

Readiness of Nurses on Possible Occurrence of MPOX VIRUS in Nueva VizcayaJan Lester P. Bihasa¹, Crystal Joy L. Dela Cruz², Amelia P. Luglug³, Albert P. Martinez⁴School of Medical Sciences, Aldergate College Inc. Solano Nueva Vizcaya, Philippines ^{1,2,3,4}bihasajanlester@gmail.com¹, talalunag27@gamil.com², Amelialuglug05@gmail.com³, palosmartinez29@gmail.com⁴**Abstract**

This study assessed the readiness of healthcare workers, particularly nurses, in responding to a possible Mpox (Monkeypox) outbreak in Nueva Vizcaya. The main objective was to evaluate their preparedness across four areas: Knowledge and Awareness, Skills and Preparedness, Availability of Resources, and Institutional Support and Response. Using a descriptive method, the researchers surveyed 50 nurses from Dupax District Hospital through a validated questionnaire. Results showed that nurses had a very satisfactory level of readiness, especially in knowledge and awareness, while scores were lowest for resource availability. Significant differences were observed based on Mpox-related training attended, while other demographic factors had no effect. The study recommends improving training programs and providing adequate resources and institutional support to better prepare frontliners for future infectious disease outbreaks like Mpox.

Keywords— Mpox, Monkeypox, readiness, healthcare workers, infectious diseases, Nueva Vizcaya

INTRODUCTION

Emerging and re-emerging infectious diseases continue to pose significant challenges to global public health, especially amid rapid urbanization, global travel, climate change, and weakened surveillance systems. First discovered in laboratory monkeys in 1958 and subsequently identified in humans in 1970 in the Democratic Republic of the Congo (DRC), the disease remained endemic in Central and West Africa for decades, primarily transmitted through contact with infected animals such as rodents or non-human primates (WHO, 2023). Amid this alarming global backdrop, the Philippines has also observed a rise in Mpox cases, although caused by the milder Clade II strain. The Department of Health has recorded 911 confirmed cases from 2022 to May 2025, with new infections still emerging in various regions. While no deaths have been reported in the country thus far, the increasing number of confirmed cases, especially in the last quarter of 2024 and early 2025, has drawn the attention of local and national health authorities. Clusters have been reported in Baguio City, Iloilo, Cebu, Zamboanga Sibugay, South Cotabato, and other parts of Mindanao and the Visayas (Philippine Star, 2025; PNA, 2025).

The need to train healthcare providers in case detection, contact tracing, patient isolation, psychological first aid, and appropriate referral systems has become even more urgent. With global experts predicting that Mpox may remain a long-term public health threat and possibly become endemic in non-African regions, strengthening the readiness and resilience of the Philippine healthcare workforce is not only timely but crucial. Therefore, the researchers would like to study healthcare providers' readiness for the possible occurrence of Mpox.

METHODOLOGY**A. Research Design**

This study used a descriptive research design to assess nurses' readiness to respond to Mpox by gathering quantifiable data on knowledge, skills, resource availability, and institutional support without manipulating variables. Descriptive research presents current conditions and practices objectively and accurately, making it suitable for assessing preparedness in natural settings.

B. Research Setting

The study was conducted at Dupax District Hospital in Dupax del Norte, Nueva Vizcaya, a public secondary facility that provides essential medical services and serves as a referral center for nearby municipalities. The hospital's prior COVID-19 response experience, isolation capacity, and role in managing infectious diseases support its selection as the research site. Nurses from key departments such as OPD, ER, Isolation, and wards provided relevant frontline perspectives.

Figure 2: The Map of Dupax District Hospital

C. Respondents of the Study

The selected fifty (50) healthcare workers, particularly nurses, are from Dupax District Hospital. These are the personnel who directly interact with patients and serve as frontline respondents in managing any infectious disease outbreak, including a possible rise in the monkeypox virus (Mpox). The study will target these respondents to gather comprehensive data about the knowledge, preparedness, and challenges of healthcare workers in Nueva Vizcaya, leading to actionable insights to strengthen readiness for a possible Mpox outbreak.

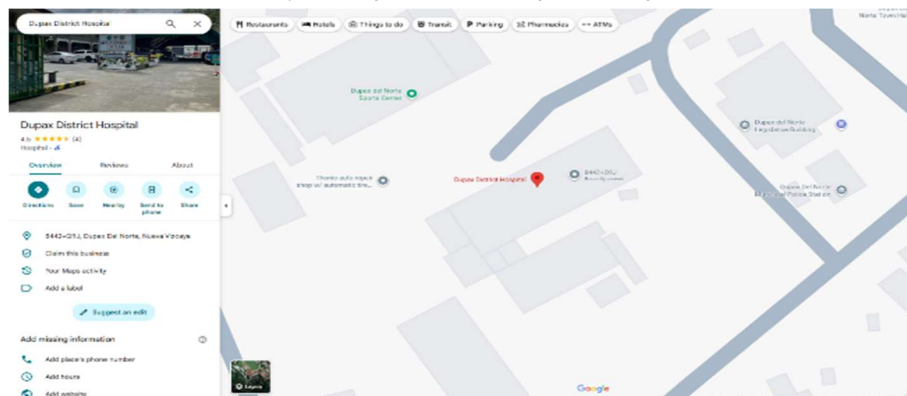


Table 1
Respondents of the Study

Sex	Frequency	Percentage
Male	13	26.00
Female	37	74.00
TOTAL	50	100.00

A. Statistical Treatment of Data

The statistical tools used were frequency and Percentage to establish the respondent profile in terms of age, sex, civil status, highest educational attainment, trainings/seminars attended, and number of trainings attended related to Mpox. The mean was used to determine the level of readiness of the healthcare workers. An independent t-test was utilized to determine differences based on sex, civil status, and Mpox-related training. An F-test was used to determine differences based on age, education, and training history.

Table 3

Frequency and Percentage Distribution of the Respondents when grouped according to Age.

Age	Frequency	Percentage
55 – 64 years old	3	6.00
45 – 54 years old	3	6.00
35 – 44 years old	16	32.00
25 – 34 years old	28	56.00
TOTAL	50	100.00

Table 4

Frequency and Percentage Distribution of the Respondents when grouped according to Sex

Sex	Frequency	Percentage
Male	13	26.00
Female	37	74.00
TOTAL	50	100.00

Table 5

Frequency and Percentage Distribution of the Respondents when grouped according to Civil Status

Civil Status	Frequency	Percentage
Single	24	48.00
Married	26	52.00
TOTAL	50	100.00

Table 6

Frequency and Percentage Distribution of the Respondents when grouped according to Highest Educational Attainment

Highest Educational Attainment	Frequency	Percentage
Master's Degree	1	2.00
Bachelor's Degree with MA units	2	4.00
Bachelor's Degree	47	94.00
TOTAL	50	100.00

Table 7

Frequency and Percentage Distribution of the Respondents when grouped according to Trainings Attended related to MPOX

Trainings Attended	Frequency	Percentage
BLS/ACLS only	1	2.00
Leadership Training only	2	4.00
Communicable Diseases only	1	2.00
BLS/ACLS and Leadership Training	1	2.00
BLS/ACLS and Communicable Diseases	12	24.00
BLS/ACLS, Leadership Training and Communicable Diseases	33	66.00
TOTAL	50	100.00

Table 8

Frequency and Percentage Distribution of the Respondents when grouped according to the Number of Seminars Attended related to MPOX

Number of Seminars	Frequency	Percentage
1 – 3	5	10.00
4 – 6	45	90.00
TOTAL	50	100.00

A. Data Gathering Instruments

A Personal Data Sheet (PDS) collected demographic and professional information, while a readiness questionnaire measured knowledge, skills, resource access, and institutional support. The instrument underwent expert validation, pilot testing, and reliability analysis, yielding Cronbach's Alpha above 0.9, indicating strong internal consistency. Responses were interpreted using a four-point Likert scale. Data Gathering Procedure: Formal permission was secured from institutional authorities, followed by instrument validation and pilot testing. After revisions, participants were oriented, provided informed consent, and assured of confidentiality. Completed questionnaires were reviewed, encoded, and prepared for statistical analysis.

The assessment of the respondents on the subsystems was interpreted using the following scales:

Scale	Item Qualitative Description	Range	Grade Mean Qualitative Description
4	Strongly Agree	3.25-4.00	Very High
3	Agree	2.50-3.24	High
2	Disagree	1.75-2.49	Low
1	Strongly Disagree	1.00-1.74	Very Low

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1	Strongly Disagree	1.00-1.74	Very Low

Table 9

Mean Differences in the Assessment of the Nurses' Readiness to Possible Occurrence of MPOX Virus

Question	Mean	Qualitative Description
Knowledge and Awareness		
1. I understand the guidelines and protocols for diagnosing Mpox, including clinical assessment, laboratory testing, differential diagnosis, and proper specimen collection	3.08	High
2. I am confident in identifying suspected Mpox cases based on symptoms such as rash, muscle aches, headache, fever, and swollen lymph nodes.	3.16	High
3. I know that Mpox can be transmitted through close contact with an infected person's bodily fluids or lesions.	3.46	Very High
4. I am aware that preventive measures such as frequent handwashing and avoiding close contact with infected individuals are essential to reducing the spread of Mpox.	3.50	Very High
5. I stay updated with the latest information about Mpox from reliable sources.	3.24	High
6. I recognize the importance of public health reporting and early isolation in controlling Mpox outbreaks.	3.40	Very High
<i>Mean</i>	<i>3.31</i>	<i>Very High</i>

Skills and Preparedness

1. I know how to use personal protective equipment (PPE) effectively to protect against Mpox transmission.	3.60	Very High
2. I can educate patients and the community about Mpox prevention and treatment through methods such as giving pamphlets and health teaching.	3.28	Very High
3. I am capable of effectively collaborating with other health professionals to manage and respond to Mpox outbreaks, ensuring proper communication and coordinated care.	3.14	High
4. I have received adequate training related to Mpox care management.	2.54	High

5.	I am prepared to implement infection prevention and control measures for Mpox as per protocol.	3.02	High
6.	My healthcare facility regularly conducts training and drills for managing infectious disease outbreaks.	2.82	High
	<i>Mean</i>	3.07	High
Availability of Resources			
1.	My workplace has sufficient PPE to manage an Mpox outbreak.	3.00	High
2.	Adequate diagnostic tools for Mpox are available in my healthcare facility.	2.60	High
3.	Resources for isolating and treating Mpox patients are readily available.	2.70	High
	<i>Mean</i>	2.77	High
Institutional Support and Response			
1.	My healthcare facility has a clear protocol for handling Mpox cases.	2.76	High
2.	My workplace provides mental health support to staff during outbreaks.	2.74	High
3.	My facility has established partnerships with public health authorities for outbreak response.	2.90	High
4.	My facility is well-equipped to respond promptly to an Mpox outbreak.	2.74	High
5.	I feel confident in the support provided by my supervisors during situations involving infectious disease management.	2.80	High
6.	There is a system in place for reporting and monitoring Mpox cases.	2.68	High
	<i>Mean</i>	2.77	High
OVERALL MEAN		2.98	High

RESULTS AND DISCUSSION

The findings revealed that most healthcare workers, particularly nurses, are 25–34 years old, followed by those aged 35–44, indicating a predominantly young workforce. The sample is largely female, and civil status is almost evenly split between single and married respondents. The majority hold a bachelor's degree, with very few pursuing graduate studies. Most participants completed training in BLS/ACLS, leadership, and communicable diseases, and most attended four to six Mpox-related seminars, reflecting a strong institutional emphasis on continuous professional development.

In the domain of **Knowledge and Awareness**, respondents obtained a mean score of 3.31, interpreted as Excellent. This suggests that most healthcare workers have a high level of awareness of the essential aspects of Mpox. They are generally knowledgeable about transmission modes, signs and symptoms, available preventive measures, and proper reporting protocols for suspected cases. This high level of awareness is promising, as knowledge underpins effective prevention and control strategies. It reflects that respondents are well-informed and can identify and respond to Mpox cases based on updated clinical and epidemiological guidelines.

The area of **Skills and Preparedness** received a mean score of 3.07, interpreted as Very Satisfactory. This indicates that while healthcare workers feel competent in executing certain procedures, such as proper donning and doffing of personal protective equipment (PPE) and conducting public health education campaigns, some skill gaps remain. Specifically, fewer respondents reported participating in actual outbreak simulations or hands-on training sessions related to Mpox. The data suggest that while theoretical knowledge is high, translating this knowledge into practical, hands-on skills is not yet optimal. This gap could affect the efficiency and safety of responses during a real outbreak scenario.

In terms of **Availability of Resources**, the respondents rated this component with a mean score of 2.77, categorized as Very Satisfactory, but it is the lowest among all four domains. This reflects limited availability of essential medical and logistical supplies. Although some health facilities may have adequate PPE and access to diagnostic kits, many still lack critical tools such as rapid test kits, isolation areas, or even updated Mpox response manuals. Respondents' perceptions highlight a need to invest in both the quantity and accessibility of outbreak response resources across healthcare facilities. Without these necessities, even well-trained personnel may struggle to contain an outbreak efficiently.

The domain of **Institutional Support and Response** also received a mean score of 2.77 (Very Satisfactory), indicating that while there are systems in place to support healthcare workers, significant gaps remain. These concerns include unclear and ineffective institutional protocols, a lack of mental health support services for frontliners, inadequate case-reporting communication systems, and a perceived lack of proactive leadership or immediate response teams. These findings suggest that institutional systems may not yet be fully responsive to health workers' needs during an outbreak. A more robust framework encompassing emergency coordination, supervision, psychological support, and reporting mechanisms is needed to enhance confidence and performance among healthcare personnel.

The findings on health workers' readiness for the possible occurrence of the MPOX virus are consistent with the literature on public health emergency preparedness. A study by Temsah et al. (2022) in the Middle East found that despite high individual awareness among healthcare professionals about Mpox, systemic issues such as supply chain gaps, weak mental health services, and unclear response protocols hindered the actual response. Likewise, the World Health Organization (2023) emphasized that successful outbreak responses require a well-prepared workforce supported by resilient health systems. The Philippine context must therefore align with these international standards by not only equipping health workers with knowledge but also ensuring that institutional frameworks, logistical support, and resource sustainability are in place. Similarly, World Health Organization (2022) guidelines underscore the value of integrating multidisciplinary training modules, especially for emerging infections like Mpox, where both clinical management and community-based interventions are needed. WHO advocates blended learning that covers clinical response, leadership decision-making, and community risk communication as a sustainable approach to preparedness.

In the local context, Navarro et al. (2020) studied Filipino nurses' disaster preparedness and found that the number of related trainings attended was positively correlated with both knowledge retention and proactive response behavior. Their study suggests that the frequency and variety of seminars or trainings, not just a one-time engagement, are crucial in forming a rapid, competent response team.

These studies reinforce the implication that healthcare readiness is not merely an outcome of professional title or demographic profile but is rather shaped by intentional exposure to practical learning experiences. The convergence of findings strongly supports the investment in continuous, integrative, and accessible training programs as a core strategy for health emergency response, particularly for emerging diseases such as MPOX.

CONCLUSIONS AND RECOMMENDATIONS

Based on the findings of this study, healthcare workers at Dupax District Hospital generally have a moderate to high level of readiness to face a potential Mpox outbreak. The results indicated that while respondents have a fair level of knowledge and awareness, along with basic skills and a sense of preparedness, notable variations exist depending on training background and the number of seminars attended. In particular, those who attended more comprehensive and multiple trainings, especially those combining BLS/ACLS, leadership, and communicable disease training, showed significantly higher readiness. This suggests that diverse, extensive training plays a crucial role in equipping healthcare personnel with the competencies needed to respond to emerging infectious diseases like Mpox.

In contrast, demographic variables such as age, sex, civil status, and highest educational attainment did not significantly affect readiness. This implies that readiness is not solely a function of one's personal or educational background but is more strongly influenced by professional development and exposure to targeted training. Healthcare workers who attended four to six trainings related to Mpox showed significantly greater preparedness than those who attended only one to three sessions, reaffirming the critical role of continuing education and upskilling in emergency health responses.

Furthermore, institutional support and resource availability remain important dimensions of readiness that require strengthening. While individual knowledge and skills are vital, the broader system of support, including availability of personal protective equipment, clear protocols, and administrative backing, must be solidified to ensure a unified and timely response to outbreaks.

RECOMMENDATIONS

1. Local and regional health units should institutionalize regular and mandatory training programs focusing on emerging infectious diseases such as Monkeypox. Health personnel must be exposed to at least 4–6 relevant trainings annually, with topics covering case detection, epidemiological updates, clinical management, quarantine protocols, and outbreak communication strategies. Training must also include simulations and practical exercises to develop critical response skills.
2. Given the rising global concern about the spread of Mpox, existing training modules such as Basic Life Support (BLS), Advanced Cardiac Life Support (ACLS), and Communicable Disease Management should be updated and expanded to include topics on Monkeypox. These should detail the disease's modes of transmission, symptoms, prevention strategies, isolation procedures, vaccination protocols, and case management. This integrated approach will ensure that Mpox preparedness becomes part of the standard curriculum in all future training.
3. The Department of Health, through the local government units and municipal health offices, should develop a centralized tracking system that records the number, type, and frequency of training attended by health personnel. This system will help identify gaps and prioritize individuals who need additional capacity-building activities. It will also serve as a tool for appraising personnel performance and can be linked to incentives, recognition, or promotions. Moreover, pre- and post-evaluation mechanisms should be used to measure the impact of training on knowledge and readiness levels.

AI DECLARATION STATEMENT

AI-supported tools helped with grammar and structure in creating this article. No AI tools were used to collect, analyze, or interpret data; all authors are credited for their academic contributions.

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