

Advanced Practice Nursing, leadership, and implementation of improvements to reduce health care-associated infections

Prática Avançada em Enfermagem, liderança e implementação de melhorias para reduzir infecções relacionadas à assistência à saúde

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ABSTRACT

Objective: To report on nurses' experiences leading a project to implement improvements to reduce health care-associated infections in an intensive care unit. **Method:** Experience report on the implementation of an improvement project from the perspective of advanced practice nursing in the intensive care unit by nurses at a university hospital in the state of Rio de Janeiro. **Results:** A selection of professionals was made to form the improvement team. The nurse coordinator was responsible for leading and implementing the project. Leading improvement projects requires nurses to have the competencies and skills to achieve positive results. **Conclusion:** Nurse leadership is part of the scope of advanced nursing practice in the critical care environment and contributes to the change in care indicators.

Descriptors: Quality Improvement; Advanced Practice Nursing; Infection Control; Intensive Care Units; Leadership.

RESUMO

Objetivo: Relatar a experiência dos enfermeiros na liderança de um projeto de implementação de melhorias para reduzir infecções relacionadas à assistência de saúde em uma unidade de terapia intensiva. **Método:** Relato de experiência sobre a execução de um projeto de melhoria na perspectiva das práticas avançadas de enfermagem da unidade de terapia intensiva por enfermeiros de um hospital universitário do estado do Rio de Janeiro. **Resultados:** Houve a seleção de profissionais para compor a equipe de melhoria. A enfermeira coordenadora de enfermagem ficou responsável pela liderança e execução do projeto. Liderar projetos de melhoria exige do enfermeiro competências e habilidades para o alcance de resultados positivos. **Conclusão:** A liderança do enfermeiro faz parte do escopo da prática avançada de enfermagem no ambiente de terapia intensiva, colaborando para modificação de indicadores assistenciais.

Descritores: Melhoria de Qualidade; Prática Avançada de Enfermagem; Controle de Infecções; Unidades de Terapia Intensiva; Liderança.

INTRODUCTION

The advanced practice nurse (APN) is a professional qualified to meet the needs and demands of the population, such as emergency care, critical care, maternal health, child health, and adult and geriatric health⁽¹⁻²⁾.

Within the APN scope of practice, the nurse's participation in education/teaching, research, management, and leadership, in addition to clinical practice with a differentiated, autonomous approach, stands out⁽²⁾.

Among the competencies of the APN, leadership stands out as a complex and challenging process that uses tools and strategies to improve patient outcomes as well as personal and organizational outcomes⁽³⁾. The complexity of health care, especially in intensive care units (ICUs), requires the presence of leaders who can manage the unpredictability and ambiguity inherent in the broad and complex care provided, especially by nursing⁽⁴⁻⁵⁾.

ICUs are defined by the Brazilian National Health Regulatory Agency (ANVISA) as critical areas dedicated to the hospitalization of critically ill patients who require specialized and continuous professional care, using specific equipment and technologies for diagnosis, monitoring, and pharmacological and nonpharmacological therapy⁽⁶⁾. Patients cared for in the ICU may require a high number of invasive procedures, increasing the risk of developing health care-associated infections (HAIs), which account for an average of 20% of all infections diagnosed in hospitalized patients⁽⁷⁾.

In this sense, the Ministry of Health, through the Program for Institutional Development Support of the Unified Health System (PROADI-SUS), promoted a collaborative project with SUS hospitals called "Improving Patient Safety on a Large Scale in Brazil".

This project aims to reduce the rate of HAIs. The methodology used in this project is the "improvement model" derived from the Institute for Healthcare Improvement (IHI)⁽⁸⁾.

Quality improvement projects are actions based on systematic methods to improve processes through changes that result in improved health indicators. They have been developed in recent years with the aim of improving and developing health care with quality⁽⁹⁾.

The nurse improvement leader is responsible for working with the nursing team to plan and implement activities to achieve the proposed goals. In addition, they regularly analyze data from care indicators with hospital management and implement and monitor the engagement and motivation of the team involved.

The role of the nurse in leading quality improvement programs is related to advanced nursing practice because it highlights the competencies and skills developed by this professional to lead interventions that will bring about change in the health indicators of a group/population⁽³⁻⁴⁾.

This study aimed to report on nurses' experiences in leading and implementing a project to implement improvements aimed at reducing HAIs in an ICU.

METHOD

This is a descriptive study with a qualitative approach of the experience report type on the leadership and implementation of an improvement project from the perspective of advanced nursing practice by nurses in the ICU at a university hospital in Rio de Janeiro.

The ICU where the project was developed is part of a large university hospital, located in the state of Rio de Janeiro, corresponding to Metropolitan Region II. It is an ICU with a physical capacity of 26 beds, currently operating with ten beds of clinical-surgical profile.

The subjects of the reported experience are a nursing coordinator from this ICU who served as the leader of the improvement implementation project, and two routine nurses who participated in the improvement team and assisted the leadership in implementing the interventions.

To reach such goals, the ICU participated in a collaborative project through the Program for Institutional Development Support of the Unified Health System (PROADI-SUS). The project began in August 2021 and ended in October 2023, and it is the implementation period of the improvements highlighted in this study.

The decision was made to structure the lived experience by summarizing this report in two phases: "The Improvement Project" and "The Nurse's Experience in Leading the Improvement Project", with the latter divided into three themes to facilitate the reader's understanding. As this report is not research involving human subjects, it did not require approval from the research ethics committee.

RESULTS AND DISCUSSION

The improvement project

To carry out the improvement project, the hospital management selected a core team that initially consisted of a sponsor, a person from senior management responsible for ensuring project execution and institutional support; an architect, a member of the ICU coordination or leadership who served as a liaison between the ICU team and senior management; a leader, a healthcare professional from the ICU who was responsible for implementation, team engagement, and operationalization of change actions; a member of the hospital infection control committee (CCIH) who served as an analyst of care indicators within the team; and a professional to serve as an organizer with administrative functions.

In the ICU, the nurses who participated in the core team were the nurse coordinator, who served as the project leader, and the staff nurses from the ICU who participated in the improvement team. In addition, the analyst was a nurse from the hospital's CCIH.

In addition, the core team received technical and methodological support from a team from a hospital participating in PROADI SUS. To implement the improvements, the methodology proposed by the improvement model developed by the Institute for Healthcare Improvement (IHI) was used.

The improvement model is a method that involves three steps: defining the goal, establishing indicators (to determine if improvement is occurring according to the goal), and testing new ideas to change the process⁽¹⁰⁾.

The method proposes the use of the PDSA tool (Plan, Do, Study, Act) as a framework for experimentation and learning, starting a cycle with planning and ending with the action that corresponds to the knowledge acquired in the previous stages: Do and Study⁽¹⁰⁾.

To implement the project on the unit, the project leader selected professionals from the multidisciplinary team, including physicians, nurses, nursing technicians, dietitians, physical therapists, and pharmacists, to form the improvement team.

Staff nurses on the improvement team worked with the nursing team to conduct educational activities, monitor processes related to adherence to HAI prevention bundles, and test changes using the PDSA method.

Each day, they checked the bedside to ensure that the team was performing interventions according to institutional protocols and routines, and they were also responsible for leading the safety huddle, and brief meetings with the multidisciplinary team to discuss patient safety issues.

During project implementation, the team participated in learning sessions to familiarize and deepen their understanding of the proposed methodology for implementing improvements as well as data analysis and updates on bundles of changes for HAI prevention according to AN-VISA guidelines.

In the health facility, the improvement team met weekly for about an hour to develop activities related to the improvement project and discuss results, process indicators, and strategies for implementing improvements in the unit.

As part of the project, the leader, together with the analyst, prepared a monthly report with the evaluation of the results obtained for each process indicator as well as the account of the main activities and changes tested, listing the difficulties and celebrations experienced during the month.

The nurse's experience in leading the improvement project

Nurse leader's challenges in developing competencies and skills for implementing the improvement project

Before the project began, none of the team members were familiar with the proposed methodology for implementing improvements. Thus, the first challenge was to learn a new methodology that differed from traditional ways of implementing change.

With each new learning session, new knowledge was introduced and applied to the unit, allowing the team to structure itself to achieve its goals with guidance from the reference hospital's team of improvement project specialists.

During project implementation, monthly data on the incidence rates of each HAI (primary bloodstream infection, catheter-associated urinary tract infection, and ventilator-associated pneumonia) and compliance with process indicators related to the prevention of each type of infection were plotted on a graph and interpreted.

Based on the monthly monitoring and analysis of HAI incidence rates, invasive device utilization rates, and process indicator compliance rates, the results determined the actual presence of improvement, deterioration, or trend, as recommended by the improvement model.

The analysis of indicators allows us to understand the local reality, allocate resources, and develop strategies to minimize the occurrence of these incidents, thereby making care safer⁽¹¹⁾. After consolidating these results, the team used the PDSA tool to list the priorities of the bundle of actions to prevent each HAI, the actions in which resources would be invested, and the team members responsible for implementing these actions and testing the changes.

Each action taken was monitored by the leader, and the results obtained were discussed among the improvement team for adjustments and adaptations to ensure the viability of the process improvements implemented.

The first way to engage care teams is to make them part of the process by sharing the results of the indicators being studied. This act is incredibly important in driving high-performing teams to adhere to best practices.

As a result, the leadership team engaged in active discussions with the care team to align the hospital's goals, vision, and objectives with the

improvement project, promote transparency of information, and make data available to all professionals.

To achieve this, the results were regularly communicated to the care team and hospital management, and HAI surveillance data were posted on information boards in the ICU, according to the guidelines of the Collegiate Board Resolution RDC No. 07/2010—ANVISA, which establishes good practices for the operation of ICUs⁽⁶⁾.

Achieving positive results as a leader depends on the ability to communicate effectively. During the implementation of the improvement project, leadership must communicate various scenarios to ensure execution and feasibility, requiring coordination with senior management, support areas, the patient safety core, continuing education, the improvement team, the care team, patients, families, and consultants from the referral hospital.

An integrative literature review that identified tools to assess essential leadership competencies in nursing indicated that communication was one of the most important competencies found and is essential for nurses in the leadership process⁽¹²⁾.

Developing effective communication skills is essential to promote change implementation strategies, facilitate the reporting of relevant data and information, and establish feedback mechanisms between leadership and the team.

Therefore, effective communication helps to improve care, achieve positive outcomes, and contribute to team satisfaction and organizational effectiveness⁽¹³⁾.

Improvement actions to reduce HAIs in the ICU

Many ideas for change come from those on the front lines of care, the professionals who provide direct care at the bedside. Therefore, HAI prevention interventions in the ICU were implemented as the improvement team came together. Actions were outlined, tested, and then implemented in PDSA cycles.

PDSA cycles are widely used for quality improvement in most health care systems. Their essence lies in structuring the improvement process according to the scientific method of experimental learning and requires a systematic approach with sequential interactions in a four-step cycle⁽¹⁴⁻¹⁵⁾.

In carrying out a PDSA cycle, there is a phase of planning to test the change with predictions of the expected outcome (plan), carrying out the test (do), observing, analyzing, and learning from the test (study), and determining changes, if any, for the next cycle (act)⁽¹⁵⁾.

Through the PDSA cycle, changes could be quickly tested on a small scale in the ICU, observed, adjusted if necessary, and then repeatedly tested before implementation on a larger scale⁽¹⁴⁾.

Actions implemented in the ICU by the improvement team

In-service training mediated by using realistic simulation

Implementation of a tool that uses cards with visual support to audit processes - Kamishibai Board

Implementing the Safety Huddle

Bedside marking at 30°

Installation of volume and distance flags for the indwelling bladder catheter

Implementing the use of the long field in sterile procedures

Readjustment of the central venous catheter insertion safety checklist

Drawing up and implementing the safety checklist for the insertion of indwelling bladder catheters

Implementation of the oral hygiene kit

Use of the "affinity diagram" tool

Establishing routines for measuring orotracheal tube/tracheostomy tube balloon pressure in patients on mechanical ventilation

Implementation of the deep puncture kit

Figure 1- Actions implemented by the improvement team. Niterói, RJ, Brazil, 2023

The challenge of sustaining improvements

Sustaining improvements is a challenge for teams working on implementation projects. Good results must be maintained, and this requires a great deal of attention from the project manager. Throughout the development of the project, positive results were achieved, leading to a significant reduction in HAI incidence rates. However, it was observed that as we reduced the direct interventions for the indicator where improvement occurred, there was an increase in the previously reduced rates.

Therefore, the need to review processes and conduct educational activities is essential to maintain positive results in improvement projects, working on the engagement and motivation of the team to sustain long-term results. Studies already indicate the difficulty of sustaining improvements and the greater need to address implementation strategies with an evaluation of success and failure⁽⁹⁾.

Limitations of the study

This report presents the lived experience of nurses in leading and implementing an improvement project to reduce healthcare-associated infections in an intensive care unit. It also offers reflections and a working model that can be adapted to different contexts and realities. However, it was not possible to fully demonstrate the results of the actions taken and the improvement implementation project, as this is a report based strictly on the experiences of the authors involved in the leadership journey, their learnings, experiences, and challenges, from the perspectives and meanings attributed by those who experienced the phenomenon.

Contributions to nursing

Leadership is an important attribute for the development of advanced nursing practices. Through the establishment of strategies, innovation, team management, analysis of indicators, use of management tools, and use of educational technologies, it is possible to promote important actions with a positive impact on health indicators.

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Along the way, the lessons learned shape the leadership model practiced, providing the right conditions for the work team to carry out their functions in an environment of cooperation, with a focus on a culture of quality and safety. The advanced practice nurse is highly skilled at solving complex problems, facilitating multiprofessional action, establishing effective communication, and developing visible, engaged, and involved leadership.

CONCLUSION

Although there is no regulation of advanced nursing practice in Brazil, it can be observed in various scenarios throughout the country that nurses have acted by the scope of competencies and skills that comprise APN practice.

Leadership is one of the attributes of advanced nursing practice that contributes to the achievement of outcomes that have a positive impact on health indicators. In the ICU setting, nurses play a prominent leadership role because of their communication skills, innovation, and ability to work with multiprofessional teams.

Leading improvement projects is challenging, but nurses are qualified professionals to plan and implement interventions, engage teams, monitor indicators, and evaluate results with decision-making.

We emphasize that the nurse leader, in their role, performs advanced nursing practices as this professional requires a set of competencies and skills necessary for effective and positive leadership.

CONFLICT OF INTERESTS

The authors have declared that there is no conflict of interests.

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