Survey of Actual Conditions of Reasons for Nurse Calls: Comparing a Surgical Ward and a Medical Ward

Yukie MAJIMA (Osaka Prefecture University, Japan)
Yoko TAMURA (Izumi Municipal Hospital, Japan)
Yasuko MAEKAWA (Osaka Prefecture University, Japan)
Masao OHIRA, Mitsuhiro IKEGAWA (CARECOM CO., LTD, Tokyo, Japan)

0. Contents
1. Introduction
2. Purpose
3. Materials and Methods
4. Results and Discussion
5. Conclusion

1. Introduction

- Nurse calls can play a role
  - to convey patients’ needs
  - to analyze and predict patients’ needs

Background

- An influential factor of patient satisfaction is “prompt response to nurse calls” often cited. [Maeda Y., 2006]
- Improving response to nurse calls increases patient satisfaction. [Nomura T. et al., 2007]
- Nurse calls were decreased by almost half when setting a goal of reducing the number. [Ogasawara M. et al., 2007]

Prior Study(1)

- Nurse calls can play a role
  - to convey patients’ needs
  - to analyze and predict patients’ needs

After expressing patients’ requests

- Medical professionals must
  - consider
  - accurately
  - patients’ desires
  - for rapid response
  - after expressing their requests
**Question!!**

- Within what period will patients find the response time to be satisfactory?
- Is there no gap separating the time that patients can wait and the time that nurses think that patients can be allowed to wait?

The time at which patients feel that they are waiting ranges from 1 to 5 minutes. (Tatano et al.)

**However!**

**Difficult for busy nurses**

- To meet such response times for nurse calls
- Using non-automated procedures.

**Meanwhile**

Recent advancements of information systems have advanced the development of systems to accumulate nurse call data easily.

**Prior Study (2)**

- Using nurse call data collection system, the average answering time of nurse calls was found to be 2 s to 15 s.
- Another study compared the numbers of nurse calls among time periods and wards.

**Therefore**

It is arduous to investigate reasons for each call rigorously.

We conducted a survey of actual conditions of nurse calls!!
2. Purpose (1)

- To conduct actual conditions of nurse calls
- using “call history management system” developed for welfare institutions

2. Purpose (2)

- The survey was intended to show patients’ needs accurately by individually associating historical data (number of incoming nurse calls, answering time, etc.) which can be collected through an information system with reasons for calling, which usually cannot be collected automatically.

3. Materials and Methods

Survey Period and Subjects

- Survey period: 2008.3.1 (00:00:00) ~ 2008.3.31 (23:59:59).
- Targets
  - 2370 patients hospitalized in a medical and a surgical ward of a general public hospital (327 beds) in Japan

Method of data collection

- Data of nurse calls from surveyed patients are accumulated in a call history management system.
- The room number and the time at being called out are displayed as a list.
- A responding nurse registers reasons for calling by choosing applicable histories from call contents on the system screen.
- Call contents and ward nurse names were registered in advance.
Procedure of data collection

<table>
<thead>
<tr>
<th>STEP</th>
<th>Action</th>
<th>Recording</th>
</tr>
</thead>
<tbody>
<tr>
<td>STEP1</td>
<td>A patient presses the nurse call button, real sensor alarm.</td>
<td>Date, Time, Room number, Name of the bed</td>
</tr>
<tr>
<td>STEP2</td>
<td>A nurse receives the call through any of the following: the board type base unit, the incoming call to a PHS phone, or the recovery button of a corridor lamp.</td>
<td>Answering time</td>
</tr>
<tr>
<td>STEP3</td>
<td>Answering termination</td>
<td>Call duration</td>
</tr>
<tr>
<td>STEP4</td>
<td>A nurse practices nursing care</td>
<td></td>
</tr>
<tr>
<td>STEP5</td>
<td>A nurse registers in the nurse station</td>
<td></td>
</tr>
</tbody>
</table>

4. Results and Discussion

Data analysis

- Average quantities of incoming calls in each ward
- According to the period of time
- Compared reasons for calling associated with each call

Attributes of wards

<table>
<thead>
<tr>
<th></th>
<th>Surgical Ward</th>
<th>Medical Ward</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed number of beds</td>
<td>42</td>
<td>41</td>
</tr>
<tr>
<td>Total number of inpatients</td>
<td>1,177</td>
<td>1,193</td>
</tr>
<tr>
<td>Average number of inpatients per day (person)</td>
<td>38.0</td>
<td>38.5</td>
</tr>
<tr>
<td>Bed occupancy rate (%)</td>
<td>90.4</td>
<td>93.9</td>
</tr>
<tr>
<td>Average length of stay of inpatients (day)</td>
<td>26.1</td>
<td>30.3</td>
</tr>
<tr>
<td>Number of nurses</td>
<td>26</td>
<td>25</td>
</tr>
</tbody>
</table>

Conditions of nurse calls

<table>
<thead>
<tr>
<th>Actual conditions of nurse calls</th>
<th>Surgical Ward</th>
<th>Medical Ward</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total nurse calls</td>
<td>5,397</td>
<td>3,404</td>
</tr>
<tr>
<td>Average nurse calls per day (times)</td>
<td>174.1</td>
<td>109.3</td>
</tr>
<tr>
<td>Average calls per day (times)</td>
<td>4.59</td>
<td>2.85</td>
</tr>
<tr>
<td>Total response time (seconds)</td>
<td>62,787</td>
<td>33,267</td>
</tr>
<tr>
<td>Average response time per call (seconds)</td>
<td>11.63</td>
<td>9.77</td>
</tr>
<tr>
<td>Total call duration (seconds)</td>
<td>35,298</td>
<td>34,113</td>
</tr>
<tr>
<td>Average call duration per call (seconds)</td>
<td>6.54</td>
<td>10.02</td>
</tr>
<tr>
<td>Responding every corner of the ward</td>
<td>2,363</td>
<td>1,370</td>
</tr>
<tr>
<td>Ratio of using recovery button in the total number of calls (%)</td>
<td>43.78</td>
<td>40.25</td>
</tr>
</tbody>
</table>

Breakdown of nurse calls by working shift

N=3404

Medical Ward
N=5397
Reasons for nurse calls

- Medical Word
- Surgical Word

Problems of Data Collection

- No reason inputted
  - about 8% of all calls in the Medical Ward
  - about 10% of all calls in the Surgical Ward
- Be unable registering all call histories
  - in later input
  - mainly attributable to reliance on memory
  - extension of overtime hours
  - being interrupted by another call during inputting

Efficient of Data Collections

Registration of reasons for calling

To examine and evaluate their own nursing practice

5. Conclusions

a. Many matters must be addressed before nurse calls are made
b. Reflective opportunities for nurses
   - conscious of patients' conditions
   - nursing tasks that were practiced
   - to grasp their actual conditions
c. Requirements of current system
   - substantial efforts
   - further work on operational aspects

6. Future Study

- To analyze collected nurse calls data
  - characteristics of wards
  - attributes of nurses
  - attributes of patients

Thank you for your attention!!

Contact e-mail address:
majima@ias.sakafu-u.ac.jp
Yukie Majima