Abstract: This study has been conducted to assess the effectiveness of the call bell tool kit and its impact in enhancing the patient delight. Structured Questionnaire was used to collect data from 50 patients and 50 nurses across Apollo Hospitals in 4 locations - Bengaluru, Chennai, and Delhi & Kolkata. Time motion study was done with 179 Nurses across the 4 units for 100 patient [25 patients from each unit] with different Room categories/ Specialities / Treatment plan. Convenient sampling technique was used to select the samples for the study. The data was analysed using descriptive and inferential statistics and also brainstorming sessions with the team, RCA was done to identify major delay in in call bell response. A customized toolkit was drafted on the basis of the problems and insights identified during the study. One day post implementation study was conducted in single room wards which had the maximum call bell load to understand the impact of toolkit implementation.

Results: The pre-test results shows that the expectation of patients for answering call bells is very high with expecting a response in less than 2 min. Call bells have tradition viewed as a Nurse’s job and the same was visible in the survey results which sought the patient’s opinion and experience on who should attend call bells. Most of the call bell was responded in 2-5 minutes. More than 1/3rd of our patients participated in the study were dissatisfied with the call bell response. The staff nurses participated in the study has expressed that majority of the call [78%] are of non-clinical needs. Majority of the causes for delay in attending call bells was attending other patients. Results of the time motion study states that Majority of the call bells [60%] are non-clinical in nature and non-urgent and among the 3 shifts morning shift saw the highest number of step counts. Housekeeping needs was the single largest reason [70%] for non-clinical calls. The study shows that 2.9 minutes is the response time that is the time from pressing of a call bell till it is answered and 9.9 minutes is the resolution time that is the time from pressing of call bell till the patient request/need is met. Based on the observations a tool kit was prepared. The post implementation study of the Call Bell was done and it has led to a substantial reduction in the number of call bells for non-clinical reasons as these needs were met in a proactive manner.

There was a marked reduction in the total and average number of call bells because in general call bells for all the departments came down. The response and resolution time were also reduced due to decrease in volume of call bells.

Keywords: Nurses, Patients, call bell, Tool kit.

I. Introduction

In today’s world customer delight is the need of the hour. Patients come to hospital not by choice but by need. Despite appropriate medical and nursing care, there are number of factors that trigger their senses leading to dissatisfaction. Response to call bell is one such factor. Whenever the patient press the call bell if there is poor response, it leads to irritation and unnecessary complaints. Ensuring turnaround time of 1-2 minutes response to call bell is positively the most acceptable initiative that will ensure customer delight, patient satisfaction and satisfaction of health care provider which needs to be practised worldwide. Cumulative analysis of patient feedback, complaints and hospital rounds over the years reflect a significant amount of issues related to call bell response. Frustration over issues related to call lights / call bells is one of the most frequent comments that patients and their attendants make the most common reasons being:

- Delays in getting call lights / call bells answered
- Variation in the call lights / call bells response time from a low of less than a minute to a high of 20 minutes
Call Bell As A Service Parameter: From Call Light To Patient Delight

- The amount of time it took to handle the patient's request once the light / call bell was answered
- The patient's request not being fulfilled once the call light / call bell was answered

The call bell system does not indicate the urgency & purpose of the call (patient deterioration/ housekeeping / F & B/ comfort needs etc.). Unarguably, the single most staff who responds to every ‘call’ of patients is the nursing staff irrespective of their availability at the nursing station. Poor response time being a significant indicator of the culture of the organization can adversely impact both service as well as clinical outcomes by increasing risks of Patient fall, adverse events etc.

Call bells were being perceived as mere noise and an interruption to nursing tasks by some nurses owing to alarm desensitization which stems from attending non-nursing call bells. Though the nurses recognize call bell as an important way for patients to request assistance they also are disillusioned by the fact that majority of the call bells they attend are non-value add calls. Frequent interruptions by patients calling for non-nursing purposes takes away the nurses from their critical role and is a distraction and stress during the interventions and interactions with patients.

A study of more than 170,000 health care workers (including 47,692 registered nurses) in 138 acute care health care organizations revealed that the role of the RN is characterized by excessive numbers of activities, a loss of focus on the professional components of nursing and significant activity overlap with other job classes. Additionally, the study found that these characteristics were related to reduced morale, decreased patient and physician satisfaction with care and increased health care costs. Inadequate patient and family education in terms of expectations for staff responses with the lack of clarity on roles and responsibilities of staff in the ward adding to the current problem.

The issue continued to remains a constant sore spot despite repeated trainings and our solutions had been inadequate to solve this problem.

II. Material And Methods

This comparative survey was carried out in Apollo hospitals across 4 locations - Bengaluru, Chennai, Delhi & Kolkata between 2nd April 2016 to 2nd June 2016.

**Study design:** Comparativesurvey
**Study Location:** Wards of Apollo Group of Hospitals across Bengaluru, Chennai, Delhi & Kolkata
**Study duration:** 2nd April 2016 to 2nd June 2016.
**Sample size:** Questionnaire based survey: 100 patients and 100 staff nurses from all 4 units
Time motion study :25 patients from each unit of Apollo group [total 100] and staff nurses 38 Bengaluru, 38 Chennai, 68 Delhi, 35 Kolkata [total 179]
**Sampling technique:** Convenient sampling

III. Methodology

Questionnaire based survey was conducted on 2nd April 2016 to 4th April 2016 to collect data from patients to understand patient Expectation/ Experience regarding to expected Call bell response duration in an urgent situation, Expected Call bell response duration in a non - urgent situation, perceptions on responsibility for attending call bell, Perceived average call bell response time, Satisfaction to call bell response and the same was conducted from staff nurses to understand Staff Expectation/ Experience related to types of call received/ Shift with maximum patient calls/ Most frequent non value add jobs/ Causes of delay in attending calls.

Time Motion Study conducted across 4 locations over a duration of 4 days between 11th April 2016 to 15th April 2016. Focused analysis done using real time observations across 4 locations conducted on 29th April 2016 studying 850 patients, 260 nurses, 4603 Call Bells over a duration of 1 day to help understand in detail trends picked up in the time motion study. Tool kit was created based on the learnings from the data was created.

One day post implementation study was conducted on 02nd June 2016 in single room wards which had the maximum call bell load to understand the impact of toolkit implementation. Descriptive and inferential statistics was used to analyse the data.

IV. Results

The descriptive analysis of the pre-test shows that the expectation of patients for answering call bells is very high with 70% expecting a response in less than 2 min. Call bells have tradition viewed as a Nurse’s job and the same was visible in the survey results which sought the patient’s opinion and experience on who should attend call bells. Most of the call bell [59%] was responded in 2-5minutes. More than 1/3rd of our patients participated in the study were dissatisfied with the call bell response. The staff nurses participated in the study has expressed that majority of the call [78%] are of non-clinical needs. Majority of the causes [78%] for delay in attending call bells was attending other patients. Results of the time motion study states that Majority of the call bells [60%] are non-clinical in nature and non-urgent [61%] and among the 3 shifts
morning shift saw the highest number of step counts [6024]. Housekeeping needs was the single largest reason [70%] for non-clinical calls. The study shows that 2.9 minutes is the response time that is the time from pressing of a call bell till it is answered and 9.9 minutes is the resolution time that is the time from pressing of call bell till the patient request/need is met. A tool kit was prepared based on the learnings from the analysis of the data collected by questionnaire and time motion study. Pilot study was done at a ward in Delhi unit for a duration of 1 day covering 4 staff nurses taking care of 24 patients per shifts.

Pilot done at Platinum (VIP) ward, Delhi for a duration of 1 day covering 4 staff nurses taking care of 24 patients per shifts.

The comparison of the pre-test and post-test data revealed a stark contrast and impacts were explicitly visible.
- The implementation of the Call Bell toolkit lead to a substantial reduction in the number of call bells for non-clinical reasons as these needs were met in a proactive manner
- There was a marked reduction in the total and average number of call bells because in general call bells for all the departments came down
- Owing to hourly rounding the patient monitoring became more effective and the results of the same were visible in the rates of Patient fall and Hospital acquired Pressure Ulcers.
- The staff was also freed up from non-clinical tasks and they reported satisfaction at being able to dedicate more time to patient care.
- The response and resolution time were also reduced due to decrease in volume of call bells.
- The implementation of team based approach was well appreciated by nurses who earlier felt like lone soldiers in a tough war zone
- The use of pocket cards was well received by nurses as it eliminated the need to rely upon memory

Table 1 shows that there was drastic reduction in total call bell and call bell per patients.

| Patient S.No | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | Total Patient Occupancy | Total Call Bell | Call Per Patient |
|--------------|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|------------------------|----------------|-------------------|
| PRE STUDY    | 4 | 7 | 3 | 3 | 19| 6 | 9 | 2 | 10| 4  | 5  | 7  | 6  | 11 | 16 | 5  | 3  | 4  | 18 | 124| 7  | 124                     | 18             | 124               |

<table>
<thead>
<tr>
<th>Percentage</th>
<th>MEDICAL CALLS</th>
<th>HOUSEKEEPING CALLS</th>
<th>F&amp;B CALLS</th>
<th>ENGINEERING CALLS</th>
<th>QUERY CALLS</th>
<th>OTHER CALLS</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRE STUDY</td>
<td>29%</td>
<td>48%</td>
<td>6%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>POST STUDY</td>
<td>15%</td>
<td>59%</td>
<td>12%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
</tbody>
</table>

More than 50% reduction in medical calls

states that there is reduction in the medical call after the implementation of tool kit.
Fig 2 shows that there is a reduction in response and resolution time after implementation of tool kit.

Fig 3 reveals that there is a reduction in the step count of morning shift after the tool kit implementation.

Call Tool Kit for reducing call response and resolution time

**Toolkit for “Reducing Call Bell Response & Resolution Time”**

Core Team

- **Assigned Nurse** - Hourly Rounding using Toolkit, Night care
- **Charge Nurse** - Meeting patients at Interfaces/Touchpoints
- **Nursing Leadership** - Hourly Rounding Audit

- **Hourly Rounding**
- **Night care bundle – Use of standard scripts**
- **Handovers from Nursing**

- **Night care bundle – Use of standard scripts**
- **To lead Daily Huddles and discuss call bell related issues and track performance**

For all elimination needs a hand off between the charge nurse/team leader and housekeeping supervisor is mandatory so that patient are serviced proactively for toileting/washroom needs/emptying of urine bags.

To be included in induction and unit training.

Hourly rounds can be clubbed with scheduled mandatory activities like hygiene needs (6 am) and medication administration (10 am, 12 noon, 2 pm, 6 pm, 10 pm).
Call Bell As A Service Parameter: From Call Light To Patient Delight

1 C - HOURLY ROUNding
PILLOW CARD

1 D - HOURLY ROUNding COMPETENCY CHECKLIST (NURSING)

**Sorry I missed you!**

We provide hourly rounding on our unit to ensure you receive very good care.

**If you need anything upon your return please let us know.**

I am now going to take care of my other patients. In case you feel that your medical condition is deteriorating please use the call bell.

ALL THE STAFF Nurses TO BE EVALUATED ON INDUCTION AND PERIODICALLY THEREAFTER.
**TOOLKIT 1 A - WELCOME NOTE**

**Welcome To Apollo Hospital**

**The Foundation of Integrated Healthcare Solutions**

**1 A - POLICY**

- **Key Points**
  - Early detection
  - Prevention
  - Patient care
  - Patient satisfaction

**1 B - HOURLY ROUNDING POCKET CARDS - NURSING**

**Pocket Card - Nursing**

- **How is your pain?**
- **Are you comfortable?**
- **Do you need me to move anything?**
- **Do you need to use the washroom?**
- **Is the environment soothing and relaxing?**

**Use of following aids to implement Toolkit 1:**

<table>
<thead>
<tr>
<th>Item</th>
<th>Intended User</th>
<th>Frequency</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>1A - Welcome Note</td>
<td>Given to every patient by the staff nurse in the patient's room</td>
<td>On every admission</td>
<td>To explain why we round hourly, and if anything is needed during the patient's stay</td>
</tr>
<tr>
<td>1B - Hourly Rounding Pocket Cards - Nursing</td>
<td>To be issued to all the nursing staff in the units and new staff while orientation</td>
<td>Every time an hourly round is performed</td>
<td>To orient the staff for the important parameters that needs to be checked during hourly rounds</td>
</tr>
<tr>
<td>1C - Hourly rounding Pillow Cards</td>
<td>To be placed by the nursing staff on the pillow when patients are out of the room</td>
<td>Every time an hourly round is performed</td>
<td>It communicates to the patient that staff came by to check on them during hourly rounds</td>
</tr>
</tbody>
</table>
**2A - POCKET CARD - HOUSEKEEPING**

- Do you need to use the washbasin/towel/dispenser?
- Is the environment soothing and relaxing? (Lights/Decor/Television)
- Do you need me to move an utility nearer to you? (Water/phone)
- Check and ask for cleanliness of the room/washroom?
- Do you need extra pillows/blankets/bed sheets/towels?

**EXPLAIN HOURLY ROUNDING**

Explain the purpose of hourly rounding (initial visit)

Describe the rounding checklist (see below for an example)

ADDRESS SP's/PLACEMENT PEACE POTTY PERIMETER PILLOW

Do you need me to move an utility nearer to you? (Water/phone)

Is the environment soothing and relaxing? (Lights/Decor/Television)

Do you need to go to the bathroom or use bedpan/potty or commode?

Check and ask the cleanliness of your room/washroom?

Do you need extra pillows/blankets/bed sheets/towels?

**EXPLAIN HOURLY ROUNDING**

Explain the purpose of hourly rounding (initial visit)

Describe the rounding checklist (see below for an example)

ADDRESS SP's/PLACEMENT PEACE POTTY PERIMETER PILLOW

Do you need me to move an utility nearer to you? (Water/phone)

Is the environment soothing and relaxing? (Lights/Decor/Television)

Do you need to go to the bathroom or use bedpan/potty or commode?

Check and ask the cleanliness of your room/washroom?

Do you need extra pillows/blankets/bed sheets/towels?

**TOOLKIT 4 - NIGHT CARE BUNDLE**

In order to reduce the number of query calls during night shift - Department of Nursing/Housekeeping/F&B to use the following aids listed as Item:

<table>
<thead>
<tr>
<th>Item</th>
<th>Intended User</th>
<th>Frequency</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>4A - Night care bundle standard scripts</td>
<td>Nursing/Housekeeping/F&amp;B staff</td>
<td>During every night shift</td>
<td>An integrated proactive approach by all healthcare team to minimize the number of query calls during night and early morning</td>
</tr>
<tr>
<td>4B - Night care bundle checklist</td>
<td>To be used by the assigned staff nurse Countercheck by Shift in charge</td>
<td>Weekly audits - 2 months post implementation-monthly</td>
<td>To ensure a sense of safety and comfort to the patient</td>
</tr>
</tbody>
</table>
**TOOLKIT 4 A - NIGHT CARE BUNDLE STANDARD SCRIPTS**

**NURSING**  Between 9 pm to 10 pm

- Hello Mr/Ms ___________, I am here to give you your night medications, after which I expect you will be sleeping.
- I will come every 2 hours to check on your well-being.
- I will not wake you up, unless there is a need to do so.
- Do call in case of any emergent need/deterioration in your condition.
- You should wake up by _____ for your morning care activities like checking vitals/ medication/ hygiene needs.
- Good night!

**HOUSEKEEPING**  Between 9 pm to 10 pm

- Hello Mr/Ms ___________, I am here to check the basic utilities in your room.
- The water has been refilled and bed sheets/pillows have been provided.
- Kindly tell me the timing you want your room to be cleaned tomorrow morning. We will try our best to service your room as per your preferred time frame.
- Good night!

**F&B**  During clearing of meal plates

- Hello Mr/Ms ___________, I am here to clear your dishes.
- Your morning tea and breakfast will be served at _____ am and _____ am.
- In case you need our services please dial ____.
- Good night!

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### Monthly Reporting Tool

<table>
<thead>
<tr>
<th>MEASURE</th>
<th>APR</th>
<th>MAY</th>
<th>JUN</th>
<th>JUL</th>
<th>AUG</th>
<th>SEP</th>
<th>OCT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number of discharged patients</td>
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<td>Total number of call bell related patient complaints</td>
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<tr>
<td>Total number of call bell related issues escalated</td>
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<tr>
<td>Total number of Breakdowns/ Repairs for Call bells</td>
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<tr>
<td>Number of cases where Response time exceeded beyond the target</td>
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<tr>
<td>Number of cases where Resolution time exceeded beyond the target</td>
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<tr>
<td>Nursing footsteps reduced</td>
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</table>
V. Discussion

The project deployed the use of varying research methodologies to understand the problems and then deployed an evidence based approach customized to our unique circumstances to mitigate it.

The study was carried out to help understand the general and specific challenges that our current situation posed. A deep dive into the data helped us in comprehending the reasons that were responsible for call bell loads and subsequently call bell complaints.

A toolkit that addressed all major challenges identified during the study was created and subsequently circulated for implementation.

The toolkit was a great opportunity to create a patient centric approach that enabled the responsibility of attending call bells to be passed one to every member of the healthcare milieu thereby putting the patient first in the true sense.

Reference


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