

Central Line Handling Practices at Cardiac ICU of a Tertiary Care Hospital – Analysis and Learnings from an Academic Project

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 DOI: <https://doi.org/10.15520/jcmro.v2i04.150>

Accepted 11-04-2019; Received 01-04-2019; Publish Online 12-04-2019

Reviewed By: Dr. Ali
Demir Sezer
Department:
Reviewer/CMRO

ABSTRACT

Central line infections are very high and common. Nurses' are at fore front of care after receiving surgical patients with indwelling central lines. There is a dire need to assess how these practices are happening and ongoing learning process along evaluation of practice for nurses must be maintained. Keeping a similar kind of aim an academic project was carried out in a Tertiary Care Hospital, to see how this aim can be achieved with beginning of simple strategies. However outcomes are still needed to be checked and evaluated but through ongoing monitoring process the project was seen successfully implemented. The strategies were shared and implemented in the area and the paper presents the analysis and showcasing of the action plan made and implemented. It is recommended to do this project in other areas and settings as well and the changes (decrease) in the rates of infections and practices of nurses can again be evaluated.

Abbreviations: ICU: Intensive Care Unit, CICU: Cardiac Intensive Care Unit, CLABSI: Central Line Associated Blood Stream Infections, CLs: Central Lines, HCPs: Health Care Providers

Key words: central lines–cardiac intensive care unit–nurses–infections–health

1 INTRODUCTION:

This is always seen that in healthcare system we are full on filled with documents and policies of national, international and institutional guidelines to work on all kind of patient related issues. Despite of that we still see lacking in many of the current practices at bedside. The evidences found in literature are authentic on basis of researches and protocols are developed by those sources present in literature, even though at practice side we see somehow different scenario. Not all dismay the practices but on the same side not all follow it.

South Asian countries in comparison to developed nations have high rates of infections of CLs. Even though, the practices in hospital setting are still seen very less. It was highly suggested to work on nurses and HCPs' education

to improve practices regarding central line infections and all other kinds of infections as well [1]. Online courses for nurses' education regarding infections and antibiotics created confidence and increased knowledge to communicate these incidences and work over infection prevention [2]. Majority of the evidenced based literature supports monthly sessions on preventive interventions for CLs should be held along with post evaluation of staff. Further it is suggested that practical workshops of central line handling and maintenance of infection control protocols will be a useful activity to be included [3]. Positive patient health outcomes and decrease in central line infections can also be achieved through comprehensive unit based education of staff to ensure safe and proper handling of central lines. This practice included in a hospital study at Pakistan, showed positive outcomes [4]. In other hospitals we also see effects generated through dissemination of educational material like pamphlets, modules or cards for reviewing the known information and emphasizing the practices. This practice also

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recalls the significance of practicing standard guidelines for handling central lines for any purpose [5]. In addition, emphasis on evidenced based interventions and practice of standardized procedure to achieve competency of nurses can decrease incidences of central line associated complications [6].

2 PURPOSE OF THE PROJECT:

Nurses at CICU of one of the tertiary care hospital at Karachi, Pakistan were observed during a clinical rotation. They were well versed and expert, working under supportive management. Here at the CICU they are provided with strong opportunities of learning, advocacy and comprehensive approach for patient care. The aim of this project was to revise and re-emphasize on the safe and proper practices of central line handling to prevent possible infections and complications. There are senior nurses working in the area and they are aware about these things. Also the management also takes care of these things, support the staff to practice safe techniques and timely enhance their knowledge about these policies and protocols. But re-emphasize and revision is always necessary when you are working in a high dependency area where nurses are regularly dealing with central lines. Also, in these areas novice nurses like interns, trainee nurses or newly appointed registered nurses have been also taking care and sometimes students also join nurses to work and learn about patient care. Recalling about specific procedures and protocols with their significance in patient care will also give nurses insight to guide the novices for learning purpose.

3 NEED ASSESSMENT:

In developing countries, the mortality rate due to central line infections is between 15-24% in all kind of adult ICU patients [4]. This is really an eye opener and huge thing to look upon. This signifies a larger probability of catching central line infections in hospital settings of developing nations. The study cited above done at a tertiary care hospital of Pakistan signifies the role of nurse's education and emphasize on central line handling through a proper plan reduced the CLABSI incidences from 5.68 to 2.73 per 1000 central line days [4]. That gave an insight to work on re-emphasizing nurses about their role in preventing central line infections as they are the primary care providers who are handling these lines many a time in per day for different purposes like sampling or medication. Revising nurses' placement at high dependency areas and pressurizing the role in providing quality and safety based care, enhances these elements in care of clients as well [7].

A basic questionnaire was developed to review the level of understanding of the assigned staff at the unit so that project implementation could be on a specific road map to be followed. However the findings were not analyzed to base the statement that either staff is working on proper policies and protocols or not, instead the focus was to review and

work on making specific objectives while delivering an educational session in implementation phase.

However, questionnaire is only part to assess the need to the particular nurses at the setting where we were doing the academic project. It wasn't prepared in order to currently assess any measurements during the project. The basic form can be considered as one part of the whole project.

4 POSSIBLE OUTCOMES:

The goal of the project was to prevent complications among clients who are admitted to CICU after the designated surgical procedure and are having central lines to generate access for sampling, medication and cardiovascular status monitoring. It was seen that each and every client received after the surgery in the area had any kind of central line and it was a point of thinking that patient become more prone to infections or have potential risk of getting infections as a central line dwelling (present) in their body. This project essentially enhanced and provided emphasis on nurses' knowledge about central line handling so that they can work according to quality and safety protocols and help in preventing patients from these infections and become a source of decreasing incidences of these strong and life threatening infections.

5 INTEGRATING THEORETICAL CONCEPTS:

Though the project was based on CICU and the role which was evident from every aspect was of a nurse, but in this case it shouldn't be missed to mention that the practice and learning area for this particular project was with management too. As part of management the responsibilities become a little bit varied as continuous monitoring of staff, staff education, mentorship, emphasis on institutional policies and goals become the prime responsibility. In that regard systems theory of management [8] best fits in the task that we worked on. Management people who are practicing this theory and understands how system effects working people and how the working people effects the system always implies this to his or her workplace. This theory supports the value of following system's goals and emphasizes on the collective outcomes that are aimed by the institution to be achieved on a particular level. Despite of coming up with some relevant goals that have no significance at institutional level, the systemic approach management prioritizes their own focuses in lieu of the outcomes that will eventually effect the institution in broader level. Infection prevention is major goal of any tertiary care setting, as part of quality care and provision of care with safety protocols. This is aimed to achieve high standards of healthcare system in Pakistan as well. Coming up with a similar idea that has been practiced in many areas of hospitals and even emphasized from the infection control department, our focus was to emphasize the significance of present and existing policies

and protocols for safe handling of CLs in a specific cardiac area. That will eventually give a positive health outcome from overall system of the hospital and affect the institution's care at great level.

6 ACTION PLAN:

Since the collaboration with management, senior nurses and other people at the area was successful and we from our observation set goals that are supposed to be achieved under this process. It is always seen that nurses actively use processes, diagrams, tables or other tools to list down or sort down their goals, actions, and evidences on the basis of observations. Later, these goals were evaluated under the action plan in regard to see that whole process goes well as decided or planned (monitoring) and the outcome has achieved or has a bar to be achieved with the proposed activities or strategies (evaluation). Table 1 [See the table below]

Indicator for this project will be potentially based on how the provided knowledge and education material helped nurses to reinforce the presence of infection control practices while handling CLs. This was eventually not measured because of time constrain, that after providing teaching and educational material (Cue cards) to the staff we were not left with specific time frame to measure that how they enhanced practices and what was possible decrease in rates of infections identified after this project.

7 LIMITATIONS AND RECOMMENDATIONS:

Major limitations of the project were to assess the future outcomes because of time constrains. Also, due to specific time and unavailability of staff at other exceptional timings beyond the duty hours, we were unable to think or work on a course development specifically for CICU nurses regarding central lines.

It is highly recommend that any online web portal could be developed or identified from existing source to share with the staff for their learning and gaining credentials and certifications on courses of quality care, infection control practices and cardiac ICU related line handling challenges. Nurses and physicians should work on publications of Pakistani context to enrich the literature of their findings regarding CICU practices of central lines, CLABSI or infection control.

Champions of infection controls should be trained from active nurses who can work additionally on this assignment to maintain a safe patient environment for this purpose. Regular recall during clinical time and weekly sessions by Nurse Instructors is advised to recall this very important issues and its safe practices.

8 WAY FORWARD:

Looking at the dimensions of this project, the interesting parts that could be analyzed and search for in future would include a detailed report on what knowledge we retrieved from questionnaire that staff filled. More or less if every working staff is aware of these protocols and say that they practice it, even though the rates of infections doesn't changes at higher level. Looking and researching on changes in rates of CLs infections in this particular area would be one other aim.

Reevaluating staff's practices in 2019 when the project completes its two years to see how those strategies are effectively impacting or it requires change with collaboration of management. Quality protocols and patient satisfaction levels can be evaluated too in order to see the change occurred through the implemented activities.

These activities can also be checked in other hospital settings of Pakistan at a greater level, with involvement of quality champions and Physicians.

9 CONCLUSION:

CICU nurses are required to work on their practices to decrease the rates of infections in clients with CLs. This is huge thing can be tackled by continuous education of nurses and ongoing monitoring of their practices. Central line handling refreshers and sign off practices should be always taken into account by management and clinical nurses to achieve a better outcome in intensive care settings.

Acknowledgement:

It is very essential to thank clinical and management team of CICU of the tertiary care hospital in Karachi where this project was implemented. Faculty and management of School of Nursing is also acknowledged for their feedback and guidance. All the people who helped, suggested, or were included are acknowledged from the authors. The project was easily implemented by team efforts and because of that academic and clinical both goals were achieved.

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Table 1. Action plan review and working process

As- sess- ment	Through self-observation Asking the incidences and practices from nurses, other staff, management and physicians Using questionnaire	Im- ple- men- ta- tion	The complete project was done as an academic activity, completed in two month time during October and November 2017. Involving in care to show practices, ongoing education on bedside, separate health education session for nurses and staff, cue cards for recalling
Plan- ning	Aim: Central line infection prevention through proper and standardized handling protocols, by teaching and providing education material to nurses Objectives: To enhance the knowledge of staff, To re-emphasize quality care practices, To provide educational material to remember	Eval- ua- tion	Continuous monitoring was done by one of the authors Management was also involved to evaluate the outcome for a larger benefit to area and institution

improvement interventions: a systematic review and meta-analysis. *Clinical Infectious Diseases*; 2014.

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