

Reasons Contributing To Delay In Orthopaedic Surgery Procedures At A Tertiary Hospital In North-Western Nigeria

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Abstract

Background: Orthopaedic cases are commonly associated with high financial demands, especially when implants are involved in patients' management. This, together with other reasons, can lead to delays in operation. This study aims to determine the reasons contributing to the delay in operating on orthopaedic patients.

Materials & Methods: This was a retrospective study conducted at Usmanu Danfodiyo University Teaching Hospital from August 2025 to March 2026. The inclusion criteria were patients of any age, undergoing orthopaedic procedures on an emergency or elective basis. Information extracted included demographics; the date and time of admission and surgery; the interval between admission and surgery; reasons for delays in obtaining investigation results; consent; payment for surgery; theatre logistics; surgeons' and anaesthesia reviews; and the presence of other surgical emergencies. Delay in surgery was defined as operation more than 48 hours after admission. Data was analysed using SPSS version 20.0

Results: There were a total of 169 patients with a mean age of 43 years (range 7-84), and an SD of ± 20.7 years. There were 125 (74%) males and 44 (26%) females. Those without delay in surgery were 122 (72.2%) while those with delay in surgery were 47 (27.8%), and were due to delay in payment for surgery in 23 (13.6%), investigation results in 11 (6.5%), failure to consent for surgery in 5 (3.0%), presence of other emergencies in 3 (1.8%), anaesthesia review in 2 (1.8%), theatre logistics in 2 (1.8%), and surgeons' review in 1 (0.6%). Implant and prosthesis-related procedures contributed most in delay for surgery, 39 (23%), followed by amputation, 5 (3.0%), and then other non-implant procedures, 3 (1.8%).

Conclusion: The study shows majority of patients had an operation within the scheduled time, with the delay in surgery largely due to financial factors and delays in getting the investigation results.

Keywords: Delay in surgery, orthopaedic surgery, delay in payment, tertiary hospital

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I. Introduction

Surgical procedures are accompanied with many logistics and strict protocol to ensure standards are maintained for service efficiency and successful outcomes in operated patients [1]. Such protocols may lead to unnecessary delays in operations, especially in a compromised situation where patients and system factors may dictate the timing of surgery [2]. There is still a debate on whether operating certain fracture cases within 24 hours make a significant difference from 48 hours. Most literature, however, favours within 48 hours for most fracture cases [3]. Factors that may lead to delay in operation include payment for Surgery, Investigation results, Failure to consent for surgery, presence of other emergencies, anaesthesia review, theatre logistics, and surgeon's review among others. It is critical to assess these factors to provide necessary measures for effective service to patients and overall satisfaction. Okeke CJ et al reported 99.3% delay to start operation after with a mean delay of 151 minutes to start of surgery [4].

Orthopaedic cases are commonly associated with high financial demands, especially when implants are involved in patients' management [5]. Delays are expected in financially constrained patients due to high cost and use of out-of-pocket payments [6]. So far, there has not been a study that elaborately determined the common causes of delay in operating on patients for orthopaedic and trauma procedures, especially in developing countries. Many studies focused more on delay in treating hip fractures in the elderly [7].

This study aims to determine the prevalence and factors contributing to delays in operating patients for orthopaedic surgical procedures in our centre.

II. Patients And Methods

The study was conducted at Usmanu Danfodiyo University Teaching Hospital from August 2025 to March 2026. Ethical approval was obtained before the study commenced with Ref. No. UDUTH/HREC/2025/1491/V2. The inclusion criteria were patients of any age who was admitted for operation either on an emergency or elective basis. Patients who were on admission without undergoing any surgical procedure, cancelled operations, multidisciplinary patients, repeated operations and incomplete data were excluded. Twenty-three patients out of the total patients collected were excluded because they did not meet the study criteria. Data collection was via a questionnaire that collected patients' information from the file record and directly from the patient. Information extracted included demographic, date and time of admission, date and time of surgery, interval between admission and surgery, time taken before surgery to obtain investigation results, consent, payment for surgery, theatre logistics, surgeons and anaesthesia reviews, and whether the presence of other surgical emergencies caused interference with the operation time. Additionally, information on the type of orthopaedic procedure done to patients was taken. These include implant procedure for fracture fixation, spine and arthroplasty procedures, amputation and other non-implant use procedures such as biopsy, implant removal, sequestrectomy, debridement, various soft tissue releases, stump refashioning, and arthrotomy & wash out. Delay in surgery was set at more than 48 hours after admission for operation in both elective and emergency cases. Data were analysed using SPSS version 20.0. Frequency and percentage were computed for categorical observations, while Mean and standard deviation (SD) were estimated for age. Where necessary, the Chi-square test was applied to compare outcome variables. The significance level was set at $p < 0.05$.

III. Results

There were a total of 169 patients with a mean age of 43 years (range 7-84), and an SD of ± 20.7 years. There were 125 (74%) males and 44 (26%) females. Those without delay in surgery were 122 (72.2%) while those with delay in surgery were 47 (27.8%), and were due to delay in payment for surgery in 23 (13.6%), investigation results in 11 (6.5%), failure to consent for surgery in 5 (3.0%), presence of other emergencies in 3 (1.8%), anaesthesia review in 2 (1.8%), theatre logistics in 2 (1.8%), and surgeons' review in 1 (0.6%). Implant and prosthesis-related procedures contributed most in delay for surgery, 39 (23%), followed by amputation 5 (3.0%), and then other non-implant procedures, 3 (1.8%). The findings are summarized in Tables 1, 2 and Figure 1.

Table 1: Key study variables (n=169)

S/N	Variables	Frequency (%)
1	Mean Age 43 (years) Standard Deviation ± 20.7 (years)	
2	Sex Male Female	125 (74.0) 44 (26.0)
3	Not Delayed (<48hrs)	122 (72.2)
4	Delayed (>48hrs)	47 (27.8)

Table 2: Factors leading to delay in operation (n=47)

S/N	Factors	Frequency (%)
1	Payment for Surgery	23 (48.9)
2	Investigation results	11 (23.4)
3	Failure to early consent	5 (10.6)
4	Presence of other emergencies	3 (6.4)
5	Anaesthesia review	2 (4.2)
6	Theatre logistics	2 (4.2)
7	Surgeons' revenue	1 (2.1)
	Total	47

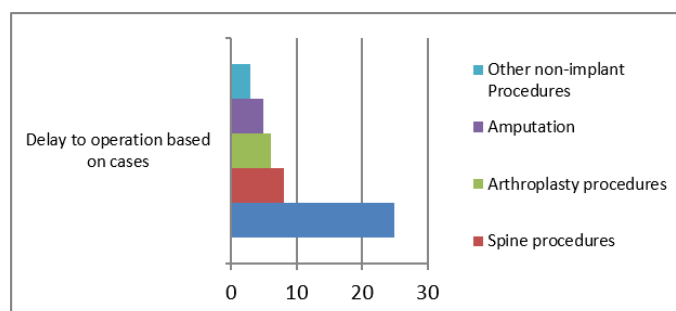


Figure 1: Preoperative delays by cases (n=47)

IV. Discussion

The study shows a 27.8% delay rate, and delay in payment for operations was the main cause of delay in operation. Meanwhile, going by cases operated, Implant and prosthesis-related surgery caused the most delay. The timing in operation delay among the elective and emergency cases was set at 48 hours after admission because the period is enough to give adequate time to prepare and operate patients based on the preoperative assessments, preparation and dealing with other logistics while maintaining standard operating principles and overall patient safety. This timing has been consistent with most studies related to delay before operating patients [3]. A similar study by Ravary AS et al stated that a delay rate of 6.3% after 48 hours was mainly due to limited theatre staff and use of anticoagulants [8]. Another study determined the incidence and root causes of surgery cancellation in surgical patients with a cancellation rate of 6.3% [9]. The findings included cancellation of surgery due to patients not being suitable for the procedure, not following instructions, lack of time, equipment supplies problems and refusal to consent for surgery.

Orthopaedic and trauma procedures often involve use of expensive implants, prosthesis and minimally invasive technologies that are capital-intensive for both the healthcare institution and the patients [10]. This can cause delay in settings where out-of-pocket payment is common and use of health insurance is not fully utilised [11]. With use of health insurance, the healthcare cost burden on the patient may reduce but not completely because not all implants and prosthesis procedures are fully covered by the health insurance [12]. Hence, this can lead to unnecessary delay in payment and operation, especially in less financially privileged patients, as they have to take time to mobilise fund for the expensive procedures. The impact is more in emergency cases, although the federal government of Nigeria has drastically altered the effects of delay in this emergency group as a result of the provision of free trauma emergency treatment for the first 48 hours of admission in various tertiary health institutions, including our centre [13]. Although despite availability of this free emergency intervention, other non-financial causes of delay still occur as highlighted previously. Failure to carry out investigations or retrieve investigation results may be financially related. This delay also causes delay in review by both the surgeons and anaesthetic for patients' readiness and fitness assessment to surgery. Presence of other life threatening emergencies especially in the obstetrics service in the presence of low theatre and anaesthesia workforce may force delay in operating elective orthopaedic cases. Denis A. et al reported that more than 85% of the cancellations and delays were due to prioritization of more urgent orthopaedic or non-orthopaedic surgical cases [14].

Delay in both surgeons' and anaesthesiologists review are not common unless a few instances of communication gaps arise, especially when the payment for surgery and investigations is not made on time, and the practitioners are not promptly informed at the time of their availability. Manpower scarcity can contribute to delay in this category, as mass health workers' exodus has been experienced in recent years [15]. A study by Shemila Abbas et al. to determine the anaesthetic and non-anaesthetic factors in delaying operation among the elderly patients with hip fractures revealed that both factors contributed to delays were avoidable and were mainly due to systemic factors [16].

Obtaining timely consent from patients for amputation can delay or postpone surgery because of the hard-to-accept mentality of losing a limb through amputation. In our environment and in many other clinical settings, this has caused significant delay in operation because of the high number of cases requiring amputation for diabetic foot ulcer, peripheral vascular occlusive disease, severe crushing limb trauma and complications of traditional bone setters [17].

Study Limitation

The study has a low sample size and did not consider some non-preventable factors such as multidisciplinary team management as a cause of delay and use preoperative anticoagulants or other preoperative medication for patients optimisation in some selected cases. Use of inferential statistics makes the study findings more valid.

V. Conclusion

The study shows majority of patients had an operation within the scheduled time, with the delay rate of 27.8% in orthopaedic procedures largely due to delay in payment for implants and delay in getting the investigation results. Robust health insurance utilisation and orthopaedic implants subsidy can enhance efficiency in orthopaedic surgery services.

Conflict of Interest

The author declares no conflict of interest

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