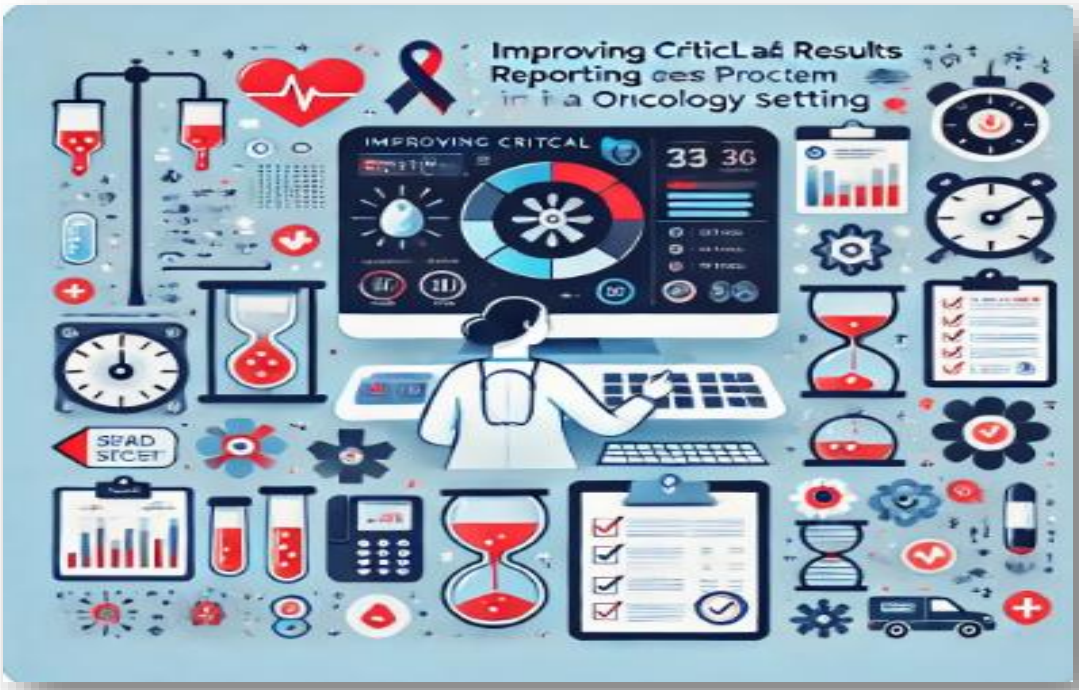
Chapter 4: Improving Critical Lab Results Reporting Process in an Oncology Setting



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Summary

This project aimed to improve the process of reporting critical lab results in an oncology setting at the Sultan Qaboos Comprehensive Cancer Care and Research Centre (SQCCCRC). Using a Plan-Do-Check-Act (PDCA) cycle, the initiative focused on overcoming challenges such as difficulty locating patients, identifying ordering physicians, reaching physicians in a timely manner, and ensuring adequate staff training. Key interventions included technology updates for real-time patient location and physician information, call center enhancements, and comprehensive staff training. The PDCA cycle resulted in a significant reduction in the rate of unsuccessful critical results reporting from 1.26/10000 in the first quarter of 2024 to 0.26 in the second quarter, demonstrating improved compliance with target rates and enhanced patient safety through more efficient communication of critical lab results.

Key Points

Key challenges addressed included difficulties locating patients, identifying ordering physicians, timely communication, and adequate staff training.

Interventions involved technology updates for real-time patient and physician information, call center enhancements, and comprehensive staff training.

The PDCA cycle led to a significant reduction in unsuccessful critical results reporting from 1.26 to 0.26, demonstrating improved compliance and patient safety.

The project's success underscores the value of a systematic approach to process improvement in healthcare, particularly in high-risk areas like oncology.

Project Charter

Project Charter	Details
Project Title	Improving Critical Lab Results Reporting in an Oncology Setting at Sultan Qaboos Comprehensive Cancer Care and Research Centre (SQCCCRC)
Project Sponsor	Sultan Qaboos Comprehensive Cancer Care and Research Centre (SQCCCRC), Muscat, Oman
Project Start Date	Q1 2024
Project End Date	Q2 2024
Project Purpose	To enhance the process of reporting critical lab results in an oncology setting by reducing delays and minimizing errors, thereby improving patient safety and compliance with JCI standards through a Plan-Do-Check-Act (PDCA) cycle.
Problem Statement	Despite existing policies, the oncology center faces challenges in timely reporting of critical lab results due to difficulties in locating patients, identifying ordering physicians, reaching physicians promptly, and ensuring consistent staff training. These issues lead to delays in communication, potential harm to patients, and non-compliance with JCI standards. A systematic approach is needed to streamline the reporting process and enhance patient safety.
Project Goals and Objectives	1. Reduce the rate of unsuccessful critical results reporting from 1.26/10000 samples to below 0.50/10000 by the end of Q2 2024. 2. Implement technology updates to enable real-time tracking of patient location and physician information. 3. Enhance call center operations to support the reporting process. 4. Conduct comprehensive staff training to ensure familiarity with updated procedures and technology.
Scope	Includes all processes related to reporting critical lab results in the oncology center, such as patient location tracking, physician identification, communication pathways, and staff training. Excludes non-oncology departments and non-critical lab result reporting processes.
Key Stakeholders	Oncologists, Nurses, Laboratory Technicians, Quality Management Experts, IT Specialists, Call Center Staff
Resources Required	Budget for technology upgrades (real-time tracking systems, on-call physician dashboard), staff training sessions, enhancement of call center operations; personnel from various departments; data analysis tools.
Risks and Assumptions	**Risks:** Resistance to change, potential technology implementation delays, insufficient resources. **Assumptions:** Full support from management, availability of necessary resources, engagement of all stakeholders, and continued monitoring and evaluation.
Success Criteria	Achieving the targeted reduction in the rate of unsuccessful critical results reporting, confirmed by data analysis and compliance with JCI standards; improved patient safety and communication efficiency as demonstrated by feedback and audits.

Introduction

In oncology, the prompt reporting of critical lab results is a cornerstone of patient safety and effective clinical management. Critical lab results are defined as values that deviate so significantly from normal ranges that they indicate potentially life-threatening conditions requiring immediate medical intervention. Timely communication of these results to the relevant healthcare providers is essential to initiate swift corrective actions, which can significantly impact patient outcomes. Given the high-stakes environment of oncology, where patients often require urgent and precise treatments, delays in reporting can have severe consequences, including deterioration in the patient's condition and increased mortality risks (Pa Patient Saf Advis, 2009; Joint Commission International, 2019).

The Joint Commission International (JCI) sets stringent standards for hospitals worldwide, requiring them to define critical test results, establish formal processes for reporting these results, ensure timely communication to the appropriate healthcare providers, and monitor compliance with these processes. Failure to meet these standards can result in delays in patient care, potential harm, and non-compliance with regulatory requirements. Effective management of critical test results, therefore, is a key indicator of a hospital's commitment to patient safety and quality of care (Pa Patient Saf Advis, 2009; Joint Commission International, 2019).

In the oncology setting, the urgency is heightened by the nature of the conditions being treated. For instance, a critically low white blood cell count in a chemotherapy patient may necessitate immediate intervention to prevent life-threatening infections. The delay in communicating such results can lead to adverse outcomes, increased hospitalization, or even mortality. Therefore,

robust systems and processes must be in place to ensure that critical lab results are communicated promptly and accurately to the appropriate clinical teams (Zhou et al., 2022).

SQCCCRC has implemented a strict Result Read-Back Policy to comply with JCI standards. This policy mandates that all critical results must be reported within five minutes of identification, the receiving provider must read back the result for verification, and all communications must be thoroughly documented. Despite these measures, the center has faced several challenges, including difficulties in locating patients, identifying the ordering physician, and ensuring timely communication. These challenges indicate the need for further improvements to ensure compliance with JCI standards and enhance patient safety.

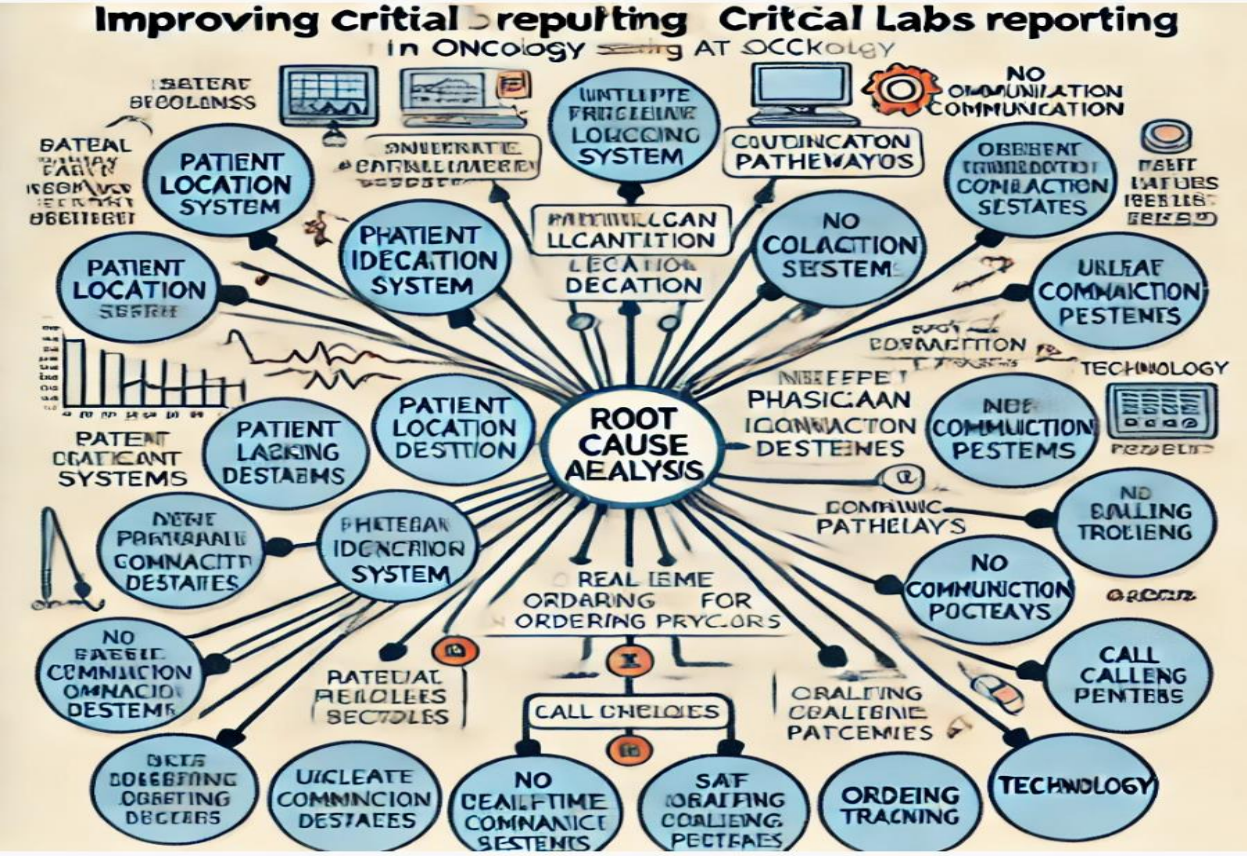
To address these gaps, a systematic approach was required to streamline the critical results reporting process. This project utilized a Plan-Do-Check-Act (PDCA) cycle to implement targeted interventions aimed at improving communication pathways, enhancing staff training, and updating technology to support real-time tracking and reporting. The initiative aimed to reduce delays in reporting, minimize errors and improve overall compliance with established standards, ultimately contributing to better patient outcomes in the oncology setting.

Problem Statement

Despite stringent policies and procedures, SQCCCRC faced significant challenges in the timely reporting of critical lab results. One major issue was the difficulty in locating patients quickly, especially in a complex hospital environment where patients frequently move between different wards, departments, or diagnostic areas. This lack of real-time location data often delays the communication of critical results to the appropriate healthcare providers, putting patients at risk of adverse outcomes.

Additionally, identifying and reaching the ordering physician proved challenging, particularly during shift changes or when physicians were engaged in other urgent tasks. The absence of comprehensive and up-to-date physician contact information further exacerbated this problem, leading to delays in reporting critical results. Furthermore, gaps in staff training and inconsistent adherence to the critical results reporting policy resulted in variability in how results were communicated and documented, increasing the risk of errors and non-compliance with JCI standards. These challenges underscored the need for a more efficient, streamlined process to ensure that critical results are reported promptly and accurately. A systematic approach was required to address these gaps and enhance patient safety by minimizing delays and ensuring timely communication of critical lab results.

Methods



To address the challenges in the critical results reporting process, a Plan-Do-Check-Act (PDCA) cycle was implemented, focusing on several key areas of improvement:

Plan Phase:

During the planning phase, a comprehensive review of the current process for reporting critical results was conducted. This involved mapping out the existing workflow, identifying bottlenecks and areas of inefficiency, and gathering input from staff across various departments. The primary issues identified were delays in locating patients, difficulties in reaching the ordering physicians,

and gaps in staff training. Based on these findings, a set of targeted interventions was developed to address these issues.

Do Phase:

The "Do" phase involved the implementation of the planned interventions. Key actions included updating the hospital information system to include real-time tracking of patient locations, enhancing the system to provide detailed contact information for ordering physicians, and introducing a new dashboard for on-call physicians to access critical results promptly. Additionally, the role of the call center was expanded to assist in locating physicians and ensuring immediate communication of results. Comprehensive training sessions were also conducted for all relevant staff to ensure familiarity with the new systems and protocols.

Table 1: ***Interventions***

	Interventions
Technology Updates	Integration of the patient current location and detailed physician information into the system, along with updates to the on-call physician dashboard.
Call Center Involvement	Enhancement of call center operations to support the reporting process.
Staff Training and Education	Comprehensive training sessions to ensure staff are well-versed in the updated procedures and technology

Check Phase:

The effectiveness of the interventions was monitored through continuous data collection and analysis. Key performance indicators, such as the rate of unsuccessful reporting of critical results within the target timeframe, were tracked to assess the impact of the changes. Regular audits were conducted to evaluate compliance with the updated procedures, and feedback was collected from staff to identify any ongoing challenges or areas for further improvement.

Act Phase:

Based on the findings from the "Check" phase, adjustments were made to further refine the process. Additional training sessions were organized to address any identified knowledge gaps, and the technology systems were fine-tuned to improve usability and functionality. The call center's role was also further optimized to enhance its support in the critical results reporting process. These continuous improvements aimed to ensure that the gains achieved were sustained over time.

Results

The PDCA intervention led to substantial improvements in the reporting of critical lab results. In the first quarter of 2024, the rate of unsuccessful reporting was 1.26/1000 blood samples, significantly above the desired threshold. After implementing the PDCA cycle, this rate decreased to 0.26 /10000 blood samples by the second quarter of 2024, demonstrating a significant improvement in compliance with the target rate of 0.50 /10000 blood samples. This reduction indicates enhanced

efficiency in the reporting process, attributable to the technology updates, expanded call center involvement, and comprehensive staff training.

The improvements were reflected in the reduced delays in communicating critical results, increased accuracy of information dissemination, and overall compliance with JCI standards. The data also indicated that the updated technology and enhanced call center support played a crucial role in minimizing communication breakdowns and ensuring the timely delivery of critical results to healthcare providers.

Discussion

The successful implementation of the PDCA cycle demonstrates the value of a systematic approach to process improvement in healthcare settings, particularly in high-risk areas such as oncology. The significant reduction in the rate of unsuccessful reporting of critical results highlights the effectiveness of the interventions in streamlining communication and enhancing patient safety (Saxena et al., 2004; Christian et al., 2021).

One of the key factors contributing to the project's success was the integration of technology to support real-time tracking of patient locations and provide detailed physician information. These enhancements reduced delays in locating patients and reaching the appropriate healthcare providers, thereby ensuring timely communication of critical results. The updated on-call physician dashboard also facilitated prompt access to critical information, even when physicians were off-site, further supporting rapid clinical decision-making (Haroun et al., 2021; McPherson & Pincus, 2021).

The expanded role of the call center proved to be another critical element in the success of the initiative. By centralizing communication and leveraging trained call center staff to assist in locating physicians and managing the reporting process, the center was able to reduce delays and improve overall efficiency. This approach also freed up clinical staff to focus on direct patient care, contributing to better utilization of resources (Christian et al., 2021; Cadamuro et al., 2017).

Staff training and education were essential components of the intervention. By ensuring that all relevant staff were familiar with the updated procedures and technology, the project minimized errors and inconsistencies in the reporting process. The training sessions also helped to reinforce the importance of timely communication of critical results and adherence to JCI standards, contributing to the observed improvements in compliance (de Mel et al., 2017; Bolton-Maggs et al., 2015).

Overall, the project underscores the importance of continuous process improvement in healthcare settings. By systematically identifying and addressing gaps in the reporting process, the PDCA cycle enabled the center to enhance its critical results management, improving patient safety and compliance with international standards (Plebani, 2010; Raab & Grzybicki, 2010).

Conclusion

The PDCA intervention successfully addressed the key challenges in the critical lab results reporting process at the SQCCCRC oncology center. The combination of technology enhancements, expanded call center support, and comprehensive staff training resulted in significant improvements in the timely communication of critical results, aligning with JCI standards and enhancing patient safety. This project demonstrates the value of a systematic approach to process improvement in healthcare and provides a model for other institutions aiming to optimize their critical results reporting processes.

Continued monitoring and reassessment will be essential to sustain these improvements and ensure ongoing compliance with best practices. Regular audits, staff training, and technology updates should be integral parts of the strategy to maintain high standards of care and patient safety.

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