



DATA INTERVENTION TRAINING PARTICIPANT WORKBOOK



PROGRAM IN GLOBAL SURGERY
AND SOCIAL CHANGE
Harvard Medical School



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Day 1

Introduction

This training is being provided as part of Safe Surgery 2020's data intervention, in alignment with the Federal Ministry of Health's Saving Lives Through Safe Surgery initiative (SaLTS). The objective of this intervention and training is to develop capacity at participating hospitals around collection and analysis of surgical indicators. It aims to improve the quality of surgical data at hospitals through enhanced collection and reporting processes.

Topic 1: Introduction to Global Surgery

Until recently, global surgery was a widely-overlooked area in the advancing field of global health, referred to by Paul Farmer and Jim Kim in 2008 as the “neglected stepchild of global public health.” The Lancet Commission on Global Surgery (LCoGS) published in 2015 highlighted the need for an increased focus on global surgery and strengthening of surgical systems in low and middle-income countries (LMICs). This publication estimates that 5 billion people worldwide do not have access to safe and affordable surgical care and anesthesia, particularly in LMICs. In 2015, The World Health Assembly (WHA) unanimously passed resolution 68.15, which prioritizes strengthening emergency and essential surgical and anesthesia care as part of universal health coverage

Topic 2: Monitoring and Evaluation

Monitoring and evaluation, also referred to as M&E, is a process of data collection and analysis that informs areas such as planning, policy, and project management. It provides those involved with information on program effectiveness and areas for improvement.

Monitoring and evaluation is essential for assessing surgical capacity, access, and quality of care at facility, regional, and national levels. This requires development of practical indicators and feasible, effective methods of data collection surrounding surgery to establish a process that will improve surgical care and safety for patients.

Topic 3: Registries and Data Collection/Reporting

Registries

Seven new registries are being introduced in Safe Surgery 2020 hospitals as part of this intervention to improve collection and quality of surgical data.

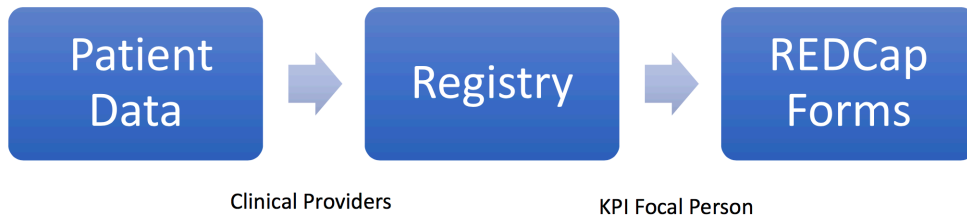
1. Operation Room Scheduling Register
2. Operation Register
3. Anesthesia Register/Logbook
4. Inpatient Admission/Discharge Register
5. Inpatient Ward Register

6. Referral Register
7. Surgical Site Infection Logbook

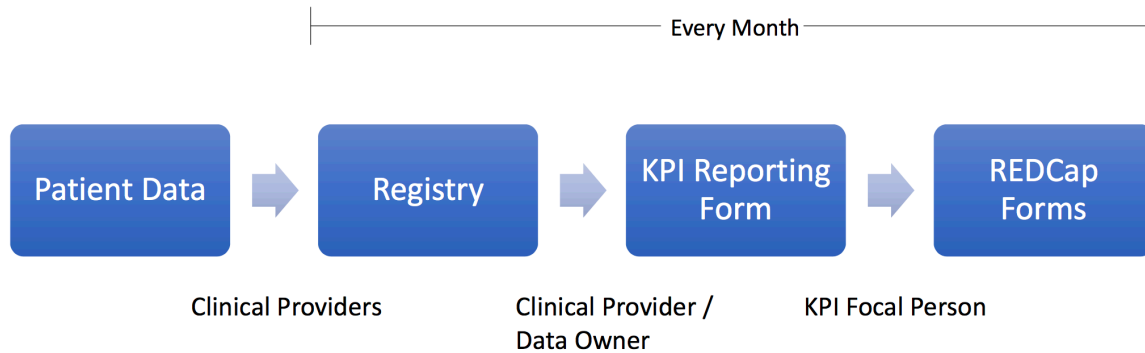
These registries are provided in the Appendix and will be distributed to all participating hospitals.

Data Collection and Reporting

Data for each patient will be recorded in the appropriate registries. Each new patient entry in the registries will then be entered into REDCap forms* each day by the KPI Focal Person.



Every month, Data Owners will review registries and record aggregated data elements in reporting forms. These forms will be given to the KPI Focal Person, who will enter these data elements into REDCap forms* on a monthly basis.



- The REDCap data collection software is one of the most used and trusted data collection systems available. It will be utilized in this study to support data collection and provide quality checks to ensure high quality, accurate data. As a check for the registries and forms used by the hospitals, REDCap will be used by PGSSC and the KPI Focal Person at each hospital to ensure that all data collected in the hospital is correct.

Topic 4: Key Performance Indicators (KPIs)

Overview

The following section contains detailed guidance on data collection of each indicator, including: definition, importance, data elements, formula, unit of measurement, data sources, and frequency of reporting.

Surgical Bed Occupancy Rate (HPMI KPI 35)

Why is this important?	Surgical bed occupancy rate is a measure of the efficiency of surgical services. If the bed occupancy rate is low, there may be underutilization of resources. If bed occupancy rate is high, there may be low capacity to deal with sudden increases in demand for services.	
Definition	The average percentage of occupied surgical beds during the reporting period.	
Unit of measurement	Percentage (%)	
Numerator	The sum total surgical patient length of stay (days) during the reporting period	
Denominator	(Average number of surgical beds during the reporting period) x (Number of days in reporting period)	
Formula	$\left(\frac{\text{Sum total surgical patient length of stay during reporting period}}{\text{Average number of surgical beds} * \text{Number of days in reporting period}} \right) * 100$	
Data sources	Inpatient Admission/Discharge Register: Length of stay (patient-level information used to determine numerator (see instructions in ‘Additional Information’ below) Ward nurse: Number of surgical beds in hospitals	
Frequency of reporting	Monthly	
Data entry	Data elements	Sum total length of stay (days) Average number of surgical beds during reporting period Number of days in reporting period
	Responsibilities	Ward nurse records length of stay (LOS) of each surgical patient in Inpatient Admission/Discharge Register. KPI focal person will complete the data collection from registries, data entry, and analysis.

Additional Information:

Note: The length of stay should ONLY be counted for the actual reporting period. If a patient was admitted during a previous reporting period, their length of stay during that time should not be counted. Instead, for this KPI, the patient’s length of stay should be counted from the first day of this reporting period to the time of discharge, death, or to the end of the reporting period (whichever is first).

In order to calculate the indicator, the KPI focal person must first determine the sum total surgical patient length of stay in days during the reporting period. To complete this patient-level

calculation, the following data elements need to be determined from the Inpatient Admission/Discharge Registry:

1. Date of admission (DD/MM/YY)
2. Date of discharge (DD/MM/YY)

By taking the difference between the dates of admission and discharge for each patient, calculate their length of stay. The numerator of this indicator can then be calculated by finding the sum total length of stay among all surgical patients who stayed on the inpatient ward during the reporting period.

Delay for Elective Surgical Admission (HPMI KPI 7)

Why is this important?	<p>Delays in surgery for different conditions are associated with a significant increase in morbidity and mortality.</p> <p>Through BPR, the Government has set a stretch objective that any outpatient who requires a bed should receive the service within 2 weeks.</p> <p>By monitoring the waiting time for surgical admission, hospitals can assess the adequacy of surgical capacity and identify the need for improved efficiency in systems and processes, and/or the need for additional surgical staff and/or resources.</p>	
Definition	The average number of days that patients who underwent major elective surgery during the reporting period waited for admission (i.e. the average number of days between the date each patient was added to the waiting list to their date of admission for surgery)	
Unit of measurement	Days	
Numerator	<p>Sum total of number of days between date added to surgical waiting list to date of admission for surgery for all patients.</p> <p>Notes: If a patient is admitted on the same day that the decision for surgery is made then their number of days on the waiting list should be counted as zero.</p>	
Denominator	Number of patients who were admitted for elective (non-emergency) surgery during the reporting period.	
Formula	$\frac{\text{Total sum (Date patient was admitted – Date patient was added to surgical waiting list)}}{\text{Total number of patients admitted for elective surgery during the reporting period}}$	
Data sources	<p>Liaison Registration Book: Date that a patient was admitted for surgery and date that patient was added to surgical waiting list</p> <p>Inpatient Admission/Discharge Register: Total number of patients admitted for elective surgery during the reporting period</p>	
Frequency of reporting	Monthly	
Data entry	Data elements	<p>Sum total of number of days between date added to surgical waiting list to date of admission for surgery</p> <p>Total number of elective surgery patients during the reporting period</p>

	Responsibilities	<p>Liaison Office Personnel records dates that a patient is added to the surgical waiting list and the date they are admitted for surgery.</p> <p>Ward nurse collects the number of admitted elective surgical patients during the reporting period in the IP A/D Registry.</p> <p>KPI focal person will complete the data collection from registries, data entry, and analysis.</p>
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Mean Duration of In-Hospital, Pre-Operative Stay (HPMI KPI 13)

Why is this important?	A long in-hospital, pre-operative stay results in unnecessary bed occupancy and can increase the risk of colonization by antibiotic resistant hospital flora. It is indicative of insufficient pre-admission preparation or inefficient OT management resulting in cancellations. Longer durations of waiting can also indicate an overburdened hospital system and too much of a caseload.	
Definition	The average number of days patients waited in-hospital (after admission) to receive elective surgery during the reporting period.	
Unit of measurement	Number	
Numerator	Total sum of pre-operative length of stay	
Denominator	Total number of elective surgical procedures during the reporting period	
Formula	$\frac{\text{Total sum of (Date patient received elective surgery – Date of admission)}}{\text{Total number of elective surgical procedures during the reporting period}}$	
Data sources	Inpatient Admission/Discharge Registry OR Registry	
Frequency of reporting	Monthly	
Data entry	Data elements	Total sum of pre-operative length of stay (Date patient received elective surgery – Date of admission) Total number of elective surgical procedures during the reporting period
	Responsibilities	Ward nurse records date of admission and date of operation in the Inpatient Admission/Discharge Register, as well as number of admitted elective surgical patients during the reporting period from the IP A/D Registry. KPI focal person will complete the data collection from registries, data entry, and analysis.

Patient Satisfaction (HPMI KPI 26)

Why is this important?	<p>Patient satisfaction with the health care they receive at the hospital is a measure of the quality of care provided. By monitoring patient satisfaction hospitals can identify areas for improvement and ensure that hospital care meets the expectations of the patients served.</p> <p>The Out-Patient Assessment of Healthcare Survey (O-PAHC) and In-Patient Assessment of Healthcare Survey (I-PAHC) have been developed for use in Ethiopian health facilities. These survey tools measure the patient experience related to service availability, cleanliness, communication, respect, medication (prescription, availability and patient information) and cost in OPD, IPD, maternity and emergency departments.</p> <p>Patient satisfaction is KPI 53 in the National Health Performance Monitoring and Improvement (HPMI) plan.</p>	
Definition	Average rating of a hospital on a score of 0-10 from surgical I-PAHC surveys	
Unit of measurement	Absolute number, on a scale of 0-10	
Numerator	Sum total of surgical I-PAHC scores	
Denominator	Number of I-PAHC surveys completed with surgical patients	
Formula	$\frac{\text{(Sum total of I – PAHC rating scores)}}{\text{(Number of I – PAHC surveys completed)}}$	
Data sources	Survey protocol for the patient satisfaction survey is presented in the Appendix. Data entry and analysis can be undertaken using the electronic access database and Excel pre-programmed analytical tool through which summary tables, charts and the average satisfaction rating can be calculated.	
Frequency of reporting	Quarterly	
Data entry	Data elements	<p>Sum total of I-PAHC rating scores</p> <p>Total number of I-PAHC surveys completed</p>
	Responsibilities	KPI focal person conducts surveys when surgical patients are discharged and is responsible for data aggregation, entry and analysis.

Rate of First Elective On-Time Theater Performance

Why is this important?	This indicator is a measure of the quality of surgical and anesthesia care at a facility. If the first elective case does not begin at the designated start time for an operating theater, then the subsequent surgical cases and service delivery may be affected.	
Definition	The percentage of first elective cases that began on or prior to the scheduled time (per agreed hospital protocol) during the reporting period.	
Unit of measurement	Percentage	
Numerator	Total of number of first elective cases commenced on time	
Denominator	Total number of first elective cases performed in reporting period	
Formula	$\left(\frac{\text{Total number of first elective cases commenced on time}}{\text{Total number of first elective cases performed in reporting period}} \right) * 100$	
Data sources	OR Scheduling Registry	
Frequency of reporting	Monthly	
Data entry	Data elements	<p>Number of first elective cases commenced on time</p> <p>Total number of first elective cases performed at facility in reporting period</p>
	Responsibilities	<p>For each elective surgical case, the OR Head Nurse will record the following information in the OR Scheduling Registry:</p> <ul style="list-style-type: none"> • Whether the case is the first case of the day • If the case is a first start case, whether surgery begins before or within 15 minutes of the agreed upon start time

Rate of Cancellation of Elective Surgery

Why is this important?	Rate of cancellation of elective surgery shows the effectiveness of operating theatre management. Frequent cancellations of elective operations can lead to: Inefficient utilization of resources Prolonged wait time Patient dissatisfaction Potential for increased patient complications	
Definition	Percentage of elective surgeries that were cancelled on the planned day of surgery	
Unit of measurement	Percentage	
Numerator	Total number of elective surgeries cancelled on planned day of surgery	
Denominator	Total number of elective surgeries scheduled in one month	
Formula	$\left(\frac{\text{Total number of elective surgeries cancelled}}{\text{Total number of elective surgeries scheduled}} \right) * 100$	
Data sources	OR Scheduling Registry	
Frequency of reporting	Monthly	
Data entry	Data elements	Total number of elective surgeries cancelled on planned day of surgery in one month Total number of elective surgeries scheduled in one month
	Responsibilities	OR Head Nurse will record data and status of scheduled surgery and any cancellation details in OR Scheduling Registry for each patient scheduled to receive elective surgery KPI Focal Person will determine total number of elective surgeries scheduled and total number of cancelled elective surgeries from OR Scheduling Registry.

Blood Availability Ratio for Surgical Patients (HPMI KPI 21)

Why is this important?	Timely access to blood is a factor in surgical morbidity and mortality, especially in obstetric and trauma care where hemorrhage is a major cause of mortality.	
Definition	Percentage of major surgical/obstetric cases which are referred or cancelled because of unavailability of blood	
Unit of measurement	Percentage	
Numerator	Total number of major surgical/obstetric cases cancelled plus major surgical/obstetric patients referred because of lack of blood for transfusion	
Denominator	Total number of major surgical procedures performed in the period	
Formula	$\frac{(\text{Total \# of major surgical procedures cancelled} + \text{Total \# of patients referred due to lack of blood})}{(\text{Total number of major surgical procedures performed in the period})} * 100$	
Data sources	<p>IP A/D Registry : Total number of major surgical procedures performed</p> <p>OR Scheduling Registry: Total number of major surgical procedures cancelled due to lack of blood</p> <p>Referral Registry: Total number of patients referred because of lack of blood for transfusion</p>	
Frequency of reporting	Monthly	
Data entry	Data elements	<p>Total number of major surgical procedures cancelled due to lack of blood + total number of patients referred because of lack of blood for transfusion</p> <p>Total number of major surgical procedures performed in the period</p>
	Responsibilities	<p>OR Nurse will record major surgical procedures cancelled due to lack of blood in the OR Scheduling Registry</p> <p>Liaison Officer will record number of patients referred because of lack of blood in the Referral Register</p> <p>Data entry and analysis completed by KPI focal person</p>

Emergency Surgical Access

Why is this important?	Lancet Commission on Global Surgery (2015) defined a global target of achieving a minimum of 80% coverage of essential surgical and anesthesia services per country by 2030. With this coverage, patients should have two-hour access to a facility that is able to provide Bellwether procedures.	
Definition	The proportion of patients requiring emergency surgical care whose travel time from when they first seek care and when they reach a facility that provides any of the selected Bellwether procedures (C-sections, laparotomies, open fracture stabilization) is less than or equal to 2 hours.	
Unit of measurement	Proportion	
Numerator	Number of patients whose travel time between when they first seek care and their arrival at a facility providing C-sections, laparotomy, open fracture stabilization is less \leq 2 hours	
Denominator	Total number of emergency surgical patients surveyed	
Formula	$\frac{\text{Number of patients whose travel time is } \leq 2 \text{ hours}}{\text{Total number of emergency surgical patients surveyed}}$	
Data sources	Inpatient Admission/Discharge Registry & Emergency Surgical Access survey: patient-level information used to determine numerator (see instructions in ‘Additional Information’ below) OR Registry: Total number of emergency surgical patients surveyed	
Frequency of reporting	Every 6 months	
Data entry	Data elements	Number of emergency surgery patients where travel time between when they first seek care and their arrival at a facility providing C-sections, laparotomy, open fracture stabilization is less than or equal to 2 hrs. Total number of emergency surgical patients surveyed
	Responsibilities	Ward nurse will administer surveys to inpatient emergency surgical patients before discharge Data entry and analysis completed by KPI focal person

Additional Information:

In order to calculate the indicator, the KPI focal person must first determine the number of patients that traveled less than 2 hours to reach a facility providing Bellwether procedures. To complete this patient-level calculation, the following data elements need to be determined:

- Time emergency surgical patient reaches facility providing selected Bellwether procedures (from the In-patient Admission/Discharge Registry)
- Time emergency patient first seeks surgical care (from Q19: “Overall, how long did it take you after first realizing that you have this health problem to get to this facility? in the Emergency Surgical Access survey)

Using following formula, calculate whether each patient had a travel time less than or equal to 2 hours (120 minutes):

$$[\text{Time patient reaches the facility} - \text{Time patient first seeks surgical care}]$$

The value of the numerator (stated in table above) is equal to the sum of patients whose travel time was found to be less than or equal to 2 hours (120 minutes).

Protection Against Catastrophic Expenditure

Why is this important?	The Lancet Commission on Global Surgery (2015) estimated that there are 32.8 million cases of catastrophic expenditure occurring annually due to costs associated with accessing surgery. This estimate increases to 81.2 million cases when cases of catastrophic expenditure due to non-medical related costs such as transportation, food, medications, beds, etc. are also considered. The risk of catastrophic expenditure is higher for surgical patients in low- and middle-income countries than in high-income countries.	
Definition	Proportion of households protected against catastrophic expenditure from direct out-of-pocket payments for surgical and anesthesia care.	
Unit of measurement	Proportion	
Numerator	Total number of patients whose aggregate cost for accessing and receiving care is less than 40% of reported household income	
Denominator	Total number of surgical patients surveyed per reporting period	
Formula	$\frac{\text{Total number of patients whose aggregate cost} \leq 40\% \text{ of reported income}}{\text{Total number of surgical patients surveyed}}$	
Data sources	Protection Against Catastrophic Expenditure Survey: patient-level information used to determine numerator (see instructions in ‘Additional Information’ below Total number of surgical patients surveyed per reporting period	
Frequency of reporting	Every 6 months	
Data entry	Data elements	Total number of patients whose aggregate cost for accessing and receiving care is less than 40% of reported household income Total number of surgical patients surveyed per reporting period
	Responsibilities	Ward nurse will administer surveys to inpatient surgical patients before discharge Data entry and analysis completed by KPI focal person

Additional Information:

In order to calculate the indicator, the KPI focal person must first determine the aggregate cost for accessing and receiving surgical care and the reported income for each patient surveyed. This information can be determined from questions in the ‘Protection Against Catastrophic Expenditure Survey.’

1. Aggregate cost for accessing and receiving surgical care: question 11a. or sum of answers to 11b-i.
2. Reported income: question 9 or the sum of answers to 8

Using the following formula, calculate whether or not each patient was protected against catastrophic expenditure due to accessing surgery:

$$\left(\frac{\textit{Aggregate cost for accessing and receiving surgical care}}{\textit{Total reported income}} \right) * 100$$

The value of the numerator (stated in table above) is equal to the total number of all patients whose aggregate cost for accessing and receiving care is less than 40% of their total reported income.

Surgery, Anesthesia, and Obstetric (SAO) Provider Density

Why is this important?	Surgery, Anesthesia, and Obstetric (SAO) Provider Density was originally established as a core surgical indicator by the Lancet Commission on Global Surgery (LCoGS). Surgical systems in LMICs are often affected by low SAO provider density, limiting individuals' access to safe and timely surgery. The LCoGS has proposed a goal of 20 SAOs per 100,000 population.	
Definition	Number of surgical, anesthetic, and obstetric physicians, integrated emergency surgical officers (IESOs), and anesthetic providers including BSc. anesthetists, nurse anesthetists, and 'others' (nurses, MS anesthetists, and health officers) who are working per 100,000 population.	
Unit of measurement	Proportion	
Numerator	Number of surgical, anesthetic, or obstetric physicians, integrated emergency surgical officers (IESOs), or other anesthetic providers including: BSc. anesthetists, nurse anesthetists, and 'others' (nurses, MS anesthetists, and health workers) working	
Denominator	Total population of catchment area	
Formula	$\frac{\text{Number of surgical, anesthetic, or obstetric physicians, integrated emergency surgical officers (IESOs), or other anesthetic providers including: BSc. anesthetists, nurse anesthetists, and 'others' (nurses, MS anesthetists, and health workers) working}}{\text{Total population of catchment area}} \times 100,000$	
Data sources	Hospital HR records	
Frequency of reporting	Annually	
Data entry	Data elements	<p>Number of SAO providers working</p> <p>Total population of catchment area</p>
	Responsibilities	Data entry and analysis completed by KPI focal person

Day 2

Topic 5: KPIs of Focus and Surgical Referrals Out

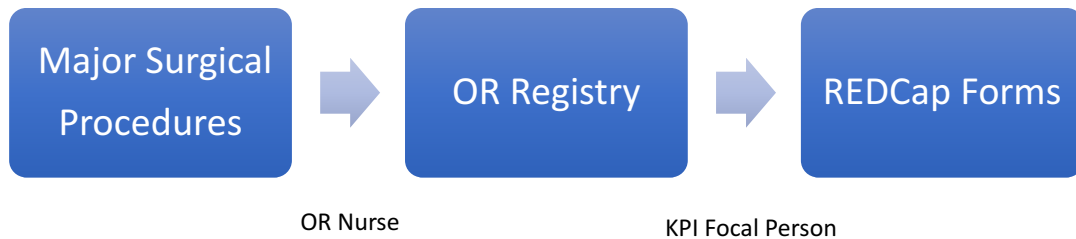
Introduction

These indicators are ones of increased priority and will be discussed in detail during small group sessions.

Surgical Volume (HPMI KPI 14)

Why is this important?	Surgical volume is a Lancet Commission on Global Surgery (LCoGS) indicator that captures met need for surgical and anesthesia care. The LCoGS established a target surgical volume of 5,000 procedures per 100,000 population in every country by 2030.
Definition	Total number of major surgical procedures performed in operating theater per 100,000 population per year. Note: A major surgical procedure is defined as any procedure conducted in an OR under general, spinal, or major regional anesthesia
Unit of measurement	Proportion
Numerator	Total number of major surgical procedures performed in OR per reporting period
Denominator	Total regional catchment population
Formula	$\left(\frac{\text{Total number of major surgical procedures performed in OT per reporting period}}{\text{Total regional catchment population}} \right) * 100,000$
Data sources	OR Registry: Total number of major surgical procedures performed in an operating theater per month Regional Health Bureau records: Regional catchment population Note: Must cross-check with Inpatient Admission/Discharge Register with number of major surgical procedures reported in OR Register
Frequency of reporting	Monthly

Data entry	Data elements	Number of major surgical procedures performed Total regional catchment population
	Responsibilities	Surgeon/IESO records complete count of major surgical procedures. KPI focal person will complete the data collection from registries, data entry, and analysis, and is responsible for determining the catchment population from RHB.



Major vs Minor Procedures

A major surgical procedure is defined as any procedure conducted in an OR under general, spinal, or major regional anesthesia. All other procedures are considered to be minor. Only major surgical procedures should be included when calculating and reporting surgical volume.

Small Group Activity

Please indicate whether the following procedures should be categorized as major or minor.

1. Appendectomy in OR under general anesthesia _____
2. Drainage of abscess done at bedside in surgical ward _____
3. Foreign body removal from ear at bedside _____
4. C-section in OR under spinal anesthesia _____
5. Hernia repair in OR under regional anesthesia _____

6. Stitches in procedure room under local anesthesia _____
7. Amputation in OR under spinal anesthesia _____
8. Exploratory laparotomy in OR under general anesthesia _____
9. Closed reduction of fracture at bedside _____
10. Circumcision in procedure room under local anesthesia _____
11. Tonsillectomy in OR under general anesthesia _____
12. Hysterectomy in OR under spinal anesthesia _____
13. Open reduction and internal fixation of fracture in OR
under regional anesthesia _____
14. Tooth extraction in procedure room under local anesthesia _____
15. Thyroidectomy in OR under general anesthesia _____
16. Chest tube insertion at bedside under local anesthesia _____
17. Lumbar puncture at bedside under local anesthesia _____
18. Colostomy reversal in OR under general anesthesia _____
19. Halo vest placement under local at bedside _____
20. Bowel obstruction repair in OR under general anesthesia _____

Calculate surgical volume based on the procedures above _____

Surgical Site Infection (SSI) Rate (HPMI KPI 9)

Why is this important?	<p>The surgical site infection rate is an indicator of the quality of medical care received by surgical patients and an indirect measure of infection prevention practices in the hospital. Infection at the site of surgery may be caused by poor infection prevention practices in the operating room or on the ward after completion of surgery.</p> <p>Incidence rate of SSIs in Ethiopia is unknown, but estimates found in the literature range from approximately 10 to 75%. Discrepancies are often due to a lack of quality data.</p> <ul style="list-style-type: none">▪ Kotisso & Aseffa (1998): 21%▪ Taye (2005): 14.8%▪ Amenu, Belachew, Araya (2011): 11.4%▪ Gelaw et al. (2017): 6.8%▪ Leloto et al. (2017): 19.1% <p>By monitoring surgical site infection hospitals can assess the adequacy of infection prevention practices in the hospital and take action to address any problems identified.</p>
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Definition	<p>Proportion of all major surgeries with an infection occurring at the site of the surgical wound <i>prior to discharge</i>. <u>One or more</u> of the following criteria should be met:</p> <ul style="list-style-type: none"> ▪ Purulent drainage from the incision wound ▪ Positive culture from a wound swab or aseptically aspirated fluid or tissue ▪ Spontaneous wound dehiscence or deliberate wound revision/opening by the surgeon in the presence of: pyrexia > 38C or localized pain or tenderness <p><u>Any two</u> of the following:</p> <ul style="list-style-type: none"> ▪ wound pain, tenderness, localized swelling, redness or heat ▪ An abscess or other evidence of infection involving the deep incision that is found by direct examination during re-operation, or by histopathological or radiological examination <p>NB: A <u>major surgical procedure</u> is defined as any procedure conducted in an OR under general, spinal or major regional anesthesia.</p> <p>Suggested operational definition:</p> <p>To diagnose an incisional SSI (superficial or deep) a patient must have at least one of:</p> <p style="padding-left: 40px;">Purulent drainage from the incision</p> <p style="padding-left: 40px;">Abscess within the wound (detected clinically or radiologically)</p> <p><i>Or one of the following combinations:</i></p> <p>Pain or tenderness or localized swelling or redness or heat or fever</p> <p style="text-align: center;"><u>AND</u></p> <p>the incision is opened deliberately or spontaneously opens (dehisces)</p>
Unit of measurement	Percentage (%)
Numerator	Total number of inpatient SSIs recorded during the reporting period
Denominator	Total number of major surgical procedures performed during the reporting period
Formula	$\frac{\text{Total number of inpatients with new SSI arising during reporting period}}{\text{Total number of major surgical procedures performed in OR in reporting period}} \times 100$

Data sources	<p>SSI surveillance logbook in patient chart: daily tracking of SSI presence per patient, to be cross-checked with IP A/D Registry SSI column</p> <p>Inpatient Admission/Discharge Registry: Inpatient SSI presence</p> <p>OR Registry: Number of major surgical procedures performed during the reporting</p>	
Frequency of reporting	Monthly	
Data entry	Data elements	<p>Number of inpatient SSIs recorded during the reporting period</p> <p>Number of major surgical procedures performed during the reporting period</p>
	Responsibilities	<p>Ward Nurse will complete SSI surveillance logbook daily and record any presence of SSI both in the logbook and the remark column of the IP/AD Registry. If an SSI is <i>positively diagnosed</i>, then the ward nurse will complete the subsequent ‘Wound Surveillance’ sheet for inclusion in the patient chart.</p> <p>Ward physician or IESO is responsible for recording absence or presence of SSI and patient condition at discharge on the discharge summary</p> <p>KPI focal person will complete the data collection from registries, data entry, and analysis.</p>

Surgical Site infection surveillance and case report format

Federal Ministry of Health, Ethiopia

Full name _____ Weight _____ Height _____
Medical records No. _____ Known medical illnesses _____
Age (in years) _____ Steroids and chemotherapy use _____
Sex Male Female Hospital name _____
Date of admission (DD/MM/YY) _____ Unit (if applicable) _____
Date of Discharge _____

Procedure details

Procedure date (DD/MM/YY) _____
Type of procedure Emergency Elective
Name of procedure _____
Duration of surgery (in minutes) _____
Type of anesthesia used General Spinal Regional/Local
Wound type Clean Clean-contaminated Contaminated Dirty
Drains left Yes No
Peri-operative transfusion Yes No

Related details

Pre-operative timely antibiotics given? Yes No
Appropriate skin preparation? Yes No
Appropriate hair removal? Yes No
Appropriate glucose control? Yes No
Appropriate thermal control? Yes No

SSI details

Date SSI was detected? _____

Type of SSI: Superficial deep organ/space

Culture result (if done) _____

Sensitivity pattern (if done) _____

Treatment given _____

How many days did the infection need to clear? _____

Patient outcome Improved Died

Additional remarks (if any):

Format filled by _____ Signature _____

Date: _____

Small Group Activity

Review and discuss the following case studies.

1. Elias is a 40-year old man who underwent an emergency Hartmann's procedure (exploratory laparotomy and colostomy) following a road-traffic incident. He is intubated and ventilated in the ICU. He is maintaining a blood pressure of 108/65. He has an elevated temperature of 37.9 degrees Celsius. Upon examining the incisional site, you find the wound to be red and hot at its distal end. There is a small amount of dehiscence.



Does Elias have an SSI?

2. Beca is a 14-year old girl who underwent an appendectomy for appendicitis. 5 days after her operation while recovering at home, she develops pain and mild swelling around her scar and her parents are worried about an infection.

Does Beca have an SSI?

3. Caleb is a 30-year old man who has had an open right hemicolectomy for Crohn's disease. He is currently taking steroids. He returns for follow-up 5 days after his operation:
 - There is no discharge, redness, swelling, or dehiscence
 - He is feeling hot and has a temperature of 38.0 degrees Celsius
 - He is clammy, with a pulse rate of 140



He is taken back to the operating theater where purulent fluid is drained from the deep fascial space.

Does Caleb have an SSI?

Once completing the case studies, review the sample log and practice reporting SSI information using the ‘SSI Logbook.’ Practice completing a row of patient data in the sample registry below.

MRN No.	Patient Name	Bed No.	Age	Sex	Date of Surgery (DD/MM/YY)	Procedure performed	Date SSI was Diagnosed (DD/MM/YY)	Postoperative Diagnosis	Wound Culture Result
119020	Sebhat Berhan	3	34	M	02/01/2010	Hernia repair	02/03/2010	Inguinal hernia	+
119020	Tsega Teferi	7	10	M	02/05/2010	Appendectomy	02/09/2010	Acute appendicitis	+

Discussion Questions:

Which team member is responsible for completing the SSI logbook?

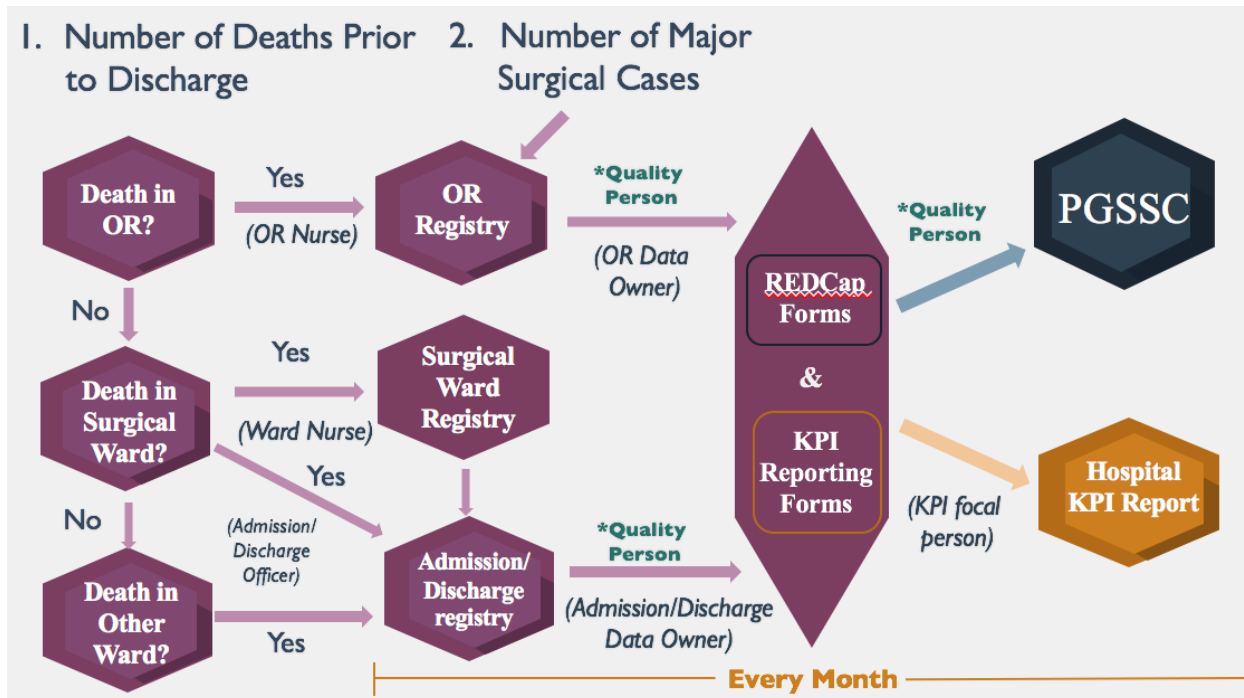
At which point in the care process should this logbook be filled out per patient?

What else should always be completed for each patient included in this logbook? Who is responsible for this?

Diagram the steps for reporting SSIs here, including the people involved:

Peri-Operative Mortality Rate (POMR) (HPMI KPI 11)

Why is this important?	Peri-operative mortality rate (POMR) is a Lancet Commission on Global Surgery (2015) indicator that demonstrates safety and quality of surgical and anesthesia care.	
Definition	All-cause death rate prior to discharge among patients who underwent a major surgical procedure in an operating theatre during the reporting period Note: Stratified by emergent and elective major procedures	
Unit of measurement	Percentage	
Numerator	Total number of deaths prior to discharge among major surgical cases	
Denominator	Total number of major surgical cases	
Formula	$\left(\frac{\text{Total number of deaths prior to discharge among major surgical cases}}{\text{Total number of major surgical cases}} \right) * 100$	
Data sources	OR Registry: <ul style="list-style-type: none"> • All major surgical cases listing operation outcome as “died” • Total number of major surgical cases Inpatient Admission/Discharge Registry: All major surgical cases listing patient as deceased at discharge	
Frequency of reporting	Monthly	
Data entry	Data elements	Total number of deaths prior to discharge among major surgical cases Total number of major surgical cases
	Responsibilities	Surgeon/IESO records patient outcome in the OR Registry Ward Nurse records patient condition at discharge in the Inpatient Admission/Discharge Registry KPI focal person will complete the data collection from registries, data entry, and analysis.



POMR Case Studies

1. A 6-year-old boy is brought to the emergency department after getting a cut on his arm by a metal tile sheet. His parents report that the child has been bleeding for two hours. In the emergency department, the patient is seen by a General Practitioner who classifies the cut as a major wound. The child is admitted as a “surgical” patient and receives a bed on the surgical ward. The child is seen by an IESO who assesses the wound and based on the integrity of the cut, classifies it as a minor wound. The IESO irrigates the wound and performs a skin closure at bedside. Three days later, patient is unstable and presents with signs of Tetanus. Patient dies 5 days after initial presentation.
 - Does this case classify as a perioperative mortality?
 - If Yes:
 - What are the key reasons why it classifies as a perioperative mortality?
 - Who is responsible for recording this data?
 - Where would the data source for this case be?

- Who will collect this data from the data source?
 - If No:
 - What are the key reasons why this does not classify as a perioperative mortality?
 - What change would have made this case classify as a perioperative mortality?
 - Who would be responsible for recording this data?
 - Where would the data source for this case be?
2. A 30-year-old male presents to the Emergency Department after a stab wound to the abdomen. The patient is minimally awake and is reported to have fallen on his head. The patient immediately undergoes exploratory laparotomy. Patient's bleeding is controlled and he is transferred to the surgical ward following the operation. Overnight, the patient's vitals are unstable and he dies the next morning.
- Does this case classify as a perioperative mortality?
 - If Yes:
 - What are the key reasons why it classifies as a perioperative mortality?
 - Who is responsible for recording this data?
 - Where would the data source for this case be?
 - Who will collect this data from the data source?

- If No:
 - What are the key reasons why this does not classify as a perioperative mortality?
 - What change would have made this case classify as a perioperative mortality?
 - Who would be responsible for recording this data?
 - Where would the data source for this case be?
3. A 30-year-old female who is 30 weeks' pregnant presents to the Emergency Department with abdominal cramps and vaginal bleeding. She is admitted to the maternity ward and monitored. In the maternity ward the patient's vitals are unstable and she becomes unconscious. A decision is made to take her to the operating room for an emergency C-section. 20 minutes later, patient dies in transit to the operating room.
- Does this case classify as a perioperative mortality?
 - If Yes:
 - What are the key reasons why it classifies as a perioperative mortality?
 - Who is responsible for recording this data?
 - Where would the data source for this case be?
 - Who will collect this data from the data source?
 - If No:

- What are the key reasons why this does not classify as a perioperative mortality?
 - What change would have made this case classify as a perioperative mortality?
 - Who would be responsible for recording this data?
 - Where would the data source for this case be?
4. A 20-year-old male presents to the Emergency Department after getting hit by a car. He is reported to have deep lacerations (cuts) on his arm. He is taken to the operating room for Incision and Drainage. Patient is given prescription for antibiotics and discharged after 3 days. 4 weeks following initial presentation, patient reports to the Emergency Department with severe signs of infection. He is immediately admitted to the surgical ward. After one day, patient goes into septic shock and dies.
- o Does this case classify as a perioperative mortality?
 - If Yes:
 - What are the key reasons why it classifies as a perioperative mortality?
 - Who is responsible for recording this data?
 - Where would the data source for this case be?
 - Who will collect this data from the data source?
 - If No:

- What are the key reasons why this does not classify as a perioperative mortality?
 - What change would have made this case classify as a perioperative mortality?
 - Who would be responsible for recording this data?
 - Where would the data source for this case be?
5. A 20-year-old female presents to the Emergency Department with obstructed labor. She is immediately admitted to the “Surgery Department” and is taken to the operating room for a C-section. Following the operation, the patient is transferred to the surgical ward. In the surgical ward, the patient’s vitals are unstable, and she dies 4 hours after presentation.
- o Does this case classify as a perioperative mortality?
 - If Yes:
 - What are the key reasons why it classifies as a perioperative mortality?
 - Who is responsible for recording this data?
 - Where would the data source for this case be?
 - Who will collect this data from the data source?
 - If No:
 - What are the key reasons why this does not classify as a perioperative mortality?

- What change would have made this case classify as a perioperative mortality?
- Who would be responsible for recording this data?
- Where would the data source for this case be?

Rate of Safe Surgery Checklist (SSC) Utilization (HPMI KPI 12)

Why is this important?	The WHO Surgical Safety Checklist is a safety check that could be performed in any operating room. It is designed to reinforce accepted safety practices and foster better communication and teamwork between clinical disciplines. The Checklist is intended as a tool for use by clinicians interested in improving the safety of their operations and reducing unnecessary surgical deaths and complications. This is an important aid to ensure patient safety.	
Definition	Proportion of surgical procedures where the Surgical Safety Checklist was fully implemented.	
Unit of measurement	Percentage (%)	
Numerator	Number of surgical safety checklists in patient charts that were completed entirely	
Denominator	Total number of surgical safety checklists reviewed (minimum of 25)	
Formula	$\left(\frac{\text{Number of surgical safety checklists in patient charts that were completed entirely}}{\text{Total number of surgical safety checklists reviewed}} \right) * 100$	
Data sources	Patient charts	
Frequency of reporting	Monthly	
Data entry	Data elements	<p>Number of surgical patient charts in which the Surgical Safety Checklist was completed per chart</p> <p>Total number of patient charts reviewed</p>
	Responsibilities	<p>Runner Nurse or Delegated Operating Theater Staff read the Surgical Safety Checklist aloud to surgical team and checks off the appropriate boxes as action is completed.</p> <p>Anesthetist indicates in the Anesthesia Logbook whether the Surgical Safety Checklist was completed.</p> <p>KPI focal person conducts the random sample of patient charts (see below) and is responsible for the aggregation of data, entry and analysis.</p>

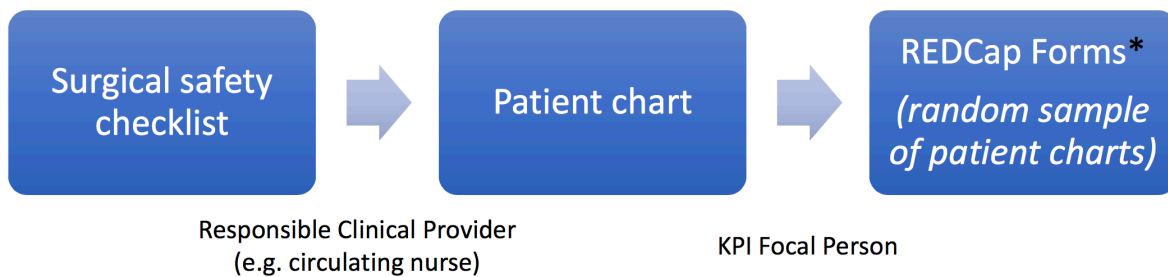
Additional Information:

The KPI focal person is responsible for review of a random sample of twenty-five charts for the completeness of the safe surgery checklist. The safe surgery checklist is considered incomplete if one of the following occurs:

1. In the chart, the checklist is missing
2. There is **any** box unchecked
3. If in the anesthesia logbook the box indicating if the safe surgery checklist has been filled out is recorded as NO

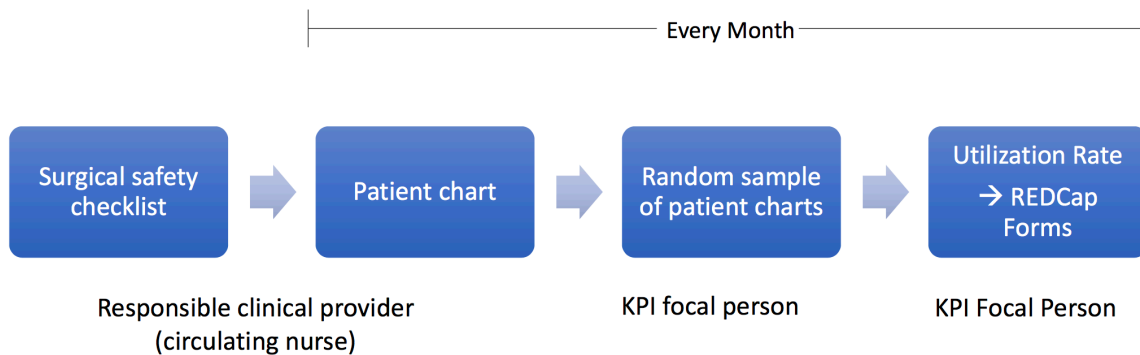
The responses recorded by the anesthetist in the column on Surgical Safety Checklist in the Anesthesia Registry can be cross-checked with the random sample to check data collection quality.

Patient-Level Daily Entry



*Rate of SSC completion entered in REDCap Form, not the SSC itself

Monthly KPI Reporting

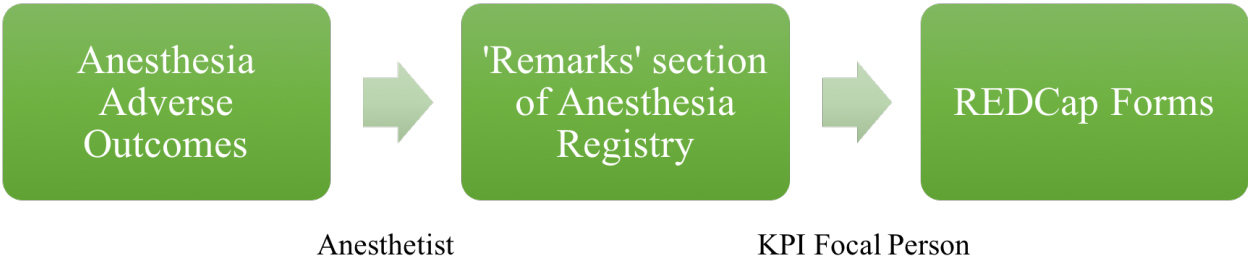


Anesthetic Adverse Outcome (HPMI KPI 15)

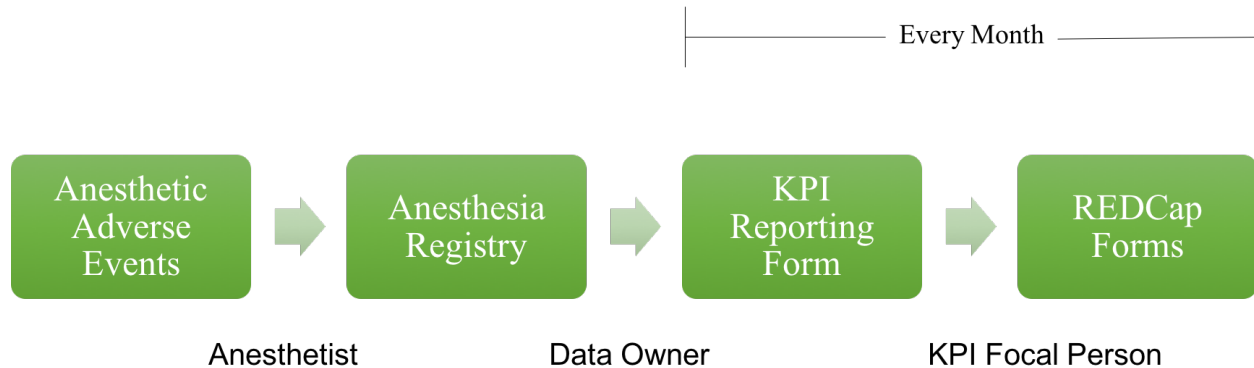
Why is this important?	Anesthesiology is described as the invisible sister of the neglected stepchild of global health. A large difference in post-operative mortality rates between developed countries and LMICs is caused by differences in anesthesia mortality rates. The rate of anesthetic adverse outcomes assesses the safety and quality of anesthesia services.
Definition	<p>Percentage of surgical patients who developed any one of the following:</p> <ol style="list-style-type: none"> (1) Cardio-respiratory arrest (2) Inability to secure airway (3) High spinal anesthesia <p>Cardiorespiratory arrest defined as: cessation of cardiac activity evidenced by:</p> <ul style="list-style-type: none"> ▪ Chest compressions being performed ▪ Loss of femoral, carotid and apical pulse with ECG changes <p>High spinal defined as:</p> <p>Within 15 minutes of administration of spinal anesthesia:</p> <ul style="list-style-type: none"> ▪ Patient experiences loss of sensation in the shoulder <i>AND</i> ▪ Need for positive pressure ventilation after administration of spinal anesthesia <p>Includes any administration of spinal anesthesia extending above T4 level.</p> <p>Inability to secure airway defined as:</p> <ul style="list-style-type: none"> ▪ Having to awaken patient due to inability to intubate ▪ Cardiac-respiratory arrest due to failure to intubate
Unit of measurement	Percentage
Numerator	Number of surgical cases with an anesthetic adverse outcome (high spinal anesthesia, failed intubation, or cardio-respiratory arrest) during reporting period
Denominator	Total number of major surgical procedures performed in OR during the reporting period
Formula	$\left(\frac{\text{Number of surgical cases with an anesthetic adverse outcome in reporting period}}{\text{Number of major surgical procedures performed in OR in reporting period}} \right) * 100$
Data sources	Anesthesia Registry
Frequency of reporting	Monthly

Data entry	Data elements	Number of surgical cases with high spinal anesthesia, inability to secure airway, or cardiorespiratory arrest Total number of major surgical procedures performed in OR during reporting period
	Responsibilities	Anesthetist records all complications noted from the time of anesthesia induction to time of full recovery from anesthesia in the Anesthesia Logbook daily. Note: When recording adverse events, more than one item can be marked. For example, if a patient dies due to a high spinal, they should tick high spinal, cardiorespiratory arrest, and death if applicable. Any other adverse events directly related to anesthesia care should be recorded in the 'Other' column, including intra-operative death due to anesthesia. Please use the 'Remarks' column to include more information regarding the reason for the adverse event if information is available. KPI focal person will complete the data collection from registries, data entry, and analysis.

Daily Anesthesia Adverse Event Data Entry



Monthly Anesthesia Adverse Event Reporting Process



Small Group Activity

Review and discuss the following case studies. Complete the column from the Anesthesia Registry for each case study and compare with other small group members.

1. A 35-year old healthy male, weighing 59 kg, of height 165 cm presented with a post-traumatic raw area over the left lower limb. A reverse sural graft along with skin grafting (from the thigh) was planned. In OR, the patient was placed in sitting position and spinal anesthesia was given with 3ml of 0.5% plain Bupivacaine at the L2-L3 intervertebral space. Patient was put supine with head-up position. After 2 more minutes the patient started complaining of tingling in his hands and difficulty in breathing. 100% oxygen was administered via a face mask attached to the anesthesia circle system. In view of onset of respiratory failure, general anesthesia was induced.

What is the possible cause of this patients' symptoms and the need for general anesthesia?

Complications			
High Spinal	Inability to Secure Airway	Cardiorespiratory Arrest	Other

2. A 25-year old primigravida lady was scheduled for elective caesarean section for the indication of twin pregnancy with breech presentation. The lady was brought to the operating theatre and spinal anesthesia was given but failed. The anesthetist decided to go with GA and induction agents were given and intubation tried but difficult due to the relatively small mouth opening with short neck.

What does 'inability to secure airway' mean and what are the causes?

Complications			
High Spinal	Inability to Secure Airway	Cardiorespiratory Arrest	Other

3. A 64-year old woman (weight 69 kg, height 160 cm, BMI 26.95 kg/m²) was scheduled for elective total hip replacement surgery. Pre-operative assessment was unremarkable except for a history of arterial hypertension and hyperlipidemia. Anesthesia was administered with a Whitacre 27-gauge spinal needle at L2-L3 interspace. Spinal puncture was uneventful. She was returned to supine position and urinary bladder was catheterized. Ten minutes after the spinal puncture, sensory level to pinprick was noted to be at T8 bilaterally. For 25 minutes after the intrathecal administration of local anesthetic, patient was fully responsive, oriented, hemodynamically and respiratory stable, with only a slight decrease of arterial blood pressure and heart rate (135/75 mmHg and 55 beats/min, respectively), and oxygen saturation was consistently 100%. Then suddenly the patient becomes unresponsive, apneic, with unmeasurable traces of oxygen saturation and pulseless on carotid artery. P-wave asystole was noted on ECG monitor.

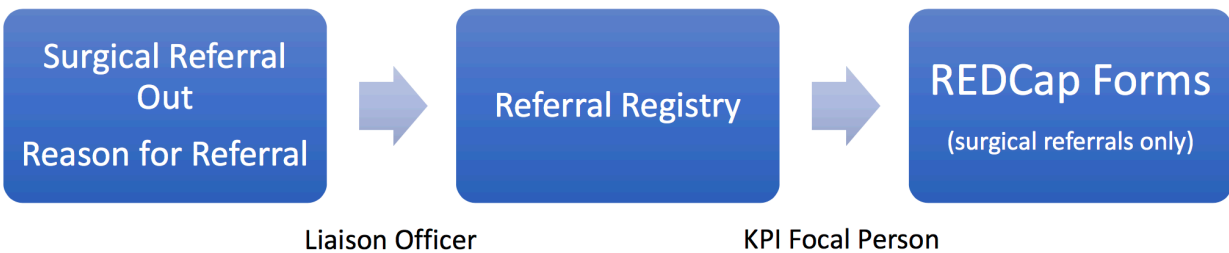
What is the diagnosis and what are the causes for this condition?

Complications			
High Spinal	Inability to Secure Airway	Cardiorespiratory Arrest	Other

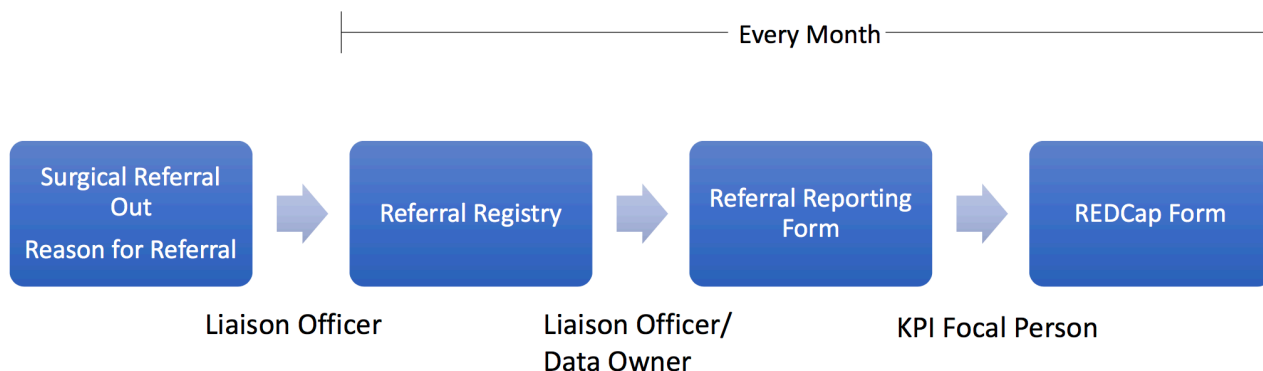
Surgical Referrals Out

Why is this important?	The number of referrals out for surgery at a facility level are indicative of the capability to provide surgical services. The data collected for this additional indicator will allow hospitals to track referral rates and better recognize areas for improvement that may be contributing to the referrals out.	
Definition	Total number of patients referred out of the hospital for surgical services after an on-site assessment by a medical professional in the reporting period	
Unit of measurement	Number	
Formula	<i>Total number of patients referred out of the hospital for surgical services in the reporting period</i>	
Data sources	Referral Registry	
Frequency of reporting	Monthly	
Data entry	Data elements	Total number of patients referred out of the hospital for surgical services in the reporting period Reason for referral
	Responsibilities	Liaison Officer is responsible for filling out the Referral Registry completely. KPI Focal Person will complete the data collection from the registry, data entry, and any analysis.

Daily Referral Data Entry



Monthly Referral Reporting



Reasons for referral should be noted in the referral registry follows:

Training

- A. Need for specialist care
- B. Need for diagnostic equipment training
- C. Need for equipment training (other)

Staff

- D. Medical or surgical personnel not available

Equipment

- E. Lack of diagnostic equipment
- F. Non-functional diagnostic equipment
- G. Non-functional equipment (other)

Drugs/supplies

- H. Lack of medical supplies/consumables
- I. Lack of drugs
- J. Lack of blood

Infrastructure

- K. Lack of inpatient beds
- L. OR occupied
- M. Lack of electricity
- N. Lack of water
- O. Lack of oxygen
- P. Need for ICU-level care

Other

- Q. Please specify
- R. Patient preference

Small Group Activity

Identify the appropriate reason for referral for the following scenarios using the list above. Please indicate if any scenario should not be recorded as a referral.

1. Patient A arrived at the Emergency Department and was evaluated by Dr. X, who determined that she needed to have a CT scan. Since the hospital does not have a CT machine, Dr. X sent the patient to be treated at a nearby referral hospital.

2. A surgeon at the hospital determined that Patient B was in critical need of emergency surgery. However, the hospital's only OR was already being used for a different surgery. The surgeon decided that the patient should receive surgery at a nearby hospital to avoid complications caused by delaying surgery.

3. Patient C was brought to the hospital following a car accident and was found by the examining physician to require surgery immediately. A surgery was already ongoing at the time of this patient's arrival. Although the hospital had two functional ORs and multiple surgeons, the patient was transported to a different hospital since the only anesthetist was already busy working on the ongoing surgery.

4. Patient D was en route to the hospital by ambulance with an open fracture. On assessment by the ambulance staff, he is diverted to a referral hospital after a telephone conversation with the surgeon.

5. Patient E is assessed by a physician after injuring his hand. The physician recommends an x-ray of the hand to assess the injury, but arranges for the patient to go to another nearby hospital since this facility's x-ray machine has not been installed.

6. Two pregnant women admitted for delivery are transferred to a nearby hospital due to an unexpected power outage and lack of back-up generator.

7. Patient F is examined in the emergency department by a GP, who determined that he must have an ultrasound to ensure correct diagnosis. Although an ultrasound is available at the hospital, none of the staff members present know how to use it. The patient is sent to receive an ultrasound at a nearby hospital.

8. Patient G, a laboring mother, is in need of emergency surgery. The surgeon anticipates that this patient may lose large amounts of blood during surgery and require transfusion. Since the hospital does not have an established blood bank, he arranges for her to undergo surgery at a local referral hospital.

Bonus question: What other indicator should this example be recorded in and how?

9. Patient H is found to need surgery but requests to receive it at a different hospital in order to be closer to her family.

10. A hospital is unable to provide surgical services due to a power outage and informs local health centers to send patients elsewhere until the issue is resolved.

11. Patient I is diagnosed with appendicitis in the Emergency Department and requires immediate surgery. The hospital's only instrument set is not yet sterilized from the last surgery, so the patient is sent to another hospital for surgery.

12. A patient requiring oxygen is referred to a different hospital for care during an oxygen shortage.

Summary

Data Intervention Timeline and Activities

			Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Regional Training	Week 1	2/11 - 2/17			TOT Day 1	TOT Day 2	Training Providers	Training Providers	
Intensive On-Site Training	Week 2	2/18 - 2/24				On-Site Visits	On-Site Visits	On-Site Visits	On-Site Visits
	Week 3	2/25 - 3/3		On-Site Visits	On-Site Visits				
	Week 4	3/4 - 3/10		Local Visits	Local Visits	Local Visits	Local Visits	Local Visits	
Local Visits									
Data Quality Checks	Week 5	3/11 - 3/17		Data Quality Checks	Data Quality Checks	Data Quality Checks	Data Quality Checks	Data Quality Checks	
Local Visits	Week 6	3/18 - 3/24		Local Visits	Local Visits	Local Visits	Local Visits	Local Visits	
Data Quality Checks	Week 7	3/25 - 3/31		Data Quality Checks	Data Quality Checks	Data Quality Checks	Data Quality Checks	Data Quality Checks	
Regional A&R	Week 8	4/1 - 4/7		Analysis and Reporting	Analysis and Reporting				

TOT: Two-day training of trainers for clinical mentors and study staff

Training Providers: Training of surgical teams from hospitals

On-Site Visits: PGSSC team visits with local hospital teams to provide further training, support, and feedback on the data collection systems and indicator collection and reporting.

Local Visits: Local mentor teams will visit with each hospital to go over any issues or concerns, check in on progress, and ensure data being collected properly.

Data Quality Checks: PGSSC team will visit with local hospital teams to check in on data quality, do checks of data collection and reporting, and answer any questions the teams may have.

Analysis and Reporting: PGSSC will lead a two-day workshop that will go over the information collected throughout the intervention, allow hospital teams to discuss best practices and lessons learned, and talk about next steps with the data.

Appendix

OR Scheduling Register

Personal Information							Dates		
S. No	MRN No.	Patient Name	Age	Sex	Ward	Bed No.	Date of Admission (DD/MM/YY)	Date scheduled (DD/MM/YY)	Date surgery was performed (DD/MM/YY)

Preoperative Diagnosis	Planned Operation	Time		Operation/ Scrub Team					Cancellation	
		Time surgery began (00:00)	First start case? (Y/N)	Name of					Was the surgery cancelled? (Y/N)	Reason for cancellation
				Surgeon	Assistant(s)	Anesthetist	Scrub nurse	Nurse		

OR Register

Personal Information							Dates		Time	
S. No	MRN No.	Patient Name	Age	Sex	Ward	Bed No.	Date of Hospital Admission (DD/MM/YY)	Date of Operation (DD/MM/YY)	Time surgery began (00:00)	Scheduled as first case? (Y/N)

Preoperative Diagnosis	Elective (L) / Emergent (E)	Postoperative Diagnosis (Write "SAME" if similar Dx to preoperative Dx)	Operation/ Procedure		Safe Surgery Checklist filled out completely? (Y/N)	Type of anesthesia (General = GA, Regional = RA, Spinal = SA)
			Operation Performed			

Operation/ Scrub Team						Patient Condition at the end of surgery			Remark/Complications
Name of						Stable	Critical	Died	
Surgeon	1st assistant	2nd assistant	Anesthetist	Scrub nurse	Runner nurse				

Anesthesia Register

Personal Information								Time				Procedure					GA			Induction Agent	Maintenance
S. No.	MRN No.	Patient Name	Date of Operation (DD/MM/YY)	Age	Sex	Ward	Bed No.	Anesthesia start time (00:00)	Incision time (00:00)	Time surgery ends (00:00)	Time anesthesia ends (00:00)	Diagnosis	Elective (L) / Emergent (E)	Pre-anesthesia assessment performed? (Y/N)	ASA Class (I-V)	Air Way Class (I-IV)	Type of anesthesia used (GA, SA, regional, or local anesthesia)	ETT	LMA		

Relaxation		Reversal	Regional	Name of Anesthetist	Surgical Safety Checklist filled out completely? (Y/N)	Blood Products		
For Intubation	Maintenance					Total number of blood units requested	Total number of blood units cross matched prior to surgery	Total number of blood units transfused

Complications (X if any)				Condition of patient upon leaving the OR (Stable, Critical, Died)	Remark
High Spinal	Inability to Secure Airway	Cardio-respiratory Arrest	Others		

Inpatient Admission/Discharge Register

Personal Information						Admission			Provider initiated testing and counseling (PITC)			Department			Operation (if surgical case)		
									HIV test								
S. No.	MRN No.	Patient Name	Age	Sex (M/F)	Woreda/Subcity	Date of Admission (DD/MM/YY)	HMIS admission disease classification	Admission Diagnosis	Offered	Performed	Test result: R, NR, I	Medical	Ob/Gyn	Surgical	Received major surgery? Y/N	Date of Surgery (DD/MM/YY)	Elective (L)/ Emergent (E)
Discharge														Finance (in Birr)			
Date of Discharge (DD/MM/YY)			Length of stay (days)		Condition at discharge*	Was SSIs diagnosed during the discharge (Y/N)?		HMIS discharge disease classification	Discharge Diagnosis				Calculated Total Hospital Cost	Amount Paid Out of Pocket	Voucher No.		

Inpatient Ward Register

Personal Information						Admission			Operation (if patient operated)					Discharge				
Bed No.	MRN No.	Patient Name	Age	Sex (M/F)	Woreda/ Subcity	Date of Admission (DD/MM/YY)	HMIS admission disease classification	Admission Diagnosis	Received major surgery? Y/N	Date of Surgery (DD/MM/YY)	Elective (L) /Emergent (E)	Surgical Site Infection (SSI) noted during hospital stay (Y/N)?	If Y for SSI: Date of SSI Diagnosis (DD/MM/YY)	Date of Discharge (DD/MM/YY)	Length of stay (days)	Condition at discharge*	HMIS discharge disease classification	Discharge Diagnosis

Condition at Discharge Key

1. Improved

2. Died

3. Same

4. Deteriorated

Referral Register

Personal Information					Referral		Diagnosis	Management		Referring Unit		Department					Patient Condition	
S. No	MRN No.	Name	Age	Sex	Date (DD/MM/YY)	Time		Medical	Surgical	OPD	IPD	Medical	Surgical	GYN/OBS	Pediatric	Emergency	Other	Elective

Reason for Referral *See list below	Referred by		Referred to	Accompanied By	Means of Transportation	Remarks
	Name	Position				

***Reasons for Referral**

Training

- A. Need for specialist care
- B. Need for diagnostic equipment training
- C. Need for equipment training (other)

Staff

- D. Medical or surgical personnel not available

Equipment

- E. Lack of diagnostic equipment
- F. Non-functional diagnostic equipment
- G. Non-functional equipment (other)

Drugs/supplies

- H. Lack of medical supplies/consumables
- I. Lack of drugs
- J. Lack of blood

Infrastructure

- K. Lack of inpatient beds
- L. OR occupied
- M. Lack of electricity
- N. Lack of water
- O. Lack of oxygen
- P. Need for ICU-level care

Other

- Q. Please specify
- R. Patient preference

Surgical Site Infection Logbook

MRN No.	Patient Name	Bed No.	Age	Sex	Date of Surgery (DD/MM/YY)	Procedure performed	Date SSI was Diagnosed (DD/MM/YY)	Postoperative Diagnosis	Wound Culture Result

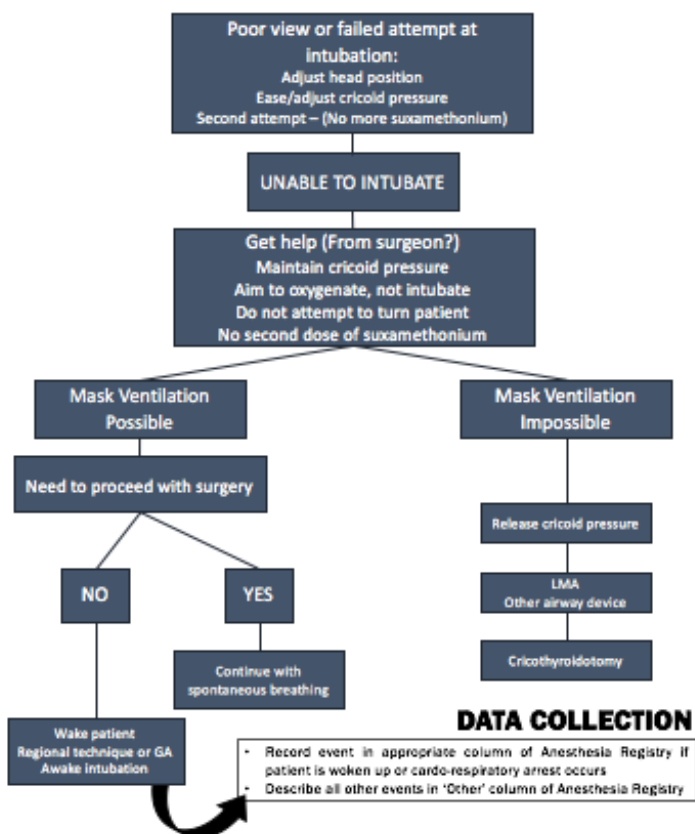
Anesthetic Adverse Outcome Resources

Anesthetic Adverse Event

INABILITY TO SECURE AIRWAY

Definition:

Having to awaken patient due to inability to intubate
Cardiac-respiratory arrest due to failure to intubate



Adapted from World Federation Societies of Anaesthesiologists (WFSA) Safe Obstetrics Anesthesia Manual (2015)

Anesthetic Adverse Event

HIGH SPINAL

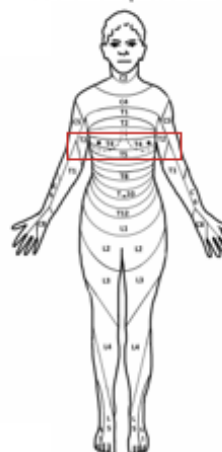
Definition:

Within 15 minutes of administration of spinal anesthesia:
Patient experiences loss of sensation in the shoulder
AND
Need for positive pressure ventilation after administration of spinal anesthesia

Includes any administration of spinal anesthesia extending above the T4 level.

Total Spinal Definition:

Intracranial spread of local anesthetic leading to loss of consciousness



RECOGNITION

- Weakness or tingling of arms, neck or jaw
- Nausea, vomiting and feeling faint
- Marked hypotension or bradycardia
- Difficulty breathing or coughing
- Change in voice or hoarseness
- Loss of consciousness

MANAGEMENT

- Call for help & alert surgeon
- Assess patient using ABC approach
- Provide mainly supportive treatment until spinal wears off

DATA COLLECTION

- Record event in the appropriate column of the Anesthesia Registry if event meets criteria for high spinal
- Describe all other events in 'Other' column of Anesthesia Registry

Adapted from World Federation Societies of Anaesthesiologists (WFSA) Safe Obstetrics Anesthesia Manual (2017)

KPI Monthly Reporting Forms

Hospital: _____
Month: _____
Date Completed: _____
Completed By: _____ Position: _____
Date Reported by Focal Person: _____

KPI Reporting Form: Operating Room

OR Scheduling Register

_____ Total number of elective surgeries scheduled
_____ Total number of elective surgeries cancelled
_____ Total number of major surgical procedures cancelled due to lack of blood
_____ Total number of first elective cases performed in reporting period
_____ Total number of first elective cases commenced on time
_____ Total sum of (Date patient was admitted for elective surgery – Date patient is added to surgical waiting list)
_____ Total number of patients admitted for elective surgery during the reporting period

OR Register

_____ Total number of major surgical procedures performed in OR per reporting period
_____ Total number of major surgical cases listing operation outcome as "Died"
_____ Total number of elective surgical procedures during the reporting period

Anesthesia Register

_____ Number of surgical cases with high spinal anesthesia, inability to secure airway, or cardiorespiratory arrest

Hospital: _____
Month: _____
Date Completed: _____
Completed By: _____ Position: _____
Date Reported by Focal Person: _____

KPI Reporting Form: Inpatient Ward

SSI Logbook

_____ Total number of inpatient SSIs recorded during the reporting period

Hospital: _____
Month: _____
Date Completed: _____
Completed By: _____ Position: _____
Date Reported by Focal Person: _____

KPI Reporting Form: Liaison Office

Referral Register

_____ Total number of patients referred out of the hospital for surgical services in the reporting period

_____ Total number of patients referred due to lack of blood

SSC Review

_____ Number of Safe Surgery Checklists in patient charts that were completed entirely

_____ Number of Safe Surgery Checklists reviewed

Hospital: _____
Month: _____
Date Completed: _____
Completed By: _____ Position: _____
Date Reported by Focal Person: _____

KPI Reporting Form: Admission/Discharge Office

Inpatient Admission/Discharge Register

_____ Sum total surgical patient length of stay during reporting period (Date of discharge – Date of admission (per patient))

_____ Average number of surgical beds during reporting period

_____ Total sum of pre-operative length of stay (Date patient received elective surgery – Date of admission (per patient))

_____ Total number of major surgical cases listing patient condition as deceased at discharge

_____ Number of days in reporting period