



Service Quality and User Complaints in International Vaccination Services: A Case Study

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DOI: <https://doi.org/10.56359/qj.v8i1.1066>



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ABSTRACT

Introduction: International vaccination services are part of public health services that support international mobility. As a service provider, Port Health Office is required to deliver high-quality services oriented toward user satisfaction. However, complaints are still found, indicating a gap between users' expectations and the services received.

Objective: This study aims to analyze complaints from users of international vaccination services at BKK Pangkalpinang and their relationship with service quality.

Method: This study employed a qualitative approach with a case study design. Informants were selected purposively and consisted of service users, service officers, and management representatives. Data were collected through in-depth interviews, observations, and document review, and were analyzed thematically using the Donabedian framework, which includes structure, process, and outcome. Data trustworthiness was ensured through triangulation and member checking.

Result: The findings indicate that user complaints are influenced by structural and process-related aspects of service delivery. Structural issues include limitations in facilities and the number of service personnel, while process-related issues involve waiting time, clarity of service flow, and staff communication. These complaints have an impact on user dissatisfaction.

Conclusion: The study concludes that improving service quality requires strengthening structural and process components, as well as enhancing an effective complaint-handling mechanism.

Keywords: health service quality, international vaccination, port health office, user complaints

Introduction

The Health Quarantine Center (BKK) plays a strategic role in protecting public health, particularly for international travelers. One of the key services it provides is the provision of international vaccinations as a mandatory requirement for entry into certain countries. For example, the Saudi Arabian government requires meningitis and polio vaccinations for Umrah pilgrims, while several other endemic countries require yellow fever and typhoid vaccinations (Ministry of Health of the Republic of Indonesia, 2025).

Each vaccination is followed by the issuance of an International Certificate of Vaccination (ICV), either in physical or electronic form, which is internationally recognized as official proof of vaccination. Along with policy developments, this service has been further strengthened through Letter No. SR.02.04/C.V/1411/2025 from the Directorate of Health Surveillance and Quarantine, which regulates the use of the electronic Certificate of Vaccination or Prophylaxis (eICV). This policy is a follow-up to Government Regulation Number 28 of 2024, which implements Law Number 17 of 2023 concerning Health, which provides the legal basis for issuing health quarantine documents both manually and electronically (Ministry of Health of the Republic of Indonesia, 2025).

According to the latest regulations, all travelers to Saudi Arabia are required to use an eICV, while a physical ICV certificate remains valid for other countries requiring specific vaccinations, such as yellow fever or typhoid. This demonstrates that the transformation of BKK services not only aligns with national regulations but also accommodates global health standards to ensure the smooth and safe flow of international travel (Ministry of Health of the Republic of Indonesia, 2025).

Furthermore, the legal basis for international vaccination is further strengthened through Circular Letter of the Secretary General of the Ministry of Health Number HK.02.02/A/1206/2025 concerning Immunization of Hajj and Umrah Pilgrims. The regulation emphasizes the mandatory Meningococcal Meningitis and Polio vaccinations for all Umrah pilgrims, as well as the COVID-19 vaccine for Hajj pilgrims, in accordance with the provisions of the Saudi Arabian Government (Ministry of Health of the Republic of Indonesia, 2025).

Furthermore, these provisions align with the Health Requirements and Recommendations for Travelers to Saudi Arabia for Umrah and Visit 1446H (2025) document issued by the Saudi Arabian Ministry of Health. This document stipulates that all Umrah pilgrims aged 1 year and older must receive the Meningitis ACYW-135 vaccination within the past 3–5 years, as well as the Polio vaccination (IPV/OPV) for travelers from countries with reported polio cases, including Indonesia. Furthermore, the Yellow Fever vaccination is mandatory for travelers from countries at risk of transmission of the disease (Ministry of Health, Kingdom of Saudi Arabia, 2025).

These various national and international regulations emphasize that international vaccination is not merely an administrative requirement, but also a legal obligation and an absolute requirement for smooth religious and international travel. This reinforces the role of the Health Quarantine Agency (BKK) as the vanguard in ensuring global health standards and protecting the public from the threat of transnational infectious diseases (Ministry of Health of the Republic of Indonesia, 2025; Ministry of Health of the Kingdom of Saudi Arabia, 2025).

Furthermore, the 2025 First Semester Performance Report reinforces these findings by confirming that international vaccination remained one of the primary services at the Pangkalpinang BKK clinic in the first half of 2025. The report also noted ongoing challenges in the form of limited supplies of certain vaccines, such as polio, which impacted the smooth

operation of services. Some work areas also faced challenges due to the lack of their own buildings, which impacted the overall smooth operation of services. As part of the improvement efforts, the BKK monitored user satisfaction, strengthened cross-sectoral coordination, and increased the use of technology to support better service quality (Pangkalpinang Class II Health Quarantine Center, 2025).

Although research related to international vaccination services at the Health Quarantine Center has been conducted, most of it focuses on regulations, vaccine distribution, and achieving service targets. Specific studies on user complaints, particularly during the implementation of eICV in 2025, are still very limited, highlighting a research gap. From a healthcare quality perspective, complaints are a crucial indicator of the gap between expectations and reality. The Donabedian and SERVQUAL models demonstrate that public satisfaction and perceptions are key benchmarks for service quality, making complaint analysis not only practically relevant but also academically valuable. Beyond its direct impact on the community, such as delays in pilgrimages, anxiety, and the risk of not meeting cross-border health requirements, this research has the potential to make a significant contribution through a more systematic service recovery strategy. Furthermore, analyzing complaints in the context of digitalization through eICV also enriches the literature on the challenges and opportunities for healthcare transformation, particularly in the Bangka Belitung region (Trenggono, 2025).

The Pangkalpinang BKK Head Office was selected as the research location due to its strategic role in providing international vaccination services in the Bangka Belitung Islands, which serves as a major entry and exit point for Umrah and Hajj pilgrims, and international travelers. The high number of vaccinations, reports of vaccine distribution constraints, and numerous public complaints make this location a crucial area for in-depth analysis. This research is expected to help the Pangkalpinang BKK improve the quality of international vaccination services, strengthen human resource capacity, and support national health quarantine policies.

In line with these reasons, the 2024 Annual Report of the Pangkalpinang Class II BKK noted that international vaccination is one of the primary services provided by the clinic. In 2024, the number of international vaccination services reached 1,865, representing 17.3% of the clinic's total services. This data demonstrates the high demand for international vaccination in the BKK's work area and has become a key focus in healthcare delivery. This fact further strengthens the position of the BKK (Health Quarantine Agency) as an institution with a strategic role in supporting international community mobility through health protection guarantees (Pangkalpinang Class II Health Quarantine Center, 2024).

The urgency of this research also lies in its contribution to protecting pilgrims and the community from the risk of transnational infectious diseases. High global mobility, international mass gatherings such as the Hajj and Umrah pilgrimages, and the potential for the introduction of new diseases make improving the quality of international vaccination services crucial, both for maintaining individual health and national health security. By understanding the factors causing complaints, staff responses, and public perceptions, the BKK can strengthen prevention strategies and increase public trust in the national health system.

Objective

This study aims to analyze complaints from users of international vaccination services at BKK Pangkalpinang and their relationship with service quality.

Method

This research uses a qualitative approach with a case study design to gain an in-depth understanding of the phenomenon of complaints from international vaccination service users at the Pangkalpinang Public Health Office (BKK). Case studies were chosen because they allow us to explore phenomena in a real-life context through intensive exploration of a bounded system bound by time, place, and context (Creswell & Poth, 2018). This approach allows researchers to understand how and why phenomena occur, especially when the boundaries between phenomenon and context cannot be clearly separated (Yin, 2018).

In qualitative research, the terms informant or participant are more appropriate than "respondent" because they position individuals as partners who contribute through their experiences, knowledge, and perspectives to the phenomenon under study (Creswell & Poth, 2018). Unlike quantitative approaches that emphasize statistical representation through random sampling, qualitative research focuses on selecting information-rich cases, namely individuals who are able to provide in-depth data relevant to the research context (Palinkas et al., 2016).

In this study, the phenomenon being studied is complaints from international vaccination service users at the Pangkalpinang Public Health Office (BKK) in 2025. Informants were selected using purposive sampling, a deliberate selection technique based on characteristics that align with the research focus (Etikan et al., 2016). The informant criteria include:

Inclusive Informants

International vaccination service users, Adults (18-59 years old), Willing and cooperative during the interview process, Able to clearly recall and explain experiences related to the international vaccination service process.

Exclusive Informants

Individuals who are unwilling to be interviewed or withdraw before or during the interview process, Service users who have never experienced dissatisfaction or have no relevant experience related to service complaints, Individuals with communication limitations that hinder the data collection process, Officers or internal parties at the Pangkalpinang Public Health Office who are not directly involved in international vaccination services.

Results

This study describes the implementation of international vaccination services at the Pangkalpinang Health Quarantine Center (BKK) based on data obtained through in-depth interviews, field observations, and document analysis. Data were collected from service users, service staff, and management, providing a comprehensive overview of the current state of international vaccination services.

In general, the study findings indicate differing views between service users and service providers. Service users perceived that international vaccination services were not yet fully operational, particularly regarding waiting times, certainty of service flow, availability of certain vaccines, and clarity of information regarding medical examinations and the issuance of International Certificates of Vaccination (ICV) documents. Conversely, service staff and management assessed that services were implemented in accordance with applicable standard operating procedures (SOPs), although they acknowledged operational challenges, such as long queues during peak hours, limited human resources, and system and logistical disruptions.

The results of field observations and document reviews support the interview findings that the service structure and regulations for international vaccination services are in place and well-documented. However, implementation in the field has not always been consistent, particularly when the number of service users increases. This situation has given rise to various complaints from service users, which are generally handled directly by staff, while the complaint recording and follow-up mechanisms have not been fully documented systematically.

Overall, the research results indicate that international vaccination services at the Pangkalpinang Health Quarantine Center (BKK) have a clear structural and procedural basis. However, their implementation is still influenced by operational factors and daily service dynamics. A more detailed description of the research findings based on the themes generated from the data analysis is presented in the following subsection.

The informants in this study consisted of three groups: service users, service officers, and management at the Pangkalpinang Health Quarantine Center (BKK). These three groups of informants were selected to obtain a comprehensive picture of the implementation of international vaccination services from various perspectives, from both the recipient and provider perspectives.

The service user group consisted of three informants, aged 32–58 years old, consisting of two men and one woman. The vaccination requirements of service user informants include meningitis, polio, and yellow fever vaccines, as required for Umrah and international travel. All service user informants in this study experienced dissatisfaction with international vaccination services and had filed complaints during the service process. Therefore, it is considered relevant to explore experiences and perceptions of service quality.

Informant Code	Gender	Age	Position	Vaccination Need	Purpose of Service	Interview Time
I-1 (Inklusi)	Male	34	-	Meningitis Vaccines	Umrah and Overseas Travel Requirements	November 2025
I-2 (Inklusi)	Male	32	-	Yellow Fever Vaccines	International Travel Requirements	November 2025
I-3 (Inklusi)	Female	58	-	Meningitis and Polio Vaccines	Umrah Requirements	November 2025
I-4 (addition)	Male	40	Vaccination officer	-	-	November 2025
I-5 (addition)	Male	41	BKK Managerial	-	-	November 2025

Based on in-depth interviews with service users, four main themes emerged that describe the implementation of international vaccination services at the Pangkalpinang BKK. These themes include: (1) System Disruptions and Initial Service Information, (2) Limited Resources and Service Facilities, (3) Low User Satisfaction, and (4) Expectations for Service Improvement. The findings for each theme are supported by direct quotations from informants' statements as follows:

System Disruptions and Initial Service Information Online Registration System Disruptions

Disruptions in the online registration system became one of the initial problems experienced by service users before visiting the Pangkalpinang Port Health Office (BKK Pangkalpinang). Based on the thematic findings, this issue was experienced by Informants I-1 and I-3, with keywords including “online registration error,” “page cannot be opened,” and “must restart registration from the beginning.” Service users attempted to use the online registration system expecting a faster and more efficient process. However, technical problems in the system caused registration failures, forcing users to come directly to the office and repeat the registration process manually.

Informant I-1 stated:

“After filling in the data, an error message appeared and the page couldn't be opened again.” (I-1)

The informant further explained:

“I thought with the online system, I could just come in and get the shot, but it turned out I had to start over.” (I-1)

A similar experience was also conveyed by Informant I-3:

“Initially, my family and I tried to register online from home, but we couldn't log in.” (I-3)

These findings indicate that the online registration system has not functioned optimally and has instead become a source of initial dissatisfaction among service users.

From the officers’ perspective, disruptions in the online system were recognized as one of the obstacles affecting vaccination services. Informant I-4 explained:

“The most frequent challenge is long queues, especially during peak hours or approaching the Umrah pilgrimage season and international travel. Furthermore, the online registration system sometimes experiences disruptions, impacting the smoothness of the service.” (I-4)

Management also acknowledged the limitations of the online system and explained that the issue was addressed through direct assistance from customer service officers to help users complete manual registration procedures. Informant I-5 stated:

“For both online registration and the registration of prospective pilgrims on-site, we still have customer service staff available to assist the process.” (I-5)

Field observations revealed that although manual registration generally proceeded smoothly, vaccination queues often became bottlenecks during peak hours. The waiting area was also limited, causing some users to stand while waiting for services. Meanwhile, the Standard Operating Procedures (SOP), including the International Vaccination SOP and the Clinic Operational SOP, had outlined registration and verification procedures such as scheduling, SIMPONI verification, WUS examination, vaccination procedures, and certificate issuance. However, these SOPs did not comprehensively address technical disruptions occurring in the online registration system.

The triangulation results derived from user experiences, staff and management interviews, field observations, and SOP document analysis indicate that disruptions in the online registration system occurred periodically but could still be mitigated through manual assistance. Nevertheless, the problem became more significant during peak service hours, contributing to long queues and dissatisfaction among service users.

Discrepancy Between Initial Information and Actual Service Conditions

In addition to system disruptions, service users also experienced discrepancies between the initial information they received and the actual service conditions in the field. Based on the thematic findings, this issue was experienced by Informants I-1 and I-3, with keywords including “came in person but still had a long queue” and “did not meet expectations after registering online.”

Service users expected that online registration would reduce waiting times and simplify the service process. However, in practice, users still encountered long queues and unclear service flow upon arrival at the service location.

Informant I-1 stated:

“I thought I could just come in person, but it turned out the queue was very long.” (I-1)

The informant added:

“My hope was that by registering online, the data would already be recorded, but it turned out that wasn’t the case.” (I-1)

Similarly, Informant I-3 explained:

“We came directly to the office, but there was a long queue, so the process was slow and somewhat disorganized.” (I-3)

These findings demonstrate a gap between users’ expectations based on the initial information provided and the actual service conditions they experienced.

Officers explained that they attempted to provide clear and simple explanations to service users and repeated information when necessary. However, communication became more challenging during peak service hours due to time limitations and queue pressure. Informant I-4 stated:

“We try to provide simple, easy-to-understand explanations. If users do not seem to understand, we usually repeat the explanation slowly. However, during busy times, communication becomes more difficult due to time constraints and queue pressure.” (I-4)

Management also acknowledged that complaints commonly occurred during critical service hours. Informant I-5 explained:

“If there are complaints, some are related to service users who came during critical hours, which caused slight delays in service. Those complaints have generally been resolved properly.” (I-5)

Field observations showed that officers generally demonstrated responsive and empathetic attitudes toward service users. However, responses to questions during peak hours were not always prompt due to the high service burden. Meanwhile, the SOP documents emphasized mechanisms for handling complaints and responding to user inquiries, including direct inquiry handling, complaint documentation, and coordination among officers.

Discussion

This discussion interprets research findings using a healthcare quality framework, specifically the Donabedian model and the SERVQUAL approach, linking them to recent research findings. Research findings indicate a close relationship between aspects of service structure, such as the online registration system, human resource availability, and supporting facilities, and the service process in the field, which in turn impacts outcomes such as perceived quality and user satisfaction. Therefore, the discussion focuses on analyzing the relationship between structure, process, and outcomes in international vaccination services at the Pangkalpinang Health Center (BKK).

System Disruption and Initial Service Information

Disruption of the online registration system was a significant initial issue in international vaccination services at the Pangkalpinang Health Center (BKK). The Donabedian model remains relevant in contemporary healthcare quality studies, including in the context of service digitalization, as it emphasizes the interconnectedness between structure, process, and service outcomes. Service structures, which now encompass information technology systems and digital applications, play a crucial role in supporting smooth service processes and achieving outcomes in user satisfaction (Akachi & Kruk, 2021; Rooney & van Ostenberg, 2022).

In the context of digital-based healthcare (e-health), recent literature indicates that system reliability and responsiveness of the system and staff are key determinants in shaping users' experiences and perceptions of online service quality. A stable and accessible information system has been shown to directly contribute to the efficiency of service flows and reduced waiting times at healthcare facilities (Alam et al., 2021; Ladhari et al., 2023).

The results of this study indicate that a technically unreliable online registration system causes a large proportion of users to revert to manual registration and experience long queues at service locations. These findings confirm that technical disruptions in healthcare information systems directly disrupt service flows, prolong waiting times, and shape negative user perceptions from the initial stage of service interactions. Within the Donabedian framework, this situation demonstrates a clear relationship between technological structure and service processes, where suboptimal structures lead to inefficient service processes and reduced outcomes in the form of user satisfaction (Moayed et al., 2022).

Empirical literature from the past five years supports these findings. Moayed et al. (2022) showed that instability in the online registration system at healthcare facilities was significantly associated with decreased patient satisfaction and increased perceptions of overall service irregularity. Another study by Alhassan et al. (2023) confirmed that failures in the online queuing and registration systems actually led to physical queue congestion as users reverted to manual processes. Furthermore, the reliability of healthcare information systems has been shown to be a key factor in building trust and perceptions of service quality, particularly for services designed to reduce uncertainty and waiting times for users (Moayed et al., 2022; Ladhari et al., 2023).

Based on these theories and empirical findings, the disruption to the online registration system at the Pangkalpinang Health Center (BKK) reflects weaknesses in the service structure, which then directly impacts the service process. Mitigation efforts through manual assistance by human resources may help alleviate temporary obstacles, but they fail to address the root causes of system stability and service certainty, which are key user expectations for technology-based international vaccination services (Akachi & Kruk, 2021; Ladhari et al., 2023).

Limited Resources and Service Facilities

The quality of healthcare service structures, including the adequacy of the number of healthcare workers and the availability and condition of physical facilities, plays a crucial role in determining the efficiency of the service process and user experience. Within the SERVQUAL framework, the tangibles dimension emphasizes that physical facilities, such as adequate waiting rooms, a comfortable environment, and the availability of supporting facilities, are early indicators that shape user perceptions of healthcare service quality,

particularly in services with a high level of direct interaction (Ladhari et al., 2023; Rooney & van Ostenberg, 2022).

These findings are reinforced by empirical research over the past five years. Rosidah et al. (2024) showed that long physical queues, uncertainty about waiting times, and incomplete service information were significant predictors of low patient satisfaction in public healthcare facilities. Furthermore, Lambe et al. (2025) found that increasing the number of service personnel and implementing a structured queuing system significantly increased user satisfaction by reducing frustration and improving perceptions of service quality. Other studies also confirmed that clarity of information, transparency of procedures, and certainty of service delivery were dominant factors in shaping positive perceptions and user satisfaction with healthcare services (Alam et al., 2021; Ladhari et al., 2023).

Conceptually, these findings indicate that low user satisfaction is not caused by a single factor, but rather the result of a complex interaction between information system disruptions (structure), limited human resources and facilities (structure), and the effectiveness of service interactions and communication (process). This condition aligns with the logic of the Donabedian model, which asserts that weaknesses in structure and process will lead to outcomes in the form of low perceived quality and user satisfaction. Thus, increased user satisfaction can only be achieved through integrated improvements to all components of the service structure and process (Akachi & Kruk, 2021; Rooney & van Ostenberg, 2022).

Expectations for Service Improvement

Users' expectations for service improvement include increased stability of the online registration system, transparency of information regarding vaccine availability, increased staff numbers, clarity of queue flow, and standardization of medical examinations. These expectations are not merely instrumental but also reflect users' needs for reliable, timely, and communicative services. In contemporary healthcare management literature, these aspects are viewed as core elements of service quality, playing a crucial role in shaping users' experience and trust in public healthcare services (Ladhari et al., 2023; Rooney & van Ostenberg, 2022).

Empirical research over the past five years reinforces these findings. Moayed et al. (2022) showed that the stability of healthcare information systems and clarity of digital flows are positively associated with increased user satisfaction and decreased complaints. Astina and Asmin (2023) also emphasized that improving human resource capacity, particularly in vaccination services, directly impacts service efficiency and user perceptions of quality. Furthermore, implementing effective service recovery through transparent communication and concrete solutions to complaints can transform negative experiences into opportunities to increase patient trust and loyalty to healthcare institutions (Badawi et al. 2021).

User expectations reflect the need for stronger integration between service structures (technology systems and human resources), service processes (communication, coordination, and standardization of procedures), and outcomes in the form of user satisfaction and trust. A holistic approach that aligns SOPs, technological reliability, human resource capacity, and communication quality is key to improving the quality of international vaccination services. This perspective aligns with the Donabedian model, which emphasizes that service quality improvements can only be achieved through simultaneous strengthening of both structures and processes to produce sustainable outcomes (Akachi & Kruk, 2021; Alhassan et al., 2023).

Conclusion

Based on the 2025 study of international vaccination services at the Pangkalpinang Port Health Office (BKK Pangkalpinang), user complaints highlighted several challenges affecting service quality and satisfaction, including online system disruptions, limited resources and facilities, inconsistent medical procedures, and unclear communication, particularly during peak service hours. Current complaint responses were mostly limited to verbal explanations and had not fully provided long-term solutions. Therefore, comprehensive improvements are needed through strengthening the online registration system, increasing staff capacity and competency, standardizing procedures, improving communication, and implementing a more effective complaint management system to enhance user satisfaction and public trust.

Authors' contribution

Each author contributed equally in all the parts of the research. All authors have critically reviewed and approved the final draft and are responsible for the content and similarity index of the manuscript.

Conflict of interest

The researchers stated that there is no conflict of interest related to the implementation and publication of the results of this research. The entire research process, from planning, data collection, analysis, to report preparation, was carried out independently without any influence or pressure from any third party. A commitment to research ethics is upheld throughout the research process, ensuring transparency, accuracy and honesty in reporting results. Respondents' participation was voluntary with informed consent, and their confidentiality and privacy were maintained in accordance with applicable research ethics standards. With this statement, researchers hope that the research results can be trusted and used as a valid reference for the development of science and health practices related to ethnomedicine and reproductive health.

Funding

This research is not funded by any party and is not intended for any financial gain.

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