



## COMMON FACTORS OF SURGICAL DELAYS IN THE SURGICAL ENVIRONMENT AT A FEDERAL TEACHING HOSPITAL IN THE SOUTHWESTERN NIGERIA

Adetunji Oluseye Adetayo\*, Ayedebinu Abiodun O., Bifarin M. Titilope  
and Oguntoye Oluwaseun

Main Theatre, Clinical Nursing Services, Obafemi Awolowo University Teaching Hospitals Complex, Ile-Ife Osun State, Nigeria.

\*Corresponding Email: [tunjioluseye4ever@yahoo.com](mailto:tunjioluseye4ever@yahoo.com), [adetunji.oluseye@oauthc.com](mailto:adetunji.oluseye@oauthc.com)

\*Corresponding Phone Number: +2348063239911/+2349058929811

### Cite this article:

Adetunji O.A., Ayedebinu A.O., Bifarin M.T., Oguntoye O. (2022), Common Factors of Surgical Delays in the Surgical Environment at a Federal Teaching Hospital in the Southwestern Nigeria. African Journal of Health, Nursing and Midwifery 5(3), 111-120. DOI: 10.52589/AJHNM\_OBQCLXIC

### Manuscript History

Received: 25 May 2022

Accepted: 24 June 2022

Published: 9 July 2022

**Copyright** © 2022 The Author(s). This is an Open Access article distributed under the terms of Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International (CC BY-NC-ND 4.0), which permits anyone to share, use, reproduce and redistribute in any medium, provided the original author and source are credited.

**ABSTRACT:** *Surgery is a cost-effective and core component of universal health coverage. Surgical delay is considered to be one of the most upsetting problems affecting patient satisfaction, and it is considered an important challenging issue at most public hospitals as the length of time a patient has to wait after being booked in and registered on the waiting list until the surgery is finally done. The study was a descriptive survey using the quantitative method conducted on Surgical Delays and Associated Factors on Surgical Outcomes among Surgical Teams at Obafemi Awolowo University Teaching Hospitals Complex, Ife Hospital Unit, Ile-Ife, Osun State, Nigeria. Questionnaires and observation checklists were designed as tools to collect the data about surgical delays and associated factors among surgical teams. A total of two hundred and seventy (270) questionnaires were distributed and administered. The data collected were filled and entered into the computer using freeware data entry and validation program known as Epidata 3.0. The finding revealed that the common factors affecting surgical delays among surgical teams include communication gap [Relative Importance Index (RII) = 0.55], clinical instability of the patient (RII = 0.53), non-availability of an operating space (RII = 0.52), and infrastructure problems (RII = 0.52). Communication gap between the surgical team members is the common factor that leads to surgical delays in the health facility. Establishment of perioperative guidelines and protocols as well as review and reinforcement of existing ones are needed to eliminate the attitudinal and systemic causes of surgical delays.*

**KEYWORDS:** Surgery, Surgical Delays, Surgical Outcome, Perioperative Team Members.



## INTRODUCTION

Delivering care equally and efficiently with high quality is a challenge, especially in the developing countries. One of the areas affected by these challenges is surgery. Surgical interventions have been reported to account for 60% to 70% of all hospital admissions (Costa, Leão, Novais, & Zucchi, 2015) accruing more than 40% of the total expenses of a hospital (Guerriero & Guido, 2011).

Surgical delay is considered to be one of the most upsetting problems affecting patient satisfaction, and it is considered an important challenging issue at most public hospitals as it is the length of time a patient has to wait after being booked in and registered on the waiting list until the surgery is finally done (Amani & Omar, 2017). In African countries, there are known barriers to the provision of safe surgical treatment including low hospital procedural volumes (Rose, Weiser, Hider, Wilson, Gruen, & Bickler, 2015), few hospital beds (Global Patient Outcomes After Elective Surgery: Prospective Cohort Study in 27 Low-, Middle- and High-Income Countries, 2016) and a scarce number of operating theatres, all of which are compounded by the geographical remoteness of many surgical hospitals and an absence of adequately trained staff (Griffiths, Jones, & Bottle, 2013). Caribbean Island, Barbados and Jonnalagadda (2005) identified a number of administrative and infrastructural hindrances to the timely performance of elective surgical procedures. The majority of cancellations of elective surgical interventions were due to a shortage of beds, nurses, and recurrent supplies like linen. Chalya et al. (2011) in a comparable setting identified delays in surgical interventions in 81.4% of their series of 3, 064 patients which were due to a lack of operation theatre space and facilities.

According to Harders, Malangoni, Weight, and Sidhu (2006), delays in delivery of care can cause negative financial impact on an organization as well as dissatisfaction among patients and health care workers.

## METHODOLOGY

**Research Design:** This study adopted a descriptive survey using quantitative study.

**Population:** Perioperative team members (Surgeons, anaesthetists, perioperative nurses, and surgical ward nurses) working at OAUTHC, Ile-Ife including nurses working in the surgical wards were the study population.

The study was conducted at Ife Hospital Unit of Obafemi Awolowo University Teaching Hospital Complex (OAUTHC), Ile-Ife, Osun State between August 2020 and September 2020. OAUTHC is one of the Federal Tertiary health institutions in Nigeria. It serves as a referral center for other hospitals in the neighboring states in southwestern Nigeria. The institution is well equipped with new technological structures and highly experienced man-power, including specialized nurses in different fields of care.



**Sample Size and Sampling Technique:** The sample size was determined using Fisher's formula and 260 perioperative team members were selected using purposive sampling method.

**Instrumentation:** Questionnaires and an observation checklist were designed as tools to collect the data about surgical delays and associated factors among surgical teams.

A pilot study was conducted and 30 copies of the questionnaire were distributed to respondents. The result of the pilot study shows that the reliability of the instrument for measuring factors of surgical delays variable is 0.86, while effects of the factors of surgical outcomes is 0.77, and surgical observational checklist of time is 0.83. From the pilot study, none of the subsections has Cronbach's alpha score of less than 70%, which suggests a high level of inter-item consistencies of the research instrument.

**Method of Data Collection:** The respondents consisting of surgeons, anesthetists, perioperative nurses, and surgical ward nurses were selected after consenting to participate in the study. The questionnaire was given to each respondent and collected after filling it.

**Method of Data Analysis:** The researcher examined all the questionnaires for completeness and the observation checklists of time were collated. The data collected were filed and entered into the computer using freeware data entry and validation program known as Epidata 3.0. After relevant data management procedures and data clearing have been done, the data were analyzed using IBM Statistical Package for Social Sciences (SPSS) version 26.0 (SPSS Inc. Chicago, IL). The frequency table of the associated factors of surgical delays and its outcomes on surgical procedures were drawn with their mean and relative importance Index (RII).

**Ethical Considerations:** Approval for the study was obtained from the hospital management research ethical committee. Written informed consent of representative surgical team members were taken. Confidentiality of perioperative team members' identity and any information pertaining to them were kept secret. No consequence was suffered from such withdrawal.



## RESULTS

### Socio-Demographic Data of Study Participants

**Table 1: Socio-Demographic Characteristics**

Parameter	Classification	Frequency	Percentage
<b>Sex</b>	Male	106	40.8
	Female	154	59.2
	<b>Total</b>	<b>260</b>	<b>100.0</b>
<b>Religion</b>	Christianity	235	90.4
	Islam	25	9.6
	<b>Total</b>	<b>260</b>	<b>100.0</b>
<b>Specialization</b>	Theatre Nurse	75	28.8
	Surgeon	62	23.8
	Anesthetist	20	7.7
	Surgical Ward Nurse	103	39.6
	<b>Total</b>	<b>260</b>	<b>100.0</b>
<b>Years of Experience</b>	1–5 years	72	27.7
	6–10 years	85	32.7
	11–15 years	62	23.8
	16 years and above	41	15.8
	<b>Total</b>	<b>260</b>	<b>100.0</b>



Table 1 revealed that out of the total respondents used for this study, 106 respondents (40.8%) were males while 154 respondents (59.2%) were females. The table further revealed that the majority of the respondents (90.4%) were Christians while the rest of the respondents (9.6%) were Muslims. The result also shows that the majority of the respondents (39.6%) involved in the study are surgical ward nurses (103 respondents), 75 respondents (28.8%) of the total respondents are theatre nurses and the rest are surgeons and anaesthetists—23.8% and 7.7% of the total respondents respectively. It was finally gathered from the table that 32.7% among the total respondents have between 6–10 years of working experience, followed by 27.7% of the respondents who have less than 5 years of working experience. 23.8% of the respondents have between 11–15 years of working experience, while 15.8% of the total respondents have beyond 16 years of working experience.

### Perception of Factors of Surgical Delays among Surgical Team

**Table 2: Factors of Surgical Delays**

	Never	Occasionally	Fairly Many Times	Very Often	Always	$\bar{X}$	RII	Ranking
	F (%)	F (%)	F (%)	F (%)	F (%)			
Communication gap	18(6.9)	117(45.0)	55(21.2)	49(18.8)	21(8.1)	2.76	0.55	1st
Clinical instability of the patient	7(2.7)	124(47.7)	86(33.1)	33(12.7)	10(3.8)	2.67	0.53	2nd
Non-availability of an operating space	21(8.1)	137(52.7)	45(17.3)	41(15.8)	16(6.2)	2.59	0.52	3rd
Infrastructure problems	20(7.7)	130(50.0)	52(20.0)	45(17.3)	13(5.0)	2.62	0.52	4th
Delay in shifting patients	43(16.5)	114(43.8)	41(15.8)	41(15.8)	21(8.1)	2.55	0.51	5th
Lack of proper planning	20(7.7)	146(56.2)	56(21.5)	25(9.6)	13(5.0)	2.48	0.50	6th
Lack of team work	39(15.0)	116(44.6)	58(22.3)	34(13.1)	13(5.0)	2.48	0.50	7th



Awaited laboratory	11(4.2)	147(56.5)	72(27.7)	26(10.0)	4(1.5)	2.4 8	0.5 0	8th
Delayed consent to surgery	32(12.3)	155(59.6)	42(16.2)	21(8.1)	10(3.8)	2.3 2	0.4 6	9th
Lack of recurrent theatre supplies like oxygen	19(7.3)	173(66.5)	39(15.0)	27(10.4)	2(0.8)	2.3 1	0.4 6	10th
No ICU beds	51(19.6)	141(54.2)	30(11.5)	31(11.9)	7(2.7)	2.2 4	0.4 5	11th
Failure/lack of equipment	38(14.6)	145(55.8)	54(20.8)	20(7.7)	3(1.2)	2.2 5	0.4 5	12th
Lack of preoperative preparation by the surgical team	49(18.8)	146(56.2)	45(17.3)	17(6.5)	3(1.2)	2.1 5	0.4 3	13th
No blood supply available for transfusion	50(19.2)	159(61.2)	41(15.8)	8(3.1)	2(0.8)	2.0 5	0.4 1	14th
Error in surgical programming/scheduling error	60(23.1)	150(57.7)	33(12.7)	7(2.7)	10(3.8)	2.0 7	0.4 1	15th
Unavailability/limited availability of trained supporting staff	87(33.5)	102(39.2)	44(16.9)	24(9.2)	3(1.2)	2.0 5	0.4 1	16th
Unknown	77(29.6)	141(54.2)	18(6.9)	13(5.0)	11(4.2)	2.0 0	0.4 0	17th
operating theatre dress unavailability	78(30.0)	129(49.6)	35(13.5)	14(5.4)	4(1.5)	1.9 9	0.4 0	18th



Untimely preparation by staff	79(30.4)	151(58.1)	20(7.7)	9(3.5)	1(0.4)	1.8 5	0.3 7	19th
Antihypertensive not given	72(27.7)	156(60.0)	29(11.2)	2(0.8)	1(0.4)	1.8 6	0.3 7	20th
Lack of fasting	84(32.3)	153(58.8)	16(6.2)	4(1.5)	3(1.2)	1.8 0	0.3 6	21st
Surgeon unavailability	113(43.5)	124(47.7)	14(5.4)	6(2.3)	3(1.2)	1.7 0	0.3 4	22nd
<b>Weighted Scores</b>						<b>2.2</b>	<b>0.4</b>	
						<b>4</b>	<b>5</b>	

*Source: Researcher's Field Result*

(N = 260) Key: Never = (1), Occasionally = (2), Fairly Many Times = (3), Very Often = (4), Always = (5),  $\bar{X}$  = Mean, RII = Relative Importance Index

It was indicated that the highest rate admits that the factors of surgical delays among surgical teams was communication gap with RII = 0.55 which was ranked 1st, strictly followed by clinical instability of the patient with RII = 0.53 ranked 2nd. Ranked 3rd was non-availability of an operating space (RII = 0.52); ranked 4th was infrastructure problems with RII = 0.52. Ranked 5th was delay in shifting patients (RII = 0.51). Others among the factors of surgical delay include lack of proper planning (RII = 0.50), lack of team work (RII = 0.50), awaited laboratory (RII = 0.50), delayed consent to surgery (RII = 0.46), lack of recurrent theatre supplies like oxygen (RII = 0.46), lack of ICU beds (RII = 0.45), failure/lack of equipment (RII = 0.45), lack of preoperative preparation by the surgical team (RII = 0.43), lack of blood supply available for transfusion (RII = 0.41), error in surgical programming/scheduling error (RII = 0.41), unavailability/limited availability of trained supporting staff (RII = 0.41), unknown (RII = 0.40), operating theatre dress unavailability (RII = 0.40), untimely preparation by staff (RII = 0.37), antihypertensive not being given (RII = 0.37), and lack of fasting (RII = 0.36). It further shows that surgeon unavailability was ranked last among the factors of surgical delays, with RII = 0.34. Overall, the perception on the factors of surgical delays among surgical teams at Obafemi Awolowo University Teaching Hospital Complex was quite very low, indicating that few among the surgical team was rated below the RII of 0.34 on a 5-point scale.



## DISCUSSION

The finding revealed that the factors affecting surgical delays among surgical teams include communication gap, clinical instability of the patient, non-availability of an operating space and infrastructure problems. The quality and efficiency of surgical procedures and safety are contingent on high quality communication and shared knowledge (Torrington, Gittell & Laursen, 2019). The surgical team member communication ought to be improved upon. This finding was corroborated by Oluwadiya et al. (2012) whose findings revealed that the most common cause of delay was delayed transfer of patients from the wards to the theatre, and this occurred in 104 (33.4%) cases. The time spent in transferring patients from the ward ranged between 18% and 54% of the total time spent from ward to the end of surgery. Most delays were due to poor coordination of patients' movement between the wards and the theatre as well as long distances between the wards and the theatre. The lengthiest stage during a procedure is anesthesia according to Wu, Brovman, Whang, Ehrenfeld and Urman (2016). The initial anaesthetic preparations led to many delays of patients at the reception areas due to the need to get anaesthetic medications for induction of anaesthesia. The identified causes of surgical delays can be associated with bottlenecks in the existing health system essentials as reported by Kierans, Padilla-Altamira, Garcia-Garcia, Ibarra-Hernandez and Mercado (2013), Hsia, Mbembati, Macfarlane and Kruk (2012) and Adamu, Maigatari, Lawal and Iliyasu (2010) in similar studies. These factors must be reduced to their nearest minimum to reduce the aftereffects of their prevalence on the surgical management systems.

## CONCLUSION

There were experiences of surgical delays in the health facility of study. Communication gap between the surgical team members is the common factor that leads to surgical delays in the health facility. Effective teamwork is highly advocated among the surgical team members.

## RECOMMENDATIONS

In view of the result of the study, the following recommendations were made:

1. There should be provision of in-service training for all surgical team members on effective and clinical communication systems. The training should be a comprehensive type with practical sessions to identify possible challenges leading to communication gaps in the perioperative environment.
2. Establishment of perioperative guidelines and protocols as well as review and reinforcement of existing ones are needed to eliminate the attitudinal and systemic causes of surgical delays.
3. There should be dedicated ambulance for the transfer of surgical patients from their admission wards to and from the theatre environments, in a situation where hospital wards are located far from the operating theatres.
- 4.





5. Pre-operative visits of all surgical team members (especially surgeons, anaesthetists and nurses) should be made very compulsory. This will ensure the needed materials and tests are checked before the patients are sent for at the operating theatre. This will also allay the patients' anxiety and skills to cope with the post-operative challenges.

## REFERENCES

- Adamu, A., Maigatari, M., Lawal, K., & Iliyasu, M. (2010). Waiting time for emergency abdominal surgery in Zaria, Nigeria. *Afr Health Sci*, 10(1), 45-53.
- Amani, B., & Omar, A. (2017). Factors Affecting Surgical Delay: A Case Study of One of General Hospital at Jeddah City. *Global Journal of Health Science*, 9(12).
- Chalya, P. L., Gilyoma, J. M., & Mabula, J. B. (2011). Incidence, causes and pattern of cancellation of elective surgical operations in a university teaching hospital in the Lake Zone, Tanzania. *Afr Health Sci*, 11(3), 438-443.
- Costa, A. S., Leão, L. E., Novais, M. A., & Zucchi, P. (2015). An assessment of the quality indicators of operative and non-operative times in a public university hospital. *einstein (São Paulo)*, 13(4), 594-599.
- Griffiths, P., Jones, S., & Bottle, A. (2013). Is "failure to rescue" derived from administrative data in England a nurse sensitive patient safety indicator for surgical care? Observational study. *Int J Nurs Stud*, 50, 292-300.
- Guerriero, F., & Guido, R. (2011). Operational research in the management of the operating theatre: a survey. *Health Care Manag Sci*, 14(1), 89-114.
- Hsia, R. Y., Mbembati, N. A., Macfarlane, S., & Kruk, M. E. (2012). Access to emergency and surgical care in sub-Saharan Africa: the infrastructure gap. *Health Policy Plan*, 27(3), 234-244.
- Jonnalagadda, R., Walrond, E. R., Hariharan, S., Walrond, M., & Prasad, C. (2005). Evaluation of the reasons for cancellations and delays of surgical procedures in a developing country. *Int J Clin Pract*, 59(6), 716-720.
- Oluwadiya, K. S., Osinaike, B. B., Eziyi, A. K., Oyebamiji, E. O., & Kolawole, I. K. (2012). A theatre time utilization survey in a university teaching hospital from a developing country. *Journal of Anesthesia and Clinical Research*. Retrieved from <https://doi.org/10.417>
- Rose, J., Weiser, T. G., Hider, P., Wilson, L., Gruen, R. L., & Bickler, S. W. (2015). Estimated need for surgery worldwide based on prevalence of diseases: a modelling strategy for the WHO Global Health Estimate. *Lancet Glob Health*, 3 (suppl 2), S13-20.



- 
- Torrington, B., Gittell, J. H., & Laursen, M. (2019). Communication and relationship dynamics in surgical teams in the operating room: an ethnographic study. *BMC Health Serv Res*, *19*, 528.
- Wu, A., Brovman, E. Y., Whang, E. E., Ehrenfeld, J. M., & Urman, R. D. (2016). The Impact of Overestimations of Surgical Control Times across Multiple Specialties on Medical Systems. *J Med Syst*, *40*(4), 95.