ORGANIZATIONAL SUPPORT AND INFECTION PREVENTION AND CONTROL PRACTICES AMONG HEALTHCARE WORKERS IN A SECONDARY PRIVATE HOSPITAL IN ZAMBOANGA CITY

Guadelynn S.
Duldulao Lead Author
Wilven Jordan T.
Romarate Co-Author

ABSTRACT

This study investigates the influence of organizational support on healthcare workers' adherence to infection prevention and control (IPAC) practices in a secondary private hospital in Zamboanga City, Philippines. A descriptive correlational quantitative research design was used to determine the relationship between organizational support, infection prevention and control (IPAC) practices, and the demographic profiles of healthcare workers. Organizational support (education and training, collaboration and communication, surveillance, and resources) was the independent variable, and infection prevention and control practices (standard, contact, droplet, and airborne precautions) was the dependent variable, while the demographic profile (age, gender, length of service, job roles, and educational background) served as the moderating variable. Data were collected using a validated structured questionnaire. Statistical methods included descriptive statistics, Pearson correlation, stepwise multiple regression, independent t-test, and one-way ANOVA, which were used to analyze the data. Results showed that the majority of participants were aged 21–30 years and were female. Most held roles in the nursing service, had a bachelor's degree, and had 6 months to 1 year of service. Education and training received the highest organizational support rating, followed by surveillance, collaboration and communication, and resources, with an overall rating categorized as "Very High". Healthcare workers showed very high adherence to IPAC practices, particularly droplet and airborne precautions. Significant positive relationships were found between organizational support and IPAC practices, especially in resources, collaboration and communication, and surveillance. No significant differences in IPAC practices or organizational support were observed across demographic groups, suggesting uniform adherence to IPAC protocols and consistent organizational support. Among the support domains, only resources significantly predicted IPAC practices. The study concluded that organizational support – particularly resources, collaboration and communication, and surveillance – is crucial for achieving high IPAC

adherence. Hospitals should prioritize enhancing these domains to improve patient safety and IPAC compliance.

Keywords: *Organizational support, infection prevention and control practices, healthcare workers, private hospital, resources, compliance*

INTRODUCTION

The healthcare industry continues to face persistent challenges in preventing the spread of infections, particularly within hospital environments where healthcare workers (HCWs) are at heightened risk of exposure to infectious agents. Infection Prevention and Control (IPAC) practices are therefore essential in reducing healthcare-associated infections (HAIs), improving patient outcomes, and safeguarding the safety and well-being of HCWs (Abu Awwad et al., 2023). Despite global efforts, HAI remains a significant public health concern, especially in low- to middle-income countries where health facilities often experience limited funding and inadequate supplies (Ahmed et al., 2023). In private secondary hospitals, these challenges are more pronounced due to varying levels of organizational resources and support, which directly affect the consistent and effective implementation of IPAC measures.

The successful implementation of IPAC practices is frequently hindered by organizational and systemic barriers, such as insufficient education and training, poor collaboration and communication, ineffective surveillance systems, and limited availability of essential resources (Edward et al., 2024; Kubde et al., 2023; Oppong et al., 2020; Saadeh et al., 2022). These issues are further intensified by high workloads, burnout, and organizational cultures where IPAC protocols are not consistently followed, increasing risks to both patients and healthcare workers (Dehghan-Nayeri et al., 2022; Gammon et al., 2019). A study has highlighted the difficulties of effectively implementing IPAC strategies within private healthcare settings due to financial and human resource constraints (Lowe et al., 2021). Nevertheless, organizational support plays a critical role in mitigating these challenges by enabling access to continuous training, supervision, and adequate protective equipment. Studies suggest that HCWs are more likely to comply with IPAC practices when they perceive strong organizational support, which fosters a culture of safety, reduces HAIs, and enhances the overall quality of patient care (Astuti et al., 2023; Fleming, 2019; Garcia et al., 2022; Mohamad et al., 2022; Sams et al., 2020; Vanderberg et al., 2018).

Despite the recognized importance of organizational support for infection prevention and control, there remains a lack of empirical studies focusing on secondary private hospitals, especially in areas such as Zamboanga City, Philippines. Most existing research centers on large public hospitals and community settings, leaving private secondary hospitals underrepresented despite their unique challenges, including economic constraints, staffing shortages, and limited resources. Moreover, limited attention has been given to identifying which types of organizational support—such as education and training, collaboration and communication, surveillance, and resource provision—most strongly influence HCWs' adherence to IPAC practices, as well as how demographic factors may moderate this relationship. This study aimed to address these gaps by examining the role of organizational support mechanisms in promoting healthcare workers' compliance with IPAC practices in a secondary private hospital in Zamboanga City. The findings are expected to guide targeted interventions, enhance infection prevention and control strategies, and improve safety for patients and healthcare workers.

Statement of the Problem

The study aimed to describe the organizational support and infection prevention and control practices of healthcare workers in a secondary private hospital in Zamboanga City. More specifically, it sought to answer the questions below:

1. What is the demographic profile of the participants in terms of:
   1.1. Age;
   1.2. Gender;
   1.3. Length of service;
   1.4. Job roles; and
   1.5. Educational background?
2. What is the level of organizational support to the healthcare workers in terms of:
   2.1. Education and training;
   2.2. Collaboration and communication;
   2.3. Surveillance; and
   2.4. Resources?
3. What is the level of infection prevention and control practices among healthcare workers in terms of:
   3.1. Standard precautions;
   3.2. Contact precautions;
   3.3. Droplet precautions; and
   3.4. Airborne precautions?
4. Is there a significant relationship between organizational support and infection prevention and control practices?
5. Is there a significant difference in the infection prevention and control practices when grouped according to demographic profile?
6. Is there a significant difference in organizational support when grouped according to demographic profile?
7. What domain of organizational support best predicts infection prevention and control practices among healthcare workers?
8. As a secondary aim, based on the results of the study, what programs or interventions can be proposed?

FRAMEWORK

This study is anchored in Social Exchange Theory (SET), which serves as the primary framework for understanding the relationship between organizational support and infection prevention and control practices among healthcare workers. Complementing this, the Theory of Planned Behavior (TPB) provides supportive insights, explaining how attitudes, subjective norms, and perceived behavioral control influence HCWs' compliance with IPAC protocols.

George C. Homans developed the Social Exchange Theory in 1958, emphasizing that relationships are sustained when individuals perceive value in the exchange; when people feel supported and valued, they are more likely to reciprocate with positive behaviors (Nickerson, 2023). On the other hand, Icek Ajzen's Theory of Planned Behavior (2024) emphasizes that an individual's intention to execute a behavior is shaped by their attitude, the subjective norms around it, and

their perceived behavioral control.

In conclusion, SET and TPB together form a comprehensive framework for analyzing the interplay between organizational support and individual behavior in the prevention and control of infections. While SET emphasizes the reciprocal relationship between HCWs and their organizations, TPB offers valuable insight into the internal motivations and attitudes that drive compliance. By integrating these frameworks, this study aims to provide a thorough understanding of how both organizational and individual factors contribute to improved patient safety and the reduction of HAIs.

METHOD

Research Design

The study employed a descriptive correlational quantitative research design to determine the relationships between organizational support, infection prevention and control practices, and demographic profiles of healthcare workers in a secondary private hospital in Zamboanga City. The design provided information on the demographics of healthcare workers, organizational support, and the implementation of IPAC practices. It identified key findings and relationships, offering valuable insights for strengthening infection prevention and control strategies, ultimately supporting evidence-based interventions that improve compliance with IPAC guidelines.

Participants

This study included all healthcare workers with direct patient care duties at a secondary private hospital in Zamboanga City. Only those with at least six months of service were included, as this period was sufficient for workers to become familiar with the hospital's IPAC practices and organizational support systems. Stratified sampling was employed to select participants proportionally from different divisions and job roles to ensure balanced representation and to provide clear insights into how IPAC measures were implemented. The Raosoft sample size calculation indicated that a minimum of 94 participants was required from a population of 124 eligible respondents, using a 95% confidence level and a 5% margin of error. Ultimately, data were collected from 98 participants, exceeding the minimum requirement.

Research Instrument

The study utilized a structured questionnaire that was administered face-to-face, allowing respondents to raise questions when needed. Two previously published and validated tools were adapted for use in this study, with modifications made to suit the study's participants. The first tool, based on Kontopidou et al. (2021), assessed organizational support, while the second, adapted from Danaei et al. (2021), evaluated infection prevention and control practices. The questionnaire was divided into three parts, aligned with the study's conceptual framework.

Part 1 - Demographic Profile. The first part gathered demographic information on age, gender, length of service, job roles, and educational background, which helped in analyzing how individual characteristics may have influenced organizational support and compliance with IPAC practices.

Part 2 - Organizational Support. The second part explored participants' perceptions of organizational support. The items in this section were used to evaluate the level of implementation or effectiveness in the following areas:

education and training, collaboration and communication, surveillance, and resources.

Part 3 - Infection Prevention and Control Practices. The third part addressed items that evaluated compliance with IPAC practices, focusing on four specific areas: standard, contact, droplet, and airborne precautions.

A pilot test using the validated and adapted questionnaire was conducted. A statistician calculated Cronbach's alpha to assess the reliability of the research instrument, with a minimum acceptable value of 0.7. The pilot survey demonstrated excellent internal consistency, with Cronbach's alpha values of 0.976 for organizational support ($\alpha \geq 0.9$) and 0.908 for infection prevention and control practices ($\alpha \geq 0.9$). Both values exceeded the threshold for high reliability ($\alpha \geq 0.9$), confirming the consistency of responses across survey domains and the instrument's accuracy and suitability for final data collection.

Statistical Tools

This study utilized various statistical techniques to analyze the relationships among healthcare workers' demographic profiles, organizational support, and infection prevention and control practices. Descriptive statistics, including frequency counts and percentages, were used to summarize categorical demographic variables, while means and standard deviations described organizational support and IPAC practices. Pearson correlation coefficients were computed to examine the level and direction of associations between organizational support and IPAC practices, with statistical significance set at $p < 0.05$. Stepwise multiple regression analysis was conducted to identify organizational support elements that best predicted IPAC practices. Additionally, comparative statistical tests, including one-way analysis of variance (ANOVA) and independent t-tests, were applied to examine differences in organizational support and IPAC practices across demographic groups, with significance determined at the 0.05 level.

RESULTS AND DISCUSSION

Demographic Profile

The demographic profile of the respondents is presented in Table 1. Most respondents were aged 21–30 years (64.3%), and females accounted for 72.4%, indicating a predominantly young and female workforce. In addition, most respondents had 6 months to 1 year of service (70.4%) and were employed in nursing services (71.4%). Educationally, the majority possessed a bachelor's degree (89.8%).

According to Zapata et al. (2021) and Wong et al. (2022), the rise of younger, more flexible workers is reshaping the healthcare workforce, with younger professionals increasingly dominating clinical jobs in Southeast Asia.

The gender distribution showed a predominance of female respondents, aligning with global nursing trends. The World Health Organization's May 2025 nursing report indicates that nursing profession remains predominantly female, comprising 85% of the global nursing workforce.

The high proportion of respondents with only six months to one year of experience aligns with Lindquist's (2023) observation that high turnover and frequent onboarding of new employees are common in private hospitals facing resource and retention challenges. This suggests a dynamic staffing environment in which hospitals often rely on early-career workers (Lindquist, 2023). While this group brings fresh energy, it also highlights a potential lack of institutional expertise and familiarity with established IPAC protocols.

The nursing service area was the primary source of employment for most participants. It is envisaged that nurses will be the primary implementers of IPAC practices due to their central role in patient care. Idrees et al. (2025) and the World Health Organization (2019) emphasized that nurses are the frontline executors of IPAC measures, which clarifies the significant representation of nurses in our study.

Finally, the educational background of respondents – mostly bachelor's degree holders – aligns with Schnelli et al. (2023), whose scoping review found that a bachelor's degree is now the minimum requirement for many clinical role

Table 1. Demographic Profile of Respondents

Demographic Profile	Group	Frequency	Percentage
Age	21–30	63	64.3
	31–40	23	23.5
	41–50	5	5.1
	51 & above	7	7.1
	Total	98	100.0
Gender	Male	27	27.6
	Female	71	72.4
	Total	98	100.0
Length of Service	6 months to 1 year	69	70.4
	2–3 years	14	14.3
	4–5 years	3	3.1
	6 years & above	12	12.2
	Total	98	100.0
Job Role	Nursing Service	70	71.4
	Ancillary Service	28	28.6
	Total	98	100.0
Educational Background	High School Graduate	2	2.0
	College Undergraduate	1	1.0
	Vocational Course	7	7.1
	Bachelor's Degree	88	89.8
	Total	98	100.0

Level of Organizational Support

Presented in Table 2 are the mean scores for the domains of organizational support as perceived by the respondents. These domains were assessed to evaluate the extent to which the healthcare institution fosters an environment conducive to effective infection prevention and control practices.

Education and training recorded the highest mean score (M = 4.63), indicating that respondents perceived this domain most positively. This finding reflects the hospital's strong commitment to continuous education, which ensures adherence to IPAC guidelines. It aligns with the findings of Mashyakh et al. (2022) and Qurayshah et al. (2023), who also reported a very high reliance on organizational support through education that enhanced healthcare workers' confidence and competency in IPAC compliance.

Surveillance (M = 4.46) and collaboration and communication (M = 4.45) also received positive ratings, both categorized as "High." The findings echo the research of Abalkhail and Elbehiry (2025), as well as Ojanperä et al. (2022), who reported high levels of organizational support for surveillance systems and highlighted the importance of timely feedback and monitoring in influencing staff behavior, improving compliance, sustaining long-term adherence to IPAC practices, and preventing healthcare-associated infections. Similarly, the high ratings for collaboration and communication align with previous studies by Bubb et al. (2016), Dempsey et al. (2022), and IPAC Canada (2024), which emphasized that high levels of collaboration and communication are key indicators of an environment that fosters multidisciplinary cooperation essential for effective IPAC practices.

Resources received the lowest mean score (M = 4.33); however, this domain still falls within the "High" category. This finding is consistent with previous studies by Romero (2022), Masbi et al. (2024), Rahman et al. (2023), and Khamsa et al. (2025), which underscored the importance of adequate resource availability as a form of organizational support for IPAC practices.

Overall organizational support achieved a mean score of 4.51 and was categorized as "Very High," reflecting strong and effective support across all areas of the organization. This finding aligns with Mori et al. (2022), who also reported a very high level of support system that positively impacts employee compliance and engagement.

Table 2. Mean Scores of Organizational Support Dimensions among Healthcare Workers

Domain	Std. Deviation	Mean	Description
Education and Training	.632	4.63	Very High
Collaboration and Communication	.577	4.45	High
Surveillance	.612	4.46	High
Resources	.654	4.33	High
Overall Organizational Support	.596	4.51	Very High

Legend: 4.51-5.00 = Very High; 3.51-4.50 = High; 2.51-3.50 = Moderate; 1.51-2.50 = Low; 1.00-1.50 = Very Low

Level of Infection Prevention and Control Practices

The mean scores for the IPAC practice domains are presented in Table 3. Among these, droplet and airborne precautions demonstrated the highest level of compliance, with a mean score of 4.83.

While all domains were categorized as "Very High" compliance, contact precautions had a slightly lower mean score of 4.56. Standard precautions also showed strong compliance (M = 4.59). Despite these minor variations, all domains still fell into the "Very High" compliance category, demonstrating that healthcare staff

routinely and reliably implement these critical safety protocols.

The “very high” level of adherence to Droplet and Airborne Precautions in this study is in alignment with previous studies, such as Weber et al. (2007), who reported a very high level of compliance with droplet precautions among healthcare workers in a university hospital. Similarly, the World Health Organization (2020) emphasized the very high importance of airborne precautions in the management of infections, particularly during the COVID-19 pandemic, and highlighted that strict adherence significantly reduces the spread of the virus.

Contact precautions, also described as “very high,” remain essential for preventing the spread of infectious diseases via direct or indirect contact. This finding aligns with Galanis et al. (2021), who reported that adherence was very high when adequate resources and PPE were available.

Standard precautions were likewise rated as “very high,” reflecting a critical aspect of IPAC practices. This finding is consistent with those of Walker et al. (2014) and Houben et al. (2024), who demonstrated that continuous monitoring, immediate feedback, and heightened awareness contribute to maintaining very high levels of IPAC compliance among healthcare workers.

Table 3. Mean Scores of IPAC Practice Domains

Domain	Std. Deviation	Mean	Description
Standard Precautions	.514	4.59	Very High
Contact Precautions	.499	4.56	Very High
Droplet Precautions	.407	4.83	Very High
Airborne Precautions	.381	4.83	Very High
Overall IPAC Practices	.412	4.79	Very High

Legend: 4.51-5.00 = Very High; 3.51-4.50 = High; 2.51-3.50 = Moderate; 1.51-2.50 = Low; 1.00-1.50 = Very Low

Significant Relationship Between Organizational Support and Infection Prevention and Control Practices

Table 4 presented the Pearson correlation analysis between organizational support dimensions and infection prevention and control practices. The results reveal a significant relationship between organizational support and IPAC practices, contradicting the hypothesis that no significant relationship exists.

The overall organizational support has a significant relationship with healthcare workers’ IPAC practices ($r = 0.240$, $p < 0.05$). In particular, collaboration and communication have a significant positive relationship with IPAC practices ($r = 0.279$, $p < 0.05$), which suggests that an increase in collaboration and communication would also likely increase the IPAC practices of healthcare workers. Similarly, there is a significant positive relationship between surveillance and IPAC practices ($r = 0.271$, $p < 0.05$), which denotes that when surveillance increases, IPAC practices also increase. In addition, resources have a significant positive relationship with IPAC practices ($r = 0.338$, $p < 0.05$), indicating that having sufficient supplies, equipment, and infrastructure is of the utmost importance to enable healthcare personnel to consistently adhere to IPAC practices. On the other hand, the lack of significance for education and training suggests that knowledge alone may not be enough without the necessary systems and resources to support its application.

Essential resources such as personal protective equipment (PPE), disinfectants, and isolation facilities are crucial for maintaining high infection prevention and control standards, as highlighted by the Centers for Disease Control and Prevention (2024). According to Houghton et al. (2020), efficient lines of communication enable the rapid dissemination of critical information regarding

infection risks, preventive measures, and policy updates. According to the World Health Organization (n.d.), healthcare facilities can support compliance and reduce healthcare-associated infections. Organizational support for IPAC can also be demonstrated through various measures, including policies, training programs, performance reviews, and fostering psychological safety, as noted by IPAC Canada (2024).

Table 4. Correlations Between Organizational Support Domains and IPAC Practices

Domain	Pearson Correlation (r)	p-value	Decision	Interpretation
Education and Training	.130	.202	Accept Ho	Not Significant
Collaboration and Communication	.279**	.005	Reject Ho	Significant Positive Correlation
Surveillance	.271**	.007	Reject Ho	Significant Positive Correlation
Resources	.338**	.001	Reject Ho	Significant Positive Correlation
Overall Organizational Support	.240*	.018	Reject Ho	Significant Positive Correlation

Legend: Significant at a 0.05 level of significance

Significant Difference in Infection Prevention and Control Practices by Demographic Profile

Presented in Table 5 is an analysis of differences in infection prevention and control practices when grouped by demographic profiles. Variations across age, length of service, and educational background were analyzed using a one-way Analysis of Variance (ANOVA), while differences based on gender and job role were evaluated using an independent t-test. The results of this analysis support the hypothesis that there is no significant difference in IPAC practices across demographic groups. Specifically, the study found no statistically significant differences in IPAC practice scores based on age ($p = 0.914$), length of service ($p = 0.186$), educational background ($p = 0.396$), gender ($p = 0.508$), and job role ($p = 0.104$). Since all p-values are greater than 0.05, the null hypothesis is accepted, confirming that there are no significant differences in IPAC practice scores across demographic groups. It points to the fact that healthcare workers consistently adhere to infection prevention and control practices at high levels across various demographic groups.

Storr et al. (2017) observed that when infection prevention and control programs are well-structured, compliance remains consistent across staff groups, reinforcing the current study's results. Furthermore, Babore et al. (2024) emphasized that job role or tenure had minimal impact on adherence once sufficient training and resources were provided.

Table 5. Comparison of Infection Prevention and Control Practices by Demographic Profile

Demographic Variable	Group	Mean	Std. Deviation	F-value / t-value	p-value	Decision	Interpretation
Age	21-30	4.79	0.408	F = 0.173	0.914	Accept Ho	Not Significant
	31-40	4.74	0.449				
	41-50	4.80	0.447				
	51 & above	4.86	0.378				
Length of Service	6 months to 1 year	4.78	0.415	F = 1.639	0.186	Accept Ho	Not Significant
	2-3 years	4.79	0.426				
	4-5 years	4.33	0.577				
	6 years & above	4.92	0.289				
Educational Background	High School Graduate	5.00	0.000	F = 1.002	0.396	Accept Ho	Not Significant
	College Undergraduate	5.00	.				
	Vocational Course	5.00	0.000				
	Bachelor's degree	4.76	0.429				
Gender	Male	4.74	0.447	t = -0.664	0.508	Accept Ho	Not Significant
	Female	4.80	0.401				
Job Role	Nursing Service	4.83	0.380	t = 1.641	0.104	Accept Ho	Not Significant
	Ancillary Service	4.68	0.476				

Legend: Significant at a 0.05 level of significance

Significant Difference in Organizational Support by Demographic Profile

A one-way analysis of variance (ANOVA) was conducted to assess whether age affected perceptions of organizational support. As shown in Table 6, the results (F = 0.541, p = 0.655) indicate no statistically significant differences across age groups. The slightly higher mean scores among older workers may reflect accumulated trust and confidence in organizational processes, a phenomenon also observed by Dyer and Bérubé (n.d.) in their work on age and job attitudes. However, the difference was not statistically significant, consistent with Ekowati and Andini's (2008) conclusion that uniform support across demographics fosters organizational commitment.

Differences in perceived organizational support by length of service were also investigated using one-way ANOVA. Table 6 shows that the result was not statistically significant (F = 0.437, p = 0.727). It can be interpreted that structured onboarding programs for new employees and peer-based support for long-term employees help maintain equitable support, consistent with the observations of Tom Baragwanath (2021).

A one-way ANOVA was used to examine differences across educational backgrounds. The results in Table 6 (F = 0.518, p = 0.671) reveal no significant differences in perceived organizational support by education level. This outcome resonates with Eisenberger's (n.d.) claim that perceived organizational support fosters belonging and value across all educational levels.

An independent sample t-test was used to assess whether gender influenced perceived organizational support. As shown in Table 6, the t-test result (t = 0.085, p = 0.933) indicates no significant difference between male and female respondents. It aligned with the study by Rasheed et al. (2024), who found that gender-inclusive practices stabilized employee perceptions of fairness and support.

A t-test was also performed to determine whether there was a significant

difference in perceived support of nursing and ancillary services job roles. Table 6 shows that job roles do not significantly impact perceptions of organizational support (t = 0.480, p = 0.632). This is comparable to the findings of Kurtessis et al. (2017) and Bodin (2019), who observed that although job roles integrated into core organizational functions may receive greater attention, equity in support distribution helps sustain overall morale.

Overall, these findings support the hypothesis that there is no significant difference in organizational support when grouped by demographic profile. This suggests that the institution has developed inclusive support systems that extend equitably across groups.

Table 6. Comparison of Organizational Support by Demographic Profile

Demographic Variable	Group	Mean	Std. Deviation	F-value / t-value	p-value	Decision	Interpretation
Age	21-30	4.54	0.563	F = 0.541	0.655	Accept Ho	Not Significant
	31-40	4.48	0.665				
	41-50	4.20	0.837				
	51 & above	4.57	0.535				
Length of Service	6 months to 1 year	4.48	0.633	F = 0.437	0.727	Accept Ho	Not Significant
	2-3 years	4.64	0.497				
	4-5 years	4.33	0.577				
	6 years & above	4.58	0.515				
Educational Background	High School Graduate	4.50	0.707	F = 0.518	0.671	Accept Ho	Not Significant
	College Undergraduate	4.00	.				
	Vocational Course	4.71	0.488				
	Bachelor's degree	4.50	0.606				
Gender	Male	4.52	0.580	t = 0.085	0.933	Accept Ho	Not Significant
	Female	4.51	0.606				
Job Role	Nursing Service	4.53	0.583	t = 0.480	0.632	Accept Ho	Not Significant
	Ancillary Service	4.46	0.637				

Legend: Significant at a 0.05 level of significance

Organizational Support Domain as a Predictor of Infection Prevention and Control Practices

A stepwise multiple regression analysis was performed to investigate which domain of organizational support best predicts IPAC practices. Among the domains of organizational support, only resources significantly influenced or predicted IPAC practices (β = 0.338, p = 0.001). The regression model was statistically significant (F = 12.404, p = 0.001) and explained 11.4% of the variance in IPAC practices, indicating that the remaining 88.6% of the variance can be attributed to factors other than the organizational support domains examined. Domains such as education and training, collaboration and communication, and surveillance did not have a significant influence on IPAC practices (p > 0.05).

Employees who do not have constant access to resources may struggle to completely comply with IPAC regulations, even when they are highly qualified. This challenge becomes especially critical during infectious outbreaks, such as the COVID-19 pandemic, which exposed global weaknesses in supply chains and resource distribution, as noted by Bhaskar et al. (2020) and Xu et al. (2020).

The significance of resources in the continual maintenance of infection prevention and control initiatives has been confirmed by previous studies. For example, Fram et al. (2020) observed that a scarcity of personal protective

equipment (PPE) led to a decrease in compliance with contact precautions, while IPAC Canada (2024) reported that hospitals with substantial resource allocation had significantly higher IPAC compliance rates and lower infection rates.

Other domains, such as collaboration and communication, education and training, and surveillance, were not statistically significant in this model, suggesting that even if these domains are successful in producing a receptive environment, they may not be sufficient on their own without the fundamental assistance of real resources. This study reinforces the notion that resources are a strong predictor of high compliance with IPAC practices, consistent with previous studies (Fram et al., 2020; IPAC Canada, 2024).

Overall, this study reveals that resources are the strongest predictor of IPAC practices among healthcare workers, further validating the critical role of resource availability in sustaining effective IPAC outcomes.

Table 7. Stepwise Multiple Regression Predicting IPAC Practices

Domains of Organizational Support	Beta	t	p-value	Interpretation
Education and Training	-.048	-.436	.664	Not Significant
Collaboration and Communication	.093	.717	.475	Not Significant
Surveillance	.066	.489	.626	Not Significant
Resources	.338	3.522	.001	Significant

Legend: Significant at a 0.05 level of significance

CONCLUSIONS

This study explored the relationship between organizational support and healthcare workers' adherence to infection prevention and control (IPAC) practices in a secondary private hospital in Zamboanga City. Findings showed that most healthcare workers were young (21–30 years), predominantly female, employed in nursing service roles, and held a bachelor's degree, with the majority having six months to one year of service. Importantly, no significant differences in IPAC practices or organizational support were observed when grouped according to demographic profile, indicating that adherence to IPAC practices was consistent across diverse demographic groups.

The assessment of perceived organizational support across four domains – education and training, collaboration and communication, surveillance, and resources – revealed very high levels of support, particularly in the education and training domain. However, resources emerged as the strongest predictor of IPAC adherence. This underscores that while training, surveillance, and communication are important, the availability of resources such as PPE and infection prevention and control infrastructure is the key driver of adherence to IPAC practices. Furthermore, adherence to IPAC practices was consistently very high across all domains, with droplet and airborne precautions showing the highest levels of compliance, supporting the conclusion that healthcare workers maintain high standards of infection prevention and control regardless of demographic differences.

The study also found significant positive correlations between organizational support and IPAC practices, particularly in the areas of resources, collaboration and communication, and surveillance. These findings reject the null hypothesis that there is no significant relationship between organizational support and IPAC practices. The absence of significant differences in IPAC practices or organizational support when grouped by demographic profile further suggests that the institutional policies

ensuring consistent adherence to infection prevention and control guidelines across all staff are highly effective, irrespective of staff demographics.

These findings provide valuable insights for both policy and practice. In terms of policy, ensuring the availability of resources should be a priority for hospital administrators, as this has the most significant impact on IPAC adherence. This can inform policy decisions regarding minimum standards for infection prevention and control resource availability across healthcare facilities. In practice, while training, surveillance, and communication are important, they may not be as effective without sufficient resources. Hospital administrators should therefore focus on strengthening resource provision to ensure sustained compliance with IPAC practices. Moreover, the validated survey tools from this study can be used by healthcare facilities to assess their organizational support and IPAC adherence, serving as benchmarks for improvement initiatives.

Looking forward, this study lays the groundwork for future research and practical applications. The proposed model can be applied in other healthcare facilities to evaluate the effectiveness of their organizational support systems. Future research could explore the long-term sustainability of IPAC adherence, the influence of leadership styles on organizational support, and the role of digital technologies in advancing infection prevention and control practices. Ultimately, fostering a culture of safety through well-resourced and system-embedded IPAC measures will continue to positively impact healthcare practices and policies.

REFERENCES

Abalkhail A, Elbehiry A. Barriers and Facilitators of Health Care Workers' Compliance with Infection Prevention and Control Practices in Health-care Facilities: A Systematic Literature Review [Internet]. Wolters Kluwer - Medknow; 2025 [cited 2025 Jun 22]. Available from: https://journals.lww.com/ijph/fulltext/2025/01000/barriers_and_facilitators_of_health_care_workers_.13.aspx

Abu Awwad D, Hill S, Lewis S, Jimenez YA. Infection prevention and control in CT Part 1: An Australian study of roles, responsibilities and practices. Radiography [Internet]. 2023 Dec 5 [cited 2024 Sept 26];30(1):245–51. Available from: https://www.radiographyonline.com/article/S1078-8174(23)00229-8/fulltext doi:10.1016/j.radi.2023.11.013

Ahmed A, Hossain L, Banik G, Sayeed A, Sajib MRU-Z, Hasan MM, et al. Measuring the effectiveness of an integrated intervention package to improve the level of infection prevention and control: a multi-centre study in Bangladesh. Journal of Hospital Infection [Internet]. 2023 Dec 27 [cited 2024 Sept 26];145:22–33. Available from: https://www.journalofhospitalinfection.com/article/S0195-6701(23)00418-8/fulltext doi:10.1016/j.jhin.2023.11.023

Astuti W, Pujiyanto TI, Nurhayati S. The supervision and transformational leadership styles on nurses' compliance in prevention and control of infection risks at a hospital in Kotamobagu, Indonesia. GHMJ (Global Health Management Journal) [Internet]. 2023 Feb 8 [cited 2024 Oct 3];6(1):11–7. Available from: https://publications.inschool.id/index.php/ghmj/article/view/928 doi:10.35898/ghmj-61928

Babore GO, Eyesu Y, Mengistu D, Foga S, Heliso AZ, Ashine TM. Adherence to Infection Prevention Practice Standard Protocol and Associated Factors Among Healthcare

Workers [Internet]. U.S. National Library of Medicine; 2024 [cited 2025 Jun 22]. Available from: https://pmc.ncbi.nlm.nih.gov/articles/PMC11077518/

Baragwanath T. 3 Reasons Why A Structured Employee Onboarding Process Makes A Major Difference For New Hires [Internet]. 2021 [cited 2025 Jun 22]. Available from: https://elearningindustry.com/reasons-why-structured-employee-onboarding-process-makes-major-difference-new-hires

Bhaskar S, Tan J, Bogers MLAM, Minssen T, Badaruddin H, Israeli-Korn S, et al. At the Epicenter of COVID-19–the Tragic Failure of the Global Supply Chain for Medical Supplies [Internet]. U.S. National Library of Medicine; 2020 [cited 2025 Jun 22]. Available from: https://pmc.ncbi.nlm.nih.gov/articles/PMC7737425/

Bodin P. Supporting the Core: Aligning the L&D Function with the Business [Internet]. 2019 [cited 2025 Jun 22]. Available from: https://trainingindustry.com/articles/professional-development/supporting-the-core-aligning-the-l-d-function-with-the-business

Bubb TN, Billings C, Berriel-Cass D, Bridges W, Caffery L, Cox J, et al. APIC professional and practice standards [Internet]. Elsevier Inc.; 2016 [cited 2025 Jun 22]. Available from: https://apic.org/Resource_/TinyMceFileManager/PDC/PPS.pdf

CDC's Core Infection Prevention and Control Practices for Safe Healthcare Delivery in All Settings [Internet]. US Centers for Disease Control and Prevention; 2024 [cited 2025 Jun 22]. Available from: https://www.cdc.gov/infection-control/hcp/core-practices/index.html

Danaei M, McLaws M-L, Shayan Z, Momeni M, Aminnia S, Yaghout Y, et al. Knowledge, Attitudes, and Practice Toward Isolation Precautions Amongst Nurses and Auxiliary Nurses in Nemazee Hospital, Shiraz, Iran. Shiraz E-Medical Journal [Internet]. 2021 Oct 23 [cited 2024 Oct 7];23(2). Available from: https://brieflands.com/articles/semj-117459 doi:10.5812/semj.117459

Dehghan-Nayeri N, Seifi A, Rostamnia L, Varaei S, Ghanbari V, Sari AA, et al. Challenges of and corrective recommendations for healthcare-associated infection's case findings and reporting from local to national level in Iran: a qualitative study. BMC Nursing [Internet]. 2022 Jul 19 [cited 2024 Oct 4];21. Available from: https://bmcnurs.biomedcentral.com/articles/10.1186/s12912-022-00976-1#citeas doi:10.1186/s12912-022-00976-1

Dempsey K, Jain S, Clezy K, Bradd P. Implementation of a successful infection prevention and control governance structure and capacity building strategies during COVID-19 pandemic – A brief report [Internet]. U.S. National Library of Medicine; 2022 [cited 2025 Jun 22]. Available from: https://pmc.ncbi.nlm.nih.gov/articles/PMC9273515

Dyer L, Bérubé N. The work attitudes of mature employees [Internet]. [cited 2025 Jun 22]. Available from: https://www.concordia.ca/research/aging/projects/The-work-attitudes-of-mature-employees.html

Edward M, John W, Mahulu E, Lyabangi JF, Nkumba O, Basaya D, et al. Challenges of Compliance with Infection Prevention and Control (IPC) Standard Procedures among Healthcare Workers: A Hospital-Based Cross-Sectional Study. International Journal of Health Policy Planning [Internet]. 2024 Apr 10 [cited 2024 Oct 4];3(1):01–7. Available from: https://www.opastpublishers.com/open-access-articles/ challenges-of-compliance-with-infection-prevention-and-control-ipc-standard-procedures-among-healthcare-workers-a-hospit.pdf doi:10.33140/ijhpp.03.01.05

Eisenberger R [Internet]. [cited 2025 Jun 22]. Available from: https://www.uh.edu/class/psychology/about/people/robert-eisenberger/eisenberger-cv-110920a.pdf

Ekowati D, Andini M. Perceived Organizational Support (POS) and Organizational Commitment [Internet]. ResearchGate; 2008 [cited 2025 Jun 22]. Available from: https://www.researchgate.net/publication/290396072_Perceived_Organizational_Support_POS_and_Organizational_Commitment

Fleming N. AMR: Effective Infection Prevention and Control Measures. Practice Nursing [Internet]. 2019 Aug 2 [cited 2024 Sept 25];30(8). Available from: https://www.magonlinelibrary.com/doi/epub/10.12968/pnur.2019.30.8.390 doi:10.12968/pnur.2019.30.8.390

Fram DS, Escudero DV da S, Matias L de O, Eduardo W, Coelho G de S, Antonelli TS, et al. Personal protective equipment: Shortage or waste? [Internet]. U.S. National Library of Medicine; 2020 [cited 2025 Jun 22]. Available from: https://pmc.ncbi.nlm.nih.gov/articles/PMC7399137

Galanis P, Michailidis L, Vraka I, Siskou O, Konstantakopoulou O, Katsiroumpa A, et al. Personal Protective Equipment Use among Health Care Workers during the COVID-19 Pandemic: A Comparative Study in England and Greece. International Journal of Caring Sciences [Internet]. 2021 Aug [cited 2025 Jun 22];14(2):957–71. Available from: https://www.internationaljournalofcaringsciences.org/docs/17_ galanis_original_14_2.pdf

Gammon J, Hunt J, Williams S, Daniel S, Rees S, Matthewson S. Infection prevention control and organisational patient safety culture within the context of isolation: study protocol. BMC Health Services Research [Internet]. 2019 May 8 [cited 2024 Oct 4];19. Available from: https://bmchealthservres.biomedcentral.com/ articles/10.1186/s12913-019-4126-x#citeas doi:10.1186/s12913-019-4126-x

Garcia R, Barnes S, Boukidjian R, Goss LK, Spencer M, Septimus EJ, et al. Recommendations for change in infection prevention programs and practice. American Journal of Infection Control [Internet]. 2022 May 3 [cited 2024 Sept 25];50(12):1281–95. Available from: https://www.ajicjournal.org/article/S0196-6553(22)00357-1/fulltext doi:10.1016/j.ajic.2022.04.007

Houben F, den Heijer CD, van Hensbergen M, Dukers-Muijrers NH, de Bont EG, Hoebe CJ. Behavioural determinants shaping infection prevention and control behaviour among healthcare workers in Dutch general practices: a qualitative study reflecting on pre-, during and post-COVID-19 pandemic [Internet]. Springer Nature; 2024 [cited 2025 Jun 22]. Available from: https://bmcprimcare.biomedcentral.com/articles/10.1186/s12875-024-02304-9

Houghton C, Meskell P, Delaney H, Smalle M, Glenton C, Booth A, et al. Barriers and facilitators to healthcare workers' adherence with infection prevention and control (IPC) guidelines for respiratory infectious diseases: a rapid qualitative evidence synthesis [Internet]. John Wiley & Sons, Inc.; 2020 [cited 2025 Jun 22]. Available from: https://www.cochranelibrary.com/cdsr/doi/10.1002/14651858.CD013582/full

Idrees S, Mathews M, Hedden L, Lukewich J, Marshall EG, Kean K, et al. The Implementation of Infection Prevention and Control Procedures in Primary Care During the COVID-19 Pandemic: A Qualitative Study of Nursing Roles [Internet]. U.S. National Library of Medicine; 2025 [cited 2025 Jun 22]. Available from: https://pubmed.ncbi.nlm.nih.gov/40421169

IPAC Program Standard Working Group. Infection Prevention and Control (IPAC) Program Standard [Internet]. IPAC Canada; 2024 [cited 2025 Jun 22]. Available from: https://ipac-canada.org/photos/custom/Members/pdf/IPACCanada_Program Standards_2024_12_30.pdf

Khamsa CA, Isunju JB, Babibako HM, Ntoni FN. Adherence to standard infection prevention and control practices and factors associated among healthcare workers at Juba Teaching Hospital, Juba-South Sudan: a cross-sectional study [Internet]. U.S. National Library of Medicine; 2025 [cited 2025 Jun 22]. Available from: https://pmc.ncbi.nlm.nih.gov/articles/PMC11883947

Kontopidou F, Lambrou A, Tseroni M, Karaiskou A, Tsana M. A Universal Infection Control Framework with specific roles, priorities, resources & interventions for ICP implementation in healthcare settings [Internet]. EU-JAMRAI; 2021 [cited 2024 Oct 7]. Available from: https://eu-jamrai.eu/wp-content/uploads/2021/04/EUjamrai_ D6.2_Universal-Infection-Control-Framework_WP6.1_EODY_280221.pdf

Kubde D, Badge AK, Ugemuge S, Shahu S. Importance of Hospital Infection Control [Internet]. U.S. National Library of Medicine; 2023 [cited 2025 Jun 22]. Available from: https://pmc.ncbi.nlm.nih.gov/articles/PMC10801286/

Kurtessis JN, Eisenberger R, Ford MT, Buffardi LC, Stewart KA, Adis CS. Perceived Organizational Support: A Meta-Analytic Evaluation of Organizational Support Theory [Internet]. SAGE Publications Ltd ; 2017 [cited 2025 Jun 22]. Available from: https://www.bauer.uh.edu/workingfamilies/research/Perceived-Organizational-Support-Meta-analysis.pdf

Lindquist M. The Real Costs of Healthcare Staff Turnover [Internet]. Oracle; 2023 [cited 2025 Jun 22]. Available from: https://www.oracle.com/ph/human-capital-management/cost-employee-turnover-healthcare/

Lowe H, Woodd S, Lange IL, Janjanin S, Barnet J, Graham W. Challenges and opportunities for infection prevention and control in hospitals in conflict-affected settings: A qualitative study. Conflict and Health [Internet]. 2021 Dec 20 [cited 2024 Sept 25];15(1):94. Available from: https://conflictandhealth.biomedcentral.com/ articles/ 10.1186/s13031-021-00428-8#citeas doi:10.1186/s13031-021-00428-8

Masbi M, Tavakoli N, Dowlati M. Challenges of providing of special care services in hospitals during emergencies and disasters: a scoping review [Internet]. U.S. National Library of Medicine; 2024 [cited 2025 Jun 22]. Available from: https://pmc.ncbi.nlm.nih.gov/articles/PMC11657394

Mashyakh FMI, Faqeeh AQM, Qubaysi MAM, Almehwry KNI, Mabrouk HMM, Bahri IGM, et al. Infection Control Education And Training: Bridging the Gap between Knowledge and Practice [Internet]. OpenJournalSystems; 2022 [cited 2025 Jun 22]. Available from: https://www.jptcp.com/index.php/jptcp/article/view/5700

Mohamad N, Pahrol MA, Shaharudin R, Yazin NKR, Osman Y, Toha HR, et al. Compliance to Infection Prevention and Control Practices Among Healthcare Workers During COVID-19 Pandemic in Malaysia [Internet]. Frontiers Media S.A. ; 2022 [cited 2025 Jun 22]. Available from: https://www.frontiersin.org/journals/public-health/articles/10.3389/fpubh.2022.878396/full

Mori T, Nagata T, Ando H, Hino A, Tateishi S, Tsuji M, et al. Workplace infection control measures and perceived organizational support during the COVID-19 pandemic in

Japan: a prospective cohort study [Internet]. medRxiv; 2022 [cited 2025 Jun 22]. Available from: https://www.medrxiv.org/content/10.1101/2022.06.06. 22275988v1

Nickerson C. Social Exchange Theory of Relationships: Examples & More [Internet]. Simply Psychology; 2023 [cited 2024 Sept 26]. Available from: https://www.simplypsychology.org/what-is-social-exchange-theory.html#:~:text= Social%20exchange%20theory%20proposes%20that,perceived%20worth%20of%20the %20exchange

Ojanperä H, Ohtonen P, Kanste O, Syrjälä H. Impact of direct hand hygiene observations and feedback on hand hygiene compliance among nurses and doctors in medical and surgical wards: an eight-year observational study [Internet]. U.S. National Library of Medicine; 2022 [cited 2025 Jun 22]. Available from: https://pubmed.ncbi.nlm.nih.gov/35724953

Oppong TB, Amponsem-Boateng C, Kyere EK, Wang Y, Gheisari Z, Oppong EE, et al. Infection Prevention and Control Preparedness Level and Associated Determinants in 56 Acute Healthcare Facilities in Ghana. Infection and Drug Resistance [Internet]. 2020 Nov 24 [cited 2024 Oct 4];Volume 13:4263–71. Available from: https://www.dovepress.com/infection-prevention-and-control-preparedness-level-and-associated-det-peer-reviewed-fulltext-article-IDR doi:10.2147/idr.s273851

Qurayshah MAA, Al Qirad MSH, Alsharyah HM, Hussenalkanfari MA, Alkenfari AMH, Alghaty SSH, et al. Infection Control Education And Training: Ensuring Compliance And Competency Among Healthcare Workers An Evaluation. Journal of Namibian Studies [Internet]. 2023 [cited 2025 Jun 22];39(1):401–12. Available from: https://namibian-studies.com/index.php/JNS/article/view/6496/4497

Rahman SU, Hayat S, Ahmad A, Ali NM. Barriers to the Adoption of Infection Prevention Control (IPC) Guidelines among Health Care Workers at Saidu Group of Teaching Hospital (SGTH), SWAT - A Cross Sectional Study [Internet]. International Journal of Medical Research & Health Sciences; 2023 [cited 2025 Jun 22]. Available from: https://www.ijmrhs.com/medical-research/the-barriers-to-the-adoption-of-infection-prevention-control-ipc-guidelines-among-health-care-workers-at-saidu-group-of-teaching-h-101942.html

Rasheed MA, Bajwa SU, Elahi NS. Do gender-inclusive HRM and fairness perception trigger paradigm shifts in female employees' psychological empowerment patterns and career progression? [Internet]. Emerald Publishing Limited; 2024 [cited 2025 Jun 22]. Available from: https://www.emerald.com/ insight/content/doi/10.1108/edi-04-2023-0131/full/html?skipTracking=true

Romero J. System needs to change to improve health quality in PH hospitals, study shows [Internet]. Philippine Institute for Development Studies; 2022 [cited 2025 Jun 22]. Available from: https://pids.gov.ph/details/news/in-the-news/system-needs-to-change-to-improve-health-quality-in-ph-hospitals-study-shows

Saadeh R, Khader Y, Alyahya M, Al-Samawi M, Allouh MZ. Water, Sanitation, and Hygiene and Infection Prevention and Control in Jordanian Hospitals in the Context of COVID-19: A National Assessment. Risk Management and Healthcare Policy [Internet]. 2022 Apr 5 [cited 2024 Oct 4];15:571–82. Available from: https://www.dovepress.com/water-sanitation-and-hygiene-and-infection-prevention-and-control-in-j-peer-reviewed-fulltext-article-RMHP doi:10.2147/rmhp.s358600

Sams LM, Fernandes SL, Lobo D, Marla AP. Effectiveness Practice-intervention Based

Project on Knowledge, Attitude and Practice Compliance to Infection Control Measures and Factors Predicting Non-compliance among Nurses Working in Tertiary Care Hospital, Mangalore, India. Indian Journal of Public Health Research & Development [Internet]. 2020 Mar 26 [cited 2024 Sept 25];11(3). Available from: https://medicopublication.com/index.php/ijphrd/article/view/735 doi:10.37506/ijphrd.v11i3.735

Schnelli A, Steiner LM, Bonetti L, Levati S, Desmedt M. A bachelor's degree for entering the nursing profession: A scoping review for supporting informed health care policies [Internet]. U.S. National Library of Medicine; 2023 [cited 2025 Jun 22]. Available from: https://pmc.ncbi.nlm.nih.gov/articles/PMC11080422/

Storr J, Twyman A, Zingg W, Damani N, Kilpatrick C, Reilly J, et al. Core components for effective infection prevention and control programmes: new WHO evidence-based recommendations [Internet]. U.S. National Library of Medicine; 2017 [cited 2025 Jun 22]. Available from: https://pmc.ncbi.nlm.nih.gov/articles/PMC5223492/

Theory of planned behavior [Internet]. Wikimedia Foundation Inc.; 2024 [cited 2024 Oct 4]. Available from: https://en.wikipedia.org/wiki/Theory_of_planned_behavior#:~:text=The%20theory%20of%20planned%20behaviour,shape%20an%20individual%27s%20behavioral%20intentions.

Vandenberg C, Niswander C, Carry P, Bloch N, Pan Z, Erickson M, et al. Compliance With a Comprehensive Antibiotic Protocol Improves Infection Incidence in Pediatric Spine Surgery. Journal of Pediatric Orthopaedics [Internet]. 2018 [cited 2024 Sept 25];38(5):287–92. Available from: https://journals.lww.com/pedorthopaedics/abstract/2018/05000/compliance_with_a_comprehensive_antibiotic.15.aspx doi:10.1097/bpo.0000000000000812

Walker JL, Sistrunk WW, Higginbotham MA, Burks K, Halford L, Goddard L, et al. Hospital hand hygiene compliance improves with increased monitoring and immediate feedback [Internet]. U.S. National Library of Medicine; 2014 [cited 2025 Jun 22]. Available from: https://pubmed.ncbi.nlm.nih.gov/25278396

Weber DJ, Sickbert-Bennett EE, Brown VM, Brooks RH, Kittrell IP, Featherstone BJ, et al. Compliance with isolation precautions at a university hospital [Internet]. U.S. National Library of Medicine; 2007 [cited 2025 Jun 22]. Available from: https://pubmed.ncbi.nlm.nih.gov/17326031

Wong EL, Qiu H, Chien WT, Wong CL, Chalise HN, Hoang HTX, et al. Comparison of Resilience Among Healthcare Workers During the COVID-19 Pandemics: A Multinational Cross-Sectional Survey in Southeast Asian Jurisdictions [Internet]. Frontiers Media S.A.; 2022 [cited 2025 Jun 22]. Available from: https://www.ssph-journal.org/journals/international-journal-of-public-health/articles/10.3389/ijph.2022.1605505/full

World Health Organization. Infection prevention and control [Internet]. World Health Organization; [cited 2025 Jun 22]. Available from: https://www.who.int/health-topics/infection-prevention-and-control#tab=tab_1

World Health Organization. Minimum Requirements for Infection Prevention and Control Programmes [Internet]. World Health Organization; 2019 [cited 2025 Jun 22]. Available from: https://iris.who.int/bitstream/handle/ 10665/330080/9789241516945-eng.pdf?sequence=1

World Health Organization. Modes of transmission of virus causing COVID-19: implications for IPC precaution recommendations [Internet]. World Health Organization; 2020 [cited 2025 Jun 22]. Available from: https://www.who.int/news-room/commentaries/detail/modes-of-transmission-of-virus-causing-covid-19-implications-for-ipc-precaution-recommendations

World Health Organization. Nursing workforce grows, but inequities threaten global health goals [Internet]. World Health Organization; 2025 [cited 2025 Jun 22]. Available from: https://www.who.int/news/item/12-05-2025-nursing-workforce-grows--but-inequities-threaten-global-health-goals

Xu Z, Elomri A, Kerbache L, El Omri A. Impacts of COVID-19 on Global Supply Chains: Facts and Perspectives [Internet]. U.S. National Library of Medicine; 2020 [cited 2025 Jun 22]. Available from: https://pmc.ncbi.nlm.nih.gov/articles/PMC8768947

Zapata T, Zakoji M, Kanda M, Travis P, Tangcharoensathien V, Buchan J, et al. Implementing a decade of strengthening the health workforce in the WHO South-East Asia Region [Internet]. Wolters Kluwer - Medknow; 2021 [cited 2025 Jun 22]. Available from: https://journals.lww.com/wsep/fulltext/2021/10001/implementing_a_decade_of_strengthening_the_health.15.aspx