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Hospital Management Strategy in Minimizing Surgery Delays at Tabanan Hospital

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ABSTRACT

Surgical delays represent a major challenge in hospital services, potentially leading to negative impacts on patients' medical conditions, operational efficiency, as well as patient and staff satisfaction. This study aims to identify and analyze hospital management strategies to minimize surgical delays at Tabanan Regional Public Hospital (RSUD Tabanan). A qualitative method with a descriptive approach was employed. Data were collected through in-depth interviews with six informants, including a surgeon, an anesthesiologist, a nurse, a patient, a patient's family member, and hospital management. Data analysis was conducted using thematic analysis. The findings revealed four primary factors contributing to surgical delays at RSUD Tabanan: (1) Medical conditions, such as unstable blood pressure, uncontrolled blood glucose levels, and infections; (2) Logistical and administrative issues, including limited operating room availability due to equipment malfunction and infrastructure problems; (3) Patient-related factors, such as lack of understanding regarding the surgical schedule; and (4) Medical team factors, including a lack of commitment to the surgical schedule and a shortage of nursing staff. Strategies proposed to address these issues include: (1) improving preoperative medical condition monitoring, (2) upgrading infrastructure and conducting routine maintenance of medical equipment, (3) implementing a digital information system to provide more accurate surgical schedules to patients, and (4) strengthening coordination and discipline among the medical team through a reward and punishment policy related to schedule adherence.

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1. INTRODUCTION

Effective and efficient health services are the basic expectations of the community for health service institutions, especially hospitals as referral facilities. One of the services that requires high coordination and quick response is surgical services in the operating room. The operating room is not just a technical room for the implementation of surgery, but a center of clinical activities involving various professions, complex procedures, and high safety standards. In practice, the effectiveness of operating rooms can be measured from quantitative indicators such as the number of on-time surgeries or the duration of procedures (Wiguna et al., 2023).

Delays in surgeries are a serious challenge in the healthcare system in various countries. Globally, these issues have a direct impact on patient safety and quality of care. Many studies show that delays in surgical procedures, especially in urgent elective cases, can lead to disease progression, increased risk of complications, and even lead to premature death. For example, in the case of surgical oncology, delaying surgery by just a few weeks can result in significant tumor growth and lower life expectancy. Similarly, in the case of orthopedics and cardiac surgery, time greatly determines the final outcome of the intervention performed (McCone et al., 2024).

In addition to the clinical impact, postponement of surgery also places a great psychological burden on patients and their families. Uncertainty about the surgery schedule, fear of worsening conditions, and frustration from waiting too long are the main causes of stress and anxiety. Research in various countries shows that patients who experience postponement of surgery have a much lower level of satisfaction with hospital services, which ultimately affects the reputation of healthcare facilities. In the long run, this can erode public trust in the health system as a whole (Chan et al., 2024).

From an operational and economic perspective, the delay in operations caused major inefficiencies in hospital management. Operating room time that is not used optimally, wasted human resources, and time- and labor-consuming rescheduling are direct consequences of delays. Furthermore, the cost of patient care has become higher due to longer hospitalizations, additional examinations, and increased need for clinical monitoring. In countries with public health financing systems, postponement of operations also puts a strain on state budgets due to the increasing burden of healthcare costs (Fu et al., 2020; Sommer et al., 2021).

Systemically, operational delays reflect an imbalance between service demand and supply capacity, both in terms of infrastructure, logistics, and health workers. In many developing countries, limited operating rooms, delays in the procurement of medical devices, and uneven distribution of doctors' schedules are major factors. Meanwhile, in developed countries, despite the more advanced technology, the backlog of operations due to a surge in cases or crises such as the COVID-19 pandemic still shows that the global health system is not yet fully resilient to service disruptions (Chan et al., 2024).

Human resource management is a key element (Purwadhi, 2018). Hospitals need to ensure the availability of adequate medical personnel, organize the shift system properly, and foster a culture of discipline towards the surgery schedule. The implementation of a fair reward and punishment system can encourage medical personnel to comply with time, while increasing a sense of professional responsibility. No less important, hospitals must build effective communication systems to patients and their families, so that any schedule changes can be communicated transparently and humanely (Patterson et al., 2020)

To address the challenges of operating delays, hospitals need to implement a comprehensive and integrated management strategy. Hospital management strategies include operational management, human resources, logistics, and information systems that support the effectiveness of surgical services (Rohendi, 2019). One of the key strategies is the optimization of operating schedules through a coordinated electronic scheduling system, which allows for more efficient distribution of cases and prevents queue buildup. The use of this technology has been proven to reduce wait times and increase optimal utilization of operating rooms (Tang et al., 2020).

The Tabanan Regional General Hospital (RSUD), as a referral hospital in Tabanan Regency, often faces dynamics in the implementation of operating room services. One of the challenges that often arise is the delay in the implementation of operations. This delay can occur due to various factors, both medical, technical, and administrative. Behind each case of delays there are subjective experiences from health workers, patients, and patients' families that can affect their perception of the quality and effectiveness of services. This perception is important to understand more deeply because it can be a reflection of the system that runs as well as the basis for policy-making that is oriented to real needs in the field (Amurwani & Rofi'i, 2018; Sianipar & Besral, 2024).

Various factors can indeed contribute to the delay of surgeries in hospitals, and this problem is not only related to the technical aspect, but also involves the complexity of the service system as a whole. The factors causing delays can be categorized into two large groups, namely internal factors and external factors of the hospital. Internal factors include limited or suboptimal availability of operating rooms, such as having only one or two active operating rooms, or damage to facilities such as operating lights and ventilation systems. In addition, the availability of postoperative recovery rooms or ICU rooms is also very decisive, because if there is no place for patient recovery, then surgical procedures often have to be postponed. This shows the importance of coordination between surgical units, ICUs, and hospital bed management (Immanuel & Dhamanti, 2024; Nasrulloh et al., 2024; Sianipar & Besral, 2024).

Research on the factors that affect the delay in surgery at Tabanan Hospital and the hospital management strategy in minimizing surgery delays at Tabanan Hospital has never been carried out. This research is expected to provide a comprehensive picture of the situation that occurs in the field. The results of this research can later be the basis for policy making and improvement of the surgery management system in hospitals. In addition, the research findings can also be a reference for other health institutions in dealing with similar problems, thereby contributing to improving the quality of health services more broadly.

2. METHODS

This study uses a qualitative approach with a case study design combined with a phenomenological approach. This approach was chosen to explore in depth the phenomenon of postponement of operations in the operating room of Tabanan Hospital, as well as to understand the subjective experience of medical personnel and hospital management in dealing with this problem. The case study design allowed researchers to explore various factors that affect surgical delays in one hospital system in a complete and in-depth manner. Meanwhile, the phenomenological approach is used to understand the meaning that participants give to the situations they experience directly in the scope of their work.

Data collection was carried out through in-depth interviews, direct observation, and document studies. Interviews are conducted in a semi-structured manner to surgeons, anesthesiologists, nurses, hospital management, administrative staff, patients, and patients' families. Observation is carried out naturally to observe the process of preparation and implementation of operations, team coordination, and technical and administrative obstacles. Document analysis was carried out on the hospital's internal reports, surgery scheduling policies, and related standard operating procedures (SOPs). The data obtained from these three methods were analyzed triangulatively to improve the validity and reliability of the findings.

Data were analyzed using thematic analysis techniques that included data reduction processes, data categorization and coding, pattern mapping, and conclusion drawn. Interview data is transcribed and coded to identify key themes such as factors causing delays, hospital management strategies, and implementation challenges. Data reduction is carried out to filter relevant information, then a mapping of the relationship patterns between variables is carried out to understand the dynamics that occur. The findings of this study are then synthesized and compared with relevant theories, such as health service

management theory and service quality theory, to produce recommendations that are applicable to Tabanan Hospital and other hospitals with similar problems.

3. FINDINGS AND DISCUSSION

Evaluation of Hospital Management Based on Medical Conditions in Minimizing Surgery Delays at Tabanan Hospital

Medical factors that often cause delays in surgery at Tabanan Hospital are unstable blood pressure, uncontrolled blood sugar levels, electrolyte imbalances, anemia, and unresolved infections. In the study of Amurwani et al., medical factors were the most frequent cause of delays in elective surgery at the Semarang Government Hospital, more specifically, the most frequent were acute changes in cardiovascular and respiratory function, followed by infection, fever, and impaired liver and kidney function (Amurwani & Rofi'i, 2018). In a study at Ayub Teaching Hospital, the most elective surgery delay due to medical factors was 36% (Perry & Potter, 2005). In a study at Fatmawati Hospital Jakarta, medical factors were the second most frequent cause of delays in elective surgery after logistic and administrative factors. The medical factors that caused the delay in surgery in the study were patients with fever, low Hb, low platelets, ECG arrhythmias, high lung pressure, increased intraocular pressure, and increased urea creatinine (Cyanipar & Besral, 2024).

Hospital management strategies in dealing with medical factors to minimize delays in operations at Tabanan Hospital must be carried out in a structured manner and based on clear protocols. One of the key steps is to closely monitor the patient's medical condition before surgery, especially in terms of blood pressure, blood sugar levels, electrolyte balance, and the presence of active infections. Patients with hypertension or hypotension should get appropriate treatment before surgery to avoid complications during surgical procedures. The same goes for diabetic patients, who need strict control of blood sugar levels to reduce the risk of infection and speed up postoperative recovery. Electrolyte imbalances and anemia also need to be corrected immediately to ensure the patient is in a stable condition before entering the operating room.

If laboratory results show abnormalities, quick action should be taken by conducting a re-evaluation and necessary medical interventions. For example, patients with low hemoglobin levels need to get blood transfusions as soon as possible so as not to experience complications during anesthesia and during surgery. The administration of electrolytes and intravenous fluids should also be adapted to the patient's condition to achieve optimal balance. Therefore, effective coordination between medical teams is a key factor in ensuring that surgeries can run as scheduled.

The role of communication between nurses and anesthesiologists is also very important in accelerating the process of correcting the patient's medical condition. If the nurse finds abnormal laboratory results, they should inform the anesthesiologist immediately, so that the intervention can be carried out quickly and the patient does not have to wait long for his condition to improve. Hospitals can implement a digital-based notification system or pre-operative checklist, which allows medical personnel to get real-time information on the patient's status and medical correction needs before surgery begins.

In addition, to ensure patient readiness, collaboration between surgeons, anesthesiologists, internal medicine specialists, and nurses should be enhanced. The medical team should conduct a comprehensive pre-operative evaluation, either through physical or laboratory examinations, to identify risk factors that may cause delays. If medical problems are found that have the potential to delay surgery, intervention measures should be implemented immediately by involving the relevant specialists. With this strategy, surgical delays due to medical factors can be minimized, so that the efficiency of surgical services is increased and patient safety is maintained.

Evaluation of Hospital Management Based on Logistical and Administrative Conditions Factors in Minimizing Operational Delays at Tabanan Hospital

Logistical and administrative factors that caused the delay in surgery at Tabanan Hospital were technical obstacles in the operating room due to non-functioning operating room lights and roof leaks in one of the operating rooms. Research at Fatmawati Hospital Jakarta reported that logistical and administrative factors were the most frequent causes of surgical delays, with details of 26 surgeries being late due to insufficient time and 1 late surgery due to inability to get an ICU (Sianipar & Besral, 2024). In a study at Sanglah Hospital, the main cause of postponement of surgery was bedlock because the operating room was still in use or there was emergency surgery, as well as incomplete surgical equipment (Rusdi & Sjaaf, 2023). In a study at the Semarang Government Hospital, logistical and administrative factors were the second most frequent cause of surgery delays after medical factors, namely lack of operating time in 5 cases, lack of ICU in 5 cases, and lack of equipment in 1 case (Amurwani & Rofi'i, 2018)

Delays in operations due to logistical and administrative factors can be minimized through several strategies that focus on optimizing operating schedules, increasing ICU capacity, and coordinating medical and administrative teams. To address delays due to insufficient operating time, hospitals need to implement a digital-based scheduling system that more accurately calculates the duration of operations and provides buffer time between procedures to anticipate possible delays. In addition, real-time monitoring of the implementation of operations can help adjust the schedule in case of problems.

Regarding ICU limitations, hospitals can plan ICU needs early, provide alternative treatment rooms such as High Dependency Units (HDUs) or Intermediate Care Units (IMCU) for patients who need intensive monitoring, and optimize patient discharge from ICU to regular wards so that ICU capacity remains available. Better coordination between the medical team and the administration is also very important, for example through daily coordination meetings between surgeons, anesthesiologists, nurses, and administrative staff to ensure the readiness of patients and facilities before surgery begins. In addition, the pre-operative patient check-in system must be stricter so that patients are fully prepared when entering the operating room, and the allocation of postoperative beds must be well managed to prevent delays due to limited treatment rooms. Finally, hospitals also need to improve the maintenance of medical infrastructure and equipment, by conducting periodic audits to ensure that operating rooms are always in optimal condition and do not hinder surgical procedures. With these strategies, operational delays due to logistical and administrative constraints can be reduced, so that surgical services become more efficient and effective.

To overcome bedlock, hospitals can implement a digital-based surgery scheduling system that allows real-time monitoring of operating room availability and ongoing procedure duration. With this system, elective surgery schedules can be adjusted more flexibly to reduce queues due to emergency surgeries. Additionally, hospitals can increase the number of active operating rooms by optimizing the use of available space or considering expanding surgical facilities to accommodate surge in cases. In terms of priority management of operations, hospitals need to develop clearer surgery triage protocols, so that non-urgent elective surgeries can be rescheduled immediately without incurring prolonged backlogs. Additionally, the medical team must have an effective communication system in place to ensure that any changes to the surgery schedule are promptly informed to the patient and the surgical team involved.

Regarding the incompleteness of surgical instruments, hospitals should have a stricter medical equipment inventory system, including the use of a digital-based stock monitoring system that provides early warning if any equipment is close to the minimum availability limit. The procurement of medical equipment also needs to be well planned, by ensuring that there is a reserve fund for the purchase of much-needed equipment. In addition, regular maintenance of surgical equipment should be performed at regular intervals to prevent technical glitches that may cause delays in operations.

Evaluation of Hospital Management Based on Patient Factors in Minimizing Surgery Delays at Tabanan Hospital

The patient factor is one of the important factors in the delay of surgery. Patients at Tabanan Hospital felt that their surgery was delayed because they were only asked to come in the morning but were not informed since the beginning of the operating hours. Research at Semarang Government Hospital reported that patient factors were comparable to logistical and administrative factors in causing surgery delays, namely due to patients refusing surgery after approval in 8 cases and incomplete payment guarantees in 3 cases (Amurwani & Rofi'i, 2018). In a study at the Fatmawati Central General Hospital, the surgery was delayed because the patient was late at noon, the patient was still taking blood thinners, and the patient had not done a re-MRI (Sianipar & Besral, 2024). According to Nasrulloh, the patient factor is a factor that is significantly related to the delay in surgery at the Central Surgical Installation of Banyumas Hospital (Nasrulloh et al., 2024)

To minimize surgical delays due to patient factors, a strategy is needed that focuses on improving communication, patient education, and optimizing administrative processes and pre-operative preparation. Information system technology can be used to improve hospital performance (Nuramalia et al., 2023). At Tabanan Hospital, the delay occurred because patients were only asked to come in the morning without clear information about their operating hours. This can be overcome by providing a more transparent estimate of the operating schedule, both through direct communication from medical personnel and digital-based notification systems such as SMS or hospital applications. Additionally, hospitals can implement a pre-operative check-in system, where patients are given more specific time slots to avoid confusion and anxiety due to schedule uncertainty.

To address the refusal of surgery after approval and completeness of the payment guarantee, the hospital needs to implement more comprehensive pre-operative counseling, so that patients understand the risks and benefits of surgery and do not change their mind suddenly. In addition, the hospital administration must ensure that the completeness of the payment guarantee or other documents is verified in advance, before the patient is scheduled for surgery, to prevent last-minute administrative delays. To deal with patients coming in late at noon, still taking blood thinners, or not having undergone a re-MRI, hospitals need to implement stricter surgical preparation protocols, by providing written instructions and periodic reminders to patients regarding the arrival schedule, restrictions on food or medication before surgery, as well as the completeness of supporting examinations such as MRI or laboratory. Additionally, the implementation of a patient readiness verification system the day before surgery by the medical team can help ensure that the patient is fully prepared according to the protocol before entering the operating room.

Hospital Management Evaluation Based on Medical Team Factors in Minimizing Surgery Delays at Tabanan Hospital

The factors of the medical team that caused the delay in surgery at Tabanan Hospital were the lack of commitment of doctors regarding the time of surgery, the lack of a nursing team, and there were more emergency measures that delayed elective surgery. According to Nasrulloh, the medical team factor is the factor that is most strongly related to the delay in surgery at the Central Surgical Installation of Banyumas Hospital compared to other factors such as patient factors, facility factors, and administrative factors (Nasrulloh et al., 2024). In the study conducted at Fatmawati Hospital Jakarta for the January-March 2023 period, there have been no surgeries that have experienced delays caused by the medical team (Sianipar & Besral, 2024). According to research by Susanti at Al-Ihsan Hospital, the factor that affects the delay in surgery is the number of medical personnel (Susanti et al., 2020).

To minimize surgical delays due to medical team factors, a strategy is needed that focuses on increasing physician commitment, optimizing the number of nurses, and better management of surgery priorities. At Tabanan Hospital, the lack of commitment of doctors to the time of surgery is one of the main causes of delays. To overcome this, hospitals need to implement a system of monitoring and evaluation of doctors' compliance with the surgery schedule, including providing incentives for doctors

who are on time and sanctions for those who are often late for no apparent reason (Rinawati, 2010). Additionally, more structured and digital-based surgery scheduling can help ensure doctors are present on time. In addition, the shortage of nurses in the operating room is also a factor that slows down the course of surgical procedures. Hospitals can increase the number of nurses on duty in the operating room, either through hiring additional personnel or by optimizing the shift system so that the number of nurses is always sufficient during surgery. Training and competency improvement of surgical nurses can also be done to ensure that all procedures can run more efficiently. Research by Andriani states that competency training for employees can affect employee job satisfaction which can later increase their performance efficiency (Andriani, 2018)

Delays in elective surgeries due to more emergency medical procedures cannot be completely avoided, but can be minimized with better management of surgical priorities. Hospitals can implement clearer surgical triage protocols, so that high-risk elective surgeries can still be prioritized under certain conditions. In addition, better communication between the medical team and the patient is essential so that patients who are experiencing delays in elective surgery can understand the reason for the delay and not feel neglected.

4. CONCLUSION

Based on the results of the study, it can be concluded that the delay in surgery at Tabanan Hospital is influenced by four main factors, namely the patient's medical condition, logistics and administration, patients, and medical team, which have been responded to with various strategies by the hospital management. To minimize delays, it is recommended that hospitals apply multidisciplinary approaches and information technology in monitoring medical conditions and scheduling surgeries, improving infrastructure facilities regularly, improving communication with patients through digital media, and strengthening the commitment of the medical team with a reward and punishment system. In addition, periodic evaluations of the causes of delays and comparative studies with other hospitals are necessary for the development of more effective surgical management policies, while educational and research institutions are expected to play an active role in supporting the development of systems and further studies related to the effectiveness of hospital surgical services.

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