

Biomedical equipment efficiency measurement and improvement nurse call system

Samon Henry

Henry S. Biomedical equipment efficiency measurement and improvement nurse call system. *J Biomed Eng: Curr Res.* 2022;4(1):02.

INTRODUCTION

The hospitals, 'bed call system' play a major role in patient care, because 30 % of patients in a hospital are either old aged or totally bed-ridden and need medical assistance. It is a mediator between the patients and the nursing staffs. Normally this system is very helpful in wards and ICUs. However, in the case of ICUs, 90% patients are in critical condition and cannot use this system. Moreover, in ICUs, staff to patient ratio is 1:1, but in wards the staff to patient ratio is 1:5. Over and above this every patient in a ward is separated by either curtains or partitions. This makes difficult for nursing staff to access their patients on direct view. For such cases the nurse call bell system becomes very vital and valuable. If the call response is slow it will affect the patient satisfaction. Nurse call time improvement could also translate into monetary benefits because we may improve patient satisfaction and WOM will attract more patients, which will increase revenue for the hospital. This case study is one such example of Efficiency Measurement and Improvement of Nurse Call System at Zydus Hospital, Ahmedabad. Biomedical device technology is a discipline that needs extensive knowledge of biomedical device instrumentation. Required expertise covers device use, maintenance obligations, and ways to collect data on an extensive variety of tracking, medical, clinical, and surgical instrumentation. Those in the field also research and realise solutions to challenges found when working with physicians, nurses, and other technicians who use biomedical instrumentation. One such example is 'nurse call bell system' Zydus hospital had installed an efficient 'call bell system' for the patients. Whenever the patient needed any assistant for nursing staff or attender, patients can generate the call by a single soft touch through the dedicated handset, which in turn will display in the main console, kept at the nursing station. Over and above that, every room entrance has a small lamp module for indication of call. Staff can identify the call immediately by the colour of light. Moreover, the nurse call has a 'code blue' option and it can be configured with both TV remote and telephone functionality. Within this system, all the calls are recorded, with date and time, to facilitate tracing of any call details whenever required. One can retrieve this data, analyse the root cause and take the corrective and preventive actions to improve the quality of performance. In

the last 3 months (November to January) the hospital was receiving patient complaints about prolongation of duration the nurse call is taking to be attended. Repetition of calls was because of non-resolved solutions of their queries effectively. Major part of calls is generated because of lack of patient education. Delayed nurse call average was 10 minutes. If this continued patient satisfaction index of hospital would have gone down which in turn had possibility of affecting the revenue. The Operations head was concerned about this issue and wanted to take immediate measures to reduce the average time for attending a nurse call from an average of 10 minutes to 5 minutes by the end of the two month (June). For analysis his team started measuring the call bell data from February to June. The main parameters which were measure or maintenance of a good practice there must be some valuable benchmark set as goal. Similarly, for this analysis, some benchmark was freeze for better measurement and comparison of results. If we achieve the desired goal then there should be some good benchmark. For achieving this target, one need to reduce the delayed call percentage. As a first step towards this goal a meeting was arranged for the nursing staff, patient and their relatives where discussion and guidance, about the nurse call system operation and its use, was done. During the discussion with the staff members, it was recognizing that most of the patient and their relatives used the call bell system for needs other than the medical assistance. Few of the frequent nurse call queries broadly classified into clinical and nonclinical queries Few of the most common reasons for repeated call were: lack of timely solution as per expectation of patient, Anxiety of Relative, Absence of Patient & Relative education. Communication gap between Nurse, Patient and relatives. nurse communication and sensitising the nurse supervisors and nursing in charges to sensitise with the matter and trained for proper patient education. Various other activities like assigning a floor manager to monitor the nursing, regular rounds by nurse call team and interaction with patients and nurses, along with frequent rounds by Nursing Supervisors, were implemented. Efforts were made to strengthen patient education in a structured way. An audit tool was introduced and tracked to check patient satisfaction with call bells. A checklist was introduced for Nursing and support staff. Hourly check of the list is done by the allocated nurse for every patient and the nurse supervisor keep a track of it on daily basis.

Managing Editor, *Journal of Biomedical Engineering: Current Research, Berkshire, UK*

Correspondence: Samon Henry, Managing Editor, *Journal of Biomedical Engineering: Current Research, Berkshire, UK*, E-mail biomedical@theresearchpub.com Received: 20-Jan-2022, Manuscript No. PULBECR-22-4356; Editor assigned: 22-Jan-2022, PreQC No. PULBECR-22-4356 (PQ); Reviewed: 15-Feb-2022, QC No. PULBECR-22-4356 (Q); Revised: 28-Feb-2022, Manuscript No. PULBECR-22-4356 (R); Published: 10-Mar-2022; DOI: 10.37532/Pulbecr.22.6(1).02



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