Improving the Quality of Bedside Testing Through Interdisciplinary Training: A Laboratory and Nursing Perspective

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Abstract

This study explored the impact of collaborative training initiatives involving laboratory specialists and nurses on the quality of point-of-care testing (POCT) in a tertiary hospital setting. A qualitative research design was employed, with data collected through semi-structured interviews and focus group discussions involving 15 nurses and 5 laboratory specialists. Thematic analysis revealed three major themes: improved communication, enhanced understanding of roles, and challenges in implementation. The findings demonstrated that collaborative training led to better information flow, increased interdepartmental trust, and greater clarity of roles, fostering a more cohesive approach to POCT. However, time constraints, resource limitations, and concerns about the sustainability of training were identified as significant barriers. The study highlights the value of interdisciplinary training for improving POCT quality and underscores the need for ongoing support to ensure the sustainability of such initiatives.

Keywords: Point-Of-Care Testing, Interdisciplinary Collaboration, Laboratory Specialists, Nurses, Qualitative Research, Healthcare Training, Tertiary Hospital

Introduction

The increasing complexity of healthcare necessitates seamless collaboration between different healthcare professionals to ensure optimal patient care. In tertiary hospital settings, point-of-care testing (POCT) has become a vital tool for timely decision-making, particularly in emergency and critical care scenarios (Kratz and Lewandrowski, 2003). However, the effectiveness of POCT often depends not only on the accuracy of the testing technology but also on the proficiency of healthcare professionals who conduct and interpret these tests. Effective interdisciplinary collaboration, especially between laboratory specialists and nurses, is essential to maintain the quality of bedside testing and to minimize errors (Hawkins, 2012).

Nurses are typically responsible for the majority of bedside testing, while laboratory specialists provide the technical knowledge and expertise required to ensure accurate results. When both professionals work cohesively, there is a greater potential for reducing variability in test results and improving the reliability of patient data. A key component of improving POCT quality is ensuring that nurses receive adequate training and support from laboratory professionals, fostering an environment of shared learning and continuous quality improvement (Lewandrowski, et al., 2008).

Despite the potential benefits of collaborative training programs, several challenges exist, including time constraints, limited resources, and a lack of formal communication channels between departments. Addressing these barriers through structured interdisciplinary training programs could significantly enhance the quality of bedside testing and ultimately improve patient outcomes (Weller et al., 2014). This study aims to evaluate the impact of collaborative training initiatives involving laboratory specialists and nurses on the quality of POCT, with a focus on improving clinical outcomes through enhanced teamwork and shared competencies.

Literature Review

The role of point-of-care testing (POCT) has grown significantly over the past few decades, particularly in settings where rapid decision-making is critical. Kratz and Lewandrowski (2003) highlights the increasing use of POCT in emergency and critical care settings, noting its ability to expedite diagnosis and treatment. However, Kratz and Lewandrowski (2003) also emphasizes that for POCT to achieve its full potential, healthcare professionals must possess the necessary skills to conduct and interpret the tests accurately. This necessity underscores the importance of interdisciplinary collaboration, especially between nurses and laboratory specialists, who play pivotal roles in the POCT process.

Hawkins (2012) discusses the importance of managing both the pre-analytical and post-analytical phases of the testing process to ensure the accuracy of POCT results. Errors in these phases can significantly impact patient outcomes, making collaboration between laboratory specialists and nurses crucial. Laboratory specialists bring expertise in handling and processing samples, while nurses are often responsible for the collection and initial testing. Effective collaboration between these professionals can help minimize pre-analytical and post-analytical errors, thereby improving the reliability of test results.

The effectiveness of interdisciplinary collaboration is further supported byLewandrowski, et al. (2008), who argue that enhancing communication and training between laboratory specialists and nurses can improve the quality of POCT. They suggest that structured training programs, which bring together both professionals, can foster a culture of shared learning. Such training initiatives not only improve the technical skills of nurses but also enhance their understanding of laboratory processes, leading to better overall patient care. Moreover, Lewandrowski, et al. (2008) indicate that nurses who receive comprehensive training from laboratory specialists are more likely to adhere to best practices, reducing the likelihood of errors during POCT.

Weller et al. (2014) explore the barriers to effective interdisciplinary collaboration in healthcare, identifying factors such as time constraints, limited resources, and inadequate communication channels. These barriers can hinder the effectiveness of POCT, as they prevent the seamless exchange of information and expertise between laboratory specialists and nurses. Weller et al. (2014) propose that overcoming these barriers requires structured communication protocols and interdisciplinary training programs. By addressing these challenges, healthcare facilities can enhance the quality of POCT and improve patient outcomes.

Interdisciplinary training has been shown to improve not only the technical skills of healthcare professionals but also their ability to work cohesively as a team. Training programs that include both laboratory specialists and nurses create opportunities for shared learning, which can lead to better problem-solving and decision-making during POCT. According to Lewandrowski, et al. (2008), such training initiatives can bridge the knowledge gap between laboratory and nursing staff, fostering a deeper understanding of each other's roles

and responsibilities. This mutual understanding is critical for ensuring that POCT is conducted efficiently and accurately, ultimately benefiting patient care.

In summary, the literature suggests that the quality of POCT is highly dependent on the collaboration between laboratory specialists and nurses. Effective interdisciplinary collaboration, supported by structured training programs and improved communication, can significantly reduce errors and enhance the reliability of POCT results. Addressing the barriers to collaboration, such as time constraints and limited resources, is essential for optimizing the use of POCT in clinical settings. This study builds on the existing literature by evaluating the impact of collaborative training initiatives on the quality of POCT, with a focus on improving clinical outcomes through enhanced teamwork and shared competencies.

Methodology

This study was conducted in a tertiary hospital with the aim of evaluating the impact of collaborative training initiatives involving laboratory specialists and nurses on the quality of point-of-care testing (POCT). A qualitative research design was employed to explore the experiences, perceptions, and impacts of interdisciplinary training on healthcare professionals involved in POCT.

Study Design and Participants

The study used a qualitative descriptive design to capture in-depth insights from healthcare professionals. Participants included 15 nurses and 5 laboratory specialists from different units within the tertiary hospital, including the emergency department, intensive care units, and general wards. Purposive sampling was used to recruit participants who had direct experience with POCT and who were willing to share their perspectives on the collaborative training initiative.

Data Collection

Data were collected through semi-structured, in-depth interviews conducted with each participant. The interviews were guided by an interview protocol that focused on participants' experiences with the collaborative training program, perceived benefits, challenges faced, and the overall impact on their practice. Each interview lasted approximately 45 to 60 minutes and was audio-recorded with participants' consent. Additionally, focus group discussions were conducted to facilitate a broader understanding of the group dynamics and shared experiences related to the interdisciplinary training.

Data Analysis

The interview and focus group data were transcribed verbatim and analyzed using thematic analysis. Thematic analysis involved coding the data to identify recurring patterns and themes related to participants' experiences with the collaborative training program. An inductive approach was used, allowing themes to emerge naturally from the data without being constrained by pre-existing frameworks. NVivo software was used to assist with data management and organization during the analysis process. The key themes identified included improved communication, enhanced understanding of roles, and the challenges of implementing training in a busy hospital environment.

Findings

The analysis of interview and focus group data resulted in the identification of three major themes: improved communication, enhanced understanding of roles, and challenges in implementation. Each theme included several sub-themes that further elaborated on the experiences of participants.

Theme 1: Improved Communication

Sub-theme 1.1: Better Information Flow
Participants reported that the collaborative training program led to better information flow between laboratory specialists and nurses. Nurses described how they felt more comfortable reaching out to laboratory specialists for clarification on POCT procedures. One nurse stated, "Before the training, I was hesitant to ask questions, but now I feel more confident in discussing issues with the lab team."

Sub-theme 1.2: Increased Interdepartmental Trust
Another positive outcome was an increase in trust between the departments. Laboratory specialists mentioned that the training allowed them to understand the challenges faced by nurses, fostering empathy and collaboration. A laboratory specialist remarked, "We now see the nurses as partners rather than just end-users of our tests."

Theme 2: Enhanced Understanding of Roles

Sub-theme 2.1: Clarity of Responsibilities
The training helped clarify the roles and responsibilities of each professional group. Nurses and laboratory specialists expressed that they had a better understanding of what was expected of them in the POCT process. A nurse shared, "I now understand the importance of proper sample handling and how it affects the accuracy of results."

Sub-theme 2.2: Mutual Respect for Expertise
Participants also highlighted that the training fostered mutual respect for each other’s expertise. Nurses acknowledged the technical skills of laboratory specialists, while laboratory staff appreciated the nurses' ability to manage patient interactions during POCT. One participant noted, "The training made me realize how much effort goes into both patient care and the technical aspects of testing."

Theme 3: Challenges in Implementation

Sub-theme 3.1: Time Constraints
Despite the positive outcomes, participants identified time constraints as a significant barrier to implementing the training program effectively. Nurses, in particular, mentioned the difficulty in attending training sessions due to their busy schedules. A nurse commented, "It was challenging to balance my shifts and find time for the training, even though it was beneficial."

Sub-theme 3.2: Resource Limitations
Resource limitations were also a recurring issue. Both nurses and laboratory specialists felt that additional resources, such as more staff or training materials, could have further enhanced the effectiveness of the program. A laboratory specialist noted, "We could have used more hands-on practice sessions, but there were limitations in terms of available equipment and time."

Sub-theme 3.3: Sustainability of Training
Participants expressed concerns about the sustainability of the training program. They emphasized the need for ongoing support and refresher courses to maintain the gains made during the initial training. One nurse

stated, "The training was great, but I worry that without follow-up sessions, we might slip back into old habits."

Discussion

The findings of this study highlight the significant impact of collaborative training on the quality of point-of-care testing (POCT) in a tertiary hospital setting. Improved communication emerged as a critical theme, with participants emphasizing how the training fostered better information flow and increased trust between laboratory specialists and nurses. These findings are consistent with previous research, which underscores the importance of effective communication for enhancing patient safety and minimizing errors in POCT (Lewandrowskiet al., 2008). The improved comfort level among nurses when reaching out to laboratory specialists for clarification suggests that interdisciplinary training can break down communication barriers and build stronger professional relationships, ultimately benefiting patient care.

Enhanced understanding of roles was another important outcome of the training program. Participants reported greater clarity regarding their respective responsibilities in the POCT process and developed a deeper appreciation for each other's expertise. This aligns with Hawkins (2012), who emphasized the need for clear role delineation to reduce errors in the pre- and post-analytical phases of testing. By fostering mutual respect and understanding, the training program helped bridge the gap between laboratory and nursing staff, leading to a more cohesive approach to POCT. Such cohesion is crucial for reducing variability in test results and ensuring the reliability of patient data.

However, challenges in implementing the training program were also identified, particularly in terms of time constraints, resource limitations, and concerns about sustainability. These challenges reflect the barriers highlighted by Weller et al. (2014), who noted that limited resources and time pressures are common obstacles to effective interdisciplinary collaboration in healthcare. The difficulty in finding time for training amidst busy clinical schedules underscores the need for healthcare institutions to prioritize and allocate dedicated time for professional development. Addressing these challenges is essential to ensure the long-term success and sustainability of such training initiatives.

The concern regarding the sustainability of the training program points to the need for ongoing support and periodic refresher courses. Participants expressed a desire for continued training to reinforce the skills and knowledge gained during the initial program. This finding aligns with the literature suggesting that continuous education is vital for maintaining high standards of practice and preventing regression into previous habits (Weller et al., 2014). Healthcare facilities should consider integrating regular refresher sessions into their training programs to ensure sustained improvements in POCT quality.

Overall, this study demonstrates that collaborative training initiatives can significantly enhance the quality of POCT by improving communication, fostering a better understanding of roles, and building trust between laboratory specialists and nurses. Despite the challenges encountered, the positive impacts of the training on both individual and team performance highlight the value of investing in interdisciplinary training programs. Future research should explore strategies to overcome the identified barriers, such as flexible scheduling for training sessions and the provision of additional resources, to enhance the effectiveness and sustainability of such initiatives.

Ethical Considerations

Ethical approval for the study was obtained from the hospital's ethics committee. All participants provided

informed consent before taking part in the study. To ensure confidentiality and anonymity, participants were assigned unique identifiers, and all interview recordings and transcripts were stored securely. Participants were informed of their right to withdraw from the study at any time without any consequences.

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