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BRITISH COLUMBIA'S UNDERUTILIZATION OF REGISTERED NURSE FIRST ASSISTS: A BARRIER TO ACHIEVING THE QUADRUPLE AIM

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ABSTRACT

Registered Nurse First Assists (RNFA) increase surgical efficiency and improve patient care. They have been widely utilized within the United States of America, but utilization in Canada has not been consistent. Currently, Ontario, Quebec, Nova Scotia and select sites in Newfoundland and Labrador have included RNFA as members of their surgical team.[1] Through critical analysis, the author discusses how underutilization of this role impacts on healthcare system costs and patient outcomes. Recent surgical strategy policy documents[2] have acknowledged the RNFA but full implementation has yet to occur. The aim of the paper is to discuss this role as part of the interdisciplinary team and highlight related policy issues to be addressed prior to increased integration. The author utilizes the Institute for Healthcare Improvement's "Quadruple Aim"[3] as an argument for prioritizing the integration of RNFA and delivering a method of outcome measurement. This discussion provides important rationale for implementing the RNFA role within healthcare facilities and systems to improve health service delivery at all levels. The recommendations present important considerations to improve outcomes at all levels when introducing these roles within individual health authority settings.

INTRODUCTION

Registered Nurse First Assists (RNFA) are perioperative nurses who have advance practice training. They collaborate with the healthcare team and perform intraoperative first assist duties under the direction of the surgeon.[4] RNFA are supported by the Canadian Nurses Association[5] and nursing regulatory bodies within Canada.[6,7,8] Utilization of the role has, however, not been consistent across provincial healthcare structures. The purpose of this paper is to discuss the benefits of RFNA and identify key policy drivers preventing successful integration of this role.

Background

In 1983 the American College of Surgeons and the Association of periOperative Registered Nurses (AORN) collaborated to define the RNFA role and were supported by 17 states.[9] Presently 50 states have affirmed and employ the role of RNFA. The trend, however, in Canada is different. In Canada, the surgical assist role is predominately held by general practitioners, retired surgeons, or internationally trained physicians who have not obtained privileges for independent practice. Among Canadian healthcare systems only four of the provinces and territories currently utilize RNFA. RNFA integration has been a prolonged process. In Ontario, a funded RNFA pilot project occurred, from 2007-2010, with select sites continuing the initiative upon completion of the pilot.[10] Ten years later Nova Scotia Health's multi-year Hip and Knee Action Plan[11] introduced two RNFA roles in Cape Breton region. The RNFA role has been shown to increase surgical efficiency and improve patient care.[12,13] Further identified benefits of the integration of this role include a reduction in operating time, improved interdisciplinary teamwork, and enhanced patient experiences.[13]

Training

RNFA are well versed in anatomy and receive training to avoid causing injury to important structures.[12] As an extension of the surgeon they provide exposure to the surgical field and assist in emergency situations.[12] Suturing, cauterizing vessels, and retracting tissue are additional skills within their scope of practice.[12] The RNFA utilizes their background as a perioperative nurse to promote patient safety as experts in sterility.[12]

Some research suggests that RNFAs may be better prepared and able to anticipate surgeon needs as compared to junior physicians or residents.[13] It is not uncommon for general practitioners and new doctors to spend minimal time in the operating theatre before commencing surgical assisting. Surgeons who consistently work alongside a RNFA expressed that the RNFA possess the knowledge and expertise to teach junior physicians and residents on a surgical rotation.[13]

There are currently two ORNAC endorsed RNFA programs available in Canada. The first program is offered through Mohawk College in Hamilton, ON. This program is accessible to baccalaureate prepared perioperative nurses who have perioperative national certification, a minimum five years experience, and are members of the Operating Room Nurses of Canada.[14] For successful program completion the perioperative nurse must complete two theory courses, a laboratory practice, and two internships totaling 225 hours combined.[14] The second available program is offered through the Université du Québec à Trois-Rivières in Trois-Rivières, QC. This program grants admission to baccalaureate prepared Quebec nursing residents with operating room experience.[15] For successful completion, the perioperative nurse must complete 27 course credits, including a 180-hour clinical internship.[15]

CRITICAL REVIEW OF RNFA IMPLEMENTATION

Economic Opportunities

RNFA have been found to increase operating room efficiency and as a result, present cost savings.[1,13,16] RNFA help to reduce both changeover times between patients, and the in-theatre patient preparation time.[4,16] Changeover efficiency related tasks completed by a RNFA include trouble shooting equipment, organization of instruments, checking for prosthetics, and theatre cleaning.[16] Literature suggests that the RNFA ability to partake in changeover tasks further contributes to cost-savings by minimizing theatre delays and case cancellations due to time restraints at the end of the day.[16] During surgery, RNFAs can lessen surgical time by assisting with graft preparation and freeing the surgeon to continue with preparation for graft placement.[17]

The RNFA's expert experience with sterility has been identified to improve patient outcomes through a reduction in the incidence of surgical site infections (SSI).[12,13] In contrast, findings suggest that SSI rates increase when junior physicians surgically assist.[5] Each individual patient who encounters an SSI costs the Canadian healthcare system more than an additional $20,000 during their admission and have a significantly increased risk of hospital readmission.[18] The estimated annual cost of SSI to the Canadian healthcare system is $350,000 – $1,000,000.[19]

Economic Barriers

As stated in the British Columbia Ministry of Health's *Future Directions for Surgical Services in British Columbia Policy Discussion Paper* the government surgical strategy includes "reducing the per capita cost of health by focusing on quality… and the efficiency of health care delivery."[2(p1)] They suggest that reducing the per capita cost of health care involves implementing alternatives to practice models and physician funding.[1] Listed among their suggested alternative practice models is utilizing RNFA.[2] The Doctors of BC *Response to BC Ministry of Health Policy Papers* cautions against alternative funding models moving forward without the input and collaboration of physicians.[20] Currently, in British Columbia, a structure for funding of the RNFA role has not been introduced and a fee-for-service funding model continues to be employed to compensate physicians who surgically assist.[1]

In the United States, RNFA funding models vary. RNFA can be independent contractors where the physician, physician group, or hospital is directly billed for surgical services.[9] Alternatively, RNFA may be employed by the hospital.[9] Australia utilized similar funding structures regarding RNFA service provision.[16]

Hierarchical Barriers

In the Doctors of BC response to the *BC Ministry of Health and the Provincial Surgical Executive Committee Cross Sector Policy Discussion Paper,* they argue that in order to participate in multidisciplinary teams working in partnership "gaps in

The Institute for Healthcare Improvement Quadruple Aim can be used as both an argument for introducing the RNFA role and as a means of outcome measurement.

communication and consistency of language" between interdisciplinary team members needs to be addressed.[20(p15)] Canadian models of care are centered around physician autonomy with fee-for-service models enabling continued physician dominance by placing them at the center of all health care levels.[21] Surgeon resistance to accepting the RNFA role is shown to be based on beliefs that the registered nurse does not have the required background for the position.[22] Both Mohawk College and The Université du Québec à Trois-Rivières require surgeon sponsorship for admission to their RNFA programs and a signed letter of intent from the surgeon is necessary.

CRITICAL ANALYSIS

Considerations must be made to acknowledge the above obstacles within the current health care structure and indicate changes required for successful introduction. The Institute for Healthcare Improvement Quadruple Aim can be used as both an argument for introducing the RNFA role and as a means of outcome measurement.

The Quadruple Aim[23] comprises four categories:

1. Improving population health;
2. Enhancing individual care experiences;
3. Reducing the health care costs per capita; and
4. Facilitating care team well being.[23]

1. Improving Population Health

Increasing operating room efficiency leads to a reduction in surgical wait times.[1] The earlier a patient can undergo surgery, the sooner pain and suffering are reduced and their quality of life can be improved.[24] Implementation of an RNFA has been shown to effectively reduce surgical wait times through improving the quality and efficiency of surgical care.[1]

2. Enhancing Individual Care Experiences

RNFA have been shown to minimize surgical changeover, preparation of the patient, and operating times, and to reduce the risk of case cancellations due to lack of electively scheduled operating room time remaining at the end of the day.[1,13,16] In preparation for surgery our patients must organize time off work, childcare, and a family member or friend to drive them both to the hospital and back home postoperatively. Last minute cancellations therefore negatively impacts on the individual and their family or caregivers.

The RNFA nursing background also brings additional elements to enhance the patient experience.[13] RNFA have been shown to be better able to alleviate a patient's fears and promote their trust in the surgical team.[13] When comparing the experiences of patients who had an RNFA on their surgical team, versus those who did not, patients with RNFA encounters perceived their experience as more satisfying.[13]

3. Reducing Health Care Costs

RNFA roles have been identified as a sustainable evidence-based human resources option.[2] Governments acknowledge the need to move away from fee-for-service models but have yet to implement alternative funding structures.[21]

Reducing health care costs, per capita, while increasing quality and efficiency of surgical care delivery is essential.[1] The literature suggests that the RNFA role is cost-effective.[13,16,21] Cost savings arise through increased surgical efficiency and a reduction in case cancellations. The average operating room cost has been calculated as CA$38.33per minute.[25] In 2013/2014 it was reported that 541,886 surgical procedures were performed in British Columbia.[2] The following theoretical calculation is based on RNFA facilitating more efficient operating rooms and minimizing surgical booking time by five minutes per case through decreasing changeover time between patients, in-theatre patient preparation time, and physical operating time. If the per minute cost of an operating room is $38.33, at 541,886 cases per year, a reduction of five minutes per case could yield a savings of $103,848,618.90.

There is a requirement for additional surgical assists to meet demands and lessen wait times, particularly in the current environment of large number of cancellations of elective and urgent surgeries due to the COVID-19 pandemic.

Further monetary savings can be achieved through the correlation of RNFA presence and a prevention of SSI.[12,26] SSI increase incidences of hospital readmission and result in complications that cause the health care system up to one million dollars a year.[19] Prevention of SSI is essential and the RNFA background in perioperative nursing makes them sterility experts.[12] Utilizing RNFA has been found to reduce the risk of SSI by up to 40%.[26]

4. Facilitating Care Team Well Being

Through fee-for-service remuneration structures the physician is placed centrally within the health care system.[21] Physicians have been the system gatekeepers through being granted control and influence over health care organization.[21] Continuing fee-for-service models supports surgeons being placed on the top of the healthcare hierarchy.[2] Mandating surgeon sponsorships as a requirement for RNFA program admission further reinforces physician control and hierarchical healthcare provision.

The Doctors of BC response to the *BC Ministry of Health and the Provincial Surgical Executive Committee Cross Sector Policy Discussion Paper* provided a detailed reply to the Ministry of Health's position statements.[20] However, they failed to acknowledge RNFA as surgical team members. Physician hesitance to endorse the RNFA role presents as a barrier to facilitating care team well being. Interprofessional collaboration and service provision are improved amongst surgical teams that include an RNFA.[13] Enhanced collaboration and diminished hierarchy facilitates care team well being.[22] Advance practice nurses have been identified as key components in facilitating cohesive interdisciplinary teams.[3]

RECOMMENDATIONS

Improving Population Health

There is a requirement for additional surgical assists to meet demands and lessen wait times, particularly in the current environment of large number of cancellations of elective and urgent surgeries due to the COVID-19 pandemic. It is recommended that the RNFA role be prioritized for implementation given its shown benefit of decreasing wait times[1] which impacts on patient quality of life.[24] A needs assessment and stakeholder consultation should be completed to analyze additional barriers regarding RNFA introduction and identify a strategy to successfully implement this role.

Enhancing Individual Care Experiences

To promote consistency in care and, subsequently, increase patient care experiences, it is the recommendation that RNFA are employed by the hospitals. Single site employment allows the RNFA to better understand surgeon preferences and improves anticipation of intraoperative surgical needs.[13] Literature suggests that standards of care are increased when RNFA surgical team members are present.[13]

Reducing Health Care Costs

To receive the economic benefits of the RNFA role, it is the recommendation that funding be allocated for training programs. For example, British Columbia health authorities utilize the AORN Periop 101[27] curriculum to train perioperative nurses.[28] If hospitals were provided funding to offer the Mohawk College RNFA program the surgical internship component of RNFA training could be internally organized based on the clinical need of each individual site. Risks to monetary investments may be mitigated through return of service contracts that ensure an employment commitment from the RNFA and promote a return on investment. Additional funding should be provided to allow hospitals to employ RNFAs who have successfully completed the education requirements.

Health care systems should prioritize reassessing fee-for-service compensation models. Without an alternative funding

model physician dominance in health care will continue to influence structure and be a barrier to implementing the RNFA role.[21]

Facilitating Care Team Well Being

The fourth category of the Quadruple Aim focuses on ways to increase provider work environments in order to optimize the health care system.[3] In response to recent mass elective surgery cancellations *A Commitment to Surgical Renewal in B.C.* was released.[29] The document highlighted the need to recruit additional physician assistants but makes no reference to RNFA. It is recommended that provincial governments include, within their surgical strategic plans, the education, recruitment, and retention of RNFA. The RNFA role has been identified to improve care team structure.[13] Furthermore, RNFA act as a bridge for increasing the trust between surgeons and perioperative nurses.[22]

The Doctors of BC identified communication as a barrier for embracing interdisciplinary teams.[20] To improve interprofessional communication and collaboration it is recommended that hospitals incentivize the Agency of Healthcare Research and Quality TeamSTEPPS® Training.[30] TeamSTEPPS objectives are to improve team-based healthcare, communication, and collaboration to improve patient safety. Political promotion of TeamSTEPPS within health care systems has been identified to improve teamwork and communication skills among members of varying disciplines.[3]

OPPORTUNITIES FOR FURTHER RESEARCH

Recent, Canadian-based research on the RNFA role is not widely available. Further studies would strengthen the argument for RNFA role implementation by presenting relevant, empirical evidence directly related to cost-savings and improvements in patient care. Both quantitative and qualitative research methodologies could provide strong methods of measuring impacts to the healthcare system related to the RNFA role.

CONCLUSION

Currently, most Canadian healthcare systems utilize physicians as surgical assists. Integrating the RNFA role into the surgical team provides the opportunity to satisfy all four categories of the Quadruple Aim. Various identified benefits include decreases in surgical time, wait lists, SSI, health care costs, and an increase in patient outcomes and health care well being. Unfortunately, the RNFA role has been under utilized across British Columbia and in other Canadian health care systems. The Quadruple Aim can be applied as an argument for implementation and as a means of outcome measurement. Barriers including economical and hierarchical political drivers must, however, be addressed and mitigated prior to successful introduction of the RNFA role.

Recently, as a result of the COVID-19 pandemic, mass cancellations of elective surgery occurred. Introducing the RNFA role into healthcare structures should be prioritized by Health Ministers as provinces work on surgical strategic plans to increase capacity and promote sustainability of additional surgical volumes.

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