A content analysis of the nursing records pre- and post-implementation of an electronic nursing record system

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Abstract

After the application of an EMR system in 2004, we could find meaningful differences in the content of nursing records in a tertiary teaching hospital, Seoul, Korea.

Introduction

The implementation of a computer-based nursing record system poses new challenges to the traditional role of the keeping of nursing documentation. With an electronic nursing record, data collected at the point of care can be used to assist nursing care at all levels of aggregation.

However, it has not been known much how the computer-based nursing record is different from the paper-based in terms of qualitative and quantitative.

Methods

The enterprise electronic nursing record system (ENRS) of Seoul National University Hospital in Seoul, Korea was implemented in 2004 using the nursing data dictionary, which was also introduced in Bundang hospital1. As a standard nursing terminology the ICNP (international classification for nursing practice) was used.

After implementation of the ENRS for one year, we investigated the content of nurses’ note different points of time. As a preliminary experiment, the nurses’ notes of 76 in-patients having undergone hysterectomy were reviewed by two nursing experts. The records of the 38 pairs of patients were retrieved in terms of length of stay and medical diagnosis respectively from pre and post period of the ENRS.

For the comparison with the content using the nursing data dictionary, the narrative compound statements of the paper-based records were broken down into single statements. Each single statement was categorized into four components of nursing process through the content analysis in each patient-specific context; assessment, diagnosis, intervention and outcome. For this categorization, we followed the definition of the ICNP2.

Results

Length of hospital stay for the two sample ranged from 9 to 10 days, with a mean of 9.6 days (SD=0.5). The average number of statements used per patient was 164.1 (SD=32.8) and 258.9 (SD=48.0) in paper-based and electronic records respectively. Over the 6,200 statements and 9,800 statements were analyzed from paper-based and electronic records respectively. Table 1 shows the results.

The total frequency of statements increased 1.6 times in the electronic nursing records. By the component, use of diagnosis showed the largest increase of 5.8 times. Both of the increase rates of the assessment or outcome and the intervention were 1.4.

<table>
<thead>
<tr>
<th>Component of nursing process</th>
<th>Paper-based records</th>
<th>Electronic records</th>
<th>Increase Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessment or Outcome</td>
<td>3,406 (54.6)</td>
<td>4,880 (49.6)</td>
<td>1.4</td>
</tr>
<tr>
<td>Diagnosis</td>
<td>235 (3.8)</td>
<td>1,363 (13.9)</td>
<td>5.8</td>
</tr>
<tr>
<td>Intervention</td>
<td>2,596 (41.6)</td>
<td>3,596 (36.5)</td>
<td>1.4</td>
</tr>
<tr>
<td>Total</td>
<td>6,237 (100.0)</td>
<td>9,839 (100.0)</td>
<td>1.6</td>
</tr>
</tbody>
</table>

Table 1. Statement frequency in the paper-based and the ENRS by component of nursing process.

Conclusion

The application of the ENRS using the nursing data dictionary has made positive changes in the content of records. For the further detail investigation, more sophisticated semantic analysis is needed.

References