatives</td>
<td>Study Limitations = None Systematic Review Review did not address focused clinical question Search was not detailed or exhaustive Quality of the studies was not appraised or studies were of low quality Methods and/or results were inconsistent across studies</td>
</tr>
</tbody>
</table>

GRADE CRITERIA
(See Appendix A)

Lower Quality Rating if:
☐ High risk of bias (When design limitations for one or more criteria impact the quality of studies sufficiently enough to lower confidence in the estimate of effect)
☐ Studies inconsistent (When there are differences in the direction of the effect, populations, interventions or outcomes between studies)
☐ Studies are indirect (Your PICO question is quite different from the available evidence in...
| Mykkanen, M., et al., 2016, Nursing Informatics | To discuss the importance of utilizing nursing documentation and taking advantage of structural information in evidence-based nursing management | Descriptive | 60 units (hospital level) and Department of Gastroenterologic Surgery Ward at a university hospital in Finland | Reviewed nursing documentation over a 5-month period | Summary: standardized nursing documentation enables information to be searched to support decision making. Data shared information about:  
- Care components  
- Allocation of nursing resources, education, research and teaching  
- Quality and results of treatment  
- Nursing outcomes (e.g., pain levels, wound recovery and patient rehabilitation) | Study Limitations =  
- None  
- Non-Experimental/Observational Studies (case-control, cohort, cross sectional, longitudinal, descriptive, epidemiologic, case study/series, survey)  
- Insufficient sample size  
- Sample not representative of patients in the population as a whole  
- Variables (confounders, exposures, predictors) were not described and accounted for  
- Outcome criteria not objective or were not applied in blind fashion  
- Insufficient follow-up, if applicable |  
- Publication Bias (e.g. pharmaceutical company sponsors study on effectiveness of drug)  
- Increase Quality Rating if:  
- Large effect (When the relative risk of association between two factors is large or very large)  
- Dose response (When the dose-response relationship increases the confidence than an effect is real and substantial)  
- Plausible confounders (When plausible residual confounding is directly impacting the magnitude of effect)  
- Level of evidence for studies as a whole:  
- High  
- Moderate  
- Low |
Fuller, T., et al., 2018, *Nursing Management*

To improve real-time collection and documentation of vital signs data by using interfaced mobile vital signs machine

<table>
<thead>
<tr>
<th>Fuller, T., et al., 2018, <em>Nursing Management</em></th>
<th>Quality improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>To improve real-time collection and documentation of vital signs data by using interfaced mobile vital signs machine</td>
<td>32-bed medical telemetry unit at Carolinas HealthCare System</td>
</tr>
<tr>
<td>Patients with heart failure, pneumonia, atrial fibrillation or chest pain; an average hospital stay of 3 days and average age of 65. Vital signs obtained every 4 hours Nurse to patient ratio was 1:4 and UAP (unlicensed assistive personnel) to patient ratio was 1:10</td>
<td>Pre-implementation results:</td>
</tr>
<tr>
<td></td>
<td>• 40% documented in real time</td>
</tr>
<tr>
<td></td>
<td>• 1 h 24 min average time delay for vital signs documentation</td>
</tr>
<tr>
<td></td>
<td>• 25 steps take to retrieve computer for documentation</td>
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<tr>
<td></td>
<td>• 7 min/10 patients, 30-second log-in time to document vitals in computer</td>
</tr>
<tr>
<td></td>
<td>• 7 out of 11 alerts with delayed vital signs entry</td>
</tr>
<tr>
<td>Post-implementation results:</td>
<td>Study Limitations =</td>
</tr>
<tr>
<td></td>
<td>• 69% documented in real time</td>
</tr>
<tr>
<td></td>
<td>• 4 min average time delay for vital signs documentation</td>
</tr>
<tr>
<td></td>
<td>• No steps taken to retrieve computer for documentation</td>
</tr>
<tr>
<td></td>
<td>• 0 time to document vital signs in computer</td>
</tr>
<tr>
<td></td>
<td>• 0 out of 2 alerts with delayed vital signs entry</td>
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<tr>
<td>REFERENCES</td>
<td></td>
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</table>

☐ For prognostic study, sample not defined at common point in course of disease/condition
☐ For diagnostic study, gold standard not applied to all patients
☐ For diagnostic study, no independent, blind comparison between index test and gold standard

Very Low

Quality Improvement (pre-post, controlled pre-post, historical comparison, time series)

Intervention not evidence-based
Improvement method was not clearly identified or the need for improvement was not described
Stakeholders, organizational culture, patients, or interventions were not clearly described or appropriate
Interventions were not described in enough detail to be replicated by others
Baseline and outcome data were not collected and reported appropriately or in the same manner
Data collection tools were not validated to measure intended outcomes
Any modifications made to the intervention were not based on pilot studies


Appendix A: GRADE criteria for rating a body of evidence on an intervention
Developed by the GRADE Working Group

**Grades and interpretations:**

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>High</td>
<td>Further research is very unlikely to change our confidence in the estimate of effect.</td>
</tr>
<tr>
<td>Moderate</td>
<td>Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate.</td>
</tr>
<tr>
<td>Low</td>
<td>Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.</td>
</tr>
<tr>
<td>Very low</td>
<td>Any estimate of effect is very uncertain.</td>
</tr>
</tbody>
</table>

**Type of evidence and starting level**

<table>
<thead>
<tr>
<th>Evidence Type</th>
<th>Starting Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Randomized trial</td>
<td>High</td>
</tr>
<tr>
<td>Observational study</td>
<td>Low</td>
</tr>
<tr>
<td>Any other evidence</td>
<td>Very low</td>
</tr>
</tbody>
</table>

**Criteria for increasing or decreasing level**

**Reductions**

- Study quality has serious (−1) or very serious (−2) problems
- Important inconsistency in evidence (−1)
- Directness is somewhat (−1) or seriously (−2) uncertain
- Sparse or imprecise data (−1)
- Reporting bias highly probable (−1)

**Increases**

- Evidence of association† strong (+1) or very strong (+2)
- Dose-response gradient evident (+1)
- All plausible confounders would reduce the effect (+1)

†Strong association defined as significant relative risk (RR 2-5 or 0.5-0.2) based on consistent evidence from two or more studies with no plausible confounders;

Very strong association defined as significant relative risk (RR >5 or <0.2) based on direct evidence with no threats to validity