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Relationship-Centered Communication In Breast Cancer Screening: An Interdisciplinary Training Model

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Relationship-Centered Communication in Breast Cancer Screening:  
An Interdisciplinary Training Model

Submitted to the Faculty  
Yale University School of Nursing

In Partial Fulfillment  
Of the Requirement for the Degree  
Doctor of Nursing Practice

Patricia A. DuCharme, MSN, RN, ANP-BC  
May 4, 2024
This DNP Project is accepted in partial fulfillment of the requirements for the degree Doctor of Nursing Practice.

_______________________________________
Joan Kearney, PhD, APRN, FAAN
Date:______________________________
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Abstract

Relationship-Centered Communication in Breast Cancer Screening:
An Interdisciplinary Training Model

Breast cancer screening is essential for early detection and reducing disease progression. However, its underuse contributes to late-stage diagnoses, adverse health consequences, and reduced survival rates. Research has shown that high-quality communication significantly influences women's adherence to breast cancer screening, leading to earlier detection and better health outcomes. However, many healthcare providers receive no formal communication skills training. Healthcare providers who undergo relationship-centered communication (RCC) training demonstrate stronger interpersonal relationships, which result in increased provider-patient satisfaction, more efficient healthcare teams, and improved quality of patient care. To date, most RCC studies have focused predominantly on the physician-patient relationship rather than the interdisciplinary healthcare team. This quality improvement project addressed this gap by modifying an existing RCC skills development program for the training of an interdisciplinary healthcare team to improve their self-efficacy in utilizing RCC skills and evaluate their satisfaction with the program. A two-hour RCC development program was offered to 21 mammography technologists and administrative personnel at a large breast imaging center in the United States. Results from pre-, and post-self-competency assessment surveys found a significant increase in participants' self-efficacy in performing RCC skills over two months. Additionally, most participants reported that the RCC program was valuable to their professional role, would implement learned skills, and recommend the training to colleagues. This project provides a model for interdisciplinary teams in breast imaging centers to increase their self-confidence and proficiency in communicating with patients, strengthen relationships between patients and the healthcare team, and elevate the quality and delivery of breast care.
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Part 1

Relationship-Centered Communication in Breast Cancer Screening:
An Interdisciplinary Training Model

Breast cancer screening and mammography have been proven successful in detecting breast cancer in earlier stages and improving health outcomes (Shakib et al., 2019). Despite the known benefits of breast cancer screening in early detection and down-staging of disease, Healthy People 2020 reported that women ages 50-74 years of age did not meet set targets of 81% to receive a mammogram and 76.8% to receive counseling for a mammogram, contributing to delayed diagnoses and increased mortality rates (Henley et al., 2020, National Center for Health Statistics, 2021). Moreover, racial disparities in breast cancer screening contribute to Black women having a 40% higher breast cancer mortality rate than White women despite having a lower incidence of breast cancer, leading to late-stage diagnosis, poorer health outcomes, and lower survival rates (Islami et al., 2021).

A growing body of evidence highlights the relationship between communication and information sharing in the provider-patient relationship and its’ influence on patients’ adherence to cancer screening (Shakib et al., 2019). Communicating with patients undergoing breast cancer screening often presents challenging encounters and conversations to address anxieties and fears. This requires exceptional provider communication skills and behaviors that need to be learned and practiced (Janz et al., 2017). Differences in medical diagnoses, emotional needs, language barriers, and varying cultural and familial backgrounds require healthcare providers to adjust their communication styles to acknowledge the needs of patients and families (Chou & Cooley, 2018). In 2001, the Committee on Quality of Health Care in America, Institute of Medicine Staff stated that communicating with patients regarding their preferences, needs, lifestyles, and values is essential in delivering high-quality patient-centered care. Furthermore, the National Cancer Institute (NCI, 2007) identified six core functions of communication in caring for patients with cancer: engaging in healing relationships, information
sharing, acknowledging emotions, guidance through uncertainty, decision-making, and supporting patient/family self-care. Central to this theme, Yu et al. (2021) noted that high-quality provider-patient communication is positively associated with patient self-efficacy and negatively associated with patients’ avoidance of information-seeking behaviors in cancer prevention, diagnosis, and treatment. Given the known role of breast cancer screening in the down-staging of disease and reducing mortality rates, increasing adherence to, and addressing racial disparities in breast cancer screening through high-quality communication is critical to public health (Peterson et al., 2016).

**Problem Statement**

Despite the established importance of communication in cancer care, many healthcare providers do not undergo formal communication skills training and may fail to recognize its significance or incorrectly assume they have competence in communication skills (Bomher et al., 2020; Kieran et al., 2018). Moreover, few opportunities exist for faculty and students to practice communication skills in clinical settings. This results in a decline in active listening, shared decision-making, and expressed empathy skills, which contributes to unfulfilling provider-patient relationships and decreased quality of care (England et al., 2020). Furthermore, challenges such as staffing shortages, high patient volumes, and time constraints strongly contribute to fractured provider-patient communication (Cooley et al., 2018). Altogether, these interconnected factors lead to poor provider-patient relationships and work environments where high-quality communication is not valued or prioritized within the healthcare system.

Mounting evidence has shown that strong, high-quality relationship-centered communication (RCC) increases patient satisfaction and self-efficacy, leading to increased adherence to medical screenings, and treatments, and better health outcomes (Chou & Cooley, 2018). For example, Grome et al. (2018) reported statistically significant findings that RCC skills development increases provider self-efficacy across five categories, including acknowledging communication barriers, addressing patient concerns, discussing patient perspectives,
negotiating an agenda of treatment, and assessing patient understanding. Moreover, RCC skills training improves overall provider well-being, with significantly less burnout and increased self-fulfillment leading to stronger provider-patient relationships (Altamirano et al., 2022). Finally, RCC skills development enhances interprofessional relationships contributing to a higher quality work environment and improved delivery of patient care across healthcare systems (Bomher et al., 2020; Hirschman et al., 2020). Despite clear evidence for the beneficial impact of RCC training on physician communication skills across a variety of medical subspecialties, the effect of RCC skills development on non-physician interdisciplinary healthcare teams providing breast cancer screening is less known. This DNP project addressed that gap. The project modified and expanded an existing RCC skills development program for national application in the training of interdisciplinary healthcare teams.

**Significance**

High-quality RCC is at the core of an effective healthcare system and benefits the patient, the provider, and the healthcare organization. The Joint Commission Sentinel Event Alert (2008) states the critical importance of providing skills-based communication training for all managers and healthcare leaders to promote relationship-building and support collaborative practice and conflict resolution. While expanding RCC educational development amongst interprofessional healthcare teams, Petal et al. (2018) found that 78% of participants who participated in RCC training reported improvements in team performance, interprofessional relationships, and clinical processes, with participants strongly agreeing that they knew their team members better personally and professionally. Furthermore, physicians who participated in RCC skills training had increased patient satisfaction, higher Consumer Assessment of Healthcare Providers Systems (CGCAHPS) Clinician and Group survey scores, and higher Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) scores versus physicians who did not participate in the training, respectively (Boissy et al., 2016). In addition, a study of 56 surgeons who underwent RCC skills training reported a direct link
between RCC training and increased patient satisfaction, patient volume, and hospital revenue, with statistically significant increased Press Ganey ratings and increased inpatient and outpatient revenue data (Au-Ghname et al. 2021). Furthermore, a subgroup of plastic surgeons had an increase of 113% percent in charges and a 71% increase in payments, whereas non-participants had a decrease in charges of 10% and 4% in payments (Abu-Ghname et al., 2021).

Notably, in 2017, the Beryl Institute found through an online survey with 112 respondents from a diverse group of healthcare organizations across the United States that 38% rated the importance of improving communication in patient care delivery as ‘very high’ and 45% as ‘high’ with HCAHPS ratings frequently reported as the driver due to financial implications (Cooley et al., 2018). To this point, Richter and Muhlestein (2017) studied the association between HCAHPS scores and hospital profitability and examined cost report data from 19,792 observations across 3767 hospitals over the six years 2007-2012 and found that positive patient experience is associated with increased profitability, while negative patient experience is even more strongly associated with decreased profitability. Specifically, an annual 1% increase in patients who ‘definitely recommend a hospital’ is associated with a $247,000 expected increase in hospital net income and a $1,072,000 expected increase in net patient revenues (Richter & Muhlestein, 2017). Altogether, RCC significantly improves patient and provider satisfaction, hospital efficiency, cost-effectiveness, and profitability, which in turn affects the quality and delivery of patient care across the entire healthcare system.

Review of Literature

Search Strategy

A comprehensive search was completed. Databases searched included PubMed, SCOPUS, Google Scholar, Google, American Cancer Society, Centers for Disease Control, World Health Organization, and National Institutes for Health. Key search terms used included: relationship-centered communication, relationship-centered care, burnout, self-efficacy, patient satisfaction, breast cancer, breast cancer screening, and interdisciplinary. Concept category
results were combined using the appropriate Boolean operators (AND, OR). Inclusion criteria used were full-text, English language publications between the years 2008 and 2022, conducted in North America and focused on RCC or relationship-centered care. Exclusion criteria included a primary focus on patient-centered care. The search yielded a total of 105 articles: 90 through the electronic search and 15 additional records identified through other sources (snowball = 7, hand searched = 6, outside sources = 2). Duplicate removal yielded 83 articles. Following the title and abstract review, 59 articles remained. Following the full-text review, 48 articles were included in the literature review.

**Synthesis of Literature**

Study designs included quasi-experimental, quasi-experimental mixed methods, qualitative-descriptive, descriptive cross-sectional, observational case-controlled, observational longitudinal, and systematic literature reviews. Levels of evidence ranged from 2.d to 4. b (Joanna Briggs Institute, 2013). Study strengths included large, diverse sample sizes; weaknesses included reliance on self-report measures and cross-sectional data only.

Four themes emerged from the review of the literature. First, RCC incorporates bi-directional communication in the provider-patient relationship, resulting in increased provider job satisfaction and self-efficacy, increased patient satisfaction and self-efficacy, and improved quality of patient care with better health outcomes (Altamirano et al., 2022; Boissy et al., 2016; Chou & Cooley, 2018; Grome et al, 2018). Second, many healthcare providers do not practice high-quality communication skills, resulting in decreased provider self-efficacy, self-fulfillment, and job satisfaction, along with decreased patient self-efficacy and adherence to breast cancer screening (Altamirano et al., 2022; Grome et al., 2018, Peterson et al., 2016). Third, most studies on RCC skills training have focused solely on the physician-provider relationship. Expanding RCC training beyond physicians to the interdisciplinary healthcare team reinforces a systems approach to providing relationship-centered care and creates additional pathways to strengthen provider-patient relationships, increases interdisciplinary provider wellness and job
satisfaction, and improves the quality and profitability of healthcare delivery (Patel et al., 2018).

Fourth, high-quality communication in breast cancer screening plays a central role in influencing women’s adherence to breast cancer screening leading to earlier detection, down-staging of disease, and improved health outcomes (Kindratt et al., 2020; Peterson et al., 2016).

**Literature Findings**

**Relationship-Centered Communication (RCC)**

RCC focuses on strengthening relationships in the healthcare system by improving the quality of interpersonal interactions that enable the healthcare team to connect with patients resulting in increased provider well-being, patient satisfaction, and better care (Chou & Cooley, 2018). RCC is based on the principle of bi-directional communication and shared decision-making in the provider-patient relationship. High-quality RCC is not an innate skill but instead needs to be learned and practiced whereby participants understand how to establish respectful, non-judgmental relationships centered on mutual understanding and trust (Clapper et al., 2019). Medical decisions are not transactional but rather made as a team, acknowledging the clinician's professional expertise and the patient and family's opinions and perspectives (Chou & Cooley, 2018). The methodology for RCC skills training involves participants learning to acknowledge and respect each other's feelings and opinions, engage in active listening, express empathy, offer compassion, and participate in teach-back and shared decision-making. RCC skills training falls into three categories: 1) Establishing a rapport and negotiating an agenda for a plan of care 2) Developing the relationship through active listening and expressed empathy and 3) Engaging and ending the encounter through shared decision-making, assessing understanding, summarizing, and clarifying information (Modic et al., 2020).

The Academy of Communication in Healthcare (ACH) (https://www.achonline.org) is a non-profit organization at the forefront of advancing relationship-centered care worldwide. ACH promotes RCC skills training as an effective clinical toolkit for healthcare providers that emphasizes a reciprocal exchange in communication between the provider and the patient and
embraces values of personal self-awareness, accountability, and authenticity to foster meaningful connections (Dempsey, 2018). ACH’s mission is to enrich interpersonal relationships in healthcare through communication skills development programs to create a healthcare culture where communication is effective, empathetic, and equitable. In addition, ACH recognizes the vital role of high-quality provider-patient RCC in increasing patient satisfaction and provider fulfillment leading to stronger relationships and improved patient care (Chou & Cooley, 2018).

**The Effect of RCC on Patients**

A growing body of research suggests that the patient experience is linked directly to the quality of the provider-patient relationship. The quality of provider communication techniques and the degree of trust and guidance offered impact adherence to cancer treatment plans, health outcomes, and quality of life (Chandra et al., 2018; Odai-Afotey et al., 2020; Peterson et al., 2016). Moreover, healthcare provider RCC skills training that focuses on establishing a rapport, expressing empathy, understanding patient/family concerns, and sharing information and decision-making is a valuable tool that improves the patient/family experience (Yost et al., 202). For example, at a large hospital emergency department, 24 pediatric physicians who participated in a 5.5-hour RCC skills course reported higher Pediatric Physician Interpersonal Communication Skills Assessment (P-PICSA) scores for all 13 domains, with significant improvement in the following: spending time to understand parental concerns and needs (4.45 vs. 5.00, \( p = 0.001 \)), using understandable language (4.68 vs. 4.90, \( p = 0.035 \)), and including family in shared decision-making for treatment plans (4.19 vs. 4.71, \( p = 0.040 \)) (Leaming-Van Zandt et al., 2019). In addition, Odai-Afotey et al. (2020) observed 105 physician-to-patient interactions with 58 patients in an inpatient medical oncology hospital setting. Patients reported being satisfied nearly 80% of the time with their hospital care, noting key determinants being physician sensitivity to physical and emotional needs and clarity in medical information sharing (Odai-Afotey et al., 2020). Notably, 67% of patients’ comments about physicians were linked to
nurses, and 33% of patient reports stated that nurses critically influenced their hospital experience and were a consistent source of comfort (Odai-Afotey et al., 2020). This evidence demonstrates the impactful role of the nurse-patient relationship in patient satisfaction and supports expanding RCC skills development to nurses and other healthcare team members.

Conversely, other studies have shown mixed results for the effectiveness of RCC. In one study, 44 resident physicians at a large academic medical center who participated in a modified 2-hour RCC skills training program reported increased confidence in using RCC techniques in their patient interactions ($n = 31, 70.5$%); however, there was no significant improvement in patient satisfaction scores as measured in the Clinician and Group Consumer Assessment of Healthcare Providers and Systems (CG-CAHPS) survey (Oladeru et al., 2017). A potential limitation of this study may be the shorter two-hour duration of the RCC training program, suggesting the importance of the length and quality of the RCC program. In another study, physician residents learning practical communication skills expressed feeling confident in interviewing, listening, building rapport, and demonstrating concern and empathy; however, only half, or fewer were confident in advanced communication skills involving children with serious illnesses, ‘difficult’ psycho/social issues, delivering bad news, and culturally sensitive issues (Rider et al., 2008). Altogether, this may suggest that the quality and types of conversations resident physicians feel most confident in discussing with patients and families may influence the strength of the provider-patient relationship and the quality of patient care delivered.

Increasingly complicated patient/family interactions, stressful conversations, and conflict amongst team members may require additional RCC skills development programs in post-graduate training to focus on specific communication barriers and patient situations.

RCC skills training is particularly valuable for navigating difficult conversations in provider-patient-family interactions involving cancer diagnoses in the oncology setting, whereby clinicians frequently face having to share difficult news and may avoid addressing patient and family fears and worries (Janz et al., 2017). In a group of 1295 women ages 20-79 with ductal
carcinoma in situ and stages I-II who were surveyed two months post-operatively, 15% reported that their doctor never discussed their risk of cancer reoccurrence, and 60% reported that their physician rarely asked about their worries of reoccurrence (Janz et al., 2017). RCC training may improve such findings. For example, the Yost et al. (2020) study conducted in a large academic medical center found significantly improved Press Ganey Scores (PGS), with patients/families more likely to recommend their oncology provider after completion of a provider 5.5 hour RCC skills training ($p < 0.05$). This also included reports of patient and family satisfaction with physicians’ concern for family worries, providing helpful information on medications, and providers’ use of clear language and shared decision-making (Yost et al., 2020). Effective, high-quality relationship-centered communication is critical to enhancing patients’ understanding of the risk of cancer reoccurrence and providers’ ability to engage in meaningful conversations and provide quality care.

**The Effect of RCC on Providers**

Evolving research has shown that RCC skills development programs offer a toolkit to help guide providers through challenging clinical interactions, increase self-efficacy and self-fulfillment, and improve provider wellness resulting in less burnout. In one of the largest observational studies noted in this literature review using Centers for Medicare and Medicaid Services (CMS) measures of patient experience, Boissy et al. (2016) compared a group of 1537 physicians who participated in an 8-hour RCC training workshop to 1951 physicians who did not participate in the workshop. They found that physicians who underwent the RCC training had increased CGCAHPS (92.09 vs. 91.09, $p = 0.03$) scores and HCAHPS (91.08 vs. 88.79, $p = 0.02$) scores in the domain of respect, reported significant improvements in all three domains of burnout (emotional exhaustion, depersonalization, and personal achievement) as well as in empathy (116.4 ± 12.7 vs. 124 ± 11.9, $p < 0.001$), and self-efficacy across 13 domains ($p < 0.001$) (Boissy et al., 2016).
Expanding RCC skills development to interdisciplinary healthcare providers, Altamirano et al. (2022) examined findings from a study of 636 Advanced Practice Providers (APPs) and physicians who participated in full-day RCC skills workshops. The authors reported that 104 physicians had decreased rates of burnout post-training (35% vs. 26%, $p < .039$), increased expressed compassion (37% vs. 50%, $p < .020$), and increased professional fulfillment (41% vs. 51%, $p < .034$). In addition, Press Ganey Likelihood to Recommend Care Provider (PG-LTR CP) Top box scores increased following RCC course participation from 82.84% to 84.54% ($p = .0001$) (Altamirano et al., 2022). A major limitation of this study is that APPs were not reported on because Press Ganey data on Advanced Practice Nurses and Physician Assistants was unavailable and not included in the physician data set. Grome et al. (2018) also provided one of the few studies on RCC skills training that included non-physician healthcare providers and examined the effects of a modified 5.5-hour RCC educational program for multi-disciplinary pediatric providers from a large children's hospital. They found a significant increase in self-efficacy in five communication skill subcategories, including acknowledging communication barriers, eliciting patient concerns, negotiating visit agendas, exploring patient perspectives, and assessing patients' understanding of care (Grome et al., 2018). In addition, 25% of primary care pediatricians, pediatric subspecialists, and primary care advanced practice providers reported less burnout with an improvement in emotional exhaustion and depersonalization (Grome et al., 2018). The evidence suggests that RCC skills development applied across various clinical settings and specialties improves provider well-being, promotes more meaningful provider-patient relationships, and increases provider self-efficacy in expressing empathy, leading to increased patient satisfaction and quality of care.

**The Effect of RCC on Teams**

Looking beyond the provider-patient relationship, expanding RCC skills development programs to interdisciplinary healthcare teams addresses barriers to effective communication, thereby improving the performance of the healthcare team and the safety and quality of patient
A collaborative team-based process lies at the core of relationship-centered care and communication that continuously strives to maintain meaningful humanistic relationships in the delivery of patient care (Schoenthaler et al., 2019). For example, Hirschmann et al. (2020) discovered that nurses and physicians who participated in a 5-day RCC train-the-trainer program reported greater appreciation for each other's perspectives and roles, contributed to a breakdown of hierarchies, and encouraged a collaborative team mindset to address problems in inpatient care delivery (Hirschmann et al., 2020). Moreover, participants in this study (Hirschmann et al., 2020) reported that these newly created, more robust relational pathways carried over and positively changed their personal and family relationships. Furthermore, George et al. (2021) reported that 98% of 149 individuals on care teams across the United States who received RCC training reported that they could effectively use RCC skills in their practice to foster team building, clinical reasoning, and interviewing skills.

Finally, RCC train-the-trainer programs have proven effective in promoting communication skills within healthcare institutions. In a systematic review of 69 published articles, Soklaridis et al. (2016) found that organizations that use a relationship-centered care model that incorporates RCC, humanize healthcare on a systems level by educating healthcare professionals across clinical practice settings to involve patient and family shared decision-making in the plan of care. For example, Barden et al. (2019) examined teaching simulation as a method for RCC faculty train-the-trainer programs and evaluating micro-skill competencies. Participants showed significant improvements in their ability to facilitate RCC skills programs post-intervention (0.592 ± 0.111 vs. 0.876 ± 0.070, p = 0.002), which demonstrated the subjects’ ability to facilitate further organizational training (Barden et al., 2019). Petal et al. (2018) examined interdisciplinary team RCC training amongst 16 team retreats attended by 309 interprofessional trainees that focused on relationship building, role clarity, interprofessional communication, and improving team processes. Participants placed a high value on better understanding each other’s roles, perspectives, and challenges, with 89% submitting Specific,
Measurable, Achievable, Relevant, Time-bound (SMART) goals that addressed communication barriers with focused collaborative input to achieve team goals. In summary, the dissemination of RCC development programs that reach beyond individual clinicians to interdisciplinary teams throughout the healthcare system encourages collaboration and teamwork, leading to more effective work practices and improved patient care (Cooley et al., 2018; O'Daniel & Rosenstein, 2008).

**The Effect of Relationship-Centered Care and RCC on Healthcare Systems**

From a systems perspective, relationship-centered care that incorporates RCC focuses on the quality of relationships among all members of the healthcare system, including patients, providers, care teams, and communities served (Schoenthaler et al., 2019; Hirschmann & Schlair, 2020). In short, the quality of relationships determines the quality of healthcare delivered. The relationship-centered care model goes beyond patient-centered care (which focuses on the patient's needs and values) and holistically encompasses the provider-patient relationship and the patients' interconnections with the entire healthcare system (Dempsey, 2018). Relative to this theme, healthcare organizations have increasingly focused on patient satisfaction and reducing provider burnout, with RCC development programs having an essential role in consumerism, value-based purchasing, and quality improvement of healthcare delivery systems-wide (Barden et al., 2019). In addition, relationship-centered care that embraces RCC can support a successful business model with measurable outcomes, including direct benefits in improved teamwork, improved quality of life for both the patient and healthcare provider, a higher quality of healthcare delivery, and increased organizational efficiency, performance, and profitability (Soklaridis et al., 2016).

In this context, the advent of value-based healthcare has prompted healthcare organizations to scrutinize every aspect of care, including clinician communication, using HCAHP and patient satisfaction surveys, online physician ratings, and interprofessional communication metrics through Team Strategies and Tools to Enhance Performance and
Patient Safety (TeamSTEPPS) programs (Cooley et al., 2018). Since 2013, the withholding of up to 2% of Medicare reimbursements based on hospital performance with calculations including 40% outcome measures, 25% satisfaction, 25% efficiency, and 10% process-of-care measures, have caused healthcare systems to place an increasing emphasis on the patient care experience (Abu-Ghname et al., 2021). For example, Abu-Ghname et al. (2021) reported the impact of RCC skills training amongst a group of 56 surgeons, with Press Ganey mean ratings increasing from 92.0 to 94.3 post-training ($p = 0.003$) and combined inpatient and outpatient revenue data increasing from 21.2% and 25.2% in charges and payments, respectively (Abu-Ghname et al., 2021). Specifically, RCC skills training significantly increased provider language (90.9 vs. 94.0, $p = 0.007$), expressed concern (91.4 vs. 94.1, $p = 0.007$), decision-sharing (91.8 vs. 94.3, $p = 0.001$), and information-sharing (94.0 vs. 95.4, $p = 0.031$) (Abu-Ghname et al., 2021). Moreover, outpatient charges and payments increased by 39.9% and 36.4%, and inpatient charges and payments by 16.5% and 7%, respectively over a two-year time frame (Abu-Ghname et al., 2021). Important limitations in this study were the exclusion of factors potentially impacting Press Ganey scores, such as patient variables (outcomes, demographic characteristics) and restrictions in available claims data. In addition, the study did not examine natural changes in hospital volume, changes in hospital policies, and provider skills gained that were not attributed to the RCC course that could have potentially affected patient access and healthcare reimbursements (Abu-Ghname et al., 2021). Even so, given the substantial differences between pre-, and post-RCC training, the quality of provider-patient communication may have a sizeable impact on hospital profitability and should not be overlooked.

In a large-scale study of 3767 hospitals from 2007 to 2012, Richter and Muhlestein (2017) examined HCAHPS scores and cost report data from 19,792 observations noting a positive association between hospital net income, net patient revenue, and net operating margin, with a positive patient experience identified as ‘patients who definitely recommend a
hospital.’ Specifically, given that hospital net income and net revenue are expressed in thousands, the related coefficient indicated that a 1% annual increase in ‘patients who definitely recommend the hospital’ is associated with an expected annual increase of $247,000 in net income and a $1,072,000 in net patient revenue. In addition, by multiplying the operating margin by 100 to provide a whole number, the related coefficient indicated that a 1% increase in ‘patients who definitely recommend the hospital’ is associated with a 0.04 expected increase in net operating margin (Richter & Muhlestein, 2017). Conversely, there was a negative association between a hospital’s net income, net patient revenue, net operating margin, and the percentage of patients who ‘definitely do not recommend the hospital’ (Richter & Muhlestein, 2017). Therefore, evidence suggests that as healthcare institutions continue to face challenges in delivering quality healthcare, communication in the provider-patient relationship is increasingly important as an integral component in high-quality and efficient patient care and an effective and profitable healthcare system (Cooley et al., 2018, Richter & Muhlestein, 2017).

**Relevance of RCC in Breast Cancer Screening**

Although no evidence of any large-scale implementation of RCC skills development for healthcare providers within breast cancer screening has been seen, high-quality communication is vital in this context. A systematic review by Peterson et al. (2016) of 35 studies found that high-quality communication, which focuses on patient and provider values and needs and involves shared decision-making, plays a critical role in breast cancer prevention, screening, and earlier detection of breast cancer for women across ethnicities, race, and age groups (Peterson et al., 2016). Specifically, women whose providers listened to their concerns and fears, expressed encouragement, addressed barriers, and explained the risks and benefits of breast cancer screening correlated with positive screening adherence (Peterson et al., 2016). For example, in a large cross-sectional descriptive study of 7337 women ages 50-75 years old, Kindratt et al. (2020) reported that Black and Hispanic women whose healthcare providers gave specific instructions and performed high-quality teach-back skills had higher odds of receiving
breast cancer screenings than those whose providers did not offer such communication. In addition, Black, and White women receiving a cancer diagnosis reported that a lack of transparency and trust in their provider’s care led to feelings of disempowerment, increased fear, and worsened stress when navigating the healthcare system (Black et al., 2018). Furthermore, Black, and White women diagnosed with early-stage (I-III) breast cancer who received adjunctive treatment all requested greater sensitivity and empathy from their providers, personalized information on their treatment plan, and more significant social support from their oncology team (Anderson et al., 2021).

In a study of 59 racially/ethnically diverse older women over the age of 70 with no breast cancer history, Hoover et al. (2019) found that 80% of the group reported wanting to discuss the benefits and harms of breast cancer screening with their healthcare provider versus being told to get a mammogram, and 86% stated that discussion with their provider should address risks associated with overdiagnosis. Taking a different perspective, (Lunsford et al., 2018) studied 167 racially/ethnically diverse younger women between the ages of 18 and 45, a majority with a familial history of breast cancer. Themes generated across 20 focus groups found dissatisfaction with the tone and lack of tailored communication with their healthcare provider surrounding information on hereditary risk, prevention behaviors, screening, and early detection, and that advice on the age of screening varied by race and ethnicity. Finally, immigrant women with lower levels of health literacy and poor provider-patient communication frequently did not undergo breast cancer screening because they were unaware of their risk factors and the critical benefits of breast cancer screening and early detection (Ferdous et al., 2019).

Altogether, the quality and content of communication in the provider-patient relationship surrounding breast cancer screening may strongly influence women’s decisions to undergo screening. Expanding RCC program development to interdisciplinary teams managing patients undergoing breast cancer screening explores critical ways to improve the quality of
communication in patient care delivery, increase women's adherence to breast cancer screening, and ultimately improve health outcomes.

In summary, this evidence highlights the significant impact RCC has on patient care, providers, and healthcare systems in terms of 1) Stronger provider-patient relationships and improved patient outcomes, 2) Enhanced provider wellness and self-efficacy with less burnout, 3) Increased cost-effectiveness through greater patient satisfaction and use of hospital services, 4) Increased patient volume and hospital profitability with improved quality and efficiency in healthcare delivery. Finally, narrowing the gap in women's adherence to breast cancer screening through RCC is essential to promoting earlier detection and improved health outcomes.

**Project Model**

This DNP project utilized the Prosci ADKAR® model (https://www.prosci.com), which theorizes that organizational change must consider individual members. Barriers are addressed along the way and reinforcements are put into place to sustain the change. The acronym 'ADKAR' represents the five individual outcomes that must be achieved for a change to be successful: Awareness, Desire, Knowledge, Ability, and Reinforcement. Notably, organizational changes often fail because individuals do not understand the significance of a change or how to manage a change. Likewise, leaders do not have the resources or skills to support the membership through the change effectively. The ADKAR Model addresses these challenges by providing a guide to strategizing what will drive personal change and how best to translate learned behaviors into achieving organizational goals.

In the ADKAR model, the first stage of behavior change involves developing an **Awareness** of the need for change and the notion of understanding that change begins with understanding why the change is vital as a central driving force. During the initial RCC training session, employees discussed the nature of their communication challenges, their views of the current state of their work environment, and the factors that influence communication barriers.
Addressing individuals’ internalized resistance, frustration, reluctance, and apathy to the RCC training was critical to opening receptivity to change.

The second stage of behavioral change, **Desire**, focuses on the individual's decision to engage in the change. Each RCC training session gauged participants’ motivational factors and assessed their commitment and buy-in to adopting RCC into their work environment. The training also explored barriers to change, addressed resistance to change, and provided guidance and support to help explain the benefits of RCC.

During the third stage, participants gain **Knowledge** to adopt RCC behavior changes effectively. The RCC educational development sessions provided the skill set and a toolkit of resources for the staff to learn and apply high-quality communication techniques to their everyday roles and work environment. Factors that influenced participants’ gaps in knowledge and inhibited learning new communication skills were all addressed in this phase. Participants learned techniques to improve the quality of communication in their interactions with patients and co-workers during this behavioral transition stage.

The fourth stage is **Ability** which encompasses translating knowledge into performance. This phase included engaging participants in active role-playing as they practiced and applied learned communication skills. Instructors and team champions assessed each participant's skills development and provided positive feedback to help guide and tailor the training to learners’ needs and abilities.

The final stage of behavioral change described in the ADKAR Model is to put **Reinforcements** into place to sustain the RCC learned skills. Assessment of measured outcomes, celebrating successes, providing positive, relevant, and consistent feedback from project leaders and instructors, and authentic, timely recognition from supervisors and senior-level sponsors helped foster mechanisms for accountability and sustainability of changed behaviors. Mentoring participants throughout each stage of the training provided the necessary
support required to effectively maintain learned communication skills and adopt behaviors that supported the sustainability of the RCC training.

**Supporting Theoretical Frameworks**

Two theoretical frameworks are relevant to the process of experiential learning in this project: the Relationship, Establishment, Development, Engagement (REDE) framework and Social Cognitive Theory (SCT). The REDE model offers a conceptual framework as a guide for RCC educational development that can be generalized to various settings. Emphasizing that genuine provider-patient relationships act as therapeutic agents, utilization of this framework challenges providers to explore their beliefs, biases, and assumptions about patients and their role as providers (Cleveland Clinic, n.d.; Windover et al., 2014).

SCT identifies communication in the provider-patient relationship as an environmental factor that can influence an individual’s cognition, self-efficacy, and ability to apply learned knowledge (Yu et al., 2021). Together, these models define the developmental process through which an individual increases self-efficacy, applies learned knowledge, and adopts sustainable behavioral change over time.

In the context of breast cancer screening, the REDE model offers a guide to improving RCC in the provider-patient relationship and patient adherence to screening and categorizes communication skills into three primary phases of the relationship: Establishment, Development, and Engagement. The **Establishment** phase focuses on creating a rapport, making a meaningful connection, conveying patient value and empathy, and fostering trust through collaboration. In Phase 2, **Development** is centered on active listening, eliciting the patient’s narrative, and understanding the patient’s perspective. This phase also incorporates the components of the medical history. Phase 3, **Engagement**, builds on the relationship and involves sharing information and decision-making, collaboratively developing a plan, and providing closure through respect and appreciation. In addition, the REDE framework organizes
effective communication skills strategies into a series of checklists as a tool for teaching, implementing, and evaluating RCC in the provider-patient interaction.

For RCC to achieve the desired organizational change described by the ADKAR model, individuals must have the self-efficacy to adopt learned knowledge and skills into their professional practice. Self-efficacy, a key term in SCT, suggests that confidence and belief in one’s capabilities directly influence and impact our behavior and ability to act and achieve goals (Bandura, 1997). This dynamic interaction between the individual's cognition and the environment and its influence on human behavior sets the tone for the provider-patient relationship (Zachariae et al., 2015). Taken from the viewpoint of SCT, RCC acts as an external factor that can affect an individual's emotions and feelings of self-efficacy and influence their self-care behaviors. In this DNP project, RCC acts as an environmental factor that affects both patients’ and providers’ self-efficacy. For patients, high-quality communication in the provider-patient relationship positively influences their self-care behaviors, such as seeking breast cancer information and breast cancer screening (Yu et al., 2021). For providers, RCC offers a method to cope with stressful patient interactions and manage life-threatening diagnoses with increased self-compassion, reduced burnout, and increased job satisfaction (Bomher et al., 2020). Therefore, RCC provides an element of solid social support associated with positive health outcomes and offers a pathway to strengthen relationships across the healthcare system and improve the quality of patient care delivery.

Organizational Assessment

This project was implemented at a large public and academic tertiary care hospital serving a diverse patient population in the United States. The hospital is part of an integrated state-owned health system that extends its services beyond the main medical center, encompassing multiple hospital campuses and clinical practices. Governed by a Board of Directors, the hospital and its main medical center provide extensive primary care and specialty physician services.
The Breast Imaging Center, within the main hospital, provides comprehensive breast care and advanced imaging. Services provided include mammography, breast ultrasound, breast magnetic resonance imaging (MRI), ultrasound-guided breast biopsy, and stereotactic breast biopsy. It is fully accredited, earning the Breast Imaging Center of Excellence designation from the American College of Radiology (ACR). Clinic locations include the medical center's leading campus site, which provides inpatient/outpatient screening and diagnostic imaging services, and several satellite clinics, which provide outpatient screening services. The Breast Imaging Center's interdisciplinary team includes radiologists, mammography technologists, and administrative personnel. Patient experience and provider job satisfaction are measured regularly through Press Ganey surveys sent to patients and all employees through text messages, emails, or billing statements. The Breast Imaging Center consistently scores at tier-one in the work environment survey (WES) measuring employee satisfaction in the workplace.

This Breast Imaging Center was appropriate for this DNP project because communication is critical in providing high-quality breast cancer screening services. Patients receiving news that they may have cancer frequently engage in difficult conversations. Communication challenges are also common in daily interactions between administrative personnel. Frontline staff who perform patient triage in-person and over the phone can offer reassurance through improved communication skills training while scheduling appointments and providing patient care instructions. In addition, mammography technologists interface early on with patients during very stressful situations. Learning high-quality RCC skills allows technologists and other team members to gather more information about symptoms or worries concerning the patient and share pertinent patient information with the radiologist and the rest of the healthcare team. Furthermore, the Breast Imaging Center serves a diverse and multilingual population, where non-English speaking patients presenting with significant language barriers may require translators to aid in communication during patient visits.
Notably, the mission and culture of the Breast Imaging Center embraces a collaborative team mindset, with a focus on diversity and compassion, and supported the implementation of an RCC-focused DNP project. The Director of Patient Experience and Clinician Engagement acted as a certified ACH instructor in RCC skills development and is committed to improving workplace communication and relationships and eventually expanding the program systems-wide. The main barriers identified in the implementation of this project encompassed the effects of the COVID-19 pandemic, which disrupted workflows, caused staffing shortages, and depleted operational capacity.

**Project Goal and Aims**

**Goal Statement**

This DNP project modified and expanded an existing RCC skills development program for national application in the training of interdisciplinary healthcare teams.

**Aims**

The aims of this project were:

1) To modify and expand an existing RCC skills development program for the training of interdisciplinary healthcare teams.

2) To implement and evaluate the program.

3) To make recommendations for scaling and sustainability of the RCC educational program.

**Part 2**

**Methods**

**Overview of Methods**

This quality performance improvement project evaluated the impact of an RCC development program on an interdisciplinary healthcare team within a major breast imaging center in the United States. Participants included mammography technologists and administrative personnel. The project included a two-hour RCC development program taken
from the original work of (Fortin et al., 2019) and adapted from an existing RCC curriculum through the ACH (2022) for a non-physician interdisciplinary healthcare team.

**Goals and Aims of the Project:**

**Goal Statement**

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**Aims and Associated Methods**

**Aim 1.**

Development

Project leadership formation

- Leadership Steering Committee
  
  - The Project Manager (PM) formed a Leadership Steering Committee (LSC) six weeks before project implementation. The LSC consisted of key stakeholders, including the PM, the Director of Patient Experience and Clinician Engagement, and the Division Chief of Breast Imaging. The LSC acted as an advocate, providing strategic oversight, guidance, and support while monitoring project progress.
  
  - The Director of Patient Experience and Clinician Engagement, a certified RCC instructor through the ACH, elicited the...
support and sponsorship for this DNP project from all key stakeholders on the LSC at the Breast Imaging Center.

- Implementation Committee
  - The PM formed an Implementation Committee (IC) six weeks before RCC program implementation. The IC consisted of the PM, who oversaw curriculum development and all operational details of the project; the Director of Patient Experience and Clinician Engagement, who acted as the course instructor and collaborated on curriculum development; and the Mammography Imaging Supervisor of the Breast Imaging Center who facilitated staff scheduling and communications regarding meetings, and coordination of venue meeting space and technical support for all program sessions.

- The PM organized phone calls with the LSC six weeks before the onset of RCC program implementation and presented the evidence-based project plan, received feedback from committee members, and answered any questions.

- The PM conducted regular meetings and provided monthly email updates to the LSC throughout the project's duration to communicate the project's status and any necessary adjustments to the project plan. The PM held a follow-up call with the LSC within a month after program completion, presented the project findings, and discussed sustainability, scaling, and dissemination plans.

- The PM discussed training logistics through phone and email with the IC six weeks before the RCC program implementation. Items discussed included a review of curriculum modification and agenda, reservation of the meeting
space, sourced refreshments, organization of course materials, arrangement for technical support, recruitment of participants, and delivery of pre-post evaluation surveys. The PM collaborated with the IC and established the project implementation timeline and developed a Gantt chart to share with the IC and LSC.

- Six weeks before the course implementation, the PM coordinated through phone and email with the IC to confirm Information Technology (IT) support and reservation of the meeting space for all course sessions that were delivered within the Breast Imaging Center.
- Six weeks after program implementation the PM provided regular email updates to the IC and discussed project planning during monthly calls.
- The PM met with the IC two days before the onset of the RCC development program and confirmed logistics, attendance of identified participants, room reservation and IT setup, refreshments, organization of educational materials, and troubleshoot any last-minute issues.
- The PM conducted in-person meetings with the IC immediately after each weekly program session de-briefed and reviewed the delivery of course content, discussed any concerns or problems that arose, and adjusted course instruction as needed. In addition, the PM organized a follow-up call within one month after the two-month post-program survey was completed and discussed the project surveys, evaluation, and results.

Adaptation of the RCC curriculum

- The PM collaborated with the course instructor and developed a two-hour RCC course curriculum, established learning objectives, and set the agenda for the training and distribution of surveys. The two-hour RCC development
program course curriculum was taken from the original work of (Fortin et al., 2019) and adapted from an existing RCC curriculum through the ACH (2022) for a non-physician, interdisciplinary healthcare team.

- The course instructor developed a PowerPoint presentation in collaboration with the PM to serve as a teaching guide for the didactic portion of the curriculum.

- The RCC development program provided the healthcare team with a toolbox of communication skills involving three skill sets, including 1) creating a rapport, listening to concerns, and setting the expectations for the visit, 2) developing trust by showing empathy and support, and encouraging an open dialogue, 3) information sharing, counseling, and discussing the plan of care through shared decision-making.

- The learning process was experiential with small group engagement and one-on-one role-playing for each skill set, including short didactics, hands-on demonstrations, and interactive exercises with the instructor and peers. The interactive skills-based format versus didactic presentations provided more individualized coaching and peer-based feedback opportunities.

- The Director of Patient Experience and Clinician Engagement, a certified ACH instructor, led all RCC development program sessions. The PM observed all in-person program sessions and lent logistical support to the instructor as needed.

- The modified two-hour RCC development program was delivered as a one-hour session per week over the course of two weeks. Each course session was held in-person on Wednesday mornings from 7 am to 8 am at the Breast Imaging Center conference room.
The RCC development program was offered twice and consecutively to two separate groups of participants over the course of one month (early September 2023 to early October 2023). Participants were divided into two groups to optimize smaller class sizes for role play and skills-based experiential learning.

RCC course materials

- The PM reviewed all course education materials with the IC six weeks before the implementation of the RCC educational program.
- The PM organized all hard-copy course materials and compiled them into participant packets one month before the program's implementation. The RCC program educational materials included the following:
  - The REDE Communication Model skills checklist.
  - The RCC Development program course curriculum outline and agenda.
  - The survey schedule that outlined the dates of the surveys was emailed to participants.
  - A summary of ACH RCC skill sets was utilized by participants as a guideline and references the acronyms PEARLS (Partnership, Empathy, Apology, Respect, Legitimation, and Support) and ART (Ask, Respond, Tell) to highlight critical components of communication training.

Participant identification

- Participants included all non-physician, interdisciplinary healthcare team members, including mammography technologists and administrative personnel working in the Breast Imaging Center. The Breast Imaging Center at that time did
not employ contract workers or agency staff for mammography or administrative roles.

- The number of participants in the study included 15 mammography technologists and 8 administrative personnel. Participation was voluntary, and 21 healthcare team members participated in the development program.

Recruitment

- The PM coordinated with the IC and organized an in-person kick-off staff meeting six weeks before the RCC development program started, introduced the training program, and invited all staff members in the breast imaging center to participate.
  - The PM collaborated with the Mammography Imaging Supervisor, who oversaw reserving the conference room meeting space at the Breast Imaging Center one month before the kickoff meeting.
  - The PM collaborated with the IC one month before the kick-off meeting and organized the meeting agenda, which included communication of the problem statement, an overview of the RCC development program, and information on participant enrollment and access to the pre-assessment survey.
  - The PM created a flyer and informed the staff that there would be an RCC informational session at the kick-off staff meeting. The flyer was attached to an email sent by the Mammography Supervisor to all the staff and announced the RCC informational session two weeks before the scheduled staff meeting.

Enrollment

- The PM composed a letter to all potential staff participants at the Breast Imaging Center that provided an introduction and overview of the RCC development program and an invitation to participate in the training. The PM emailed the letter
to all potential participants and included a link, which utilized the Qualtrics XM system, allowed participants to enroll in the RCC development program, and provided access to a confidential pre-course competency assessment survey.

- Surveys were sent to participants by the PM using the Qualtrics XM system that provided access to an online platform with integrated communication tools approved for use with high-risk and electronically protected health information (ePHI) data.

Development of RCC pre-post self-competency assessment tool

- RCC pre- and post- self- competency assessment surveys
  
  o The PM developed the pre-, immediate-post, and two-month post-program self-competency assessments using the Qualtrics XM Survey Application. Surveys measured participants' levels of self-efficacy and perceived capability to perform RCC skills. The pre-and post-program self-competency assessment surveys were based on Bandura's Social Cognitive theory that an individual's perceived self-efficacy affects their judgment of their capability to achieve certain attainments (Bandura, 1997).
  
  ▪ The three surveys were identical and categorized into three RCC skill sets (Beginning the Encounter, Building the Relationship, Ending the Encounter) and included a list of nine patient engagement activities retrieved from the Self-Efficacy in Patient Centeredness Questionnaire (Zachariae et al., 2015). Participants were asked to rate their level of confidence in performing a particular activity. The survey consisted of nine items rated on a 10-point scale from zero (“not confident”) to
complete assurance, 100 ("highly confident"), for a total survey score of 90.

- RCC post-program evaluation survey
  - The PM developed an RCC post-program evaluation survey using the Qualtrics XM Survey Application. The survey evaluated participants’ satisfaction with the quality of the RCC development program, its value and relevance in their daily workplace, and their intent to incorporate learned RCC skills into practice.
    - The RCC post-program evaluation survey consisted of four items, each scored on a five-point Likert scale, and a section for open comments at the end (Grome et al., 2018). Each survey response was categorized from 1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree to 5 = strongly agree.
    - A numeric identifier was used on all data collection tools. The Master Contact List was stored electronically on a password-protected, encrypted laptop accessible only to the PM. The PM informed respondents that their responses would remain confidential, with only the numeric codes used by the PM in evaluating survey results.

**Aim 2.** To implement and evaluate the program.

**Implementation**

**Meetings with LSC and IC start**

- The PM provided email updates to the LSC six weeks before the onset of the training program. The PM provided an overview and timeline of the project, which included the problem statement, goal, and aims. In addition, the PM provided
monthly follow-up emails to share updates on the project, troubleshoot problems, adjust the project plan, and monitor for project fidelity.

- The PM had follow-up phone calls with the IC in-person six weeks before the onset of the RCC development program. Logistics discussed for program implementation included reservation of the meeting space, refreshments, arrangements for technical support, organization of training materials, distribution of the surveys, and identification of program participants. The PM reviewed all educational materials, discussed the RCC curriculum’s specific modifications, and set the training agenda.

- Six weeks before program implementation, the PM coordinated with the Mammography Imaging Supervisor and confirmed the reservation of the venue meeting space and IT support.

- The PM communicated with the IC through regular email updates beginning six weeks before program implementation, initiated follow-up phone calls, and discussed project planning.

- Two days before the program implementation, the PM met in person with the IC, confirmed all logistical details, and troubleshooting last-minute issues.

- The PM attended all weekly in-person RCC program sessions, observed, monitored, and met with the IC after each program session, and discussed the instructional process, project integrity, and any necessary adjustments.

Recruitment

- Six weeks before program implementation, the PM announced the RCC development program during the Breast Imaging Center’s monthly in-person staff meeting. This meeting was led by the Mammography Imaging Supervisor, and
the PM and provided an overview of the problem statement, goal, and aims of the RCC development program.

- During the in-person staff meeting, the PM invited the staff to participate in the RCC development program. The PM informed the staff that they would be emailed an invitation letter immediately following the meeting, which would provide an overview of the RCC development program and requirements for participation. The letter included a survey link produced by Qualtrics, which allowed the recipients access to the confidential pre-course competency assessment survey. The PM informed the staff that their participation in the RCC development program was voluntary and that all survey responses would be kept confidential by the PM. The PM sent weekly email reminders to all potential participants to complete the survey.

Enrollment

- The PM compiled all confidential survey responses and created a Master List of participants. The PM collaborated with the Mammography Imaging Supervisor, who was responsible for staff scheduling, and organized two participant groups of 9-12 members, each according to staff schedules.

- Using the Qualtrics platform, participants were notified by the PM of their enrollment in the RCC development program immediately after they had submitted the pre-self-competency assessment survey. The PM sent reminders to all participants on their assigned training dates, times, and locations before the start of the course.

Implement the RCC development program

- After the PM enrolled all the participants, the first group of 9 participants participated in the two-hour RCC development program. It was delivered as a 65-
70 minute session once a week for two weeks. Each session was held in-person on Wednesday mornings (from 7 am to 8 am) at the Breast Imaging Center conference room so that it did not conflict with participants’ work schedules and daily operations of the Breast Imaging Center.

- After the first group completed the two-hour RCC development program, the second group of 12 participants participated in the next two-hour RCC development program. A total of approximately 21 healthcare team members attended both programs.
  - The ACH-certified course instructor taught all program sessions, with the PM present during all training modules. The course instructor combined didactic PowerPoint instruction with small group guided discussion and experiential skills-based learning that included peer/instructor feedback. Participants each received a packet that included the REDE Communication Model skills checklist, the RCC development program course outline and the agenda, the survey schedule, and the ACH summary RCC skills handout.
  - The RCC development program curriculum contained two parts: didactic presentations of all three fundamental communication skill sets and small group experiential skills practice with direct feedback provided by participants and the course instructor.
- The PM conducted in-person meetings with the IC immediately after each weekly training session throughout the duration of the project and reviewed the delivery of course content, discussed any concerns or problems, and adjusted course instruction as needed.
- The PM, in collaboration with the course instructor, gauged staff reactions to the education development program throughout the project and identified potential
champions to be considered for further RCC train-the-trainer education to support the sustainability of the program.

- One participant in Group One could not attend Part One of the training session, however, the course instructor provided full and individualized course instruction to that participant immediately following Group One’s first session.

Administration of surveys/evaluations

- Administration of RCC pre-post self-competency assessment survey
  - All participants were emailed a letter with a survey link produced by Qualtrics, allowing the recipients access to each confidential pre- and post-competency assessment survey. The survey was sent upon enrollment, immediately post-, and two months post-program completion. The survey was sent with a link to allow user preference for accessing the survey.
  - The PM informed participants that all surveys were confidential and would be used to evaluate their levels of confidence in carrying out RCC skills. The PM sent pre-reminder emails for the third survey one-month post-program and six weeks post-program and also sent weekly email reminders following the two-month target mark. Leadership support for the program was strong and was engaged in encouraging the completion of all surveys.

- Administration of RCC program evaluation survey
  - All participants were emailed a letter with a survey link produced by Qualtrics, allowing the recipients access to the confidential RCC program evaluation survey. The survey was sent immediately after completing the
RCC development program. The survey was sent with a link to allow user preference for accessing the survey.

- The PM informed participants that the survey was confidential and would be used to evaluate participant satisfaction with the RCC development program. Each participant’s survey was kept confidential on a Master Contact List seen only by the PM.

- Data Management
  - The PM compiled all survey data, which was encrypted, protected, and stored on the Qualtrics information technology server, obtained through an enterprise license for the Qualtrics Research Suite, a full-featured online survey platform (Qualtrics, 2022). The Qualtrics system was approved for use with high-risk and electronically protected health information (ePHI) data. A Master Contact List, accessible to the PM only, linked participant-identifiable information with an assigned numeric identifier. The numeric identifier was used on all data collection tools. The Master Contact List was stored electronically on a password-protected, encrypted laptop accessible only to the PM. Each participant’s survey was kept confidential, and data was reported in the aggregate only.

Evaluation

Descriptive and Multivariate statistics were used to assess outcomes.

RCC pre-post self-competency assessment survey

- A comparative analysis of perceived self-competency across three-time points was conducted using the R Statistical Software (R Core Team, 2023). A within-subjects one-way Analysis of Variance (ANOVA) evaluated the differences in participants' levels of perceived self-efficacy to perform RCC skills across the
pre-program, immediate-post, and two-month-post period completion of the RCC development program.

RCC Post-Program Evaluation survey

• The post-program evaluation survey was analyzed descriptively.

_Aim 3._ To make recommendations for scaling and sustainability of the RCC educational program.

The aggregate findings of this quality improvement project were presented to all key stakeholders on the LSC and executive leadership at the Medical Center. Based on the findings, the following recommendations were outlined:

_Sustainability_

• That Executive Leadership and stakeholders continue to support funding for Patient Experience and Clinician Engagement programs.

• That the Medical Center will utilize marketing strategies and human resources to promote positive messaging and readiness on the importance of RCC in quality patient care delivery.

• That the Medical Center executive leadership will require departmental heads to designate champion staff members as interdisciplinary healthcare leaders to become ACH-certified RCC instructors through train-the-trainer programs as a systems-wide model of care.

• That executive leadership at the Medical Center will collaborate to promote further expansion of RCC instructor train-the-trainer programs.

• That the Medical Center’s development office will incorporate RCC training into the orientation program for all new-hire employees. Additionally, employees will be required to take an annual RCC skills refresher course through the Medical Center’s Learning Management System as part of their continuing education.
• That the Medical Center executive leadership will include RCC skills as part of the annual employee competency evaluation.

Scaling

• Upon successful implementation, the PM recommends the expansion of customized RCC development programs throughout the healthcare system as a model for national application.

• The PM also will share the project results with executive leadership at additional regional breast imaging centers for scaling up by implementing RCC education development programs in the United States as a model for national application for delivery at home institutions.

Dissemination

The PM will submit an abstract for podium presentation at the annual national conference for the Association of Radiologic and Imaging Nursing and the peer-reviewed Clinical Journal of Oncology Nursing, an official publication of the Oncology Nursing Society.

Project Timeline

This DNP project lasted seven months, from July 2023 through January 2024. It required two months for project planning and compiling program training materials, three months for active implementation, and two months for data collection and analysis after program completion. The PM conducted the kickoff meeting, enrolled participants, and collected pre-program self-competency assessment surveys in August 2023. The IC implemented the RCC development program in September and October 2023. Participants completed the post-program surveys and evaluations at the end of the program from October 2023 to December 2023. The PM collected all program surveys and evaluations and tracked the data analysis from October 2023 to January 2024.

Statement Related to Human Subjects
This DNP project was deemed a quality improvement project by Yale University’s Internal Review Board. The project was also reviewed and exempted by the sponsoring Medical Center’s Office of Human Research Ethics. It posed minimal risk to participants.

**Part 3**

**Systems, Policy, and Business Implications**

**The Business Case and Leadership Engagement**

**Leadership and Stakeholder Engagement**

The DNP student acted as the PM for this quality improvement project, oversaw all project operations, and had no professional affiliation with the sponsoring medical center where the project was implemented. The Director of Patient Experience and Clinician Engagement acted as the principal External expert for this project. In addition, the External expert functioned as the Course Instructor and led the RCC development program training for the interdisciplinary staff at the Breast Imaging Center. The PM and Course Instructor modified the curriculum, set the agenda, and co-managed the program’s implementation. An additional agency expert included the Chief of Breast Imaging in the Department of Radiology, who acted as an advocate, providing support while monitoring the project’s progress. Finally, the Imaging Supervisor of Mammography Services at the Breast Imaging Center served as the Systems/Processes Manager and facilitated staff scheduling, communications, and coordination of venue meeting space and technical support.

The PM oversaw all project communications, scheduled a meeting with all stakeholders, and provided a written Executive Summary that included a comprehensive overview of the project scope, evidenced-based rationale, timeline, and methodology for implementation and evaluation. During this meeting, the PM elicited feedback and made necessary adjustments. The PM provided regular communications which kept all stakeholders informed and on board throughout the project’s lifecycle. Upon post-program completion, the PM presented the project findings and discussed sustainability, scaling, and dissemination plans.
**Implementation of Organizational Change**

The PM utilized informal pathways to establish project governance and influence stakeholders and staff members to support project implementation and goals that support organizational change (Lingo & McGinn, 2020). Specifically, the PM exerted influence by understanding stakeholders’ priorities while effectively and passionately communicating the vision and importance of the project (Dye & Garman, 2015; Kotter, 2022). In addition, the PM exercised relational power mobilizing core strengths in communication to network and develop key contacts within the organization that lent support to identify potential barriers and resisters and successfully navigate the organizational culture (Gallup Press, 2021; Lingo & McGinn, 2020).

Recognizing the emotional and stressful toll on staff working in a breast imaging center, the PM used the Human-Centered Leadership (HCL) conceptual model to drive organizational change. The HCL model helped guide interpersonal relationships and communications among stakeholders and participants by creating a just and safe culture where every staff member felt emotionally supported and encouraged to speak openly about challenges faced in caring for a complex patient population (Kennedy et al., 2022). The PM co-produced authentic relationships with stakeholders and staff members by prioritizing inclusivity in all aspects of project planning and implementation and recognizing the value of diversity in people’s perspectives (Hilton & Anderson, 2018; Northouse, 2022). Creating a nurturing and inclusive learning environment that emphasized each team member’s diverse needs, perspectives, and growth aimed to generate group consensus and motivate staff to invest in the change process (Dye & Garman, 2015; Kennedy et al., 2022).

**Business and Financial Considerations**

**Budget Analysis**

The highest project cost identified was staff time to participate in the training. The Breast Imaging Center blocked the clinic schedule for the training as there were no available
replacement personnel. The lost revenue during the four hours of training was recognized as an opportunity cost. Additional minimal training costs included course materials and refreshments. The course instructor had academic time already budgeted. There was no cost for the conference room space or equipment setup. IT components included existing Qualtrics XM (Qualtrics, 2022) and R Statistical software at no extra cost (R Core Team, 2021).

**Risk Assessment and Risk Mitigation Plan**

This DNP project included a risk assessment and risk mitigation plan developed in consultation with key project stakeholders at the Breast Imaging Center that identified and assessed risks that could negatively impact the project and determine the mitigation of those risks during the project life cycle (Sipes, 2016). Applying structured analytical concepts from the Enterprise Risk Management framework, the most significant risks identified for this DNP project were interdependent and fell into two domains, human capital and operational (Carroll, 2016). Mitigating identified project risks provided an opportunity for value creation and protection by safeguarding effective project implementation (Carroll, 2016).

A significant risk identified for this DNP project was participation in the RCC development program due to demanding clinic schedules, staffing shortages, and time constraints. Senior agency leadership in the Breast Imaging Center, and the Mammography Imaging Supervisor, strongly reinforced the importance of staff participation in the RCC development program to support their professional development. The IC offered resources to help participants complete the training program efficiently, including weekly email reminders before each training session, an easily accessible workplace on-site meeting room to conduct the training, a blocked clinic schedule, and a well-structured, organized program. The IC offered an additional make-up training session within two weeks for any employee(s) who could not complete either part of the RCC development program. If several employees could not participate in the make-up training session, the IC would recruit other participants from a nearby breast imaging satellite clinic to participate in the program.
Another potential internal operational risk identified was the Course Instructor’s availability as a busy Director. If the Course Instructor could not conduct a training session, the PM would collaborate with the IC to reschedule the affected training session within two weeks. In addition, the Breast Imaging Center Administrative Team Supervisor oversaw clinic operations in support of the RCC training in the absence of the Mammography Supervisor.

Finally, uncontrollable external risks identified were the potential for severe inclement weather that could have caused transportation delays for participants and a resurgence of the COVID-19 pandemic, which could have inhibited staff participation. These risks were deemed low; however, if required, the IC would follow the medical center’s emergency preparedness protocols, adhere to contingency planning, and reschedule the affected training session within two weeks. In summary, this DNP project risk management plan aimed to take a disciplined and proactive approach to address internal and external operational risks efficiently while implementing strategic initiatives to avoid or minimize risk factors that could have negatively impacted the project.

**Part 4**

**Results**

**Introduction**

A two-hour RCC Development program involving 21 interdisciplinary healthcare team members was conducted at a large breast imaging center in the United States. Six participants (28.6%) self-identified as Administrative personnel, while the remaining 15 (71.4%) self-identified as Mammography Technologists. Participants were divided into two groups. Group 1 had nine participants, and Group 2 had 12 participants. The program was delivered onsite to the two groups over four weeks, two weeks per group. The program evaluated participants’ self-confidence in nine learned RCC skill sets in three categories: Beginning the Encounter, Building the Relationship, and Closing the Encounter.
All participants were given a pre-, immediate-post, and two-month-post self-competency assessment survey as well as a post-program evaluation survey. The pre-and post-self-competency surveys evaluated participants’ levels of perceived self-competency to perform nine RCC skills across three-time points. The post-program evaluation survey assessed participants’ impressions of the value and relevancy of the RCC program.

The pre-, immediate-post, and two-month post-program self-competency assessment surveys were each given as a series of nine questions with a possible score of zero to 100 for each question. The total scale score for each survey was 900. The nine survey questions were divided into three categories: Beginning the Encounter, Building the Relationship, and Closing the Encounter. Each category had a maximum score of 300. All 21 participants completed 100% of the pre-, immediate-post, and two-month post-program self-competency assessment surveys, and all completed the post-program evaluation survey.

Statistical Analysis

Findings on the RCC Self-Competency Assessment

An analysis of the pre-, immediate-post, and two-month-post self-competency assessments using a Type III One Way Repeated Measures ANOVA indicated that the two-hour RCC development program increased participants’ self-competency in learned RCC skills across three-time points $F(1,19) = 11.9, p = 0.001$. This evidence suggests that providing a two-hour RCC development program for an interdisciplinary team working in a breast imaging center significantly improved their self-confidence to apply acquired RCC skills.

Pre-, immediate-post, and two-month-post-test score differences were calculated by taking each participant’s immediate-post-test score and two-month-post-test score and subtracting their pre-test score. Participants’ pre-test scores showed improvement in comparison to both the immediate-post-test scores as well as the two-month-post-test scores. Results indicated that participants gained an average of 53 points on their final score from pre- to immediate-post-test, an average of 55.76 points on their final score from pre- to two-month-
post-test, and an average of 2.6 points on their final score from immediate-post-test to two-month-post-test.

Pairwise, Wilcoxon signed rank sum tests were used with adjusted $p$-values to account for multiple comparisons. Significant differences were found in the final scores between the pre-test and immediate-post-test ($z = 3.12, p = 0.002$), and pre-test and two-month-post-test ($z = 3.01, p = 0.003$), suggesting that participants’ self-confidence in their ability to carry out learned RCC skills increased immediately post-training and was retained for two months. No significant differences were found between participants’ immediate post-test and two-month-post-test scores.

**Analysis of RCC Skill Set Categories.** Results of an analysis of the three RCC skill set categories, Beginning the Encounter, Building the Relationship, and Closing the Encounter, indicated that participants demonstrated significant improvements in their learned RCC skills from pre- to post-intervention. Maintenance of improved scores across both post-test periods suggests retention of participants’ overall RCC capabilities.

**Findings on Category 1: Beginning the Encounter.** For the Beginning the Encounter category, results showed some improvement in participants’ final scores across all three-time points. Participants’ immediate-post-test scores increased compared to their pre-test scores for the Beginning the Encounter category, with participants scoring 4.52 points higher on the immediate-post-test compared to the pre-test. Participants’ two-month-post-test scores increased compared to their pre-test scores with participants scoring 9.76 points higher on the two-month-post-test than the pre-test. Participants’ two-month-post-test scores also increased compared to their immediate-post-test scores with participants scoring 5.24 points higher on the two-month post-test than the immediate-post-test.

The Wilcoxon rank sum test was used to evaluate the paired final score differences. Results indicated that there was a significant increase in the difference between the pre-test compared to the two-month-post-test scores ($z = 2.26, p = 0.024$). However, there were no
overall significant differences between the pre-, to immediate-post-test scores, and immediate-post to two-month-post-test scores for this category.

**Findings on Category 2: Building the Relationship.** For the Building the Relationship category, results showed significant improvement in participants' pre- versus immediate-post-final scores. Participants' immediate post-test scores increased compared to their pre-test scores in the Building the Relationship category, with participants scoring 17.71 points higher on the immediate-post-test than the pre-test. Participants' two-month post-test scores increased compared to their pre-test scores, with participants scoring an average of 17.71 points higher on the two-month post-test than the pre-test. Participants' two-month-post-test scores also increased compared to their immediate-post-test scores with participants scoring an average of 1.52 points higher on the two-month post-test than the pre-test.

The Wilcoxon rank sum test was used to evaluate the paired final score differences. Results showed that the differences between participants' immediate-post-test scores were higher than their matched pre-test scores ($z = 3.01, p = 0.003$). An increase in the difference in participants' pre-test and two-month-post-test scores was also found ($z = 3.15, p = 0.002$), suggesting retention of learned RCC skills occurred over two months for this category. Differences in participants' immediate-post to two-month-post-test scores did not significantly increase.

**Findings on Category 3: Closing the Encounter.** For the Closing the Encounter category, results showed significant improvement in participants’ pre- versus post-final scores, Participants’ immediate-post-test scores increased compared to their pre-test scores in the Closing the Encounter category, with participants scoring 30.9 points higher on the immediate-post-test than the pre-test. Participants’ two-month-post-test scores increased compared to their pre-test scores with participants scoring an average of 26.76 points higher on the two-month-post-test as compared to the pre-test. Participants’ two-month-post-test scores decreased by 4.14 points from their immediate-post-test scores.
The Wilcoxon rank sum test was used to evaluate the paired final score differences. Results indicated that participants’ immediate-post-test scores were higher than the matched pre-test scores ($z = 3.39, p < 0.001$). Differences in participants’ pre-test and two-month-post-test scores were also found to increase ($z = 2.57, p = 0.010$), indicating participants’ retention of learned RCC skills for this category. No significant differences were found in participants’ immediate-post to two-month-post final scores for this category.

**Findings on the Comparison of RCC Categories.** An analysis using One-Way Repeated Measures ANOVA compared each of the three RCC categories, Beginning the Encounter, Building the Relationship, and Closing the Encounter, to the pre-, immediate-post, and two-month-post time points. Results indicated an overall positive association for the Building the Relationship category across all three testing time points $F(1,19) = 13.60, p < 0.001$). Furthermore, a significant association between the Closing the Encounter category and the three testing time points was observed $F(1,19) = 9.138, p = 0.003$). These results suggest that participants retained improvement in their learned RCC skills for both the Building the Relationship and Closing the Encounter categories over two months, however, the Beginning the Encounter category and testing time points revealed no significant association.

**Compositional Data Analysis of RCC Skill Set Categories.** Among participants who demonstrated any difference in their pre-to immediate-post-test scores, the Closing the Encounter category emerged as the most influential, comprising an average of 49% of the final score. Subsequently, the Beginning the Encounter category contributed 26% to the final score, while the Building the Relationship category accounted for 25% of the overall score. These pre-to post-intervention results suggest that approximately half of the participants’ improvement in final scores can be attributed to the Closing the Encounter category, with the other two categories sharing the remaining influence roughly equally.

**Findings on Group and the RCC Self-Competency Assessment.** Participants were categorized into two groups. Group 1 consisted of nine participants (43% of the total), and
Group 2 consisted of 12 participants (57% of the total). A Type III Repeated Measures Mixed ANOVA determined that overall, the Group did not significantly impact participants' RCC self-competency assessment final scores $F(1, 19) = 0.12, p = 0.736$, suggesting that the content and delivery of the RCC curriculum remained consistent between both groups. The Group 1 immediate-post-test score and two-month-post-test score increased compared to the Group 1 pre-test score. Similarly, the Group 2 immediate-post-test score and two-month-post-test score increased compared to the Group 2 pre-test score.

When comparing results between groups, findings were significant for the pre- to two-month final score difference between groups. The pre- to two-month-post-test score difference in Group 2 exhibited a larger increase than in Group 1. A Type II Mixed ANOVA analysis on pre- and two-month-post final scores showed a significant difference in total competency assessment scores between the groups $F(1, 19) = 12.03, p = 0.003$, suggesting that participants in Group 2 had a significantly higher degree of self-confidence in learning RCC skills over two months. The pre- to immediate-post-test score difference in Group 2 exhibited a larger increase than in Group 1. However, a Type III ANOVA analysis on final scores showed no significant difference in total self-competency assessment scores between the groups $F(1, 19) = 0.51, p = 0.49$. Likewise, the immediate-post to two-month-post-test score difference for Group 1 showed a larger increase compared to Group 2. However, a Type II Mixed ANOVA analysis on final scores indicated no Group effect on total RCC self-competency scores between groups $F(1, 19) = 0.15, p = 0.704$.

**Findings on Professional Role and RCC Self-Competency Assessment.** The Mammography Technologists consistently scored higher than the Administrative Personnel in the RCC self-competency assessments across all three-time points. The Mammography Technologists' score differences were 8.9 points higher between pre- and immediate-post-test, 30.7 points higher between pre- and two-month-post-test, and 39.6 points higher between
immediate-post and two-month-post-test compared to the Administrative Personnel score differences.

However, a Type II Mixed ANOVA found no significant between-subjects effect of professional role on final pre- and immediate-post-test scores, as well as final pre- and two-month-post-test scores. Similarly, a Type III ANOVA revealed no significant between-subjects effect of professional role on immediate-post to two-month-post final scores. These results indicate that participants' professional role did not significantly impact their self-confidence in learning RCC skills over two months.

**Findings on the Program Evaluation**

The post-program evaluation survey was given immediately upon program completion and assessed participants' perception of the program's value and relevancy. All participants completed the Likert scale survey. A majority of the participants (80.95%) reported that they strongly agreed that the RCC development program was a valuable use of their time. Furthermore, 85.7% of the participants strongly agreed that the RCC development program was relevant to their professional role, would plan to implement learned RCC skills into their work practice, and would recommend the program to other colleagues.

Comparing the professional roles of Administrative Personnel and Mammography Technologists, results revealed that a larger proportion of Mammography Technologists (86.7%) strongly agreed that the program was a valuable investment of their time. Furthermore, an even higher percentage (93.3%) viewed it as pertinent to their professional role. In contrast, 66.7% of Administrative Personnel strongly agreed that the RCC development program was a valuable use of their time, relevant to their professional role, would plan to implement the RCC skills into their practice, and recommend the training to colleagues. Despite variations in perceptions of the relevance and value of the RCC program across participant roles, the overwhelming consensus among respondents was a positive impact, highlighting the program's overall success.
Part 5

Discussion and Conclusion

This quality improvement project demonstrated that implementing a two-hour RCC development program for an interdisciplinary healthcare team at a breast imaging center increased their self-confidence in applying acquired RCC skills. Participants' RCC self-competency scores significantly increased, highlighting the positive influence of providing targeted RCC skills training to improve the quality of communication in patient care and the retention of learned skills over two months. Furthermore, participants were most confident in the Closing the Encounter category, facilitating shared decision-making and emotional support. Confidence also significantly increased in the Building the Relationship category, emphasizing trust-building and empathy. These findings indicate that introducing an RCC development program within breast imaging allows the healthcare team to utilize bi-directional RCC to foster improved patient relationships and transform the delivery of high-quality breast care.

While all aspects of the three RCC skill sets are crucial in promoting relationship-centered care, this project revealed the particular significance of the Building the Relationship and Closing the Encounter categories in the breast imaging environment. These elements had a profound impact on the healthcare team's self-confidence, more so than those associated with Beginning the Encounter. Notably, Closing the Encounter was identified as the category with the greatest overall influence on participants' final score changes. We attribute these results to the dynamics of patient interactions during relationship-building and encounter closure, which often involve deeper, more personal conversations. Therefore, a strategic focus on RCC skills training centered on empathy, trust-building, and shared decision-making is not only relevant but also essential in the breast imaging environment, leading to more substantial improvement over time and fueling participants' intrinsic motivation to develop their communication skills and engage in relationship-centered patient care.
Even though this project successfully improved RCC self-competency within an interdisciplinary healthcare team, it is important to note that the difference between the two groups did not reach statistical significance. Numerous factors may have affected these outcomes and bear further examination. However, the lack of a significant difference between groups aligns with our commitment to consistency in curriculum content and delivery, enhancing our findings’ reliability and validity.

Despite effectively increasing the self-confidence of a breast imaging team in utilizing acquired RCC skills, there were some unexpected outcomes. First, markedly elevated pre- and post-self-competency scores may suggest some participants overestimated their perceived ability to perform RCC skills. Even so, given the significant improvement in participants’ pre- and post-training scores, we presume that if they could score themselves with even greater accuracy, we would have found a more dramatic improvement in their self-confidence in carrying out learned RCC skills. Secondly, some inconsistencies noted between participants’ feedback on the program and their reported levels of self-confidence in RCC skills suggest that inaccurate self-assessment might impede motivation and recognition of program benefits. Finally, differences in the professional roles and patient interactions of Mammography Technologists and Administrative personnel may have affected their participation in the RCC training, highlighting the importance of customized RCC programs to enhance the impact and perceived benefits for all interdisciplinary team members. In sum, further study is warranted to delve deeper into response accuracy, individuals’ self-perception of performance, and the benefits of the RCC Development program.

Overall, this project’s positive outcomes reinforce the critical role of tailoring RCC skills education to optimize relationship-centered patient care in specialized medical environments. In breast imaging, harnessing effective RCC techniques, encompassing empathy, trust, and shared decision-making, becomes particularly important as it empowers all healthcare team
members to navigate patients potentially confronting a cancer diagnosis with greater confidence.

**Practical Implications**

The RCC development program emphasizes the well-being of the healthcare team, resulting in improved quality and efficiency in patient care in the breast imaging setting. Introducing a tailored RCC development program to the interdisciplinary healthcare team leads to increased confidence and proficiency in communicating with patients. Notably, differences exist in how individuals engage with and perceive the benefits of communication skills training. While individuals can acquire skills, their perception of the training’s usefulness may vary. This perception can impact their willingness to apply what they have learned, with some potentially disregarding the training material. Targeted RCC programs empower the healthcare team to actively listen and offer empathy while addressing patients’ concerns and finding solutions.

The experiential learning design of the RCC development program provides an opportunity for interdisciplinary team building. Co-workers can share challenging patient care scenarios and troubleshoot solutions. Team members engage in positive and constructive feedback, gaining alternating perspectives of both the patient and the provider during role-play exercises. For example, patients may feel angry or frustrated, often due to fear of a looming cancer diagnosis. RCC offers a platform for the breast imaging team to work together, enabling patients to share their concerns and feel acknowledged and understood.

Finally, prioritizing RCC training promotes the well-being of the healthcare team which translates to improved quality and efficiency in patient care. For example, RCC helps the team navigate and diffuse stressful conversations and better manage time constraints posed by challenging patients with diverse and complex care needs. This improvement in RCC fosters better patient interactions and greater efficiency in healthcare delivery. In summary, embracing relationship-centered care can bolster a successful business model with tangible benefits such as improved relationships between patients and the healthcare team, enhanced teamwork,
high-quality healthcare delivery, and heightened organizational efficiency, performance, and profitability.

Limitations

Due to the design of this quality improvement project, we noted several important limitations. Our project included a single breast imaging center with relatively few participants, making it difficult to apply findings to other groups and centers, however similar. In addition, despite assurances of confidentiality in survey responses, participants may have exhibited social desirability bias, particularly if they view the training positively or aim to please the mammography supervisor or the program instructor. Such instances could lead to an overestimation of their perceived self-confidence.

We could not exclude some external factors that may have influenced the improvement in participants' scores. For example, the division of the groups was not equal and, understandably, based on the department's staffing needs. Implementing training with two larger groups resulted in participants having limited time to practice RCC skills during role-playing exercises. Additionally, varying dynamics in participants' roles can influence communication needs and individuals' role-playing behaviors and survey responses. For instance, administrative personnel facing communication challenges related to wait times, scheduling, and payment may benefit from role-playing with peers, while mammography technologists, focused on patient concerns and imaging procedures, have distinct patient communication requirements. Modifying the training according to defined participant roles and identified RCC skills needs may promote increased participant engagement.

Recommendations for Scaling and Sustainability

Expanding this RCC development program to interdisciplinary breast imaging teams can serve as a national model of relationship-centered care. As medical centers substantially invest in initiatives to improve the quality of patient care delivery, dissemination of an RCC development program can substantially improve the quality and outcomes of communication
and relationships between patients and healthcare teams in breast imaging centers. Emphasizing the financial benefits of investing in staff development will be critical to eliciting the support of hospital leadership. Collaborating with key stakeholders, including nursing, medical, administrative, and patient experience leaders, will be essential for successful implementation.

Looking ahead, the vision is to broaden participation and expand RCC development programs by conducting small-group (six or fewer individuals), two-hour workshops across the entire hospital system. Workshops may be adapted to different professional roles such as nursing, therapists, technologists, administrators, front desk staff, environmental services, and guest services. Providing targeted training toward specific professional roles can yield deeper insights into the most valuable elements of the RCC development program, boosting participants' confidence levels. Furthermore, to gain a more comprehensive understanding of the benefits of communication skills training, it may be beneficial to follow up with qualitative interviews or focus groups to explore participants' experiences in more depth. This feedback could uncover nuanced changes that quantitative surveys may not capture effectively and help to guide the modification of future RCC development programs. In addition, new employee orientation sessions can include a didactic introduction of the training program focusing on foundational RCC principles. The sustainability of improved skills can be supported through follow-up continuing education modules provided annually to all staff and designed to be easily accessible.

To date, there is limited research on the impact of DKE on communication skills training. Recommendations for future quality improvement projects include evaluating how DKE may influence individuals' ability to learn and apply RCC skills compared to objective assessments. Mitigating the issue of participants overestimating their communication skills requires thoughtful strategies to improve individuals' metacognition. Educators are uniquely positioned to improve learning and self-assessment skills by increasing learners' metacognition through opportunities for self-reflection (Bradley et al., 2022). Incorporating reflective feedback from peers and
supervisors qualified to rate the skill and expert instructor feedback can help participants gain a more balanced and accurate perspective on their communication skills (Bradley et al., 2022). Additionally, including pre-training education on the DKE to increase participants' awareness of response biases and self-reflection exercises to encourage participants to identify strengths and weaknesses in their communication skills provides rich learning opportunities (Bradley et al., 2022).

The overarching goal is to foster a top-down approach where RCC principles are embedded into healthcare systems, becoming ingrained in the institutional culture rather than merely as a checklist item. This approach aims to foster a culture where RCC is embraced and practiced at all levels, promoting better patient outcomes and overall quality of healthcare.

Conclusion

The successful implementation of a 2-hour RCC development program within an interdisciplinary team at a breast imaging center yielded promising results. Our primary goal was to improve the communication skills essential for high-quality patient care within the specialized healthcare context of breast imaging. Following the completion of the program, our analysis revealed a significant increase in participants' self-confidence regarding the application of acquired RCC skills. Moreover, participants strongly expressed the value and relevance of this program within their roles in breast imaging and their intent to implement the skills in their daily practice and recommend the training to others.

These positive outcomes underscore the RCC development program's effectiveness in empowering the healthcare team with enhanced communication skills through an interdisciplinary approach. RCC cultivates a supportive work environment, reducing burnout among staff and promoting teamwork with greater efficiency. Furthermore, fostering trust, empathy, and collaboration between the interdisciplinary healthcare team, patients, and their families increases patient satisfaction, adherence to treatment plans, and, ultimately, better health outcomes. Finally, integrating interdisciplinary RCC development programs into
healthcare policy to improve provider well-being and patient experience strategically positions healthcare organizations for increased and sustainable financial success. Building robust connections among patients and the interdisciplinary care team throughout the healthcare system cultivates trust and loyalty, translating into increased patient satisfaction, higher patient volumes, and increased utilization of healthcare services that directly impact revenue streams, driving toward a more profitable healthcare delivery paradigm.

Overall, such improvements are expected to positively impact patient interactions and team collaboration within the breast imaging center, ultimately contributing to elevated standards of care delivery. These findings underscore the importance of targeting communication training initiatives to interdisciplinary teams to nurture a supportive healthcare environment, promoting improved patient outcomes and overall organizational success.
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