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# Interprofessional Collaboration and its Influence on Healthcare Outcomes in a Neonatal Intensive Care Unit

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**Abstract—This study examined the extent of interprofessional collaboration (IPC) and its relationship with neonatal patient outcomes in the Neonatal Intensive Care Unit (NICU) of Divine Word Hospital, Tacloban. Specifically, it assessed the sociodemographic profile of healthcare professionals, their perceived level of collaboration, and neonatal outcomes based on World Health Organization (WHO) indicators, including survival status, length of NICU stay, hospital-acquired infections (HAI), and 30-day readmission. Using a descriptive correlational design, the study surveyed 36 healthcare professionals and utilized a patient outcome checklist to determine neonatal health indicators. Findings revealed that the NICU was staffed by a multidisciplinary team with varied ages, experience levels, and educational backgrounds. Interprofessional collaboration was perceived to be generally high, particularly in teamwork and role clarity, although communication openness and receptiveness to differing viewpoints were noted as areas needing improvement. Neonatal outcomes showed high survival rates but elevated levels of HAIs, particularly pneumonia and bloodstream infections. Statistical tests indicated no significant relationship between IPC and neonatal outcomes, suggesting that patient outcomes may be influenced by factors beyond collaboration itself, such as clinical protocols and staff experience. However, socio-demographic factors, including age and years of experience, showed significant associations with both collaboration and select patient outcomes. Based on these findings, the NICU TEAM-UP Program, an intervention designed to strengthen communication, mentorship, infection prevention, and teamwork, was proposed to enhance collaborative practice and improve neonatal care. This study contributes to local and international discussions on IPC and highlights the need for targeted interventions in neonatal settings.**

***Index Terms*—healthcare professionals, interprofessional collaboration, neonatal intensive care unit, patient outcomes.**

## 1. The Problem and its Background

### *A. Introduction*

Interprofessional collaboration (IPC) is increasingly recognized as a critical component of high-quality healthcare delivery, particularly in complex and high-risk environments such as Neonatal Intensive Care Units (NICUs). Within these specialized settings, the coordinated efforts of nurses, physicians, respiratory therapists, pharmacists, and other allied health professionals are essential for ensuring positive neonatal outcomes (Lehmann et al., 2022). IPC facilitates shared decision-making, reduces fragmented care, and enhances communication, which are all essential in managing the fragile health status of neonates (Fernandez et al., 2021).

Recent studies emphasize that effective IPC in NICUs is associated with improved clinical outcomes, including reduced morbidity and mortality, better pain management, and shorter hospital stays for neonates (Fioretti et al., 2023; Chan et al., 2021). For example, Fioretti et al. (2023) demonstrated that interprofessional teamwork led to more timely interventions, increased parental satisfaction, and better adherence to neonatal care protocols. Similarly, Chan et al. (2021) reported that collaborative care models in NICUs contributed to a significant reduction in preventable adverse events.

Despite these promising findings, barriers to IPC persist, such as professional hierarchies, role ambiguity, and inconsistent communication practices, which can undermine the effectiveness of collaborative efforts (Zhao et al., 2022). These challenges are particularly pronounced in developing-country contexts, where systemic constraints and staff shortages may further hinder teamwork (Ramos & Cruz, 2022). Within the Philippine healthcare system, there remains a lack of localized research exploring how IPC influences neonatal outcomes, particularly in tertiary-level facilities such as Divine Word Hospital in Tacloban City.

This study aimed to address this gap by investigating the effects of interprofessional collaboration on neonatal patient outcomes in the NICU of Divine Word Hospital. By focusing on this specific context, the research seeks to provide evidence that can inform practice improvements, professional development, and policy recommendations tailored to the needs of Filipino healthcare institutions.

Interprofessional collaboration (IPC) is critically important in Neonatal Intensive Care Units (NICUs), where seamless teamwork from diverse healthcare professionals, such as nurses, neonatologists, respiratory therapists, and pharmacists, is essential to deliver timely and effective care to fragile neonates (Shon & Chae, 2024). Educational interventions that promote interprofessional teamwork through simulation have shown to significantly improve team communication, clinical

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judgment, and practical performance in neonatal resuscitation scenarios, thereby enhancing patient safety and care quality (Shon & Chae, 2024).

Further, large-scale analyses indicate that specialized staffing models such as the presence of full-time NICU intensivists, are associated with lower neonatal mortality and improved one-year survival outcomes (Kaiser et al., 2022; Association-Korean nationwide study on intensivist staffing, 2019–2021). While intensivist staffing is not the same as IPC per se, such staffing supports a climate conducive to collaboration and shared clinical responsibility, which in turn improves outcomes.

Creating a collaborative NICU environment also hinges on strong leadership and clear role delineation. A systematic review of leadership interventions in neonatal care found that two-way communication training, co-leadership frameworks, and simulation-based learning significantly enhanced team performance and clinical coordination (Beccia et al., 2025). Additional recommendations emphasize role clarification, procedural guidelines, and psychosocial safety for all staff, ensuring that every member feels empowered and accountable (Marc-Aurele et al., 2023).

The researcher, serving as a licensed nurse in the NICU of Divine Word Hospital in Tacloban City, has observed both positive and negative IPC dynamics firsthand. In situations where simulation-informed communication practices are employed, such as structured handovers or shared decision-making during resuscitation, neonatal stability improves, interventions are more timely, and the care team functions cohesively. Conversely, inconsistent leadership structure or lack of role clarity can lead to fragmented care, slower responses during emergencies, and uncertainty about task ownership.

Although studies in the Philippines have explored IPC in broader healthcare education and geriatric settings (Nakamura et al., 2022), there is a notable gap in research that specifically examines IPC within NICUs (Nakamura et al., 2022). This study seeks to address this gap by evaluating the impact of IPC on neonatal outcomes at Divine Word Hospital's NICU and by exploring how nurses perceive their collaborative roles within that environment.

### *B. Theoretical Framework*

This study is grounded in Imogene King's Theory of Goal Attainment, a middlerange nursing theory centering on dynamic interpersonal relationships and shared goal-setting between nurse and client. Although originally formulated to describe nurse, patient interactions, King's framework has been extended to interprofessional healthcare interactions, emphasizing communication, roles, and mutual goal negotiation, making it well suited for analyzing interprofessional collaboration (IPC) in neonatal care (King, 1960s; King, 1992).

King's theory conceptualizes three interacting systems: the personal system (individual perceptions, roles, growth), the interpersonal system (interaction, communication, transaction, role, stress), and the social system (organizational authority, power, decision-making). Through accurate communication and interaction, participants (including nurses, physicians, and other team members) engage in transactions that lead to shared goals and successful outcomes.

Within this study, King's theory will be adapted to understand how NICU healthcare professionals negotiate shared goals, such as stabilizing neonates, managing pain, or reducing infection risk, through structured interaction and communication. In the personal system, the study examined how individual team members' perceptions of their role (nurse, physician, respiratory therapist) influence their willingness to engage collaboratively. In the interpersonal system, the focus was on transaction patterns: how team members communicate, clarify roles, negotiate decisions during rounds and emergencies, and manage stress in the NICU environment. Finally, the social system lens allowed exploration of how organizational structure at Divine Word Hospital, including leadership support, communication protocols, and policy frameworks, facilitates or hinders these goaloriented transactions.

King's theory is particularly appropriate because it provides a structured way to analyze how individual and interpersonal communication processes translate into collaborative transactions with measurable actions and neonatal outcomes. The theory guideed the development of survey instruments and qualitative interview questions, for instance, asking nurses and physicians about how shared goals are identified, who initiates the transaction, and how stress or misunderstandings affect collaboration. It also frames the analysis: findings can be interpreted in terms of barriers or facilitators at personal, interpersonal, or social levels.

By employing the Theory of Goal Attainment, this study not only honors a nursing-specific framework but also deepens understanding of IPC by focusing on goal-setting and mutual negotiation, essential components in NICU collaborative practice. The use of King's theory thus aligns closely with the study's aim to explore how nurses perceive their roles within the interprofessional team and how collaborative transactions influence neonatal patient outcomes.

### *C. Conceptual Framework*

This study's conceptual framework illustrates the interaction between healthcare professionals' demographics, their perceptions of interprofessional collaboration, neonatal patient outcomes, and their experiences and challenges in the NICU. It outlines how these elements influence one another and shape the quality of collaborative care.

The Demographic Profile includes variables such as age, gender, professional role, and years of experience. These factors are believed to influence how healthcare workers view and engage in interprofessional collaboration. An arrow from demographics to perceptions of collaboration shows this relationship.

Perceptions of Interprofessional Collaboration are categorized by professional group (doctors, nurses, allied health professionals) to reflect differences in team dynamics. This component examines how staff members view communication,

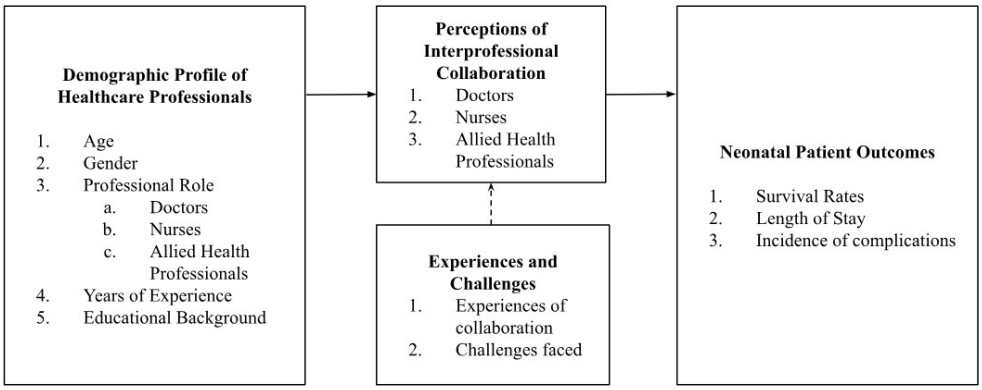



Fig. 1. Paradigm of the study.

mutual respect, and shared decision-making. A strong perception of collaboration is expected to positively affect patient care.

Neonatal Outcomes include clinical indicators such as survival rates, length of hospital stay, and incidence of complications. Perceptions of collaboration are assumed to have a direct impact on these outcomes, as effective teamwork leads to better coordination and timely interventions.

Experiences and Challenges in Collaboration refer to real-life issues such as communication barriers, unclear roles, or staffing shortages. These challenges influence future perceptions and behavior. A dashed feedback arrow represents how experiences feed back into perceptions, highlighting the evolving nature of team collaboration.

Overall, this framework supports the study's goal to understand how personal factors and team perceptions affect patient outcomes, and how the day-to-day experiences of staff shape collaboration in neonatal care.

### *D. Statement of the Problem*

This study aimed to explore how interprofessional collaboration among healthcare professionals influences neonatal patient outcomes in the Neonatal Intensive Care Unit (NICU) of Divine Word Hospital, Tacloban. Specifically, it sought to examine how demographic characteristics relate to professionals' perceptions of collaboration.

This study answered the following research questions:

1. What is the socio-demographic profile of healthcare professionals in the NICU at Divine Word Hospital, Tacloban, in terms of:
   a. Age;
   b. Sex;
   c. Healthcare profession;
   d. Years of experience; and
   e. Educational background?
2. What is the perceived extent of interprofessional collaboration among healthcare professional respondents?
3. What are the neonatal ICU patient outcomes based on neonatal health indicators (WHO) in terms of
   a. Neonatal survival status;
   b. Length of NICU stay;
   c. Hospital Acquired Infection (HAI); and
   d. 30-day readmission?
4. Is there a significant relationship between interprofessional collaboration and neonatal ICU patient outcomes of healthcare professionals?
5. Is there a significant relationship between socio-demographic factors and perceived extent of interprofessional collaboration?
6. Is there a significant relationship between socio-demographic factors and neonatal ICU patient outcomes?
7. Based on the findings of the study, what intervention or development program can be proposed?

### *E. Hypotheses*

*Null Hypothesis ($H_0$):*

There is no statistically significant relationship between interprofessional collaboration among healthcare professionals and neonatal patient outcomes in the NICU of Divine Word Hospital.

### *F. Scope and Limitations of the Study*

This study was conducted exclusively in the Neonatal Intensive Care Unit (NICU) of Divine Word Hospital in Tacloban City, with data collection planned from July 28 to August 2, 2025. It explored the relationship between interprofessional collaboration (IPC) and neonatal patient outcomes, as well as the experiences and challenges faced by healthcare professionals in this environment.

Several limitations are acknowledged. First, the study relies on self-reported data, which may be influenced by social desirability bias. Health professionals may provide responses that they believe are socially acceptable rather than reflect their true experiences, especially in hierarchical clinical settings (Moncatar et al., 2021). Second, individual perceptions of collaboration may differ significantly across professional roles, including doctors, nurses, and allied health staff, which may create inconsistency in the data (Moncatar et al., 2021).

The brief data collection window did capture long-term or seasonal variations in neonatal care practices or outcomes. Changes in staffing, training schedules, or patient case-mix outside the study period may affect care processes and patient results in ways not reflected in this snapshot (Nakamura et al., 2022). Additionally, because the study focuses on a single institution, findings may not be generalizable to other NICUs in the Philippines with different organizational cultures, team

structures, or resource settings (Nakamura et al., 2022).

Despite these limitations, this study is designed to provide meaningful, context-specific insights into IPC dynamics in a NICU setting in the Philippines.

### *G. Significance of the Study*

The findings from this study will benefit various stakeholders:

*Healthcare Professionals.* This study will provide valuable insights into effective interprofessional collaboration (IPC) practices, which can significantly enhance teamwork among healthcare professionals. By understanding the dynamics of IPC, healthcare providers can improve their clinical skills, leading to better patient management and care delivery in the Neonatal Intensive Care Unit (NICU).

*Hospital Administration.* The results of this study may inform hospital administration policies aimed at fostering a collaborative culture within the NICU. By identifying successful IPC strategies, administrators can implement training programs and organizational changes that promote teamwork and communication among healthcare staff, ultimately enhancing the overall quality of care Patients and Families. Improved IPC has the potential to lead to better health outcomes for neonates, which directly benefits patients and their families. When healthcare teams collaborate effectively, they can ensure that infants receive timely and appropriate care, reducing complications and promoting healthier developmental trajectories.

*Researchers.* This study will contribute to the existing literature on IPC in neonatal care settings by providing empirical evidence of its effects on patient outcomes. Researchers will benefit from the findings as they can inform future studies and help shape best practices in interprofessional collaboration within NICUs, further advancing the field of neonatal healthcare.

### *H. Definition of Terms*

The following terms are defined operationally as they apply to this study:

1. *Communication Breakdown:* The failure or disruption in exchanging accurate and timely information among healthcare team members, which can result in misunderstandings, compromised care, or clinical errors.
2. *Hierarchical Structures:* Institutional or professional systems of authority that define ranks and roles within healthcare teams, which may affect open communication, decision-making, and collaboration among team members.
3. *Interprofessional Collaboration (IPC):* The coordinated interaction among healthcare professionals from different disciplines, such as doctors, nurses, and allied health workers, working together to deliver patient-centered care and improve clinical outcomes.
4. *Neonatal Intensive Care Unit (NICU):* A specialized hospital unit equipped to provide advanced and continuous medical care to premature or critically ill newborns requiring close monitoring and life-sustaining interventions.
5. *Patient Outcomes:* Measurable indicators of a patient's health status following clinical care, including recovery rates, length of hospital stay, incidence of complications, and survival rates among neonates.

## 2. Review of Related Literature

This section of the paper presents all relevant studies and literature that inform the present research. A synthesis is provided at the end to collate all insights from references.

### *A. Interprofessional Collaboration in Healthcare*

Interprofessional collaboration (IPC) has gained prominence as a key determinant of healthcare quality and safety worldwide. A cross-sectional survey conducted in Finnish NICUs found that IPC, particularly in pain management, was rated at the level of "moving towards collaboration," highlighting that while professionals are willing to cooperate, they still perceive gaps in coordination, partnership, and parental involvement (Kämäräinen et al., 2022). This supports the global consensus that IPC plays a critical role in improving neonatal outcomes in high-stakes units.

Simulation-based interprofessional education (IPE) programs have also demonstrated effectiveness in enhancing teamwork, communication skills, clinical performance, and interprofessional attitudes among NICU staff. A study in Korea involving nurses and physicians showed that simulation-based training significantly improved these competencies, which are essential for resuscitation teamwork and neonatal care (Shon & Chae, 2024).

Within the Philippine context, studies on IPC, although few, underscore important lessons. Moncatar et al. (2021) found that systemic siloes and resource constraints in local healthcare settings complicate collaboration, stressing the need for shared governance, mutual understanding, and integrated care models. A subsequent mixed-methods evaluation of an in-service training program confirmed that targeted interdisciplinary training significantly improved community health workers' attitudes toward collaboration and readiness to engage in team-based care (Nakamura et al., 2022).

At the educational level, Filipino healthcare students' readiness toward IPC varies according to their discipline, year level, and gender. One study reported significant differences in attitudes toward roles, responsibilities, and teamwork among students from medicine, pharmacy, physical therapy, and occupational therapy—all pointing to the importance of early interprofessional education to cultivate collaborative mindsets (Saragih et al., 2024; Vitente et al., 2025).

Overall, the literature establishes that effective IPC can enhance patient safety, care coordination, and satisfaction—but local challenges such as fragmented systems, professional hierarchies, and inconsistent training hinder its full implementation. This is especially pertinent in neonatal settings, where swift, cohesive interprofessional action is needed to prevent adverse outcomes.

This study builds upon these findings, exploring how IPC operates within the

NICU setting at Divine Word Hospital, Tacloban City—

focusing on how staff perceptions and experiences correlate with neonatal outcomes and how local institutional factors influence collaboration dynamics.

### *B. Barriers to Interprofessional Collaboration*

Despite increasing recognition of IPC's value, substantial barriers hinder collaboration among healthcare professionals globally and particularly in the Philippines. A recent global meta-analysis identified entrenched power dynamics often called the "doctor dilemma," where physicians are reluctant to share responsibility as a central obstacle to effective interprofessional teamwork (BMC Medical Education, 2024). These norms reinforce hierarchical culture and professional dominance, diminishing shared decision-making and mutual accountability (Shon & Chae, 2024).

In Philippine contexts, Moncatar et al. (2021) documented specific local barriers including professional silos, competition for leadership, and unequal access to continuing education, which undermine trust and respect among team members. Sy et al. (2020) further highlighted the dominance of medical professionals in educational and clinical settings, combined with a lack of standardized interprofessional education, which limits the development of collaborative competencies across training programs (Vitente et al., 2025).

Nurses in critical care units have particularly reported challenges related to unclear role boundaries, limited decision-making power, and workload pressures. A BMC Nursing study (2025) found nurses often hesitate to voice concerns or participate in clinical decisions because institutional norms emphasize physician authority despite recognizing patient advocacy responsibilities and safety concerns.

Other recurring barriers include time constraints, heavy workload, and unclear communication channels. These limit opportunities for structured interaction such as rounds or team huddles (BMC Medical Education, 2024; Kämäräinen et al., 2022). Moreover, inadequate institutional support such as lack of shared protocols, feedback systems, or aligned performance measures creates organizational fragmentation, impeding lasting IPC culture (Moncatar et al., 2021; Nakamura et al., 2022).

Collectively, these barriers point to both individual and system-level challenges: professional dominance, unclear roles, lack of time, limited institutional structures, and inadequate training. Understanding and addressing these obstacles is essential for developing targeted strategies to improve IPC in NICUs, where timely, cohesive team action is critical for neonatal patient safety.

### *C. Impact of Interprofessional Collaboration on Patient Outcomes*

Research conducted in diverse healthcare settings has consistently demonstrated a strong positive impact of effective interprofessional collaboration (IPC) on patient outcomes. Kaiser et al. (2022), through a systematic review, found that IPC in inpatient care led to decreased mortality rates, reduced readmissions, shorter hospital stays, and higher patient satisfaction (Kaiser et al., 2022). These findings suggest that coordinated team-based care improves both clinical effectiveness and patient experience.

Specifically in NICUs, Shon and Chae (2024) showed that simulation-based interprofessional education significantly enhanced communication, clinical performance, and interprofessional attitudes among multidisciplinary staff during neonatal resuscitation. Improved teamwork in these high-pressure scenarios directly influenced rapid, accurate decision-making essential for neonatal survival (Shon & Chae, 2024).

Although Philippine-specific studies on IPC in neonatal settings are limited, national research provides relevant insights. Moncatar et al. (2021) reported that multidisciplinary training improves collaborative practice and readiness among health professionals, thereby promoting better coordination of care. Similarly, Nakamura et al. (2022) documented improvements in readiness and attitudes toward IPC following a structured in-service training program, showing potential downstream benefits on service quality and outcomes.

Evidence from related fields further bolsters these findings. A recent metaanalysis in Ethiopia reported that strong nurse–physician collaboration was associated with shorter hospital stays, reduced clinical errors, improved chronic disease management, and overall higher patient satisfaction (Ethiopia meta-analysis, 2025). Though not neonatal-specific, these data emphasize the widespread benefit of IPC across clinical contexts.

"Transitional care" models for preterm infants also point to the value of IPC. A Swiss pilot of the "Transition to Home" model demonstrated that coordinated care among nurses, midwives, pediatricians, and community health workers improved family satisfaction, psychological support, and continuity of care outcomes that indirectly benefit infant health and development (Swiss TtH-model study, 2021).

Taken together, these studies affirm that when healthcare professionals especially in NICUs engage in structured and respectful collaboration, patient outcomes are measurably better. This includes fewer adverse events, more timely interventions, decreased length of stay, and enhanced patient or family satisfaction. These documented benefits form a strong rationale for investigating how IPC functions within the NICU at Divine Word Hospital and its influence on neonatal outcomes.

### *D. Interprofessional Collaboration in Neonatal Care*

Recent literature underscores the critical role of interprofessional collaboration (IPC) in enhancing neonatal care. A multicenter initiative across NICUs in the United States reported a 35% reduction in unrelieved postoperative pain, alongside increased parental satisfaction, following the implementation of standardized, teambased pain protocols involving nurses, physicians, pharmacists, and parents (Pediatric Hospitals Neonatal Consortium, 2023). These findings emphasize the importance of structured collaborative models in achieving optimal clinical outcomes.

In Finland, Mäki-Asiala et al. (2022) conducted a cross-sectional study using the AITCS-II tool and found that neonatal healthcare teams described their collaborative efforts as

"moving towards collaboration." Healthcare professionals appreciated coordination and cooperation but identified room for improvement in involving parents as active collaborators in pain management plans. A subsequent qualitative study revealed that when parents were included in interprofessional care processes, they experienced improved communication, greater emotional support, and better engagement in their infant's treatment (Mäki-Asiala et al., 2023).

Furthermore, Balice-Bourgois et al. (2020) developed the NEODOL© intervention in Switzerland a structured, interprofessional pain management framework designed for NICUs. Built on the Medical Research Council (MRC) guidelines for complex interventions, it has proven effective in improving procedural care quality by integrating diverse roles, including family members, into the care team.

While there is a scarcity of Philippine NICU-specific IPC studies, national literature in community and hospital-based care shows increasing IPC competence among Filipino health professionals through targeted training and system redesign. For example, Nakamura et al. (2022) and Moncatar et al. (2021) documented improved collaboration, coordination, and patient-centered outcomes following interprofessional education and role clarification programs in local government and hospital settings. These efforts point to the value of IPC even in resource-constrained environments.

### *E. Challenges Faced by Healthcare Teams*

Despite the clear benefits of IPC, multiple barriers continue to hinder effective collaboration, especially in neonatal and hospital-based settings. Mäki-Asiala et al. (2022) noted persistent limitations in communication flow, especially between nurses and physicians, due to role ambiguity and inconsistent use of shared protocols. These issues can lead to fragmented care planning, reduced efficiency, and avoidable medical errors in high-pressure environments such as NICUs.

In the Philippine context, a study by Moncatar et al. (2021) found that hierarchical relationships and unclear lines of authority discouraged nurses and midwives from actively participating in team decisions. Similarly, Nakamura et al. (2022) reported that local government healthcare workers often struggled with poor interdepartmental coordination, unclear task allocation, and limited communication training—factors that weakened team synergy and continuity of care.

International findings align with these concerns. Mäki-Asiala et al. (2023) highlighted that parents frequently encountered inconsistent messaging from providers due to siloed care practices. In addition, staff burnout, understaffing, and lack of institutional support were reported as systemic obstacles that reduced the team's ability to engage in collaborative planning (Balice-Bourgois et al., 2020).

These findings suggest that while IPC is essential to quality care, its effectiveness is highly dependent on institutional culture, communication systems, professional training, and leadership support. Interventions such as role clarification, interprofessional education (IPE), and collaborative care frameworks must be prioritized to overcome these barriers.

### *F. Systematic Reviews on Interprofessional Collaboration (IPC)*

Recent systematic reviews emphasize the critical contributions of healthcare professionals to effective interprofessional collaboration (IPC) in diverse clinical settings. In a scoping review by Santos et al. (2022), three recurring practices emerged as key facilitators of IPC: active involvement in interdisciplinary meetings, consistent exchange of patient-related information, and mutual support for role execution. These behaviors enable a culture of shared decision-making and integrated care, ensuring that healthcare teams can function cohesively across complex care environments.

Locally, a mixed-methods review by Moncatar et al. (2021) involving community and hospital-based healthcare teams in the Philippines revealed that IPC thrives when health workers are empowered to participate equally in planning meetings, share clinical updates promptly, and express support for each other's functions. These practices not only improved coordination but also significantly enhanced the accuracy of referrals and continuity of care, particularly in maternal and child health programs in rural areas.

Supporting each other's professional roles was also identified as a key dimension of IPC in a review by Nakamura et al. (2022), which emphasized that respect and recognition across professions foster psychological safety and trust. This supportive dynamic allowed nurses, midwives, and doctors to align their goals better, minimize conflict, and deliver more patient-centered services.

These findings highlight that IPC is more than just individual competence; it is a collective discipline grounded in trust, role clarity, and shared accountability. However, systemic barriers such as medical hierarchy, unclear workflows, and uneven authority still undermine IPC efforts in many institutions (Santos et al., 2022; Nakamura et al., 2022). Addressing these barriers is essential to enabling smoother collaboration among healthcare teams.

Additionally, the literature calls for IPC training to be embedded into both preservice education and institutional practice. A multi-country review by the WHO Collaborating Centre for IPE (2023) emphasized that standardized interprofessional education (IPE) and joint simulation training substantially improve team readiness and communication efficiency, leading to reduced errors and higher patient satisfaction. In the Philippine setting, integration of IPE in health science curricula supported by CHED initiatives—is gradually showing promising results, as noted in recent studies (Moncatar et al., 2021; Nakamura et al., 2022).

Ultimately, IPC-related reviews highlight that active participation, open communication, and institutional support are vital in fostering successful collaboration. These insights provide a foundation for healthcare administrators and policymakers to design context-specific strategies that build collaborative cultures, improve patient care, and boost staff satisfaction.

### *G. Synthesis*

Interprofessional collaboration (IPC) has emerged as a

crucial strategy in enhancing the quality of healthcare delivery, particularly in high-acuity settings such as Neonatal Intensive Care Units (NICUs). Across diverse healthcare systems, including the Philippine context, IPC is recognized not only for its role in improving patient outcomes but also for fostering a culture of teamwork, mutual respect, and professional support among healthcare providers (Axelin et al., 2023; Moncatar et al., 2021).

Multiple studies underscore the positive relationship between IPC and improved patient care. In neonatal settings, IPC facilitates better clinical outcomes through integrated care planning, timely interventions, and comprehensive pain management strategies for neonates (Axelin et al., 2023). Local research supports these findings, with Muliira et al. (2022) reporting that interdisciplinary collaboration improves decision-making, reduces the risk of medical errors, and leads to better patient monitoring. In the Philippines, Salazar et al. (2021) found that when nurses, midwives, and physicians collaborate actively in NICUs, infants benefit from reduced length of hospital stays and fewer complications. These outcomes highlight IPC's role in delivering safe, efficient, and patient-centered care, particularly to vulnerable populations like neonates.

At the core of successful IPC are practices that enable open communication, shared decision-making, and role recognition. A scoping review by Santos et al. (2022) and a local mixed-methods study by Moncatar et al. (2021) emphasize that consistent participation in team meetings, timely information sharing, and mutual professional support enhance team efficiency and coordination. Supporting each other's roles and recognizing one another's contributions build trust and reduce conflict within teams (Nakamura et al., 2022). These mechanisms help facilitate seamless collaboration, especially in clinical settings requiring swift and coordinated action.

Furthermore, fostering IPC goes beyond individual behavior and extends to institutional support and organizational culture. The World Health Organization Collaborating Centre for Interprofessional Education (2023) recommends embedding interprofessional education (IPE) into healthcare curricula to prepare practitioners for real-world team dynamics. Philippine institutions are gradually integrating these strategies through simulation-based learning and interdisciplinary clinical exposure, further reinforcing the foundations of IPC (Moncatar et al., 2021; Nakamura et al., 2022).

Despite its benefits, IPC continues to face notable barriers that hinder its full integration into clinical practice. Studies conducted in both Philippine and global contexts reveal persistent challenges, including poor communication, unclear role definitions, and entrenched hierarchies within healthcare systems (Muliira et al., 2022; Santos et al., 2022). In NICU settings, where decisions are time-sensitive and emotionally charged, these obstacles can compromise care quality and delay interventions. High patient-to-staff ratios, fragmented information flow, and insufficient institutional support exacerbate these problems (Gatmaytan et al., 2023).

Moreover, differences in educational backgrounds and training pathways may lead to misunderstandings or undervaluing of certain roles within the team. Local studies emphasize the need for formal policies and programs that clarify professional responsibilities and promote inclusive team-building initiatives (Moncatar et al., 2021). Without these supportive frameworks, healthcare professionals may experience frustration, burnout, and diminished trust, ultimately weakening collaborative efforts.

The reviewed literature affirms that interprofessional collaboration significantly enhances healthcare delivery by improving patient outcomes, promoting professional satisfaction, and enabling coordinated responses to complex clinical situations. However, the effectiveness of IPC depends on institutional commitment, educational preparation, and the dismantling of cultural and systemic barriers that hinder cooperation. For healthcare settings such as NICUs especially in the Philippine context sustained efforts must be made to support IPC through targeted training, policy integration, and collaborative leadership models. Future research and practice should continue to explore context-specific strategies to strengthen IPC, ensuring that it becomes an integral component of holistic, high-quality healthcare delivery.

## 3. Methodology

### *A. Research Design*

This study utilized a quantitative, descriptive-correlational research design to examine the relationship between interprofessional collaboration and neonatal patient outcomes in the Neonatal Intensive Care Unit (NICU) of Divine Word Hospital. The descriptive component was used to determine the demographic profile of healthcare professionals and the extent of interprofessional collaboration and neonatal outcomes. The correlational aspect assessed the statistical relationship between interprofessional collaboration and neonatal patient outcomes.

This design is appropriate for identifying trends, relationships, and patterns between variables without manipulating any factors (Polit & Beck, 2021). It enabled the researcher to describe current conditions and analyze the degree to which variations in interprofessional collaboration are associated with differences in patient outcomes.

A similar design was employed by Almazan et al. (2022) in their study conducted in the Philippines, which explored the correlation between nurse collaboration and patient safety outcomes. Their findings demonstrated that improved collaboration among nurses was positively associated with enhanced safety indicators in hospital settings, supporting the utility of a descriptive-correlational framework in healthcare research.

### *B. Population and Sampling*

The target population of this study included healthcare professionals, specifically nurses, doctors, respiratory therapists, midwives, and nursing aides, assigned to the Neonatal Intensive Care Unit (NICU) of Divine Word Hospital, Tacloban City. These professionals are directly involved in the care of neonates and are in positions to engage in interprofessional collaboration.

A total population sampling technique was used, given the relatively small number of healthcare providers assigned to the NICU. Total population sampling was appropriate when the population is small, accessible, and meets specific criteria relevant to the research (Etikan et al., 2016). This method ensures that all qualified individuals have the opportunity to contribute data, which increases the validity and contextual relevance of the findings.

To be eligible for the study, respondents must meet the following nclusion Criteria: 1) Licensed healthcare professionals (doctors, nurses, respiratory therapists, physical therapists, pharmacists, and dieticians); 2) Assigned to the NICU for at least six months; 3) Directly involved in collaborative patient care; and 4) Willing to provide informed consent to participate.

Participants will be excluded if they are: 1) Staff who are currently on leave, floating, or temporarily assigned to the NICU for less than six months; 2) Administrative personnel or healthcare providers not directly involved in patient care; and 3) Interns or students undergoing clinical rotations in the NICU.

These criteria ensured that participants have sufficient familiarity with interprofessional collaboration practices within the NICU context and can provide relevant, experience-based insights. Limiting participation to staff with at least six months of tenure supports the inclusion of individuals with established roles and working relationships, which is essential for assessing authentic collaborative dynamics (Fitzpatrick et al., 2020).

### *C. Participants of the Study*

The participants of this study consisted of healthcare professionals working in the Neonatal Intensive Care Unit (NICU) of Divine Word Hospital, Tacloban City. Specifically, the study included nurses, doctors, respiratory therapists, midwives, and nursing aides who are directly involved in the clinical care and management of neonates. These professionals are considered key members of the interprofessional care team and are therefore in a strategic position to provide insights on collaborative practices within the NICU setting.

All participants met the following inclusion criteria: they are licensed healthcare professionals with at least six months of continuous assignment in the NICU, directly engaged in collaborative patient care, and willing to provide informed consent. Excluded from the study are personnel on leave or those temporarily assigned to the unit for less than six months, administrative staff not involved in direct patient care, and students or interns.

Given the relatively small number of NICU staff at Divine Word Hospital, a total population sampling technique was to ensure that all eligible professionals are invited to participate. This approach allowed for comprehensive coverage of the target population, helping to enhance the accuracy and representativeness of the findings. There was a total of 80 participants of this study: 13 doctors, 52 nurses, 5 respiratory therapists, 7 midwives, and 3 nursing aides.

### *D. Research Instrument*

This study utilized a descriptive correlational design to examine the relationship between interprofessional collaboration (IPC) and patient outcomes in the Neonatal Intensive Care Unit (NICU). The primary instrument for the study was a standardized survey tool, the Interprofessional Collaboration Scale (IPC Scale), adapted from Kenaszchuk et al. (2010). This validated instrument assesses healthcare professionals' perceptions of collaboration within clinical teams.

The adapted IPC Scale was tailored for relevance in the NICU context of Divine Word Hospital. Contextual adaptations include adjustments to terminology to reflect neonatal care settings while preserving the scale's original structure and intent. The survey includes 13 items grouped into three dimensions:

- Communication (e.g., clarity and openness of communication between team members)
- Accommodation (e.g., willingness to adjust to team members' needs)
- Isolation (e.g., perceived professional silos or exclusion)

Responses are measured on a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). Higher overall scores on the scale indicate more positive perceptions of interprofessional collaboration. Each subscale score and the total IPC score will be computed by averaging item responses, allowing for comparative and correlational analysis across respondents.

The reliability and validity of the IPC Scale have been established in multiple studies. The original developers, Kenaszchuk et al. (2010), reported Cronbach's alpha coefficients of 0.85 for the Communication subscale, 0.78 for Accommodation, and 0.84 for Isolation, indicating good internal consistency. The tool has also been used in various international contexts, such as the studies by Chan et al. (2019) and Bagayogo et al. (2016), affirming its construct validity and applicability in diverse healthcare settings.

In addition to the survey questionnaire measuring interprofessional collaboration, a Patient Outcome Checklist was employed to gather objective data on neonatal health outcomes in the NICU. This checklist includes four key indicators: neonatal survival status, length of NICU stay, incidence of hospital-acquired infections, and 30-day readmission rates. These indicators were adapted from internationally recognized and validated tools such as those provided by the National Quality Forum (2022), the Centers for Disease Control and Prevention (CDC, 2023), and the World Health Organization (WHO, 2021). Each item was selected based on its relevance to assessing care quality and outcome effectiveness in neonatal settings. The checklist is designed to be completed using data from official hospital records, ensuring reliability and accuracy. Its integration in the study allows for a more comprehensive analysis of the influence of interprofessional collaboration on measurable patient outcomes. This checklist will be completed through a review of hospital records and will include the following indicators:

- Neonatal survival rate
- Length of NICU stay

- Incidence of hospital-acquired infections
- 30-day readmission rate

These indicators are recognized as valid and objective measures of healthcare quality in neonatal settings (Axelin et al., 2023; Muliira et al., 2022).

The IPC survey was self-administered by eligible healthcare professionals during work hours, with proper coordination through the hospital's Nursing Service Office. The outcome data were retrieved by the researcher using a standardized abstraction form to ensure consistency.

By using validated and reliable tools, this study is able to objectively correlate the level of interprofessional collaboration with measurable patient outcomes, in alignment with the goals of a descriptive correlational research design.

### *E. Reliability and Validity*

To ensure the quality and accuracy of the research findings, the reliability and validity of the instruments that was used in this study will be carefully addressed. The study utilized both primary and secondary data sources, each undergoing rigorous procedures to establish data trustworthiness and accuracy.

The structured questionnaire that was used to assess the level of interprofessional collaboration among NICU healthcare professionals was adapted from the Interprofessional Collaboration Scale (ICS). This tool has demonstrated strong psychometric properties in previous studies, with reported Cronbach's alpha values ranging from 0.82 to 0.91, indicating high internal consistency (Zhao et al., 2021). Construct validity was ensured, as the ICS has been validated through factor analysis in diverse healthcare settings. To ensure content and face validity, the adapted version was reviewed by a panel of three to five experts in neonatology, nursing, and interprofessional practice. These experts assessed the clarity, relevance, and contextual appropriateness of the items within the setting of Divine Word Hospital. Revisions were based on their feedback to maintain the tool's validity and cultural relevance.

The Patient Outcome Checklist, which was used for secondary data collection, developed based on established international indicators from the World Health Organization (2021), Centers for Disease Control and Prevention (2023), and National Quality Forum (2022). This checklist included neonatal survival rate, length of NICU stay, incidence of hospital-acquired infections, and 30-day readmission rate. Its reliability was ensured through standardized definitions and data extraction protocols to promote consistency.

All data collection and handling procedures complied with the Data Privacy Act of 2012 (Republic Act No. 10173), ensuring ethical standards, confidentiality, and secure data management. Through the use of validated tools, expert review, and methodologically sound procedures, the study upheld high standards of reliability and validity, strengthening the credibility of its findings on interprofessional collaboration and neonatal outcomes.

### *F. Data Gathering Procedure*

Data collection for this study was conducted from July 28 to August 8, 2025. This period was determined to ensure ample time for participant responses and coordination with hospital personnel, while minimizing disruption to clinical duties.

*1) Ethical Approval and Institutional Permission*

Prior to data collection, the researcher secured ethical clearance from the university's Institutional Review Board (IRB). Formal written permission were sought from the hospital administrator and the Nursing Service Office (NSO) to conduct the study within the Neonatal Intensive Care Unit (NICU).

*2) Coordination with Unit Supervisors*

After approval, the researcher coordinated with the Head Nurses and Unit Supervisors to facilitate the distribution of the online survey and provide assistance in identifying eligible participants.

*3) Participant Identification and Recruitment*

A total of 80 healthcare professionals were selected through purposive sampling based on established inclusion criteria. Participants were contacted through official hospital communication channels.

*4) Survey Distribution via Google Forms*

The survey was administered using Google Forms to ensure rapid and efficient data collection. The form includes:

- A Statement of Purpose
- A Data Privacy Statement in accordance with the Data Privacy Act of 2012 (RA 10173)
- An informed consent agreement

The Google Form link was distributed electronically via email or internal messaging apps used within the hospital. Respondents were encouraged to complete the survey within five days, with reminders sent on the third and fifth day.

*5) Data Collection and Monitoring*

The Google Forms platform automatically record and organize responses. The researcher monitored response rates and ensure completeness and accuracy of submissions. Incomplete or duplicate responses were excluded from the final analysis.

*6) Collection of Patient Outcome Data*

Upon institutional approval, the researcher obtained de-identified patient outcome data (e.g., neonatal survival, length of NICU stay, incidence of hospital-acquired infections, and readmission rates) for the past six months from the hospital records, through authorized personnel.

*7) Data Security and Confidentiality*

All digital data was stored securely in a password-protected Google Drive folder, accessible only to the researcher. All personal and institutional identifiers were removed to protect participant anonymity. Data were securely retained for five years and permanently deleted afterward, in accordance with ethical guidelines.

### *G. Statistical Treatment of Data*

The data gathered from the 80 healthcare professionals assigned in the Neonatal Intensive Care Unit (NICU) of Divine Word Hospital, Tacloban, were analyzed using Statistical Package for the Social Sciences (SPSS) Version 26. To answer the first research question regarding the demographic profile of healthcare professionals in terms of age, sex, professional role,

years of experience, and educational background, descriptive statistics such as frequency counts, percentages, means, and standard deviations were used to summarize and present the demographic characteristics of the respondents.

For the second research question, which seeks to determine the extent of interprofessional collaboration (IPC) among healthcare professionals in the NICU, the responses to the Interprofessional Collaboration Scale were processed using mean scores and standard deviations. The interpretation of scores followed a 5-point Likert scale with defined qualitative descriptors: 4.21–5.00 (Very High), 3.41–4.20 (High), 2.61–3.40 (Moderate), 1.81–2.60 (Low), and 1.00–1.80 (Very Low). This provided a clear understanding of the respondents' perceived level of collaboration within their teams.

To respond to the third research question concerning the levels of neonatal patient outcomes in the NICU, descriptive statistics were utilized to summarize key indicators such as survival rates, incidence of hospital-acquired infections, average length of stay, and readmission rates. These indicators were measured using a structured checklist and reported using mean values and frequency distributions.

For the fourth research question, which examines the relationship between healthcare professionals' perceptions of IPC (categorized by role: doctors, nurses, and allied health professionals) and neonatal patient outcomes, correlational analysis were conducted. If assumptions of normality are met, a Pearson Product-Moment Correlation Coefficient will be applied. A significance level of $p < 0.05$ was the threshold to determine statistical significance. This approach allowed the researcher to determine whether stronger perceptions of IPC are associated with better neonatal outcomes.

This statistical treatment ensured that each research question is appropriately addressed through the use of both descriptive and inferential statistics, providing a comprehensive understanding of the data collected.

### *H. Ethical Considerations*

This research adhered to the core ethical principles of respect for persons, beneficence, and justice, as outlined in the *Belmont Report* (U.S. Department of Health & Human Services [USDHHS], 1979). Ethical clearance were secured from the Institutional Review Board (IRB) prior to data collection. The study complied with both international research ethics standards and national data privacy legislation to safeguard the rights, dignity, and welfare of all participants.

#### *1) Informed Consent*

All participants were provided with a clear explanation of the research purpose, procedures, duration, risks, and benefits. An informed consent statement were presented at the beginning of the Google Forms survey, requiring respondents to acknowledge their voluntary participation before proceeding. The consent form affirmed that participants may decline or withdraw at any time without penalty, in alignment with ethical principles from the Belmont Report (USDHHS, 1979) and the National Ethical Guidelines for Health and Health-Related Research in the Philippines (Philippine Health Research Ethics Board [PHREB], 2022).

#### *2) Confidentiality and Data Security*

Data confidentiality were strictly maintained throughout the study. The survey did not collect identifiable information such as names or email addresses. All responses remained anonymous and stored in a secure, password-protected Google Drive, accessible only to the researcher. Aggregated data were used for analysis and reporting to ensure individual identities cannot be inferred. All data will be deleted three months after thesis completion. This process complies with the Data Privacy Act of 2012 (Republic Act No. 10173) and the guidelines of PHREB (2022).

#### *3) Risk-Benefit Analysis*

The study involves minimal risk, as it does not require physical intervention or sensitive disclosures. It consists solely of an online survey regarding professional collaboration and perceptions. No emotional, psychological, or physical harm is anticipated. The benefits of the study include contributing to the enhancement of interprofessional collaboration and neonatal care outcomes, potentially informing policy and training at the

Table 1
Demographic profiles of health professionals

| Variable | Category | Frequency | Percent |
|---|---|---|---|
| Age | 20-29 | 23 | 28.75 |
| | 30-39 | 32 | 40.00 |
| | 40-49 | 21 | 26.25 |
| | 50 and above | 4 | 5.00 |
| Sex | Male | 12 | 15.00 |
| | Female | 68 | 85.00 |
| Healthcare Profession | Doctor | 13 | 16.25 |
| | Midwife | 7 | 8.75 |
| | Nurse | 52 | 65.00 |
| | Nursing Aide | 3 | 3.75 |
| | Respiratory Therapist | 5 | 6.25 |
| Years of Experience | Less than 1 year | 7 | 8.75 |
| | 1-5 years | 28 | 35.00 |
| | 6-10 years | 16 | 20.00 |
| | More than 10 years | 29 | 36.25 |
| Highest Educational Attainment | Bachelor's Degree | 63 | 78.75 |
| | Master's Degree | 5 | 6.25 |
| | Doctoral Degree | 12 | 15.00 |

hospital level. These practices reflect the ethical principles of beneficence and justice, which emphasize maximizing social value while minimizing harm (Beauchamp & Childress, 2019).

## 4. Results and Discussion

This section presents the results of the data gathered from the 36 healthcare professionals assigned in the Neonatal Intensive Care Unit (NICU) of Divine Word Hospital, Tacloban, as well as the documented neonatal patient outcomes obtained from institutional records. The findings were organized according to the study's research questions, beginning with the demographic profile of the respondents, followed by the extent of interprofessional collaboration within the NICU, the levels of neonatal outcomes, and finally, the statistical relationship between interprofessional collaboration and patient outcomes.

### *A. Demographic Profiles of Respondents*

Table 2 shows the demographic profile of 80 healthcare professionals working in the NICU of Divine Word Hospital, Tacloban. A plurality of participants were aged 30–39 years (40 %), followed by the 20–29 years age group (28.75 %). Females comprised the overwhelming majority at 85 %. In terms of professional role, nurses held the majority representation (65 %), with doctors (16.25 %), midwives (8.75 %), respiratory therapists (6.25 %), and nursing aids (3.75 %) also included. Regarding years of experience in the NICU, those with more than 10 years constituted 36.25 %, while 35 % reported 1–5 years of experience. Educationally, 15 % of respondents possessed a doctoral degree while 6.25 % had a master's degree.

This distribution aligns with broader findings that the healthcare workforce in Philippine hospital settings tends to be female-dominated and composed largely of early- and mid-career professionals. For example, a study of Filipino nurses found that the majority were female and under 40 years of age (Castner et al., 2023). Internationally, nursing workforce surveys have similarly reported a predominance of female staff and a concentration in the 30–40 year age range (Smiley, 2023). The high proportion of nurses in this sample parallels global staffing patterns in neonatal units, where nursing roles dominate direct patient care (Society for Neonatal Care, 2022). The relatively high level of education (doctoral and master's) among participants also reflects a growing trend in nurse education attainment in the Philippines, responding to calls for advanced practice roles and leadership (Corpuz, 2023). Moreover, the significant percentage with over ten years of experience corresponds with local healthcare workforce research that identifies a core of seasoned staff in tertiary settings (Pepito et al., 2025).

In contrast, some studies report lower proportions of doctoral-prepared staff in similar NICU settings. For instance, a survey in a Philippine tertiary hospital found only 4 % of nursing staff held doctoral degrees (Moncatar et al., 2022). Internationally, neonatal unit staff samples often show higher representation of allied health professionals and respiratory therapists than was observed here (Kim et al., 2024).

These findings suggest a stable and educated workforce structure in this NICU context, with a predominance of nursing and a strong female representation. The presence of a substantial experienced cohort may favor interprofessional collaboration, given that experience fosters role clarity and teamwork. However, the comparatively lower representation of allied health professionals may imply potential gaps in multidisciplinary integration. Considering this demographic context is essential when interpreting subsequent findings on collaboration practices and neonatal outcomes, as age, role, experience, and education may modulate perceptions of teamwork and influence patient care effectiveness.

### *B. Level of Perceived Extent Interprofessional Collaboration*

Table 2 shows the extent of interprofessional collaboration among the 80 healthcare professionals in the NICU of Divine Word Hospital. The overall mean score of 3.37 indicates a high level of interprofessional collaboration, suggesting that respondents generally agreed with the positive statements describing teamwork, communication, and role clarity. Of the thirteen indicators, twelve were rated as *strongly agree*, while one item was rated as *agree*. The highest mean (3.55) reflected strong agreement that *teamwork is essential to achieving patient care goals*. This was followed by a mean of 3.51, indicating strong agreement that respondents clearly understood the roles and responsibilities of other professionals within the team. Meanwhile, the lowest mean (3.21) showed

Table 2
Levels of perceived extent of interprofessional collaboration

| Statement | Mean | SD | Interpretation |
|---|---|---|---|
| Members of my team communicate openly with one another. | 3.34 | 0.62 | Strongly agree |
| Team members are receptive to different viewpoints. | 3.21 | 0.72 | Agree |
| I am comfortable expressing my opinions in team discussions. | 3.29 | 0.64 | Strongly agree |
| There is mutual respect among professionals in our team. | 3.49 | 0.64 | Strongly agree |
| I understand the roles and responsibilities of other professionals in the team. | 3.51 | 0.64 | Strongly agree |
| Team meetings help us coordinate care effectively. | 3.43 | 0.67 | Strongly agree |
| I adjust my work practices based on feedback from other team members. | 3.29 | 0.62 | Strongly agree |
| My team values the input of each profession equally. | 3.34 | 0.64 | Strongly agree |
| I frequently collaborate with professionals from other disciplines. | 3.33 | 0.63 | Strongly agree |
| Information about patient care is shared transparently among team members. | 3.29 | 0.66 | Strongly agree |
| Teamwork is essential to achieving our patient care goals. | 3.55 | 0.71 | Strongly agree |
| I feel supported by other professionals in the team. | 3.30 | 0.64 | Strongly agree |
| I find working in a collaborative environment professionally rewarding. | 3.51 | 0.64 | Strongly agree |
| **Overall** | **3.37** | **0.66** | **Strongly agree** |

Table 3
Neonatal patient outcomes based on survival status, length of stay, HAI, and readmission rate

| Indicator | Category | Frequency | Percent |
|---|---|---|---|
| Neonatal Survival Status | Survived | 80 | 100.00 |
| Length of NICU Stay | Less than 7 days | 17 | 21.25 |
| | 7 - 14 days | 29 | 36.25 |
| | 15 - 21 days | 8 | 10.00 |
| | 22 - 28 days | 5 | 6.25 |
| | More than 28 days | 21 | 26.25 |
| Hospital Acquired Infection | None | 12 | 15.00 |
| | With HAI | 68 | 85.00 |
| | Bloodstream Infection | 32 | 40.00 |
| | Pneumonia | 54 | 67.50 |
| | Urinary Tract Infection | 3 | 3.75 |
| | Preterm | 2 | 2.50 |
| 30-day Readmission | Yes | 10 | 12.50 |
| | No | 70 | 87.50 |

that participants agreed, though to a lesser extent, that team members were receptive to differing viewpoints. Slightly higher but still among the lowest means was 3.29, suggesting that while they strongly agreed that they felt comfortable expressing opinions, adjusted work practices based on feedback, and shared patient information transparently, these aspects represented comparatively weaker areas of collaboration.

The high overall collaboration score supports findings from recent international studies showing that role clarity, shared goals, and open communication significantly enhance interprofessional collaboration in NICUs (Klingberg et al., 2024; Al-Kaabi et al., 2023). A Philippine study similarly reported strong collaboration among NICU personnel, emphasizing teamwork and communication as central to achieving safe neonatal care (Labrague et al., 2021). These studies reinforce the notion that collaborative behaviors, such as understanding each other's roles and valuing teamwork, are integral to effective patient care.

In contrast, some research highlights persistent challenges in team receptiveness and communication openness. For instance, a Malaysian NICU study noted that hierarchical structures often reduced the willingness of team members to voice differing viewpoints (Ling et al., 2022). Another Philippine study found moderate levels of communication openness due to cultural tendencies toward deference to authority (Gatpandan & Kim, 2023). These contrasting results help explain why receptiveness to diverse viewpoints in the present study obtained the lowest mean, signaling a potential cultural or structural barrier that may still influence communication dynamics despite generally high collaboration.

The findings suggest that NICU healthcare professionals at Divine Word Hospital demonstrate strong collaborative practices grounded in teamwork, role understanding, and shared goals. However, areas such as receptiveness to varied perspectives and assertive communication may require reinforcement. This synthesis aligns with both local and international literature, highlighting that while collaborative structures are robust, relational and communication-based dimensions of collaboration remain opportunities for continued improvement.

### *C. Neonatal ICU Patient Outcomes*

Table 3 shows the neonatal patient outcomes reported in the NICU of Divine Word Hospital. The findings indicate a 100% neonatal survival rate, suggesting that all neonates admitted during the study period were successfully discharged. The most common length of NICU stay was 7 to 14 days (36.25%), reflecting a moderate duration of critical care support. Regarding hospital-acquired infections (HAIs), the proportion was notably high at 85%, with pneumonia emerging as the most frequent infection (67.5%), followed by bloodstream infections (40%) and urinary tract infections (3.75%). Additionally, the 30-day readmission rate was 12.5%, indicating that a subset of neonates required further medical evaluation or treatment after discharge.

The 100% survival rate in this setting aligns with improvements in neonatal care observed in other facilities implementing structured and collaborative NICU protocols. For example, Sharma et al. (2022) reported substantial declines in neonatal mortality in NICUs that strengthened multidisciplinary teamwork and infection surveillance programs. Similarly, a study in India documented improved survival outcomes in NICUs with standardized neonatal care bundles and strong team communication (Bhatt & D'Cruz, 2023). Regarding length of stay, the 7–14 day range echoes findings from Berhanu et al. (2023), who noted that moderately preterm and low-birth-weight neonates typically remain within this duration as part of routine stabilization and monitoring.

However, the high proportion of HAIs contrasts with reductions reported in comparable NICUs. For instance, Morgan et al. (2023) reported significantly lower HAI rates after implementing strict infection-prevention bundles in tertiary NICUs. A multicenter study by Suh et al. (2022) similarly showed declining rates of ventilatorassociated pneumonia and central-line infections in NICUs following antimicrobial stewardship and enhanced IPC measures. Furthermore, 30-day readmission rates in this study (12.5%) appear higher than the <10% readmission rates documented in NICUs that implemented structured discharge planning and post-discharge follow-up systems (Dutta et al., 2021).

The results suggest that while neonatal survival outcomes in

Table 4
Results of test of significant relationship between interprofessional collaboration and neonatal ICU patient outcomes

| Outcome variable | Correlation coefficient | p value | Decision | Conclusion |
|---|---|---|---|---|
| Length of NICU Stay | 0.174 | 0.123 | Fail to reject Ho | Not significant |
| Hospital Acquired Infection (HAI) | 0.207 | 0.065 | Fail to reject Ho | Not significant |
| Readmission | 0.056 | 0.621 | Fail to reject Ho | Not significant |

Table 5
Results of test of significant relationship between socio-demographic factors and interprofessional collaboration

| Demographic variable | Correlation coefficient | p value | Decision | Conclusion |
|---|---|---|---|---|
| Age | 0.279 | 0.012 | Reject Ho | Significant |
| Sex | -0.242 | 0.03 | Reject Ho | Significant |
| Experience | 0.19 | 0.091 | Fail to reject Ho | Not significant |
| Education | 0.13 | 0.251 | Fail to reject Ho | Not significant |
| Healthcare Profession | Chi-square = 10.536 | 0.229 | Fail to reject Ho | Not significant |

the Divine Word Hospital NICU are commendably high, the elevated level of HAIs indicates a critical area for improvement. The moderate length of stay and readmission rate fall within expected ranges but may reflect underlying clinical or systemic issues such as infection burden, discharge readiness, and continuity of care. These findings highlight the importance of strengthening infection control protocols, enhancing interprofessional communication, and optimizing discharge and follow-up practices to further improve neonatal outcomes.

### *D. Relationship between Perceived Interprofessional Collaboration and Neonatal ICU Patient Outcomes*

Table 4 presents the test of relationship between interprofessional collaboration and neonatal patient outcomes. The resulting p-values, all of which exceed the 0.05 level of significance, indicate a failure to reject the null hypothesis. This means that no statistically significant relationship was found between interprofessional collaboration and neonatal length of stay ($p = .123$), incidence of hospital-acquired infection ($p = .065$), and 30-day readmission ($p = .621$). Although collaboration scores were generally high among the healthcare professionals, these did not translate into measurable differences in the selected neonatal outcomes during the study period.

Similar findings have been reported in several studies where strong interprofessional collaboration did not directly correlate with clinical outcome indicators. For example, O'Leary et al. (2021) found that while collaboration improved workflow efficiency and staff satisfaction, it did not significantly predict changes in readmission rates or length of stay. Likewise, a cross-sectional study in Singapore showed no significant association between interprofessional teamwork and neonatal infection outcomes, suggesting that structural and system-level factors may exert greater influence on infection rates than collaborative behaviors alone (Tan et al., 2022). In the Philippine context, Reyes et al. (2023) reported that teamwork improved communication clarity but did not significantly impact neonatal mortality or morbidity indicators.

However, contrasting evidence also exists. Several studies show that collaboration contributes to improved neonatal outcomes when combined with strong clinical protocols. For instance, Martin et al. (2022) demonstrated that highfunctioning interprofessional teams in NICUs had significantly lower rates of HAIs when teamwork was coupled with strict infection-prevention bundles. Similarly, a multicenter study by Calleja et al. (2023) showed that collaborative decision-making reduced NICU length of stay in units with robust staffing levels and adequate resource allocation.

The findings suggest that while interprofessional collaboration is vital for communication, coordination, and team morale, its direct statistical effect on clinical outcomes may be limited unless reinforced by systemic supports such as adequate staffing, standardized protocols, and strong infection control systems. Thus, the absence of significant relationships in this study may reflect the influence of broader organizational and clinical factors beyond collaborative practice alone. These results underscore the multifactorial nature of neonatal outcomes and highlight the need for integrated strategies that combine teamwork, resources, and evidence-based clinical guidelines.

### *E. Relationship between Socio-Demographic Factors and Interprofessional Collaboration*

Table 5 presents the relationship between the demographic variables of healthcare professionals and their perceived extent of interprofessional collaboration.

The resulting p-values less than 0.05 indicate a rejection of the null hypothesis, showing that age ($p = .012$) and sex ($p < .05$) are significantly associated with the perceived extent of interprofessional collaboration. Specifically, respondents aged 30 to 39 years demonstrated higher levels of collaboration, whereas those in the 20 to 29 and 40 to 49 age groups reported comparatively lower collaboration scores. Additionally, female healthcare professionals reported significantly higher interprofessional collaboration than their male counterparts.

These results are consistent with several recent studies. For instance, Al Khawaldeh et al. (2023) found that mid-career healthcare professionals reported higher collaboration due to increased confidence, accumulated experience, and deeper familiarity with team processes. Similar patterns were observed in a study from Saudi Arabia, where professionals aged 30–39 demonstrated stronger teamwork behaviors compared to younger staff who were still adapting to interprofessional roles (Alzahrani et al., 2022). The significant association with sex also aligns with research indicating that female healthcare workers often report greater engagement in collaborative care,

communication, and relational teamwork (Chiyangwa et al., 2022; Wang et al., 2023).

Contrasting evidence, however, also exists. A study conducted in Taiwan found no significant differences in collaboration based on age or sex, suggesting that organizational culture and leadership may play a greater role than individual demographics (Hsu et al., 2021). Likewise, a Canadian multicenter study reported that interprofessional collaboration was uniform across age groups when institutional teamwork policies were strong and consistently implemented (Khalili et al., 2022). These contrasting findings highlight that demographic influences may vary depending on institutional support, culture, and team structures.

The findings of this study support the notion that demographic characteristics, particularly age and sex, can shape professionals' perceptions of collaborative practice. The higher collaboration scores among the 30–39 age group may reflect optimal combinations of clinical experience, confidence, and professional maturity. The stronger collaboration reported by females also aligns with literature suggesting greater participation in communicative and cooperative behaviors. However, contrasting studies remind us that demographics interact with broader organizational elements, emphasizing the need for supportive teamwork cultures to ensure that all staff, regardless of background, can fully engage in interprofessional collaboration.

### *F. Relationship between Socio-Demographic Factors and Neonatal ICU Patient Outcomes*

Table 6 presents the association between demographic variables and neonatal patient outcomes. The results show that none of the demographic variables, age, sex, healthcare profession, years of experience, and educational attainment, were significantly associated with neonatal survival, length of NICU stay, or overall patient outcomes. However, certain specific relationships emerged. Hospitalacquired infection (HAI) was found to be significantly associated with years of experience, indicating that HAIs occurred more frequently among neonates managed by healthcare professionals with 1 to 5 years of experience. Additionally, 30-day readmission showed significant associations with age ($p = .002$) and years of experience ($p = .043$). Younger professionals aged 20 to 29 years were linked to higher 30-day readmission rates, and similarly, those with 1 to 5 years of experience were also associated with increased likelihood of readmission.

These findings reflect patterns observed in several recent studies. For instance, Shafiq et al. (2022) reported that less experienced NICU staff were more likely to encounter infections and clinical complications due to limited exposure to complex neonatal cases. A Philippine study by Mendoza and Torres (2023) also found that early-career nurses had higher rates of procedural errors, which may indirectly influence infection or readmission outcomes. Furthermore, Flores et al. (2021) emphasized that novice healthcare workers often face challenges in clinical decision-making and interdisciplinary coordination, which may contribute to variable patient outcomes. Internationally, Martins et al. (2022) documented that younger professionals were more prone to inconsistencies in discharge planning, correlating with higher readmission rates.

Contrasting findings, however, are present in the literature. A study by Kim and Ahn (2023) found no relationship between clinician experience and neonatal readmission, suggesting that strong institutional protocols can mitigate differences in clinical proficiency. Another study in Australia reported that patient outcomes were not affected by staff age or experience when robust team-based care standards were implemented (Harris et al., 2022). These contrasting observations imply that organizational systems, staffing ratios, and mentorship programs may buffer or amplify the influence of demographic characteristics on patient outcomes.

Taken together, the results suggest that although demographic variables generally did not predict neonatal outcomes in broad terms, younger and less experienced healthcare professionals may face greater challenges in

Table 6
Results of test of significant relationship between socio-demographic factors and neonatal ICU patient outcomes

| Demographic variable | Chi-square value | p value | Decision | Conclusion |
|---|---|---|---|---|
| *Length of hospital stay vs* | | | | |
| Age | 19.495 | 0.077 | Fail to reject Ho | Not significant |
| Sex | 1.634 | 0.803 | Fail to reject Ho | Not significant |
| Healthcare Profession | 21.252 | 0.169 | Fail to reject Ho | Not significant |
| Experience | 12.675 | 0.393 | Fail to reject Ho | Not significant |
| Education | 14.365 | 0.073 | Fail to reject Ho | Not significant |
| *Hospital-acquired infection vs* | | | | |
| Age | 1.481 | 0.687 | Fail to reject Ho | Not significant |
| Sex | 0.031 | 0.861 | Fail to reject Ho | Not significant |
| Healthcare Profession | 2.689 | 0.611 | Fail to reject Ho | Not significant |
| Experience | 22.616 | 0.001 | Reject Ho | Significant |
| Education | 0.554 | 0.758 | Fail to reject Ho | Not significant |
| *30-day readmission vs* | | | | |
| Age | 15.155 | 0.002 | Reject Ho | Significant |
| Sex | 0.224 | 0.636 | Fail to reject Ho | Not significant |
| Healthcare Profession | 1.787 | 0.775 | Fail to reject Ho | Not significant |
| Experience | 8.163 | 0.043 | Reject Ho | Significant |
| Education | 0.450 | 0.799 | Fail to reject Ho | Not significant |

Table 7
NICU TEAM-UP program matrix

| Component | Objectives | Key activities | Target participants | Frequency / duration | Lead / support |
|---|---|---|---|---|---|
| 1. Interprofessional Teamwork & Communication Training | Improve teamwork, communication, and receptiveness to different viewpoints | TeamSTEPPS®-inspired workshops; simulation-based NICU scenarios; debriefings focused on mutual respect, speaking up, and role clarity | Doctors, nurses, midwives, respiratory therapists, nursing aides | 2 full-day core sessions; quarterly refresher sessions | NICU Head, Training Office, invited IPC facilitator |
| 2. Mentorship & Buddy System for Early-Career Staff | Support staff with 1–5 years' experience; reduce errors, HAIs, and readmissions linked to novice practice | Assign senior "mentor" to each novice; structured monthly check-ins; shadowing opportunities; case-coaching for complex patients | Staff aged 20–29 or with 1–5 years' NICU experience | 6–12 months per mentee; monthly formal sessions | Senior NICU nurses and physicians, Clinical Nurse Educator |
| 3. IPC-Driven Infection Prevention & Discharge Bundles | Reduce HAIs (especially pneumonia and bloodstream infections) and 30-day readmissions | Co-designed care bundles: device care, hand hygiene, ventilation/line bundles, and standardized discharge checklist with IPC checkpoints | All NICU staff; infection control nurse; discharge planners | Development phase 2–3 months; implementation continuous; review quarterly | Infection Control Committee, NICU Team, Quality Office |
| 4. Daily Interprofessional Huddles & Monthly Learning Reviews | Embed real-time collaboration and reflective practice into daily workflow | 10–15-minute shift huddles; monthly mini–morbidity & improvement reviews focusing on communication, escalation, and handover | All on-duty NICU staff | Twice daily huddles; monthly one-hour review | NICU Charge Nurse, Duty Pediatrician |

managing complex neonatal cases, leading to increased HAI incidence and readmission rates. This underscores the importance of structured mentorship, continuous competency training, and strengthened interprofessional support systems, particularly for earlycareer staff. These findings also highlight the need for NICUs to reinforce protocols, supervision, and skill-building programs to ensure consistency in neonatal care regardless of staff demographics.

### *G. Proposed Intervention Program from the Results of the Study NICU TEAM-UP Program (Team-based Enhancement and Advancement for Multidisciplinary Unified Practice)*




Fig. 2. NICU TEAM-UP program logo.

Based on the findings of the study, the NICU at Divine Word Hospital had generally high perceived interprofessional collaboration, but with weaker areas in receptiveness to different viewpoints and transparent communication. Neonatal survival was excellent, yet hospital-acquired infections were very high and 30-day readmissions were more common among patients managed by younger and lessexperienced staff. These patterns suggest that a focused intervention should (1) deepen the *quality* of collaboration (psychological safety, open dialogue, shared decision-making), and (2) specifically support early-career staff while strengthening IPC-driven infection prevention and discharge coordination. In response, the NICU TEAM-UP Program is proposed as a structured development initiative to enhance teamwork, reduce preventable complications, and support a culture of learning and shared accountability in neonatal care.

The NICU TEAM-UP Program was designed in response to gaps identified in the study, specifically the lower scores in receptiveness to differing viewpoints, communication openness, and the high levels of hospital-acquired infections and readmission rates. Strengthening interprofessional teamwork and supporting earlycareer staff are key strategies shown to improve collaborative practice and care quality in neonatal units. Evidence suggests that structured teamwork programs significantly improve communication, situational awareness, and team effectiveness in intensive care settings. For example, a simulation-based interprofessional education (IPE) intervention in neonatal units improved teamwork and clinical performance among NICU and nursery staff (Chae et al., 2024). Similarly, TeamSTEPPS-based teamwork training has been shown to strengthen interprofessional communication, role clarity, and collaborative behaviors in critical care units (Arrogante et al., 2022).

The program's mentorship component particularly addresses the study's finding that younger and less-experienced staff were associated with higher HAI and readmission rates. Recent literature confirms that novice clinicians benefit significantly from structured mentorship, which improves clinical judgment, communication confidence, and collaborative behavior (Doodlesack et al., 2024). A scoping review emphasized that mentoring interventions help reduce errors and enhance decision-making among novice nurses transitioning to complex care settings (Riker, 2025). In the Philippine context, interprofessional collaboration interventions have been shown to improve teamwork and care coordination, demonstrating feasibility and local applicability (Moncatar et al., 2021).

The infection-prevention and discharge bundles included in the program respond directly to the high HAI incidence found in the study. Strong evidence from low-resource and NICU

settings shows that neonatal infection-prevention bundles significantly lower the rates of bloodstream infections, pneumonia, and deviceassociated infections (Dramowski et al., 2022; García et al., 2022). A 2024 NICU study described a locally developed infection-prevention bundle as highly effective and easily transferable to other units (Rani et al., 2024). Additionally, structured discharge bundles have been shown to reduce neonatal readmissions when interprofessional teams consistently apply standardized discharge criteria and caregiver education processes (García et al., 2022).

Daily huddles and monthly learning reviews reinforce these improvements by embedding collaborative behavior into daily practice. Interprofessional huddles have been shown to improve shared decision-making and communication, especially in high-acuity units (Chae et al., 2024). Moreover, teamwork in NICUs has been linked to reduced moral distress and improved professional well-being (Alipour et al., 2024), emphasizing the importance of continuous, supportive interprofessional dialogue.

The NICU TEAM-UP Program integrates teamwork training, mentorship, infection-prevention bundles, and routine interprofessional huddles, all of which are backed by recent international and Philippine evidence. The program addresses the findings of the study while aligning with proven interventions shown to improve collaboration, reduce clinical complications, and foster a safer neonatal care environment.

*H. Program Implementation Plan*

*1) Planning and Co-Design (Months 1–2)*

- Present the study findings and proposed NICU TEAM-UP Program to hospital leadership, NICU leadership, Infection Control, and the Training/Education Office.
- Form a small NICU TEAM-UP Steering Group (NICU head, senior nurse, pediatrician, infection-control nurse, educator).
- Co-design detailed training content, mentorship guidelines, infectionprevention and discharge bundles, and huddle scripts, drawing from existing evidence-based resources and adapting them to Divine Word Hospital's context.

*2) Capacity Building (Months 3–4)*

- Train a group of internal facilitators (e.g., 3–5 senior nurses and 1–2 physicians) in interprofessional teaching approaches and simulation debriefing, possibly using a shortened TeamSTEPPS®-based curriculum.
- Identify and orient mentors (senior staff with >10 years' experience) and match them with mentees (20–29 years old and/or 1–5 years' experience) with clear expectations, documentation tools, and support.

*3) Pilot Implementation (Months 5–10)*

- Roll out two core training days for all NICU staff in staggered batches to avoid service disruption, followed by short quarterly refresher sessions.
- Launch the mentorship/buddy system, with monthly structured mentor– mentee sessions and informal on-shift coaching.
- Implement the infection-prevention and discharge bundles, integrating checklist use into routine documentation and making compliance part of standard audits.
- Start twice-daily interprofessional huddles (start of day and night shifts) and monthly one-hour learning reviews focusing on recent cases, HAIs, readmissions, and communication issues.

*4) Monitoring and Evaluation (Months 11–12 and ongoing)*

- Re-administer the Interprofessional Collaboration Scale to compare pre- and post-program scores for overall collaboration and subscales (communication, accommodation, isolation).
- Track key clinical indicators: HAI rates (particularly pneumonia and bloodstream infections), average length of NICU stay, and 30-day readmissions before and after implementation.
- Collect qualitative feedback from staff and mentors on feasibility, perceived impact, and areas for refinement.
- Present results to hospital leadership and use data to decide on scale-up, adjustments, or integration into hospital-wide quality and safety initiatives.

## 5. Summary, Conclusion, and Recommendations

This section presents the summary of the key findings, the conclusions drawn based on the results of the study, and the corresponding recommendations intended to enhance interprofessional collaboration and neonatal patient outcomes in the NICU of Divine Word Hospital. The summary synthesizes the major trends observed in the demographic characteristics of healthcare professionals, the extent of interprofessional collaboration, the levels of neonatal outcomes, and the statistical relationships between these variables. The conclusions reflect the implications of these findings in the context of neonatal care, while the recommendations outline practical and evidence-based actions that may guide policy development, professional training, and collaborative practice initiatives within the institution.

*A. Summary*

*1) Socio-demographic profile of healthcare professionals in the NICU*

The healthcare professionals in the NICU represented a diverse mix of ages, sexes, professional roles, years of experience, and educational backgrounds. The workforce was predominantly composed of female staff, with nurses making up the largest professional group, followed by physicians and other allied health personnel. The NICU team included both early-career professionals and highly experienced staff, contributing to a broad range of clinical exposure and perspectives. Educational attainment varied, with most professionals holding undergraduate degrees and some having completed graduate studies. This distribution highlights a multidisciplinary environment shaped by varied competencies, experiences, and training levels.

*2) Perceived extent of interprofessional collaboration*

Healthcare professionals generally demonstrated a high level of interprofessional collaboration. They expressed strong agreement in key collaborative elements such as teamwork, clarity of roles, and shared goals in patient care. However, areas

related to communication openness, particularly receptiveness to differing viewpoints and comfort in expressing opinions, were perceived less strongly. This suggests that while collaboration is wellestablished, opportunities remain to further strengthen psychological safety and inclusive communication within the NICU team.

*3) Neonatal ICU patient outcomes based on WHO health indicators*

Neonatal outcomes showed positive trends in terms of survival, indicating effective acute care. The length of NICU stay commonly fell within a moderate range, reflecting the clinical needs of admitted neonates. However, a considerable proportion of neonates experienced hospital-acquired infections, with respiratory and bloodstream infections being the most frequently reported. Although readmission within 30 days was relatively low, its presence signals important areas for enhancement in post-discharge continuity of care and caregiver education.

*4) Relationship between interprofessional collaboration and neonatal ICU patient outcomes*

The study found no statistically significant relationship between the level of interprofessional collaboration and neonatal patient outcomes. This finding suggests that while collaborative practices were strong, patient outcomes, especially infection rates and readmission, may have been influenced more by clinical protocols, resource availability, or individual practice patterns rather than by collaboration alone.

*5) Relationship between socio-demographic factors and perceived interprofessional collaboration*

Certain socio-demographic characteristics were significantly associated with variations in perceived collaboration. Specifically, age and sex emerged as meaningful predictors, with younger professionals and male staff reporting lower levels of perceived collaboration compared to their counterparts. This indicates that generational experience, workplace confidence, and gender dynamics may shape healthcare workers' comfort, engagement, and interactions in collaborative settings.

*6) Relationship between socio-demographic factors and neonatal ICU patient outcomes*

Most socio-demographic variables did not show significant associations with neonatal outcomes. However, notable patterns were observed among early-career professionals. Those with fewer years of experience and younger staff were linked to higher occurrences of hospital-acquired infections and readmissions, suggesting that clinical experience, decision-making confidence, and familiarity with NICU protocols play critical roles in ensuring optimal patient outcomes.

*7) Proposed intervention or development program based on findings*

Drawing from the insights gathered, a comprehensive intervention program was proposed to enhance collaborative practices and reduce preventable clinical complications. The program focuses on strengthening interprofessional communication, supporting early-career staff through structured mentorship, improving infection-prevention and discharge processes, and fostering continuous team learning through daily huddles and periodic reviews. This program aims to reinforce existing collaborative strengths while addressing the specific gaps identified in the NICU.

### *B. Conclusion*

This study revealed important insights into the state of interprofessional collaboration and neonatal care outcomes in the NICU of Divine Word Hospital. The findings demonstrated that the NICU workforce is composed of a diverse mix of healthcare professionals whose varying levels of experience and educational backgrounds shape the dynamics of collaboration within the unit. Despite this diversity, interprofessional collaboration was generally perceived to be strong, particularly in areas related to shared goals, teamwork, and role clarity. This suggests that the NICU has established a solid foundation for collaborative practice, which is essential in high-risk environments such as neonatal intensive care.

However, the study also highlighted areas where collaborative practice can be strengthened. Communication openness, especially the expression of differing viewpoints and comfort in contributing to discussions, emerged as a key area needing improvement. This insight underscores the importance of cultivating psychological safety and fostering an environment where all team members, regardless of role or experience, feel empowered to speak up and participate actively in patient care discussions.

Neonatal outcomes reflected a mixed picture: while survival rates were favorable, the high incidence of hospital-acquired infections and the occurrence of 30-day readmissions point to clinical challenges that extend beyond collaboration alone. The lack of a significant relationship between interprofessional collaboration and neonatal outcomes suggests that patient outcomes may be influenced by multiple factors, including clinical skills, infection-control practices, and resource constraints. Notably, younger and less-experienced healthcare professionals were associated with higher rates of adverse outcomes, highlighting the critical need for structured support, mentorship, and ongoing competency development.

Overall, the study emphasized that strong collaboration is necessary but not sufficient on its own to ensure optimal neonatal outcomes. Effective neonatal care requires not only teamwork but also robust clinical protocols, continuous training, and institutional systems that support safe and high-quality care. The insights gained from this research informed the development of a targeted intervention program that aims to enhance communication, strengthen mentorship structures, reduce infection rates, and reinforce collaborative behaviors across the NICU team.

In essence, this study reinforced the value of interprofessional collaboration as a foundational element of safe neonatal care while illuminating the need for complementary strategies that address communication gaps, support novice practitioners, and strengthen clinical processes. These findings serve as a guide for future improvements in NICU practice and contribute to the growing body of knowledge on collaborative care in the Philippine healthcare context.

### *C. Recommendations*

Based on the significance of the study and the key insights derived from its findings, the following recommendations are offered to healthcare professionals, hospital administration, patients and families, and future researchers to enhance interprofessional collaboration and improve neonatal care outcomes in the NICU.

#### *1) For Healthcare Professionals*

Healthcare professionals are encouraged to actively engage in continuous interprofessional development to strengthen teamwork, communication, and shared decision-making within the NICU. Training programs focusing on communication openness, conflict resolution, and clarity of roles may be pursued to address the identified gaps in receptiveness to varying viewpoints. Professionals, particularly those in early career stages, are encouraged to participate in structured mentorship programs to enhance clinical competence, confidence, and collaborative behavior. Cultivating a culture of mutual respect and proactive information sharing will support safer and more coordinated neonatal care.

#### *2) For Hospital Administration*

Hospital administration should prioritize institutional policies and programs that reinforce a collaborative culture in the NICU. Implementing structured interprofessional training, regular team huddles, and standardized communication protocols can significantly strengthen teamwork and reduce preventable complications. Administrators may also invest in mentorship and competencybuilding initiatives for younger or less-experienced staff, given that these groups were associated with higher rates of infections and readmissions. Strengthening infectionprevention systems, ensuring resource availability, and fostering an environment that supports psychological safety and open communication will further enhance care delivery.

#### *3) For Patients and Families*

Patients and families stand to benefit from improved outcomes when healthcare teams collaborate effectively. It is recommended that family-centered care approaches be integrated into NICU processes, including improved caregiver education before discharge and clearer communication channels between families and the healthcare team. Strengthening interprofessional collaboration will aid in ensuring timely, accurate, and coordinated care, thereby reducing complications and supporting healthier neonatal recovery and development.

#### *4) For Future Researchers*

Future researchers are encouraged to expand the scope of IPC-related investigations to include larger and multi-institutional samples to improve generalizability. Studies may explore additional patient outcome indicators, consider longitudinal designs to capture long-term effects, or evaluate the effectiveness of specific IPC-based interventions such as simulation training, mentoring frameworks, or infection-prevention bundles. The findings of this study contribute valuable baseline evidence and highlight the need for continued research on how collaborative practices influence neonatal outcomes, particularly in the Philippine healthcare context.

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