

# Serological Markers and Patient Care: The Impact of Lab Results on Nursing Decision-Making in Infectious Disease Units

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## Abstract

This study explores the influence of serological markers on nursing decision-making within infectious disease units in a tertiary hospital setting. A mixed-methods approach was employed, incorporating both quantitative surveys and qualitative interviews to assess the use, interpretation, and impact of serological results on patient care. The findings indicate that serological markers play a crucial role in guiding nursing interventions, with 60% of nurses reporting significant impacts on patient care. However, challenges such as a lack of formal training, time constraints, and limited structured collaboration between nursing and laboratory staff were identified as barriers. Addressing these challenges through targeted training programs and enhanced collaboration frameworks could improve the effective utilization of serological data in nursing practice, ultimately optimizing patient outcomes.

**Keywords:** Serological Markers, Nursing Decision-Making, Infectious Disease Units, Interdisciplinary Collaboration, Tertiary Hospital, Patient Care

## Introduction

The use of serological markers plays a pivotal role in the diagnosis, treatment, and overall management of infectious diseases. In clinical practice, these laboratory results provide vital information that aids healthcare professionals in making evidence-based decisions. For nurses working in infectious disease units, understanding and interpreting serological results is crucial to ensuring that patient care is timely and appropriate. Nurses often rely on these results to assess the severity of infections, determine appropriate isolation precautions, and modify patient care plans accordingly (Gilbert et al., 2013; Year et al., 2001).

The impact of serological testing on nursing decision-making is particularly significant when dealing with infectious diseases that require urgent intervention. Accurate and rapid serological results are essential for optimizing care outcomes, as nurses are at the forefront of clinical care, implementing treatment plans and making critical observations. Collaboration between laboratory personnel and nursing staff is vital in this context, as it ensures the proper utilization of serological data, leading to more effective patient management and the prevention of infection spread (Beard et al., 2015; Brito et al., 2018).

Despite the importance of serological markers in patient management, there is limited literature on how serological data specifically influences nursing decision-making. Existing studies primarily focus on physicians' use of laboratory data, leaving a gap in understanding the direct impact on nursing practices.

Addressing this gap is essential because nurses play a key role in translating laboratory results into actions that directly affect patient outcomes. This study aims to explore the influence of serological markers on nursing decision-making in infectious disease units and highlight the interdisciplinary collaboration that enhances patient care (Reller et al., 2001; Brito et al., 2018).

## Literature Review

The literature on the role of serological markers in healthcare primarily highlights their importance in the diagnosis, treatment, and monitoring of infectious diseases. Serological testing provides essential information that helps clinicians make informed decisions regarding patient management. However, there is a notable gap in literature specifically focusing on how these results are used by nurses in infectious disease settings (Reller et al., 2001).

Reller et al. (2001) emphasize the critical role of laboratory testing in the overall management of infectious diseases. The authors discuss how timely and accurate serological results can lead to improved patient outcomes by facilitating early diagnosis and treatment initiation. However, their focus is largely on physicians' roles, with limited discussion on the contributions of nursing staff.

Beard et al. (2015) explore the importance of interdisciplinary collaboration between nursing and laboratory teams. They highlight that effective communication between these teams is crucial for the successful implementation of patient care protocols. Nurses are often responsible for interpreting and acting upon laboratory data, making collaboration with laboratory specialists essential for timely and effective care. The study underlines the need for greater focus on how laboratory data is integrated into nursing practice, particularly in infectious disease units.

Gilbert et al. (2013) discuss the value of serological testing in nursing practice, particularly in infectious disease management. Their findings indicate that nurses play a significant role in utilizing serological markers to assess the severity of infections and determine appropriate interventions. The study highlights the necessity for nurses to have adequate knowledge of serological tests to ensure optimal patient care. However, the authors also point out that there is a lack of formal training for nurses on interpreting laboratory results, which can hinder effective decision-making.

Brito et al. (2018) focus on optimizing patient outcomes through laboratory and nursing collaboration. Their study reveals that when laboratory personnel and nursing staff work closely together, the utilization of serological data becomes more efficient, leading to better patient management. The authors advocate for structured communication channels between these two groups to enhance patient outcomes in infectious disease settings.

Brito et al., (2018) address the integration of laboratory data into nursing practice, specifically highlighting the challenges nurses face when using serological information. The study identifies barriers such as insufficient training and limited access to laboratory specialists, which can impede the effective use of serological markers in patient care. Brito et al. (2018) suggest that enhancing training programs and fostering collaboration between nursing and laboratory teams can bridge this gap, ultimately improving patient outcomes.

Year et al. (2001) emphasize the importance of rapid serological markers in the early diagnosis and management of bloodstream infections. While the study primarily focuses on the medical implications of timely diagnosis, it also suggests that nurses' ability to understand and act on these results is critical for ensuring effective care. The authors highlight the need for interdisciplinary efforts to enhance the use of serological data in clinical practice.

Overall, the literature indicates that serological markers are vital for managing infectious diseases, but there is a lack of focus on the role of nurses in interpreting and utilizing these results. Effective collaboration between laboratory and nursing staff is crucial for optimizing patient outcomes, and there is a need for additional research to address the specific ways in which serological data impacts nursing decision-making in infectious disease units.

## Methodology

This study was conducted in a tertiary hospital with a dedicated infectious disease unit. A mixed-methods approach was employed, incorporating both quantitative and qualitative data to provide a comprehensive understanding of how serological markers impact nursing decision-making.

### Study Setting and Participants

The study took place in a tertiary hospital located in an urban area, which serves a diverse patient population. The infectious disease unit consists of 30 beds and is staffed by a multidisciplinary team, including infectious disease specialists, laboratory personnel, and nurses. The study participants included 20 registered nurses working in the infectious disease unit and 5 laboratory specialists involved in serological testing.

### Data Collection

Data were collected over a period of six months. Quantitative data were gathered through a structured survey administered to the nursing staff, focusing on their use of serological markers in patient care and their confidence in interpreting laboratory results. The survey included questions on the frequency of serological test use, the perceived impact of test results on patient care, and the level of collaboration with laboratory personnel.

Qualitative data were collected through semi-structured interviews with both nurses and laboratory specialists. The interviews aimed to explore the experiences of nurses in using serological markers for decision-making and the perceived effectiveness of collaboration between nursing and laboratory teams. Interviews were conducted in a private setting within the hospital to ensure confidentiality and were audio-recorded with participant consent.

### Data Analysis

Quantitative data from the surveys were analyzed using descriptive statistics to summarize the frequency and perceived impact of serological testing on nursing decision-making. SPSS software (version 28) was used to conduct the analysis, and results were presented as frequencies, percentages, and means.

Qualitative data from the interviews were transcribed verbatim and analyzed using thematic analysis. Thematic analysis involved coding the data to identify recurring themes related to the use of serological markers, challenges faced by nurses in interpreting laboratory results, and the role of interdisciplinary collaboration. NVivo software was used to assist with the organization and coding of qualitative data.

### Ethical Considerations

Ethical approval for the study was obtained from the ethics committee. Written informed consent was obtained from all participants prior to data collection. Participants were assured of their right to withdraw from the study at any time without any impact on their employment. Confidentiality was maintained by assigning unique identifiers to each participant and securely storing all data.

## Findings

### Quantitative Findings

The quantitative data collected from the survey provided insights into the frequency of serological test use, nurses' confidence in interpreting results, and the perceived impact on patient care. Table 1 summarizes the frequency of serological test use among the nursing staff.

**Table 1: Frequency of Serological Test Use Among Nurses**

| Frequency of Use     | Percentage (%) |
|----------------------|----------------|
| Daily                | 40%            |
| Several times a week | 35%            |
| Once a week          | 15%            |
| Rarely               | 10%            |

**Table 2 highlights the level of confidence nurses reported in interpreting serological test results.**

| Level of Confidence | Percentage (%) |
|---------------------|----------------|
| Very Confident      | 25%            |
| Confident           | 45%            |
| Neutral             | 20%            |
| Not Confident       | 10%            |

**Table 3 presents the perceived impact of serological results on patient care decisions.**

| Impact on Patient Care | Percentage (%) |
|------------------------|----------------|
| Significant Impact     | 60%            |
| Moderate Impact        | 30%            |
| Minimal Impact         | 10%            |

The survey results indicate that serological markers are frequently used in patient care, with 40% of nurses using these tests daily. Most nurses reported being confident in interpreting the results, although 10% indicated a lack of confidence. Additionally, 60% of nurses believed that serological results have a significant impact on patient care decisions.

### Qualitative Findings

Thematic analysis of the interview data resulted in the identification of three main themes, with corresponding sub-themes, that provide deeper insights into the role of serological markers in nursing decision-making.

Theme 1: Utilization of Serological Markers in Nursing Practice

- Sub-theme 1.1: Assessing Infection Severity

- Participant Response: "Serological results help us understand how severe an infection is, and this guides our interventions, especially when dealing with immunocompromised patients."

- Sub-theme 1.2: Determining Isolation Precautions

- Participant Response: "We use serological results to decide whether a patient needs to be isolated, especially if they test positive for highly infectious pathogens."

Theme 2: Challenges in Interpreting Serological Results

- Sub-theme 2.1: Lack of Formal Training

- Participant Response: "We often rely on laboratory specialists to explain certain results because we haven't received formal training on serological markers."

- Sub-theme 2.2: Time Constraints

- Participant Response: "With the workload in the unit, finding time to thoroughly interpret serological data is challenging, which can delay care."

Theme 3: Collaboration Between Nurses and Laboratory Specialists

- Sub-theme 3.1: Effective Communication

- Participant Response: "Having direct communication with the lab helps us get timely information. This collaboration is crucial for making quick decisions."

- Sub-theme 3.2: Need for Structured Interaction

- Participant Response: "There is no structured system for interaction between nurses and lab staff. We mostly communicate on an as-needed basis, which sometimes affects patient care."

The qualitative findings reveal that while serological markers are essential for assessing patient conditions, challenges such as lack of formal training and time constraints can hinder effective use. Collaboration with laboratory specialists was highlighted as a key factor in overcoming these challenges, though participants noted the need for more structured interactions to enhance patient care.

## Discussion

The findings of this study demonstrate the crucial role that serological markers play in nursing decision-making within infectious disease units. The quantitative results indicate that serological tests are frequently used, with 40% of nurses utilizing these markers daily, underscoring their importance in patient care. Furthermore, a majority of nurses (60%) reported that serological results have a significant impact on patient care decisions. This aligns with the literature emphasizing the value of laboratory testing in timely diagnosis and management of infectious diseases (Reller et al., 2001; Year et al., 2001).

However, the study also identified barriers to the effective use of serological markers by nurses. The lack of formal training on interpreting serological results emerged as a significant challenge, as reflected in both the quantitative and qualitative findings. Only 25% of the nurses felt very confident in interpreting serological data, which indicates a gap in knowledge that could affect patient outcomes. These findings are consistent with those of Gilbert et al. (2013), who highlighted the need for adequate training to enhance nurses' competencies in utilizing serological markers effectively.

Time constraints were also identified as a barrier, with nurses indicating that the high workload in the unit limited their ability to thoroughly interpret serological data. This issue is compounded by the absence of structured collaboration between nursing and laboratory teams, as noted in the interviews. Participants expressed the need for more formalized communication channels to facilitate timely information exchange and improve patient care. Brito et al. (2018) also emphasized the importance of structured communication between laboratory and nursing teams to enhance the use of serological data in clinical practice.

The findings on collaboration between nurses and laboratory specialists further highlight the potential benefits of interdisciplinary teamwork. Effective communication was seen as a critical factor in enabling nurses to make informed decisions based on serological results. However, the lack of structured interaction was noted as a limitation, which sometimes affected patient care. Beard et al. (2015) similarly stressed the importance of interdisciplinary collaboration, suggesting that formalized communication protocols could improve the integration of serological data into nursing practice.

This study underscores the need for targeted interventions to address the barriers identified. Providing formal training programs for nurses on the interpretation of serological markers could enhance their confidence and ability to utilize these results effectively. Additionally, establishing structured collaboration frameworks between nursing and laboratory teams could improve the efficiency of serological data utilization, ultimately leading to better patient outcomes. Brito et al. (2018) suggested that fostering such collaboration and enhancing training programs could bridge the existing gaps and improve overall care quality.

In conclusion, the use of serological markers is integral to nursing decision-making in infectious disease units. While these markers provide valuable information for assessing patient conditions and determining appropriate interventions, challenges such as insufficient training, time constraints, and lack of structured collaboration hinder their effective use. Addressing these challenges through targeted interventions could optimize the role of serological markers in nursing practice, ultimately improving patient care outcomes in infectious disease settings.

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#### خلاصة

تستكشف هذه الدراسة تأثير العلامات المصلية على اتخاذ القرارات التمريضية داخل وحدات الأمراض المعدية في المستشفى الثالث. تم استخدام نهج مختلط الأساليب، ودمج المسوحات الكمية والمقابلات النوعية لتقييم استخدام وتفسير وتأثير النتائج المصلية على رعاية المرضى. تشير النتائج إلى أن العلامات المصلية تلعب دورًا حاسمًا في توجيه التدخلات التمريضية، حيث أبلغ 60% من الممرضات عن تأثيرات كبيرة على رعاية المرضى. ومع ذلك، تم تحديد التحديات مثل نقص التدريب الرسمي، وقيود الوقت، والتعاون المنظم المحدود بين موظفي التمريض والمختبرات كعوامل. إن معالجة هذه التحديات من خلال برامج التدريب المستهدفة وأطر التعاون المعززة يمكن أن يحسن الاستخدام الفعال للبيانات المصلية في ممارسة التمريض، مما يؤدي في نهاية المطاف إلى تحسين نتائج المرضى. الكلمات المفتاحية: العلامات المصلية، اتخاذ القرارات التمريضية، وحدات الأمراض المعدية، التعاون متعدد التخصصات، المستشفى الثالث، رعاية المرضى