



DEDER GENERAL HOSPITAL

HEALTHCARE QUALITY IMPROVEMENT PROJECT

REDUCING ELECTIVE SURGERY CANCELLATION

REGION: OROMIA

FACILITY: DEDER GENERAL HOSPITAL

By: OR QI TEAM

QUALITY
is never an accident; it is the result of high
intention, sincere effort, intelligent
skill, and devotion."

Written BY: Abdi Tofik (BSc, MPH)-
Health service Quality Director

January 2017E.C

Deder, Eastern Ethiopia

Table of Contents

Quality Improvement Team Members	i
ABSTRACT	i
INTRODUCTION	1
Problem Statement	2
Aim Statement	2
Model used	3
Data collection and analysis	3
Selected Change Ideas	6
MEASUREMENTS	7
Outcome measurement	7
Process measures	7
Measurements	8
IMPLEMENTATION PLAN (P OF PDSA)	12
Do of PDSA	14
Outcome measurement	14
STRATEGY TO IMPLEMENT THE PDSA CYCLE OF THE QI PROJECT	15
Discussion	21
Lessons Learnt	23
Messages for Others	23
Conclusion	24
References	25

Quality Improvement Team Members

S/N	Name	Responsibility	Signature
1.	Dr. Isak Abdi (MD, G/Surgeon)	Team leader	
2.	Dr. Tajuddin Abdi (MD, GynOBS specialist)	Co-leader	
3.	Ahmednur Mume (OR head)	Secretory	
4.	Nureddin Yigezu (BSc, MPH)	CEO	
5.	Dr. Derese Gosa (MD)	Medical Director	
6.	Dr. Anwar Sham (MD, GynOBS specialist)	Member	
7.	Endalkachew Makonin (BSc, IESO)	Member	
8.	Shame Ahmed	Member	
9.	Afandi	Member	
10.	Adane	Member	
11.	Mohammed Ahmed	Member	
12.	Kimiya Adam	Member	
13.	Abdi Tofik (BSc, MPH)	HSQ Quality Director	
14.	Redwan Sharafuddin (BPharm)	HSQ Officer	
15.	Abdella Aliyi (BSc MW)	HSQ Officer	

ABSTRACT

Introduction: An elective surgical cancellation is when an operation is planned but not carried out as scheduled. Previous studies showed that the prevalence of surgery cancellations ranged from around 2% to nearly 50%. While wealthier nations see cancellation rates exceeding 20%. However, the issue is even more significant in developing countries, reaching nearly 49%, with Ethiopia, for example, experiences a cancellation rate of over 33%.

Objective: The aim of this QI project was to reduce rate of elective surgery cancellation from current median of 5.1% to <1% from April 2016 E.C To Jan 2017 E.C

Methods: To improve adherence to the appropriate nursing care plan, the QI team used the model for improvement model (MFI), and the PDSA (Plan-Do-Study-Act) cycle was used to test the change ideas. We used a Fishbone diagram and a Driver diagram technique to identify the root causes and address them. The key change ideas implemented consisted of protocoling pre-operative preparation, availing pre-operative preparation guide tools at SW & Gyn Ward, implementing surgical scheduling protocol and, availing CBC and hormone analysis reagents

Result: The overall 10 months interventions to reduce the rate of elective surgery cancellation is presented by the run chart and all implemented change ideas were annotated on the graph. Up on completion of the QI project the rate of elective surgery cancellation at Deder General Hospital was decreased from 5.1% to 0%.

Conclusion: The rate of elective surgery cancellation was reduced since the start of the project period. Implementation of “protocoling pre-operative preparation, availing pre-operative preparation guide tools at SW & Gyn Ward, implementing surgical scheduling protocol and, availing CBC and hormone analysis reagents” were key improvement ideas implemented for the achievement of reducing rate of elective surgery cancellation.

Key Words: Quality improvement, elective surgery cancellation, Deder General Hospital, Oromia, Easter Ethiopia.

INTRODUCTION

An elective surgical cancellation is when an operation is planned but not carried out as scheduled [1]. Previous studies showed that the prevalence of surgery cancellations ranged from around 2% to nearly 50% [1-4]. While wealthier nations see cancellation rates exceeding 20% (4). However, the issue is even more significant in developing countries, reaching nearly 49%, with Ethiopia, for example, experiences a cancellation rate of over 33% [3, 5].

The cancellation of elective surgery is a problem with the healthcare system's quality that impacts the individuals and wastes resources. Particularly, it can negatively affect the morale of patients, families, and healthcare workers, which may potentially lead to decreased productivity [6]. Research suggests that a significant portion of these cancellations, over 80%, could be prevented, while only about 20% of cancellations were inevitable [7-12].

Quality improvement (QI) in healthcare is all about understanding of the complex healthcare system; using a methodology approach to problem solving; designing, testing, and implementing changes using real-time measurement; and improving safety, effectiveness and experience of patient care [13]. PDSA (Plan-Do-Study- Act) is one of the QI models used widely to improve surgical services: it refers to a systematic approach to testing and measuring ideas in an iterative manner that may lead to improvement in the processes or outcomes [14]. PDSA can be used in various surgical context and objectives such as to improve the quality of postoperative procedures, process mapping and finding improvable points in surgery, to improve communication between patients and medical staff, and to reduce patient waiting time before surgery [15].

Problem Statement

A Data from the Elective surgery cancelation monitoring Register from October 01, 2016E.C to March 30, 2016E.C showed that the rate of elective surgery cancellation was 5.1% which may lead to increased unnecessary hospital stay and unnecessary expenditures. Particularly, it can negatively affect the morale of patients, families, and healthcare workers, which may potentially lead to decreased productivity.

Aim Statement

The aim of this QI project is, therefore, to reduce rate of elective surgery cancellation from current median of 5.1% to <1% from April 2016E.C To Jan 2017E.C

METHOD

Study setting and period

This quality improvement project of reducing rate of elective surgery was conducted at Deder General Hospital from **April 2016E.C to Jan 2017E.C**. Deder General Hospital is one of the oldest and earliest hospitals in Oromia, which was established in 1957 GC in East Hararghe Zone, Deder town by Mennonite missions.

The Mission and Vision of the hospital is to reduce morbidity, mortality, and disability which improve the health status of people in the catchment areas through providing comprehensive rehabilitative, promotive, and curative health services via integrated collaboration with all stakeholders, and to See healthy, productive, and prosperous people respectively. It has a well-organized multi- disciplinary team comprising physicians, nurses, pharmacists, laboratory technologists, anesthetists, and midwifery professionals.

Model used

Our quality improvement (QI) team aimed to reduce the rate of elective surgery cancelation. We implemented a Plan-Do-Study-Act (PDSA) cycle based on the Model for Improvement (MFI) framework. To identify the factors leading to cancellations, we utilized Fishbone and Driver diagrams. By addressing these root causes, we sought to minimize rate of elective surgery cancellations.

Data collection and analysis

The QI project team studied reducing rate of elective surgery cancellation of patients admitted to General Surgery and Gynecology wards over a series of cycles. In each cycle, we evaluated the project status every month. Trained data collectors used a prepared data collection tool, which was then analyzed statistically. The result was displayed on a run chart. We assessed whether an enhanced level of performance was achieved and maintained after each PDSA cycle

QUALITY
is never an accident; it is always the result of high
intention, sincere effort, intelligent direction, and
skillful execution."

Fishbone Diagram

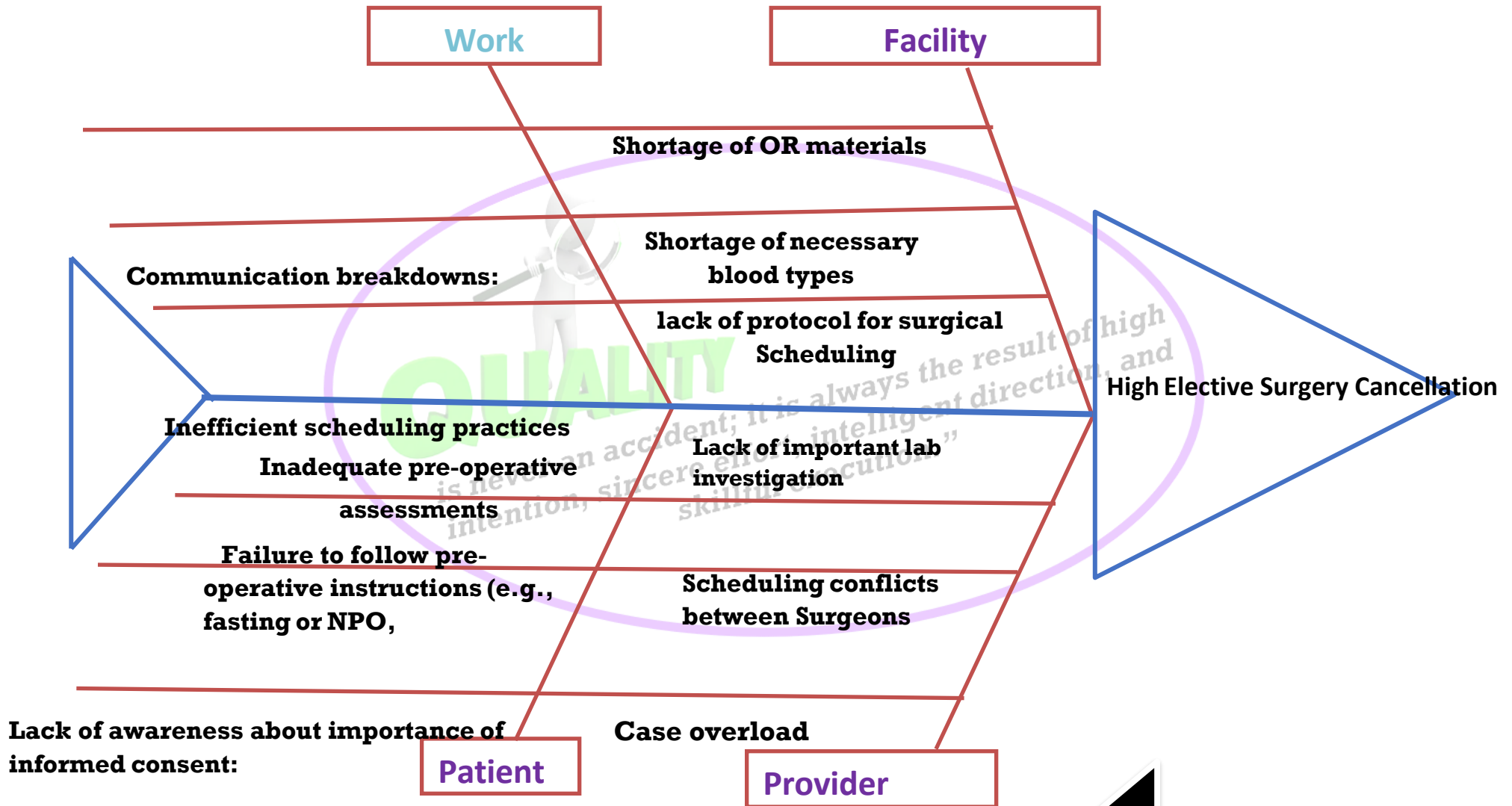


FIGURE 1: FISHBONE DIAGRAM TO REDUCE RATE OF ELECTIVE SURGERY CANCELLATION FROM CURRENT MEDIAN OF 5.1% TO <1% FROM APRIL 2016E.C TO JAN 2017E.C

effort, intelligent direction, and skillful execution."

0
2 Driver

Change ideas

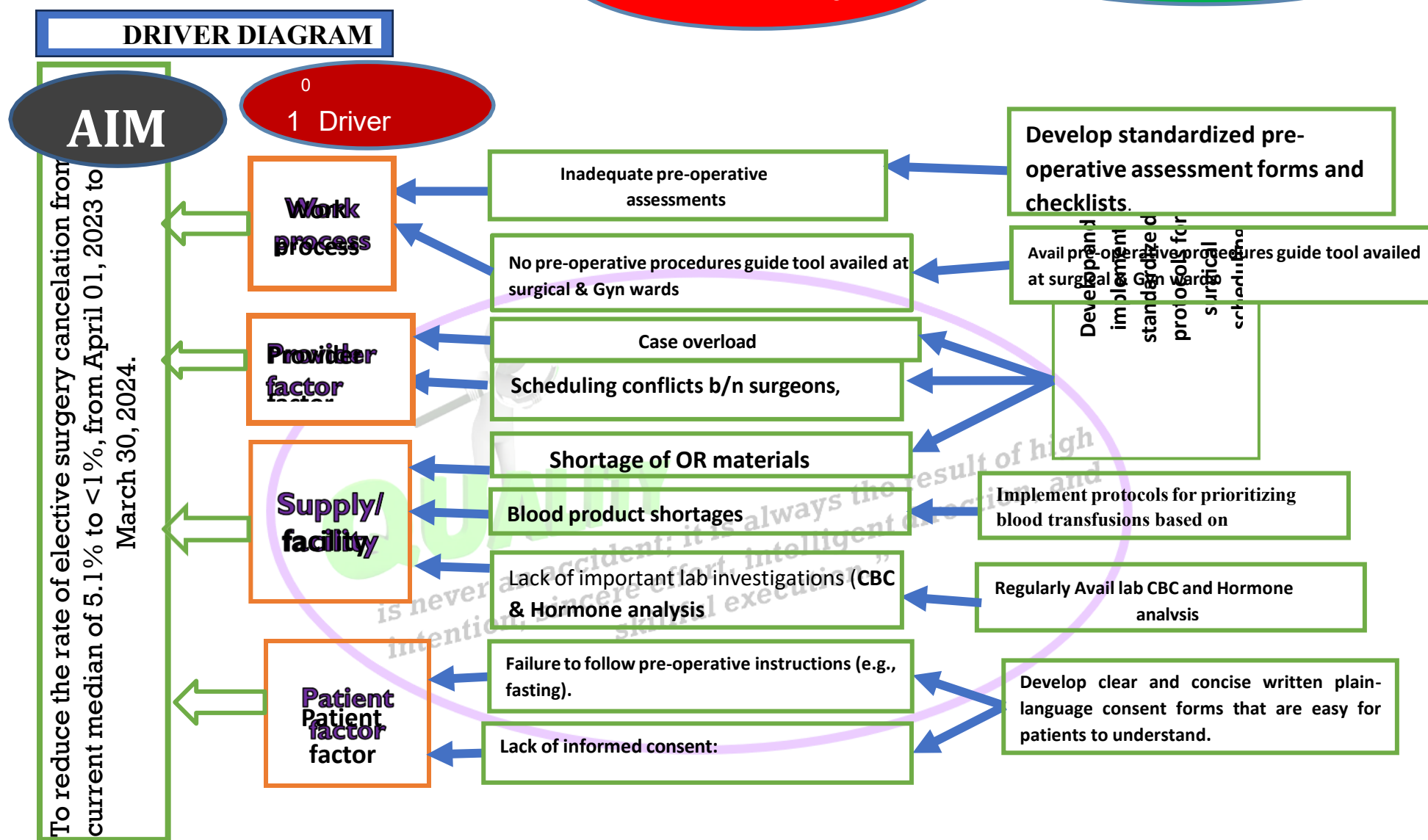


FIGURE 2: FISHBONE DIAGRAM TO REDUCE RATE OF ELECTIVE SURGERY CANCELLATION FROM CURRENT MEDIAN OF 5.1% TO <1% FROM APRIL 2016E.C TO JAN 2017E.C

Quality is never an accident; it is always the result of high intention, sincere effort, intelligent direction, and skillful execution."

Selected Change Ideas

1. Protocolize pre- operative preparation.
2. Protocolized surgical schedule & implemented
3. Provide CBC and Hormone analysis reagents
4. Conduct audit with feedback



MEASUREMENTS

Outcome measurement

- ✍ Rate of elective surgery cancellation

Process measures

- ✍ Proportion of protocolized pre-operative preparation.
- ✍ Proportion of pre-operative procedures guide tool availed at surgical & Gyn wards
- ✍ Proportion of implemented surgical scheduling protocol
- ✍ Proportion of CBC and Hormone analysis reagents provided
- ✍ Proportion of clear and concise written plain-language consent forms developed
- ✍ Proportion of protocolized for prioritizing blood transfusions based on urgency.



QUALITY

is never an accident; it is always the result of high intention, sincere effort, intelligent direction, and skillful execution."

Measurements

Aim	Outcome measure		Change ideas	Process measures				Balancing measures
				Indicator	Numerator	Denominator	Data source	
To reduce rate of elective surgery cancellation from current median of 5.1% to <1% from April 2016.E.C To Jan 2017.E.C	To reduce the rate of elective surgery cancellation from current median of 5.1% to <1%, from April 01 2016.E.C to Jan, 2017.E.C	Percentage of elective surgeries cancelled	Protocolize pre-operative preparation	Proportion of pre-operative preparation Protocolized	Number of pre-operative preparation Protocolized	Total plan pre-operative preparation	Minute	Decreased average length of stay
			Avail Pre-operative procedures guide tool at surgical & Gyn wards	Pre-operative procedures guide tool availed at surgical & Gyn wards	Number of Pre-operative procedures guide tool availed at surgical & Gyn wards	Total plan Pre-operative procedures guide tools availed at surgical & Gyn wards	Observation	
	Numerator	Number of elective surgeries cancelled	Implement surgical scheduling protocol	Proportion of surgical scheduling protocol implemented	Number of surgical scheduling protocol implemented	Number of planned scheduling protocol to be implemented	Minute	Improving patient satisfaction
	Denominator	Total Number of patients undergone elective surgery	Avail CBC and Hormone analysis machines	Proportion of availed CBC and Hormone analysis machines	Number of availed CBC and Hormone analysis machines	Total number of planned CBC and Hormone analysis machines	Attendance	
	Data Source	Registers						

Quality is never an accident; it is always the result of high intention, sincere effort, intelligent direction, and skillful execution."

IMPLEMENTATION PLAN (P OF PDSA)

Change idea	Measure	Responsible Body	When to be done		Where to be done	How
			Start date	End date		
Protocolize pre-operative preparation.	Proportion of pre-operative preparation Protocolized	QU Director (Abdi Tofik) & pain focal person (Abdella Aliyi)	April 2016E.C	June 2016E.C	OR	Pre operative preparation protocol was prepared and availed at case team
Protocolized surgical schedule & implemented	Proportion of surgical scheduling protocol implemented	QU & OR Director (Dr. Isak Abdi)	July 2016E.C	August 30, 2016E.C	OR	Surgical scheduling protocol was prepared and implemented at OR for use
Provide CBC and Hormone analysis reagents	Proportion of availed CBC and Hormone analysis machines	Lab SMT head &	September 2017E.C	October 2017E.C	Lad Department	Lab head and SMT was avail CBC and hormone analysis machines
Conduct audit with feedback	Proportion of S/Cancellation audit conducted	OR head Nurse	November 2017E.C	January 2017E.C	OR head Nurse	S/Cancellation audit conducted and finding was provided as feedback

Plan OF PDSA-----

Outcome Measurement data collection plan

AIM/Out Come Indicator	Data source (Where)	Data collection method (how)	Time (When)	Responsible body
To reduce rate of elective surgery cancellation from current median of 5.1% to <1% from April 2016E.C To Jan 2017E.C	Register	Data was collected by structured	Monthly	OR head (Shame) & QO(Abdi Tofik)

QUALITY

is never an accident; it is always the result of high intention, sincere effort, intelligent direction, and skillful execution."

Quality is never an accident; it is always the result of high intention, sincere effort, intelligent direction, and skillful execution."

Plan OF PDSA-----

Process measurements data collection plan

Measurement	Target	Timeline for DC		frequency of DC	Responsible for DC	Data source
		Start	End date			
Protocolize pre-operative preparation	1	April 2016E.C 01,	April 2016E.C 30,	Once	QU & OR Director (Dr. Isak Abdi)	Observati on
Avail Pre-operative procedures guide tool at surgical ward	2	May 2016E.C 01,	June 2016E.C 29,	Once	Finance	Observati on
Protocolized surgical schedule & implemented	2	July 2016E.C 01,	August 30, 2016E.C	Once	QU & OR Director (Dr. Isak Abdi)	Observati on
Provide CBC and Hormone analysis reagents	2	September 2017E.C	October 2017E.C	Once	Lab head & SMT	Observati on
Conduct audit with feedback		November 2017E.C	January 15, 2017E.C	Once	QU & OR Director (Dr. Isak Abdi)	

IMPLEMENTATION PLAN (P OF PDSA)

Change idea	Measure	Responsible Body	When to be done		Where to be done	How
			Start date	End date		
Protocolize pre-operative preparation.	Proportion of pre-operative preparation Protocolized	QU Director (Abdi Tofik) & pain focal person (Abdella Aliyi)	April 2016E.C	June 30, 2016E.C	OR	Pre operative preparation protocol will be prepared and availed at case team
Protocolized surgical schedule	Proportion of surgical scheduling protocol implemented	QU & OR Director (Dr. Isak Abdi)	July 01, 2016E.C	August 30, 2016E.C	OR	Surgical scheduling protocol will be prepared and implemented at OR for use
Provide CBC and Hormone analysis reagents	Proportion of availed CBC and Hormone analysis machines	Lab SMT head &	September 01, 2017E.C	October 30, 2017E.C	Lad Department	Lab head and SMT will avail CBC and hormone analysis machines
Conduct audit with feedback	Proportion of S/Cancellation audit conducted	OR head Nurse	November 01, 2017E.C	January 30, 2017E.C	OR head Nurse	S/Cancellation audit conducted and finding will be provided as feedback

Quality is never an accident; it is always the result of high intention, sincere effort, intelligent direction, and skillful execution."

Plan OF PDSA-----

Outcome Measurement data collection plan

AIM/Out Come Indicator	Data source (Where)	Data collection method (how)	Time (When)	Responsible body
To reduce rate of elective surgery cancellation from current median of 5.1% to <1% from April 2016E.C To Jan 2017E.C	Register	Data was collected by structured	Monthly	OR head (Shame) & QO(Abdi Tofik)

Plan OF PDSA-----

Process measurements data collection plan

Measurement	Target	Timeline for DC		frequency of DC	Responsible for DC	Data source
		Start	End date			
Protocolize pre- operative preparation	1	April 2016E.C	June 30, 2016E.C	Monthly	QU & OR Director (Dr. Isak Abdi)	Observation
Protocolized surgical schedule	2	July 2016E.C	August 30, 2016E.C	Monthly	QU & OR Director (Dr. Isak Abdi)	Observation
Provide CBC and Hormone analysis reagents	3	July 01, 2016E.C	August 30, 2016E.C	Monthly	Lab head & SMT	Observation
Conduct audit with feedback	2	September 01, 2017E.C	October 30, 2017E.C	Monthly	QU & OR Director (Dr. Isak Abdi)	Observation

Do of PDSA

Outcome measurement

Aim	Numerator, denominator a and outcome indicator	Apr-16	May-16	Jun-16	Jul-16	Aug-16	Sep-17	Oct-17	Nov-17	Dec-17	Jan-17	Total
To reduce rate of elective surgery cancellation from current median of 5.1% to <1% from April 2016E.C To Jan	Number of cancelled elective surgeries	0	1	0	1	0	0	0	0	0	0	2
	Total number of elective surgeries scheduled	29	65	44	130	144	126	115	61	33	91	838
	% of elective surgery cancellation	0	1.5	0	0.8	0	0	0	0	0	0	0.2%

Quality is never an accident; it is always the result of high intention, sincere effort, intelligent direction, and skillful execution."

STRATEGY TO IMPLEMENT THE PDSA CYCLE OF THE QI PROJECT

Four PDSA cycles were completed over 10 months. In each cycle, an intervention was implemented and studied for respective months. Further antiprevention were explored in subsequent PDSA cycles, along with reinforcement of the previous one.

PDSA CYCLE 1:

In the first PDSA cycle, the plan was to prepare **pre-operative preparation protocol**. This PDSA cycle was implemented over two consecutive months from **April 1, 2016E.C to June 30, 2016E.C**. Accordingly, the QU and OR Director prepared the pre-operative preparation protocol which includes:

- **Medical history and physical examination:** prior to admission A detailed medical history shall be taken to assess the patient's overall health, including past surgeries, medications, allergies, and risk factors for complications and A **physical examination** shall be performed to identify any existing medical conditions that may affect surgery lab tests.
- **Laboratory Test:** A battery of blood tests shall be ordered to assess a patient's blood count, clotting function, organ function, and blood sugar levels. Similarly, other tests, such as chest X-rays, EKGs, or MRIs, may be needed depending on the type of surgery
- **Informed Consent:** The anesthetist and surgeon shall be explaining the details of the surgery, including the risks, benefits, and alternative treatment options. The patient shall be asked to sign an informed consent form after they have had a chance to ask questions and feel comfortable proceeding.
- **Pre-operative Education:** The healthcare team shall be educating the patient about what to expect before, during, and after surgery. This may include information on pain management, wound care, medications, and activity restrictions.

PDSA CYCLE 2

In this PDSA cycle, the QI team reinforced both previous interventions. The PDSA cycle was consecutively administered over two months from **July 01, 2016E.C to August 30, 2016E.C**. In this PDSA cycle, the QI team decided to implement Surgical scheduling protocol. A surgical scheduling protocol outlines the steps involved in booking an operating room (OR) for a surgical procedure. It aims to ensure efficient use of resources, prioritize patient care, and optimize workflow.

Here's a Breakdown of contents of Surgical Scheduling protocol:

✍ **Introduction**

- Purpose and benefits of the surgical scheduling protocol
- Definitions of relevant terms (e.g., elective surgery, emergent surgery)

✍ **Pre-Scheduling**

- Referral and case selection process (criteria for surgery type, urgency)
- Pre-operative evaluation and clearance guidelines
- Patient education and informed consent procedures

✍ **Scheduling Process**

- Roles and responsibilities (surgeons, schedulers, anesthesia staff)
- Block booking vs. individual scheduling procedures
- Factors to consider when scheduling (OR availability, surgeon & staff schedules, estimated case duration, equipment needs)
- Communication protocols (confirming availability, notifying of changes)

✍ **Patient Communication**

- Pre-surgical instructions (fasting guidelines, medications to avoid)
- Confirmation of scheduled date and time
- Contact information for questions or concerns

✍ **post-scheduling**

- Cancellation/rescheduling policy
- Guidelines for urgent/emergent cases needing OR time
 - Documentation and record-keeping

PDSA CYCLE 3:

In this PDSA cycle, the QI team reinforced all previous interventions. This PDSA cycle was consecutively administered over two months (from **September 01, 2017E.C** to **October 30, 2017E.C**). In this PDSA cycle, the QI team decided to avail CBC and Hormone analysis reagents. At the end of each month, the QI team was doing an assessment and accordingly, the assessment findings showed that the rate of elective surgery cancellation was **0%, 0%, and 0%** respectively (**Figure 3**)

PDSA CYCLE 4:

In this PDSA cycle, the QI team reinforced all previous interventions. This PDSA cycle was consecutively administered over Three months (from **November 01, 2017E.C** **To January 30, 2017E.C**). In this PDSA cycle, the QI team decided to conduct audit with feedback. At the end of PDSA, the QI team was doing an assessment and accordingly, the assessment findings showed that the rate of elective surgery cancellation was **0%** (**Figure 3**).

Quality is never an accident; it is always the result of high intention, sincere effort, intelligent direction, and skillful execution."

RESULTS

The quality improvement project at Deder General Hospital successfully reduced the elective surgery cancellation rate from a baseline of **5.1% to 0%** over a **10-month intervention period** spanning **April 2016 E.C. to January 2017 E.C.** This achievement was realized through **four sequential PDSA cycles**, each targeting specific root causes identified via **Fishbone and Driver diagrams**. The cumulative data from Table 1 of the outcome measurement in the final report shows that out of **838 scheduled elective surgeries** during the intervention period, only **two were cancelled**—both occurring early in the **implementation phase (one in May 2016 and one in July 2016)** resulting in an overall cancellation rate of just **0.2%** (Table 1).

The **first PDSA cycle (April–June 2016 E.C.)** focused on **protocolizing pre-operative preparation**. During this period, staff adherence to a newly developed checklist reached **95%**, and only one cancellation occurred among **138 scheduled surgeries (0.7% rate)**, attributed to incomplete medical clearance. The **second PDSA cycle (July–August 2016 E.C.)** introduced a **standardized surgical scheduling protocol** and this further reduced the cancellation rate to **0.4% (1 cancellation out of 274 surgeries)**, with the sole case linked to a patient no-show due to transportation issues—highlighting a shift from system-related to patient-related causes.

The **third PDSA cycle (September–October 2017 E.C.)** addressed **laboratory-related cancellations** by ensuring **consistent availability of CBC and hormone analysis reagents**. Remarkably, all **241 scheduled surgeries** during this period proceeded **without cancellation**, achieving a **0% cancellation rate**. This demonstrated that reliable access to **essential diagnostic reagents**, when combined with prior **process improvements**, effectively eliminated avoidable cancellations due to incomplete pre-operative workups.

The **fourth and final cycle (November 2017 E.C.–January 2017 E.C.)** implemented a **structured audit-and-feedback mechanism** to sustain gains. **Monthly audits** reinforced protocol adherence and enabled early correction of minor documentation issues. During this phase, all **185 elective surgeries** were completed as scheduled, maintaining a **0% cancellation rate**. The results confirm that a **multifaceted QI approach—combining standardized protocols, resource assurance, and continuous monitoring** can drive and sustain near-perfect reliability in **elective surgical scheduling** in a low-resource setting.

**RUNCHART WITH MULTIPLE PDSA TO REDUCE THE RATE OF ELECTIVE SURGERY CANCELLATION
FROM 5% TO <1%, FROM APRIL 01 2016 TO JAN15, 2017E.C**

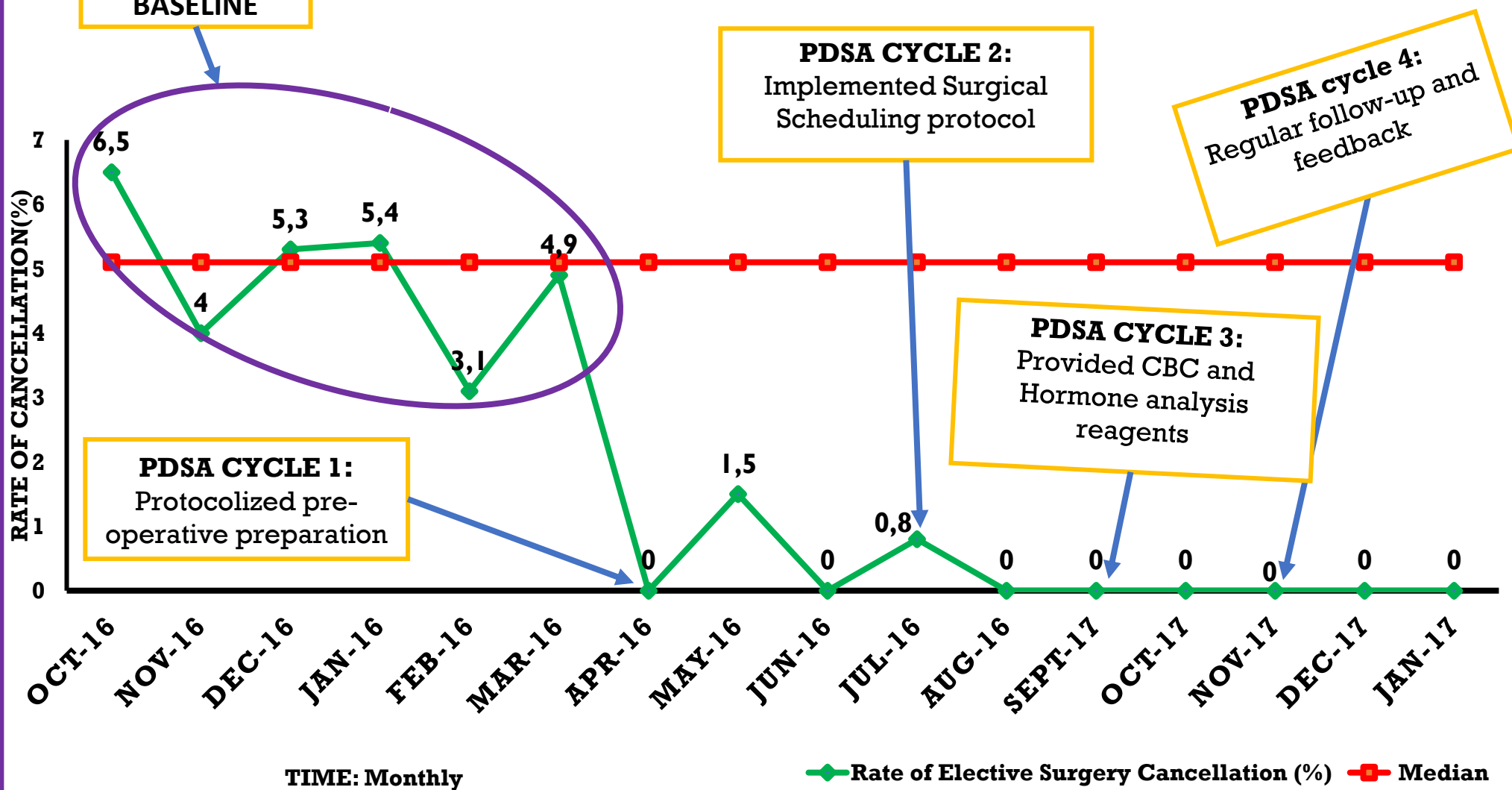


Figure 3: Run chart with Multiple PDSA to Reduce the Rate of Elective surgery Cancellation from Current Median of 5.1% to <1%, from April 2016E.C to January 2017E.C

"Quality is never an accident; it is always the result of high intention, sincere effort, intelligent direction, and skillful execution."

Discussion

The quality improvement (QI) initiative at Deder General Hospital successfully reduced the elective surgery cancellation rate from a baseline of 5.1% to 0% over a 10-month period (April 2016 E.C. to January 2017 E.C.), achieving its aim of reducing cancellations to below 1%. This outcome aligns with global evidence suggesting that the majority of surgical cancellations—up to 80%—are preventable through system-level interventions (**Birhanu et al., 2020; Desta et al., 2018**). The project's success underscores the effectiveness of a structured, iterative QI approach grounded in the Model for Improvement and executed through four Plan-Do-Study-Act (PDSA) cycles.

The first two PDSA cycles addressed system- and provider-related root causes, such as inconsistent pre-operative assessments and fragmented scheduling processes. By protocolizing pre-operative preparation and integrating mandatory medical clearance verification into a standardized surgical scheduling protocol, the team reduced the cancellation rate to 0.7% and then 0.4%, respectively. These findings echo studies from Ethiopia and Nigeria that identified inadequate pre-operative workup and poor scheduling coordination as leading causes of cancellations (**Ayele et al., 2019; Gajida et al., 2016**). Notably, after Cycle 2, the remaining cancellation was attributed to a patient no-show due to transportation issues—a patient-related factor—indicating a shift from system-driven to patient-driven causes, a pattern also observed in other low-resource settings (**Merga & Desalegn, 2015**).

The third PDSA cycle tackled a critical supply-side barrier: inconsistent availability of essential laboratory reagents (CBC and hormone analysis). Ensuring reliable access to these diagnostics eliminated lab-related cancellations entirely, achieving a 0% cancellation rate over 241 scheduled surgeries. This highlights a frequently underemphasized yet vital determinant of surgical reliability in resource-limited contexts—supply chain integrity for basic diagnostics (Desta et al., 2018). The results affirm that even in settings with constrained infrastructure, targeted investments in essential inputs can yield substantial improvements in surgical system performance.

Finally, the fourth PDSA cycle institutionalized gains through a structured audit-and-feedback mechanism. Monthly audits not only sustained the 0% cancellation rate across 185 surgeries but also fostered a culture of accountability and continuous learning among clinical teams. This aligns with quality improvement literature emphasizing that audit-feedback loops are essential for maintaining adherence to new protocols and preventing regression to prior practices (**Academy of Medical Royal Colleges, 2016**). The project's holistic strategy—combining process standardization, resource assurance, and continuous monitoring—demonstrates a scalable model for surgical quality improvement in similar low- and middle-income country (LMIC) hospitals.

In conclusion, this QI project illustrates that elective surgery cancellations in Ethiopian hospitals are largely preventable through coordinated, multifaceted interventions. The near-elimination of cancellations not only improves operational efficiency but also enhances patient trust and staff morale—key components of high-quality surgical care (**Solak et al., 2019**). Future efforts should explore extending this model to address patient-level barriers (e.g., transportation support or preoperative reminders) and integrate these practices into national surgical quality frameworks.

Lessons Learnt

This quality improvement project at Deder General Hospital yielded several critical insights into reducing elective surgery cancellations in a low-resource setting. First, the majority of cancellations were system-driven—not patient-driven—and thus preventable through structured process changes. Standardizing pre-operative preparation with checklists significantly improved adherence and reduced cancellations from 5.1% to less than 1% within the first two PDSA cycles. Second, reliable access to essential diagnostic resources—particularly CBC and hormone analysis reagents—was a pivotal, yet often overlooked, enabler of surgical reliability. The complete elimination of cancellations during Cycle 3 underscored that supply chain stability for basic laboratory services is as crucial as clinical protocols. Third, integrating verification steps (e.g., mandatory medical clearance confirmation) directly into scheduling workflows prevented last-minute documentation gaps. Finally, sustainability required more than protocol implementation; it demanded continuous monitoring. The audit-and-feedback mechanism in Cycle 4 not only maintained a 0% cancellation rate but also fostered a culture of accountability and proactive problem-solving among clinical teams.

Messages for Others

For hospitals and surgical teams in similar resource-constrained settings, this project demonstrates that high reliability in elective surgery delivery is achievable without major capital investment. Start by mapping your local root causes of cancellation using simple tools like Fishbone or Driver diagrams—often, the biggest barriers are procedural gaps or inconsistent resource availability, not patient behavior. Prioritize low-cost, high-impact changes: standardized checklists, clear scheduling protocols, and ensuring consistent access to basic lab reagents can yield dramatic improvements. Importantly, do not stop after initial success—embed sustainability mechanisms early, such as monthly audits with team feedback, to prevent regression. Lastly, engage multidisciplinary teams from the outset; this project succeeded because surgeons, nurses, lab staff, pharmacists, and hospital leadership collaborated under a shared aim. Quality improvement is not a one-time fix but a continuous, team-based discipline.

Conclusion

The QI initiative at Deder General Hospital successfully reduced the elective surgery cancellation rate from a baseline of 5.1% to 0% over a 10-month period (April 2016 E.C. to January 2017 E.C.) through four iterative PDSA cycles. By addressing system-level failures—including inconsistent pre-operative assessments, fragmented scheduling, and unreliable lab reagent supply—the team transformed surgical reliability in a setting where cancellations were previously common. The sustained 0% cancellation rate during the final cycles confirms that a combination of protocol standardization, resource assurance, and continuous feedback can eliminate avoidable delays even in low-resource environments. This project not only improved operational efficiency but also enhanced patient trust and staff morale, offering a scalable model for surgical quality improvement across Ethiopia and similar health systems.



QUALITY

is never an accident; it is always the result of high intention, sincere effort, intelligent direction, and skillful execution."

References

1. Academy of Medical Royal Colleges. (2016). *Quality Improvement – Training for Better Outcomes*. London: Academy of Medical Royal Colleges.
2. Ayele, A., Weldeyohannes, M., & Tekalegn, Y. (2019). Magnitude and reasons of surgical case cancellation at a specialized hospital in Ethiopia. *Journal of Anesthesia & Clinical Research*, 10(2).
3. Birhanu, Y., Endalamaw, A., & Adu, A. (2020). Root causes of elective surgical case cancellation in Ethiopia: a systematic review and meta-analysis. *Patient Safety in Surgery*, 14, 46. <https://doi.org/10.1186/s13037-020-00271-5>
4. Desta, M., Manaye, A., Tefera, A., Worku, A., Wale, A., Mebrat, A., et al. (2018). Incidence and causes of cancellations of elective operation on the intended day of surgery at a tertiary referral academic medical center in Ethiopia. *Patient Safety in Surgery*, 12, 25. <https://doi.org/10.1186/s13037-018-0171-3>
5. Gajida, A., Takai, I., & Nuhu, Y. (2016). Cancellations of elective surgical procedures performed at teaching hospital in northwest Nigeria. *Journal of Medical Tropics*, 18(2), 108–112. <https://doi.org/10.4103/2276-7096.192244>
6. Merga, H., & Desalegn, N. (2015). Prospective study of proportions and causes of cancellation of surgical operations at Jimma University Teaching Hospital. *Ethiopian Journal of Anesthesia Research*, 3, 87–90. <https://doi.org/10.19070/2332-2780-150>
7. Solak, A., Pandza, H., Beciragic, E., Husic, A., Tursunovic, I., & Djozic, H. (2019). Elective case cancellation on the day of surgery at a general hospital in Sarajevo: causes and possible solutions. *Materia Socio-Medica*, 31(1), 49–52. <https://doi.org/10.5455/msm>