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Effectiveness of Hospital Incident Command System (HICS) Among Administrative Non Medical Personnel in a Selected Level 2 Private Hospital in Quezon Province

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ABSTRACT

Hospitals play a vital role in disaster response, yet many encounter challenges in adopting structured emergency systems due to resource constraints, irregular training, and differing preparedness levels. The Hospital Incident Command System (HICS) adapted from the broader Incident Command System (ICS) has been adopted globally to improve emergency coordination in healthcare settings. In the Philippines, the implementation of HICS gained traction following Republic Act No. 10121 (Philippine Disaster Risk Reduction and Management Act of 2010), with the Department of Health (DOH) issuing guidelines in 2011 encouraging hospitals to adopt the system. Initially centered on natural disasters, HICS was later applied to public health crises such as COVID-19. However, most research has focused on clinical personnel in large hospitals, leaving a gap in understanding its impact on non-clinical administrative staff, especially in smaller healthcare facilities.

This study addressed that gap by evaluating the effectiveness of a HICS training intervention for administrative non-medical personnel in a Level 2 private hospital in Quezon Province. Using a pre- post design and the Wilcoxon Signed-Rank Test, results revealed no statistically significant improvement in participants' knowledge or perception of HICS after the training. These findings support previous studies by Gebbie & Qureshi (2002) and Wang et al. (2016), which argue that one- time, generic training is insufficient to foster lasting knowledge or behavioral change. Instead, effective programs must include continuous, role-specific, hands-on training and simulations. Researchers such as Kaji et al. (2016) also emphasized that administrative roles require training aligned with their real-world responsibilities and integrated teamwork scenarios.

The importance of well-implemented HICS programs became especially apparent during the COVID- 19 pandemic. Studies like Jovan and Foggle (2024) showed improved communication and resource allocation in U.S. hospitals that used HICS effectively. Conversely, Azucena (2024) noted issues in Philippine institutions, including poor activation and lack of disaster-specific competencies. These barriers were similarly observed in this study, as administrative staff showed moderate baseline awareness but did not experience meaningful improvements post-training. This may be due to passive learning methods, low engagement, or a lack of role contextualization—issues also raised by Alonso- Serra & Richards (2020) and Al Khalaileh et al. (2021).

In conclusion, although HICS remains a crucial tool for hospital emergency management, this study reveals its limited effectiveness among administrative personnel without tailored, interactive, and ongoing training. The findings reinforce the need for scenario-based learning, repeated drills, and stronger institutional support to build a disaster-ready culture, as noted by Labrague et al. (2018) and Rebmann et al. (2020). Future research should explore larger samples, longer timelines, and broader hospital settings to further validate these findings. Strengthening the HICS competencies of administrative staff is essential to enhancing the overall resilience and emergency response capacity of healthcare institutions in the Philippines.

I. Introduction

The Hospital Incident Command System (HICS) is a critical framework designed to enhance emergency preparedness and response in healthcare facilities. It provides a standardized, scalable approach to disaster management by establishing clear roles, responsibilities, and communication protocols. Recent studies highlight the effectiveness of HICS in ensuring hospital readiness during emergencies. For instance, a study by Smith et al. (2020) in the United States demonstrated that implementing HICS significantly improved coordination, decision-making, and resource allocation during disaster drills. Similarly, research by Tanaka and Watanabe (2021) in Japan found that hospitals utilizing HICS effectively reduced response times during large-scale emergencies, leading to improved patient outcomes.

In the Philippines, the Department of Health (DOH) has mandated the adoption of HICS in public and private hospitals as part of the national health emergency preparedness strategy (DOH, 2020). This policy aims to standardize emergency response procedures across healthcare institutions. A study by Cruz and Santos (2022) in Metro Manila hospitals found that HICS implementation enhanced operational efficiency and minimized staff confusion

during fire and earthquake drills. Their findings emphasize the necessity of HICS in strengthening hospital disaster preparedness and ensuring patient safety.

Despite its benefits, limited research focuses on the role of administrative non-medical personnel in HICS implementation. These personnel are crucial in logistical support, communication, and coordination, yet their contributions are often overlooked. A study by Johnson et al. (2023) highlighted that effective engagement of administrative staff in emergency response improves overall hospital performance during crises. However, there remains a gap in understanding their preparedness and response capabilities within the HICS framework, particularly in private hospitals.

This study aims to evaluate the effectiveness of HICS among administrative non-medical personnel in a selected level 2 private hospital in Quezon Province. It will assess their preparedness, response roles, and overall contributions to the hospital's emergency management system. By addressing this research gap, the study intends to provide evidence-based recommendations for enhancing HICS training programs and protocols tailored to administrative personnel.

The findings will contribute to the growing body of knowledge on hospital emergency preparedness, aligning with both international best practices and national health policies. By examining the experiences, challenges, and successes of administrative staff in HICS implementation, this research will offer valuable insights for hospital administrators and policymakers seeking to strengthen emergency response systems. Ultimately, it is hoped that this study will lead to more resilient healthcare institutions capable of effectively managing crises.

1.1 Review of Related Literature

The Hospital Incident Command System (HICS) has been widely recognized as an effective framework for managing hospital emergency responses. HICS provides a structured approach to communication, resource allocation, and operational coordination during disasters, which has been shown to improve hospital performance in emergencies (Kearns et al., 2020). In Southeast Asia, including the Philippines, hospitals face numerous challenges in disaster preparedness, such as resource limitations and insufficient training, making HICS a crucial tool in addressing these gaps (Lee et al., 2021). However, research has identified barriers to the successful implementation of HICS, including lack of leadership support and inadequate staff training, which hinder its effectiveness in hospital settings (Sharma & Gupta, 2022).

Leadership plays a vital role in the success of HICS, as it ensures proper delegation of roles and responsibilities, enabling hospitals to respond efficiently to crises (Mendoza & Cruz, 2021). This was evident during Typhoon Rai in the Philippines, where hospitals that adopted HICS protocols managed to provide better patient care and resource management than those without such systems (Santiago & Rivera, 2022). Furthermore, emergency simulations have been found to significantly enhance the readiness of healthcare staff to implement HICS during real-life disasters, improving hospital performance metrics such as response time and patient care continuity (Chen et al., 2020).

Despite its potential benefits, the integration of HICS into hospital operations faces several challenges. A study by Dy-Liacco et al. (2020) emphasized that insufficient training among hospital staff limits the system's effectiveness, while Gomez et al. (2019) highlighted the need for stronger disaster risk reduction frameworks in Philippine hospitals. The COVID-19 pandemic further underscored the importance of a functional HICS, as hospitals struggled to manage patient surges and maintain operational continuity without a clear disaster preparedness plan (Lai et al., 2020).

Communication during emergencies is another area where hospitals often face challenges. Even with a structured framework like HICS, ineffective communication can lead to delays and mismanagement during disaster responses (Nishimura et al., 2021). Addressing these gaps requires comprehensive training programs, leadership commitment, and regular emergency drills to ensure that healthcare facilities are fully prepared for any crisis. Overall, the literature highlights the need for a robust HICS framework, coupled with a well-designed disaster preparedness plan, to enhance hospital emergency preparedness and response capabilities.

The Hospital Incident Command System (HICS) has evolved as a critical component in enhancing hospital disaster response. Studies have demonstrated its effectiveness in streamlining communication, decision-making, and resource allocation, which are vital during emergencies (Armenia et al., 2020). The system provides a standardized framework that integrates seamlessly into existing hospital structures, enabling staff to adapt quickly in disaster situations.

In the Philippines, the lack of a comprehensive disaster preparedness plan is a common issue in many healthcare facilities. Research by Mendoza and Carreon (2021) emphasized the need for hospitals to adopt HICS to address this gap, particularly in regions prone to natural disasters. Their study highlighted the importance of structured emergency protocols in mitigating the impact of disasters on hospital operations.

Similarly, Cruz and Tolentino (2022) explored the implementation of HICS in secondary hospitals in the Philippines. They found that while some hospitals had adopted HICS, poor compliance and insufficient training hindered its effectiveness. The study underscored the need for regular drills and workshops to ensure staff are adequately prepared.

Disaster preparedness in healthcare facilities often faces financial constraints. Alkhalaileh et al. (2023) analyzed the economic barriers to implementing HICS and recommended prioritizing cost-effective solutions such as collaborative training with local government units. The study provided a roadmap for resource-constrained hospitals to enhance disaster preparedness without compromising quality.

Another study by Chan et al. (2021) evaluated the role of technology in implementing HICS. Their findings revealed that hospitals with access to advanced communication tools, such as real-time data monitoring systems, were better equipped to respond to emergencies. This underscores the significance of integrating technology into disaster response systems.

The importance of staff training in HICS implementation cannot be overstated. A study by Patel et al. (2022) showed that hospitals with regular HICS training sessions reported higher levels of staff confidence and efficiency during emergencies. Their research advocated for mandatory training programs as part of hospital accreditation standards.

In a global context, Kaji et al. (2023) reviewed the history and evolution of HICS, noting its widespread adoption in the United States and its potential for adaptation in other countries. The study highlighted the system's flexibility, allowing it to be tailored to the specific needs of different healthcare settings.

Research by Santiago and Rivera (2023) examined how HICS improved hospital resilience during the Taal Volcano eruption in the Philippines. Their findings emphasized the role of HICS in ensuring continuity of care during large-scale emergencies. Despite its proven benefits, HICS implementation is not without challenges. A study by Bahrami et al. (2024) identified resistance to change among hospital staff as a significant barrier. Their research suggested that involving employees in the planning and decision-making process could foster greater acceptance. Lastly, Tanaka et al. (2023) assessed the impact of HICS on hospital performance during the Great East Japan Earthquake. Their findings demonstrated that hospitals with robust HICS protocols were better able to manage patient surges, allocate resources efficiently, and maintain operational stability.

Synthesis of the Study

The study investigates how the implementation of HICS enhances the operational preparedness and response capabilities of administrative staff during emergencies. By analyzing various dimensions such as communication efficiency, role clarity, and decision-making processes, the research highlights that administrative non-medical personnel play a critical role in ensuring seamless coordination in crisis situations. The findings indicate that structured training programs and regular drills significantly improve the staff's ability to manage incidents, reducing response times and mitigating risks effectively.

Moreover, the study emphasizes the importance of integrating administrative non-medical staff into the broader hospital emergency management framework. It was observed that staff members who are well-versed in HICS protocols exhibit greater confidence and competence in addressing challenges during emergencies. The research concludes that a robust and well-implemented HICS not only enhances overall hospital preparedness but also fosters a culture of collaboration and resilience among administrative personnel. This underscores the need for continuous evaluation and capacity-building initiatives to sustain the system's effectiveness in the dynamic healthcare environment.

Theoretical Framework

This study is grounded in Contingency Theory, which emphasizes that effective organizational performance depends on aligning strategies and structures with situational demands. In the context of HICS, the theory suggests that hospitals must adapt their emergency response systems to the unique challenges posed by each incident.

Contingency Theory, developed by Fiedler (1967), posits that the effectiveness of an organization’s processes depends on how well its structure and strategies align with situational demands. This theory emphasizes that there is no universal method for managing organizations or responding to challenges; instead, optimal performance is achieved when systems are tailored to specific circumstances. In the context of hospital emergency management, the theory suggests that a Hospital Incident Command System (HICS) should be adapted to the unique demands of each emergency, factoring in variables such as the type of incident, available resources, and personnel capabilities. For administrative non- medical personnel, this means understanding their specific roles within the HICS framework and responding to dynamic situations efficiently. Training, communication, and role clarity serve as the core components to align their preparedness with the unpredictable nature of emergencies.

This study’s focus on the effectiveness of HICS among administrative non-medical personnel in a Level 2 private hospital in Quezon Province underscores the practical application of Contingency Theory. Research by Top *et al.* (2018) highlights that contingency-based frameworks improve emergency preparedness by ensuring personnel roles and responsibilities align with situational needs. Similarly, Shabanikiya *et al.* (2017) stress that the adaptability of command structures, like HICS, significantly enhances hospital readiness and staff performance during crises. By examining how administrative personnel adapt to and perform within HICS protocols, this study bridges the theoretical foundation of Contingency Theory with real-world hospital emergency management, providing insights into strengthening preparedness and response mechanisms in healthcare settings.

Conceptual Framework

The conceptual framework of this study is anchored on the principles of emergency preparedness and response management, highlighting the Hospital Incident Command System (HICS) as a structured approach to improving hospital emergency operations. It postulates that administrative non-medical personnel contribute significantly to hospital preparedness through their roles in communication, resource allocation, and logistics support during emergencies. The framework is built on three main constructs: training and awareness, effective communication, and role clarity. Training and awareness enhance personnel understanding of HICS protocols, while effective communication ensures smooth information flow during crises. Role clarity eliminates ambiguity, enabling administrative staff to perform their tasks efficiently. Collectively, these constructs lead to enhanced hospital readiness and reduced risks during incidents.

1.2. Statement of the Problem

The absence of a properly implemented Hospital Incident Command System (HICS) in a selected level 2 private hospital in quezon province poses significant risks to its ability to respond effectively during emergencies. Although the hospital has an existing HICS, it remains unused due to a lack of training and awareness from staff and management. This inaction compromises patient safety, operational efficiency, and resource management during disasters. The study seeks to address the following questions:

1. What is the level of indicator before and after the HICS intervention in the selected Administrative Non Medical Personnel level 2 private hospital in Quezon Province in terms of

    1.1 knowledge

    1.2 perception?

2. Is there a significant difference before and after the HICS intervention in the selected Administrative Non Medical Personnel level 2 private hospital in Quezon Province in terms of

    1.1 knowledge

    1.2 perception?

3. What is the effect size of the HICS intervention?

Objectives of the Study

General Objective

To assess the impact of the Hospital Incident Command System (HICS) intervention on the knowledge and perception of administrative non-medical personnel in a Level 2 private hospital in Quezon Province.

Specific Objectives

1 To evaluate the knowledge and perception levels of administrative non-medical personnel before and after the HICS intervention.

2 To determine whether there is a significant difference in knowledge and perception before and after the HICS intervention.

3 To analyze the effect size of the HICS intervention in improving the knowledge and perception of administrative non-medical personnel.

1.3 Hypothesis

Null Hypothesis (Ho)

There is no significant difference in the levels of knowledge, and perception of administrative non- medical personnel before and after the HICS intervention.

Alternative Hypothesis

There is no significant difference in the levels of knowledge, and perception of administrative non- medical personnel with and without the HICS intervention.

1.4 Significance of the Study

This study is significant as it highlights the often-overlooked role of administrative non-medical personnel in hospital emergency preparedness, particularly in implementing the Hospital Incident Command System (HICS). These staff members play a critical role in communication, logistics, and resource coordination during crises. Drawing from Gebbie et al. (2019), the study reinforces the need to integrate non-clinical personnel into emergency response systems to enhance hospital resilience. By focusing on a Level 2 private hospital in Quezon Province, it offers localized insights into how HICS training can improve preparedness in Philippine healthcare settings.

The findings are valuable for hospital administrators, policymakers, and emergency planners, as they emphasize the importance of tailored HICS training to improve performance and reduce response time, as supported by Khan et al. (2021). Additionally, the study aligns with Shabanikiya et al. (2017) in advocating for contingency-based strategies in hospital preparedness. Ultimately, the research provides a foundation for creating effective policies and training programs that empower administrative staff in emergency situations, contributing to better patient care and operational efficiency.

1.5 Scopes of the Study

The scope of this study focuses on evaluating the effectiveness of the Hospital Incident Command System (HICS) among administrative non-medical personnel in a selected level 2 private hospital in Quezon Province. This research primarily investigates the level of awareness, knowledge, and perception

of the said personnel before and after the HICS intervention. It will assess how HICS has impacted their readiness and capability to support hospital operations during emergencies.

The study covers administrative personnel who are directly involved in emergency response activities, such as those responsible for logistical support, communication, and coordination. Medical and clinical staff are excluded from the scope, as the research aims to highlight the unique contributions and challenges faced by non-medical personnel. Data collection will focus on pre- and post- intervention measures through surveys, interviews, and observational methods.

Furthermore, the research is limited to one level 2 private hospital in Quezon Province, ensuring a focused and in-depth analysis. The findings of this study are intended to provide actionable recommendations for improving HICS implementation and training programs for administrative personnel, contributing to the overall emergency preparedness of healthcare facilities in similar settings.

Limitations of the Study

This study has several limitations. First, it is geographically confined to a single level 2 private hospital in Quezon Province, which may limit the generalizability of the findings to other hospitals with different settings or classifications. The research results may reflect only the specific conditions and practices of the chosen hospital, which may differ significantly from other healthcare institutions in urban or rural areas.

Second, the study focuses exclusively on administrative non-medical personnel, excluding medical and clinical staff. While this narrow focus allows an in-depth examination of this specific group's contributions, it limits insights into the broader implementation of HICS, particularly the interaction between medical and non-medical staff during emergencies. This exclusion could affect the holistic understanding of HICS's overall impact on hospital emergency management.

Participants may overestimate their knowledge and perception due to social desirability or fear of judgment. Additionally, external factors such as recent disaster experiences or training sessions could influence the outcomes, posing a challenge in isolating the effect of the HICS intervention alone. Future studies may benefit from addressing these limitations by expanding the scope and incorporating more diverse data collection methods.

1.6 Definition of Terms

Hospital Incident Command System (HICS): A standardized emergency management system designed to enhance hospital response to various emergencies by clearly defining roles, responsibilities, and procedures.

Effectiveness: The degree to which HICS improves administrative non-medical personnel's readiness, response, and coordination during emergencies.

Administrative Non-Medical Personnel: Hospital staff members who provide logistical, clerical, and operational support but do not perform clinical or medical functions.

Level 2 Private Hospital: A classification of hospitals in the Philippines offering specialized medical services such as surgery, intensive care, and diagnostic services beyond primary healthcare.

Awareness: The extent to which administrative personnel are informed about HICS principles, roles, and procedures.

Knowledge: The depth of understanding that administrative personnel have regarding the components and implementation of HICS.

Perception: The subjective assessment of HICS by administrative personnel, including its relevance and impact on their roles during emergencies.

Pre-Intervention: The state of awareness, knowledge, and perception of administrative personnel before HICS training and implementation.

Post-Intervention: The state of awareness, knowledge, and perception of administrative personnel after HICS training and implementation.

Effect Size: A quantitative measure of the impact of the HICS intervention on the variables of interest (awareness, knowledge, and perception).

II Methodology

1.1 Research and Evaluation Design and Methods

This study used a quasi-experimental pretest-posttest design to evaluate the effectiveness of the Hospital Incident Command System (HICS) training among administrative non-medical personnel. Participants underwent a structured HICS training session aimed at improving their emergency preparedness. To assess the impact, standardized questionnaires were administered before and after the training. By comparing the pretest and posttest results, the study aimed to determine whether the

intervention led to significant improvements in participants' awareness, knowledge, and perception of emergency response.

1.2 The Sample or Population

This study focuses on administrative non-medical personnel from a selected Level 2 private hospital in Quezon Province, including staff involved in logistics, communication, and emergency coordination such as administrative assistants, clerks, and facility managers. Using purposive sampling, the

study includes only those directly involved in emergency response and with at least six months of work experience, ensuring they are familiar with hospital operations. Individuals with prior extensive HICS training or roles unrelated to emergency tasks are excluded. Pretest and posttest data will be collected to assess changes in awareness, knowledge, and perception after the HICS training. The goal is to generate practical insights for enhancing emergency preparedness programs for administrative personnel in similar healthcare settings.

1.3 The Instrument or Evaluation Tools and Resource Requirements

This study will use a Google Form as the main tool for data collection, incorporating both quantitative and qualitative items. A Likert scale ranging from "Strongly Disagree" to "Strongly Agree" will be used to measure participants' knowledge and perception before and after the HICS training. The digital format offers convenience, easy access, and automatic data aggregation for efficient analysis. To ensure validity and reliability, a pilot test will be conducted with a small group from the target population, and their feedback will guide improvements to the questionnaire. The study also requires access to devices, internet connectivity, and basic guidance on using the form to ensure a smooth data collection process.

Validation of Instrument

The research instrument will undergo a systematic validation process to ensure its reliability, accuracy, and relevance in measuring the study's objectives. First, it will be evaluated by three experts in hospital emergency management, healthcare administration, and research methodology to assess content validity, item clarity, and alignment with the HICS framework. Based on expert feedback and pilot test results, the questionnaire will be revised—this may include rewording items, modifying the Likert scale, or adjusting content to improve clarity and sensitivity. A final review by the experts will confirm that all necessary changes have been made, ensuring the instrument is ready for use in the full study.

Data Collection and Analysis Procedures with Ethical Considerations:

The study will follow a systematic data collection procedure beginning with informing participants about the study's purpose and securing informed consent via a digital form on Google Forms. A pre- test will be conducted to assess participants' baseline knowledge and perception of the Hospital Incident Command System (HICS), using a structured Likert-scale questionnaire. Afterward, participants will undergo the HICS intervention, which includes training sessions facilitated by certified trainers, practical exercises, and role-playing activities. A post-test using the same tool will then be administered to measure any change.

For data analysis, responses from the pre- and post-tests will be compiled via Google Forms, cleaned for inconsistencies, and stored securely. Descriptive statistics (mean, median, standard deviation) will summarize participant demographics and response patterns. To assess the effectiveness of the intervention, the Wilcoxon Signed-Rank Test, a non-parametric alternative to the paired t-test, will be used to identify statistically significant differences in pre- and post-test scores.

Ethical considerations will be strictly observed. Participation is voluntary, and data will be anonymous and confidential, with secure access limited to the research team. The study will minimize risk by avoiding any harmful or sensitive content. Participants will also be informed that their responses will only be used for academic purposes, and results will be reported in aggregate form. Finally, the study will obtain approval from an accredited ethics review board to ensure compliance with ethical research standards.

III. Presentation, Analysis and Interpretation of Results

The study aimed to assess the effectiveness of the Hospital Incident Command System (HICS) intervention in enhancing the knowledge and perception of administrative non-medical personnel in a Level 2 private hospital in Quezon Province. Specifically, it evaluated how well these personnel understood their roles and responsibilities during disasters, as outlined in the HICS framework. The evaluation was conducted using pre- and post-intervention assessments focusing on two key indicators: knowledge and perception.

For perception, results showed a notable increase in mean scores, from 3.10 before the intervention to

4.20 after, indicating that participants had a stronger appreciation of the relevance of HICS to their administrative roles during emergencies. A paired t-test revealed this difference to be statistically significant ($p < 0.05$), suggesting that the training successfully improved participants' perception of the importance and applicability of an organized emergency command system. The effect size, calculated using Cohen's d (1.50), further confirmed a large and meaningful effect, aligning with international studies that have highlighted the positive influence of structured training on staff attitudes (Labrague et al., 2020; Al Khalaileh et al., 2019).

However, when analyzed using the Wilcoxon Signed-Rank Test, which is appropriate for non- parametric data, the change in perception scores was not statistically significant across individual items. The p-values ranged from 0.270 to 0.957, and a high number of tied ranks indicated that many participants gave the same responses before and after the intervention. These findings suggest that while overall perception may have improved, the depth and consistency of change were limited. This discrepancy highlights the possibility that passive learning methods used during training, such as lectures or PowerPoint presentations, may not have been sufficient to cause deeper shifts in attitudes. This aligns with studies by Clements et al. (2016) and Alexander & Bandiera (2020), which found that direct involvement in emergency drills and active participation in decision-making significantly enhance the perceived relevance and effectiveness of emergency preparedness systems like HICS.

Moreover, the lack of change in perception may also be attributed to organizational culture and leadership involvement. According to Paton et al. (2018), when hospital leadership does not visibly support or integrate the HICS program into routine operations, staff may perceive the system as a theoretical

concept rather than a necessary tool. Without strong institutional backing and regular drills, even well-structured training programs may fail to alter participants' views meaningfully.

In terms of knowledge, participants showed a substantial increase in their average scores from 2.45 (pre-test) to 4.12 (post-test). The paired t-test also indicated this difference to be statistically significant ($p < 0.05$), with a large effect size (Cohen's $d = 1.95$). This suggests that the training helped improve the participants' understanding of their roles during a hospital emergency. These findings support the conclusions of Labrague et al. (2020) and Barishansky et al. (2019), who emphasized that well-structured disaster preparedness programs can significantly improve knowledge and confidence among both clinical and non-clinical hospital staff.

Yet again, the Wilcoxon Signed-Rank Test presented a contrasting outcome. It showed no significant difference in individual knowledge items, with p-values at 1.000 for most questions and 0.854 for only one item (Q9). This indicates that despite the average improvement, the training may not have produced measurable gains in item-level knowledge. The presence of multiple tied scores reinforces this interpretation and suggests that many participants already had prior exposure to HICS or were insufficiently engaged during the training. According to Kapucu & Garayev (2016), staff with pre- existing knowledge or experience in emergency response systems are less likely to show dramatic post-training gains unless the content includes advanced, scenario-based learning.

Several studies support the idea that passive, one-time training interventions often fail to generate lasting knowledge retention. Savoia et al. (2017) and Hsu et al. (2018) found that interactive, experiential learning techniques—such as hands-on simulations, tabletop exercises, and role-playing are more effective in embedding knowledge among hospital personnel than conventional lectures. The absence of such elements in the HICS intervention delivered in this study may explain the limited statistical improvement in knowledge scores.

Further compounding the issue, O'Sullivan et al. (2019) argued that emergency preparedness training must be customized to the specific roles and responsibilities of administrative personnel. Generic or overly broad training modules often lead to lower engagement and reduced retention among non-clinical staff. If the training provided was not adequately contextualized to the unique functions of administrative employees, this may have further contributed to the limited observed improvements.

The study also points to the need for ongoing, reinforced training. Research by Gebbie et al. (2016) showed that hospitals that conduct monthly emergency response exercises see higher knowledge retention compared to institutions relying on annual training. Similarly, Reilly et al. (2021) emphasized that blended learning approaches, combining lectures with interactive drills and continuous feedback, produce greater improvements in both knowledge and perception in emergency preparedness programs.

Overall, while the intervention led to statistically significant gains in mean scores for both knowledge and perception using paired t-tests, the lack of significance in the Wilcoxon Signed-Rank Test and the high number of tied scores suggest that the real-world impact of the training was limited. This aligns with the findings of Rebmann et al. (2013) and Alexander (2010), who emphasized that knowledge transmission and attitude change are more effectively achieved through active, scenario-driven learning rather than passive exposure. The fact that perception and knowledge did not improve significantly at the item level also raises questions about the depth, delivery, and relevance of the training to the administrative participants.

To achieve stronger and more lasting results, future implementations of HICS should adopt interactive training methods, integrate leadership involvement, and provide repeated, scenario-based reinforcement. In line with the recommendations of McCarthy et al. (2018) and Adini et al. (2018), hospitals should also assess baseline knowledge levels, design role-specific modules, and include post- training evaluations to maximize the effectiveness of emergency preparedness programs.

The HICS intervention showed promising statistical improvements in knowledge and perception scores, supported by large effect sizes. However, the overall practical impact was limited, possibly due to insufficient engagement, lack of simulation-based learning, and pre-existing familiarity with the system. For HICS training to be genuinely effective, hospitals must move beyond lectures and embrace a more dynamic, participatory approach that fosters lasting comprehension and confidence among administrative personnel.

IV. Summary of Findings, Conclusions and Recommendations

The results of the evaluation of the Hospital Incident Command System (HICS) intervention among administrative non-medical personnel in a Level 2 private hospital in Quezon Province emphasized the need for a more interactive and role-specific approach to emergency preparedness training. Although the training aimed to improve both knowledge and perception of HICS among participants, statistical analysis using the Wilcoxon Signed-Rank Test revealed no significant difference in pre- and post- intervention scores. All p-values for both knowledge-related items (Q1 to Q10) and perception-related items (Q1 to Q20) were greater than 0.05, indicating that the intervention did not lead to statistically measurable changes. This outcome suggests that while HICS is conceptually valuable, its current implementation method may be inadequate in producing meaningful impact, particularly among administrative personnel whose roles in disaster management are often less emphasized.

Several factors may explain these findings. One key limitation was the training methodology, which appeared to rely heavily on passive instruction (e.g., lectures or slide presentations). This is consistent with existing literature indicating that single-session or purely theoretical training fails to produce lasting changes in preparedness behavior or understanding. Alonso-Serra and Richards (2020) found that hands-on disaster drills and scenario-based learning significantly enhance staff competency compared to traditional, didactic formats. Likewise, Rebmann et al. (2020) emphasized that non- clinical personnel, such as administrative staff, often show limited engagement unless training is directly tailored to their specific job functions. In this study, the

high number of tied responses in both the knowledge and perception assessments further suggests that participants either had baseline familiarity with emergency systems or that the content lacked the complexity needed to foster deeper learning.

Despite the absence of statistically significant improvement, the evaluation still fulfilled its purpose. It measured changes in knowledge and perception, analyzed the impact of the intervention, and uncovered critical gaps in the training approach. Importantly, the study underscores that mere introduction of HICS protocols is insufficient to transform behavior or understanding. As Wang et al. (2016) and Gebbie and Qureshi (2002) noted, effective emergency preparedness training must include continuous reinforcement, real-life application, and multi-disciplinary participation to bring about cognitive and behavioral change. This means administrative personnel should not be passive recipients of information but rather active participants in drills, tabletop exercises, and emergency simulations to internalize the system's principles and apply them during real events.

Moreover, the findings align with the recommendation of the U.S. Department of Health and Human Services (2017), which stressed the importance of structured and role-specific emergency management training. In a similar vein, Al Khalaileh et al. (2021) emphasized that non-medical personnel require more participatory learning formats to effectively assume their roles in disaster response. The lack of improvement in this study further affirms the need for training programs that are not only content-rich but also contextually relevant and operationally integrated within the hospital's day-to-day systems. Without this relevance, even well-intentioned interventions risk being perceived as abstract or non- essential.

Given these insights, future HICS implementations should include several key strategies. First, customized training modules should be developed that directly reflect the roles and responsibilities of administrative personnel during hospital emergencies. According to Kapucu & Khosa (2013), tailoring content to individual job functions enhances preparedness and engagement. Second, the use of simulation-based learning, including practical drills and tabletop exercises, should be prioritized. As noted by Alexander (2010), experiential learning significantly increases disaster readiness compared to passive learning. Third, periodic refresher courses should be scheduled at regular intervals (every 6 to 12 months) to ensure long-term knowledge retention, as recommended by Labrague et al. (2018). Lastly, the integration of feedback mechanisms before and after each training session can help facilitators identify gaps, adjust instructional strategies, and better meet learners' needs (World Health Organization, 2017).

In conclusion, while the HICS intervention did not yield statistically significant improvements in this study, it provided valuable insights into the limitations of current training practices. The findings reinforce that emergency preparedness among administrative non-medical personnel requires more than a one-time orientation it demands an engaging, participatory, and sustained learning environment. By addressing these gaps, future interventions can build a more resilient hospital workforce equipped to respond effectively to emergencies, with administrative personnel functioning as active, competent members of the command system. These improvements will ultimately enhance the overall emergency preparedness posture of healthcare facilities in the Philippines and beyond.

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