

Optimizing Surgical Care: Introducing the role of the Perioperative Acute Care Team Nurse Practitioner

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ABSTRACT

Background: In the realm of perioperative medicine, the evolving healthcare landscape necessitates novel strategies for enhancing patient outcomes. The PeriOperative Acute Care Team (PROACT) initiative represents a transformative approach to comprehensive perioperative care delivery. Led by General Internal Medicine physicians and Nurse Practitioners (NPs), PROACT addresses the imperative to identify and mitigate perioperative risks among high-risk patients through consultative services.

Methods: Evaluation of PROACT's efficacy reveals a notable surge in patient referrals and underscores the pivotal role of NPs in optimizing perioperative care delivery.

Results: Within a multidisciplinary framework, PROACT NPs conduct thorough pre-operative assessments, collaborate with surgical teams, and provide post-operative care, bolstering patient outcomes and refining perioperative processes. The proactive approach of PROACT, supported by advanced clinical training, not only enhances patient outcomes but also enhances overall quality of care, exemplifying innovation in perioperative medicine.

Conclusion: Opportunities for expansion lie in augmenting NP involvement in pre-operative and post-discharge care and extending the PROACT model to diverse healthcare settings. Through collaboration and leveraging NP expertise, initiatives like PROACT embody excellence in optimizing perioperative patient outcomes.

Key Words: Optimization, Perioperative, Nurse Practitioner

Background

The evolving landscape of healthcare demands innovative approaches to optimize patient outcomes, particularly in perioperative medicine. Perioperative care encompasses the comprehensive management of patients before, during, and after surgical procedures, aiming to enhance surgical outcomes and mitigate

associated risks and complications^{1,2}. This comprehensive approach to care recognizes that the perioperative period extends beyond the operating room and intraoperative management, encompassing the pre-operative assessment and optimization phase, as well as post-operative recovery and rehabilitation. In response to this imperative, the PeriOperative Acute Care Team (PROACT) initiative emerged, embodying a

paradigm shift towards a multidisciplinary approach to perioperative medicine. Traditionally, perioperative care has focused predominantly on the surgical procedure itself, often overlooking the intricate interplay of medical comorbidities and pre-existing conditions that can significantly impact patient outcomes. Recognizing this gap, the PROACT initiative was conceived to redefine perioperative care holistically.

The PROACT initiative, spearheaded by General Internal Medicine (GIM) physicians and Nurse Practitioners (NPs), offers consultative services aimed at optimizing perioperative care by identifying, optimizing, and mitigating perioperative risks among patients, particularly those deemed high-risk due to frailty or multi-comorbidity.³ In the pre-operative phase, PROACT conducts thorough assessments of the patient's medical history, physical examination, and laboratory investigations to identify and manage underlying medical conditions.⁴ This includes addressing chronic diseases such as diabetes or hypertension, optimizing cardiac function in patients with heart disease, and addressing nutritional deficiencies for improved wound healing. During the post-operative phase, PROACT focuses on pain management, early mobilization, and monitoring for potential complications such as infection, thromboembolism, or respiratory compromise. Throughout both phases, NPs play a crucial role in assessing and managing patients, collaborating closely with interdisciplinary teams to develop tailored care plans.

Integrating NPs into the PROACT framework enhances patient outcomes, streamlines perioperative processes, and improves overall quality of care.^{5,6,7} NPs with advanced clinical training and expertise are pivotal in assessing and managing patients throughout the perioperative journey.^{4,8} Leveraging their comprehensive understanding of acute and chronic medical conditions, NPs collaborate closely with interdisciplinary teams to develop tailored care plans that address each patient's unique needs.^{4,9,10} Their scope of practice encompasses many responsibilities, including conducting thorough pre-operative assessments, coordinating with surgical teams to optimize patient readiness for procedures, and providing post-operative care and monitoring to ensure optimal recovery. Furthermore, NPs are proficient in prescribing medications, ordering diagnostic tests, and interpreting results, enabling them to make timely and evidence-based decisions to prevent or address perioperative complications. Their proactive approach to patient care extends beyond the immediate perioperative period, as they also focus on long-term health maintenance and disease prevention strategies.^{11,12}

In summary, the PROACT initiative represents a proactive and collaborative approach to perioperative medicine, leveraging the expertise of NPs to enhance the quality and efficiency of care delivery. As healthcare continues to evolve, initiatives like PROACT exemplify innovation

and excellence in optimizing patient outcomes across the perioperative continuum. This paper will describe the development and implementation of the PROACT initiative, specifically focusing on the NP role.

Methods

Setting

The PROACT initiative was implemented at the Royal Columbian Hospital (RCH) in Fraser Health. RCH is a 490-bed regional tertiary teaching healthcare facility, offering a comprehensive array of medical services encompassing emergency care, surgical procedures, maternity care, cardiac treatments, and mental health and substance abuse support.¹³ As a referral center, it specializes in various medical and surgical disciplines, including but not limited to mental health, internal medicine, cardiology, gastroenterology, nephrology, orthopedics, otolaryngology, gynecology, urology, ophthalmology, and plastic surgery.¹³ The hospital boasts a robust maternal, infant, and child/youth program, providing obstetrical care across different levels, nursery services, neonatal intensive care, and pediatric inpatient care.¹³ RCH offers highly specialized acute care services such as tertiary trauma care, cardiac surgery, neurosurgery, interventional cardiology, and thoracic surgery.¹³ These advanced services often necessitate the involvement of multiple medical specialists, coordination among multidisciplinary care teams, and the utilization of specialized equipment and cutting-edge technology.¹³

Operationalization of the PROACT NP Consultation Service

The vision for PROACT encompasses establishing a consultation service available Monday through Friday and dedicated to inpatient surgical patients. It is spearheaded by a multidisciplinary team comprising GIM physicians and perioperative NPs. This collaborative model aims to provide tailored perioperative care for medically complex patients, primarily focusing on improving surgical outcomes and reducing post-operative complications.^{11,14,3} Key elements of the PROACT program framework include consults and follow-ups conducted by both GIM physicians and NPs, targeted at inpatient perioperative patients identified through direct referrals from the surgical team and other specialty services. By streamlining referrals and leveraging the expertise of NPs, PROACT seeks to optimize resource utilization and enhance the efficiency of perioperative care delivery.¹¹

The role of the PROACT NP extends far beyond traditional clinical responsibilities, encompassing a spectrum of multifaceted functions critical to the perioperative care continuum. Beyond administering direct patient care, PROACT NPs play a pivotal role

in triaging referrals, meticulously assessing patient histories, and identifying individuals at heightened risk of perioperative complications due to factors such as comorbidities or frailty.^{14,3,15,16} This proactive approach enables early intervention and optimization, mitigating potential risks and enhancing surgical outcomes. Moreover, PROACT NPs serve as linchpins in fostering seamless communication and collaboration among diverse healthcare teams. Facilitating dialogue between surgical specialists, anesthesiologists, and GIM physicians ensures that every aspect of a patient's care is carefully coordinated and integrated. This coordination is particularly vital in managing complex cases involving multiple specialties, as it minimizes the likelihood of oversights and maximizes the efficacy of interventions.

“Patients referred to PROACT presented with an average of 4.7 medical issues...”

Operating within defined parameters and availability, PROACT NPs remain steadfast in their commitment to upholding the principles of continuity of care and timely intervention (BCCNM, 2024; CNA, 2024; Sebach et al., 2015; Woo et al., 2017).^{17,18,15,16} Whether it involves conducting thorough pre-operative assessments, coordinating with surgical teams to optimize patient readiness, or providing comprehensive post-operative monitoring, PROACT NPs are dedicated to delivering patient-centred care of the highest quality. Their proactive stance contributes to improved patient outcomes and enhances overall satisfaction by ensuring a smooth and well-supported surgical journey for each individual. In essence, the multifaceted role of the PROACT NP exemplifies the evolution of perioperative medicine towards a more integrated and patient-centric care delivery model. These specialized practitioners catalyze positive change through their proactive engagement, improving access to care and patient experiences within the perioperative setting.

Results

Since its inception on January 4, 2022, the PROACT service has been vital to the commitment to enhancing patient perioperative care. Initially focusing on the general surgery, vascular, and neurosurgery populations, PROACT swiftly evolved to encompass orthopedic surgery by January 2023, demonstrating its adaptability and responsiveness to the dynamic needs of perioperative patients.^{15,19}

Throughout the growth and expansion the PROACT has been dedicated to providing comprehensive care to

patients before and after surgery. Valuable insights into the impact and effectiveness of the program were gained in the analysis of the data. A testament to PROACT's dedication and role in optimizing perioperative care delivery. In this section, we present the comprehensive analysis of the data collected since the launch of the PROACT service on January 4, 2022. The analysis includes key metrics such as the number of consultations conducted, the distribution of concurrent medical issues addressed, the time-of-day consultations are initiated, and monthly trends in consultation volume. By examining this data, we aim to evaluate the efficacy of the PROACT in meeting the needs of perioperative patients and driving improvements in surgical outcomes. Using this data and the trends, we will also discuss opportunities for future growth and enhancement of the PROACT service. This includes identifying areas where the PROACT can further optimize their services, expand its scope to additional surgical specialties, and implement innovative strategies to improve patient care delivery.

Current Data Analysis and Program Evaluation

Since its inception in January 2022, PROACT has provided care for 1,316 patients over two years. The number of patient referrals to the program has significantly increased over time. In 2022, 478 patients were referred to the PROACT team during the initial implementation phase, representing an average of 1.9 consults per day. This number surged to 838 patients in 2023, indicating a notable rise in demand for the program's services, with an average of 3.4 daily consults. Furthermore, analysis of month-to-month trends reveals consistency in the number of patients seen throughout both years, as illustrated in Figure 1.

The sharp rise in patient referrals to PROACT can be attributed to the growing awareness of the program and a recent collaboration with orthopedic surgery. Through this partnership, PROACT is now consulted during the pre-operative period and on the day of surgery to optimize and stabilize orthopedic surgical patients. Figure 2 depicts the referral patterns by specialty and year, further illustrating the impact of this new collaboration.

Of all patients seen by PROACT, 50% received care during the pre-operative period, 41% during the post-operative phase, and 9% did not undergo surgical intervention. Most consultations (90.5%) occurred during daytime hours, with 49% of patients being seen by physicians and 41% by Nurse Practitioners (NPs). A smaller percentage of patients received consultations after hours from other team members (10%).

Patients referred to PROACT presented with an average of 4.7 medical issues (range 0 – 12 issues, *SD* 2.10), reflecting the complexity of their health conditions. Additionally, they required an average of 2.3 follow-up visits (range 0 – 24 visits, *SD* 2.81), indicating ongoing

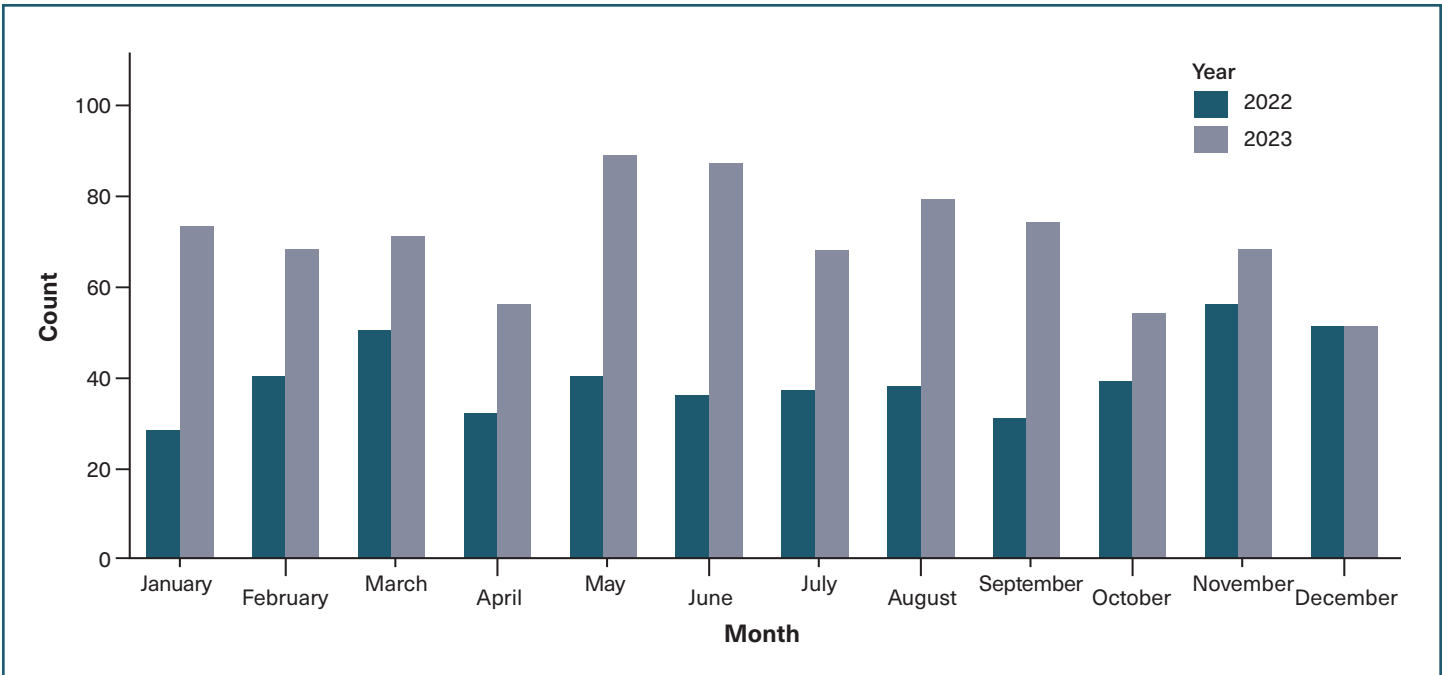


Figure 1. PROACT Patient Referrals by Month and Year

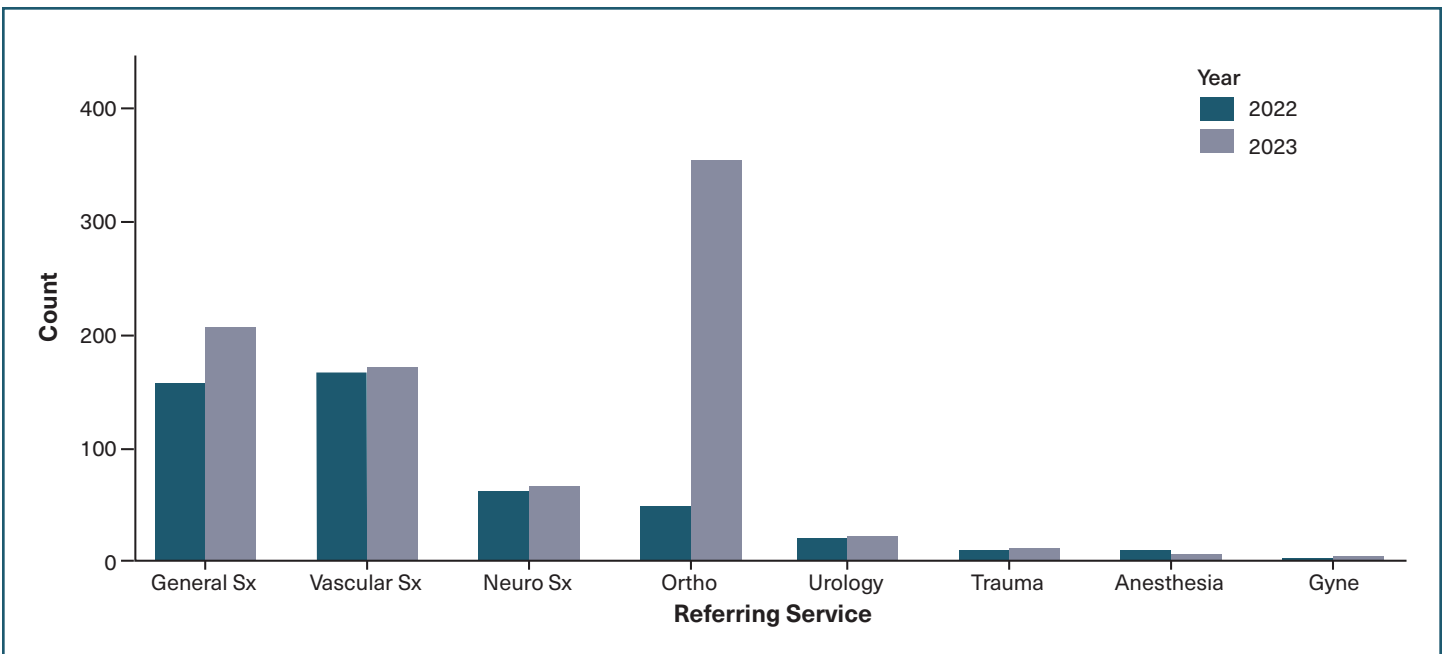


Figure 2. PROACT Patient Referrals by Service and Year

management and monitoring needed to address their healthcare needs. Of all patients consulted by PROACT, a mere 1.1% necessitated cancelling scheduled surgical procedures. This cancellation could be attributed to various factors, including the complexity or instability of medical issues, the deferral of surgery, opting for an outpatient procedure later, or a change in the patient's care goals. In some cases, the treatment plan shifted towards conservative non-operable treatment or transitioned to palliative care.

Discussion

Given the success of the current PROACT initiative and as the landscape of perioperative care continues to evolve, there is a growing recognition of the critical role NPs can play in extending care beyond the hospital walls to encompass the entire patient surgical journey. This includes providing pre-hospital screening and support for high-risk surgical patients. With the growing

evidence supporting the benefits of prehabilitation programs in improving surgical outcomes, there exists a prime opportunity to leverage the expertise of NPs in the development and delivery of a wraparound program that provides pre-operative stabilization.^{20,21,22,23} By integrating PROACT NPs into pre-operative care teams, healthcare systems can enhance patient preparation, optimize physiological reserve, and mitigate perioperative risks. NPs, equipped with their advanced clinical training and holistic approach to patient care, are well-positioned to conduct comprehensive assessments, design personalized prehabilitation plans, and provide ongoing support to patients throughout their surgical journey. Through proactive interventions to optimize patients' physical and psychological well-being, NPs can significantly improve perioperative outcomes and foster a culture of preventive care.²³

“The initiative’s success at Royal Columbian Hospital underscores the critical role of NPs in perioperative care, from pre-hospital screening to post-discharge management.”

In addition to expanding NP roles in pre-operative and perioperative care, there is a pressing need to recognize the importance of patient care in the post-hospital discharge phase, particularly for patients without a primary care provider. The transition from hospital to home can be fraught with challenges, and the immediate post-operative period is crucial for preventing complications and readmissions.^{24,25,26} NPs, with their expertise in continuity of care and patient advocacy, are well-suited to bridge this gap by providing comprehensive post-discharge support and management. By offering timely follow-up visits, medication reconciliation, wound care, and symptom management, NPs can ensure continuity of care and facilitate the transition to home-based recovery. Moreover, NPs can collaborate with interdisciplinary teams to address social determinants of health and connect patients with community resources for ongoing support. By advocating for NP-led post-discharge care, healthcare systems can enhance patient outcomes, reduce healthcare utilization, and promote seamless transitions across the continuum of care.

The success of the PROACT initiative at this single site also provides a compelling argument for expanding the PROACT initiative to encompass multiple healthcare sites. Building upon the success observed at our single site, extending this model of comprehensive perioperative care to diverse clinical settings holds promise for improving surgical outcomes and ensuring equitable access to

high-quality care. By establishing PROACT programs across different healthcare facilities, we can broaden the reach of specialized perioperative services, particularly to underserved populations and regions with limited access to comprehensive surgical care. This expansion enhances patient outcomes, promotes collaboration among healthcare providers, and facilitates the dissemination of best practices in perioperative medicine. Through strategic partnerships and a commitment to innovation, the expansion of PROACT to multiple sites embodies our dedication to advancing surgical care and addressing healthcare disparities on a broader scale.

Summary

In response to the evolving landscape of perioperative care, the PROACT initiative emerged as a paradigm-shifting approach to comprehensive perioperative medicine. Spearheaded by GIM physicians and NPs, PROACT embodies a proactive and collaborative model to optimize patient outcomes throughout the surgical journey. By integrating NPs into pre-operative care teams, PROACT enhances patient preparation, optimizes physiological reserve, and mitigates perioperative risks. The initiative's success at Royal Columbian Hospital underscores the critical role of NPs in perioperative care, from pre-hospital screening to post-discharge management. Moreover, the program's expansion to multiple healthcare sites presents an opportunity to broaden access to specialized perioperative services and address healthcare disparities. As healthcare continues to evolve, initiatives like PROACT exemplify innovation and excellence in optimizing patient outcomes across the perioperative continuum.

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