



دائرة الصحة
DEPARTMENT OF HEALTH

**JAWDA KPI Quarterly
Guidelines for Cardiac
Surgery (CS) Service
Providers**

January 2020

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Executive Summary

The Department of Health– Abu Dhabi (DOH) is the regulatory body of the healthcare sector in the Emirate of Abu Dhabi and ensures excellence in healthcare for the community by monitoring the health status of its population.

The Emirate of Abu Dhabi is experiencing a substantial growth in the number of hospitals, centers and clinics. This is ranging from school clinics and mobile units to internationally renowned specialist and tertiary academic centers. Although, access and quality of care has improved dramatically over the last couple of decades, mirroring the economic upturn and population boom of Emirate of Abu Dhabi, however challenges remain in addressing further improvements.

The main challenges that are presented with increasingly dynamic population include an aging population with increased expectation for treatment, utilization of technology and diverse workforce leading to increased complexity of healthcare provision in Abu Dhabi. All of this results in an increased and inherent risk to quality and patient safety.

DOH has developed dynamic and comprehensive quality framework in order to bring about improvements across the health sector. This guidance relates to the quality indicators that DOH is mandating the quarterly reporting against by the operating general and specialist hospitals in Abu Dhabi.

The guidance sets out the full definition and method of calculation for patient safety and clinical effectiveness indicators. For enquiries about this guidance, please contact jawda@DoH.gov.ae

This document is subject for review and therefore it is advisable to utilize online versions available on the DOH at all times.

Published: January 2020 Version 1

About this Guidance

The guidance sets out the definitions and reporting frequency of JAWDA Cardiac Surgery (DF) performance indicators. The Department of Health (DoH), with consultation from local and international expertise of cardiac surgeons, has developed Cardiac Surgery Performance Indicators that are aimed for assessing the degree to which a provider competently and safely delivers the appropriate clinical services to the patient within the optimal period of time.

The Jawda KPI for cardiac surgery patients in this guidance include measures to monitor morbidity and mortality in patients undergoing cardiac surgery procedures. . Healthcare providers are the most qualified professionals to develop and evaluate quality of care for cardiac surgery patients; therefore, it is crucial that clinicians retain a leadership position in defining performance among cardiac surgery healthcare providers.

Who is this guidance for?

All DoH licensed healthcare facilities providing Cardiac Surgery in the Emirate of Abu Dhabi.

How do I follow this guidance?

Each provider will nominate one member of staff to coordinate, collect, monitor and report Cardiac Surgery quality indicators data as per communicated dates. The nominated healthcare facility lead must in the first instance e-mail their contact details (if different from previous submission) to JAWDA@doh.gov.ae and submit the required quarterly quality performance indicators through Jawda online portal.

What are the Regulation related to this guidance?

- Legislation establishing the Health Sector
- As per DoH [Policy for Quality and Patient Safety](#) issued January 15th 2017, this guidance applies to all DOH Licensed Hospital Healthcare Facilities in the Emirate of Abu Dhabi in accordance with the requirements set out in this Standard
- [DOH Standard for Centers of Excellence in the Emirate of Abu Dhabi issued March 2019](#)

Jawda Cardiac Surgery (CS) Quality Performance Indicators

Cardiac Surgery Quality Performance Indicators

Type: CS Quality Indicator

Indicator Number: CS 001

KPI Description (title):	Patients Undergoing Isolated CABG Who Receive Anti-Platelet Medication at Discharge
Domain	Patient Safety
Sub-Domain	Clinical Effectiveness
Definition:	Percent of adult patients aged 18 years and older undergoing Isolated CABG surgery who were discharged on anti-platelet medication.
Calculation:	<p>Numerator Number of adult patients undergoing Isolated CABG surgery who were discharged on anti-platelet medication.</p> <p>Denominator All adult patients discharged during the reporting period that have undergone an Isolated CABG procedure. <i>(See Appendix-A-Isolated CABG surgery Procedure CPT Codes).</i></p> <p>Denominator Inclusions</p> <ul style="list-style-type: none"> • Cases that are both on and off-pump • Includes first operation • Includes re-operations (patients who have undergone a previous CABG any time prior to current episode of care) <p>Denominator Exclusions</p> <ul style="list-style-type: none"> • Patients with in-hospital mortality • Patients with clinician documented contraindications to antiplatelets (i.e. allergy, bleeding) <p>Denominator Guidance The contraindication <u>must</u> be documented in the medical record by a physician, nurse practitioner, or physician assistant.</p>
Reporting Frequency:	Quarterly
Unit of Measure:	Percentage
International comparison if available	CardiothoraciCSrocedureSurgery\5. Source of information\ThoracicCardiac Procedure
Desired direction:	Higher numbers are better
Target	90% patients undergoing Isolated CABG surgery discharged on anti-platelet medication
Data sources and guidance:	-Patient medical record -Hospital administrative data

Jawda Cardiac Surgery (CS) Quality Performance Indicators

Type: CS Quality Indicator

Indicator Number: CS002

KPI Description (title):	Patients Undergoing Isolated CABG Who Receive Beta Blockade at Discharge
Domain	Patient Safety
Sub-Domain	Clinical Effectiveness
Definition:	Percent of adult patients aged 18 years and older undergoing Isolated CABG surgery who were discharged on beta-blockers.
Calculation:	<p>Numerator Number of adult patients undergoing Isolated CABG surgery who were discharged on beta-blockers.</p> <p>Denominator All adult patients discharged during the reporting period that have undergone an Isolated CABG procedure (<i>See Appendix-A-Isolated CABG surgery Procedure CPT Codes</i>).</p> <p>Denominator Inclusions</p> <ul style="list-style-type: none"> • Cases that are both on and off-pump • Includes first operation • Includes re-operations (patients who have undergone a previous CABG any time prior to current episode of care) <p>Denominator Exclusions</p> <ul style="list-style-type: none"> • Patients with in-hospital mortality • Patients with documented contraindications to beta blockers <p>Denominator Guidance</p> <ul style="list-style-type: none"> • The contraindication <u>must</u> be documented in the medical record
Reporting Frequency:	Quarterly
Unit of Measure:	Percentage
International comparison if available	CardiothoracicSrocedureSurgery\5. Source of information\ThoracicCardiac Procedure
Desired direction:	Higher numbers are better
Target	90% patients undergoing Isolated CABG surgery discharged on beta blockers
Data sources and guidance:	-Patient medical record -Hospital administrative data

Jawda Cardiac Surgery (CS) Quality Performance Indicators

Type: CS Quality Indicator

Indicator Number: CS003

KPI Description (title):	Patients Undergoing Isolated CABG With Anti-Lipid Treatment at Discharge
Domain	Patient Safety
Sub-Domain	Clinical Effectiveness
Definition:	Percent of adult patients aged 18 years and older undergoing Isolated CABG surgery who were discharged on a lipid lowering statin.
Calculation:	<p>Numerator Number of adult patients undergoing Isolated CABG surgery who were discharged on a lipid lowering statin.</p> <p>Denominator All adult patients discharged during the reporting period that have undergone an Isolated CABG surgery procedure (<i>See Appendix-A- Isolated CABG surgery Procedure CPT Codes</i>).</p> <p>Denominator Inclusions</p> <ul style="list-style-type: none"> • Cases that are both on and off-pump • Includes first operation • Includes re-operations (patients who have undergone a previous CABG any time prior to current episode of care) <p>Denominator Exclusions</p> <ul style="list-style-type: none"> • Patients with in-hospital mortality • Patients with clearly documented contraindications to lipids <p>Denominator Guidance The contraindication <u>must</u> be documented in the medical record</p>
Reporting Frequency:	Quarterly
Unit of Measure:	Percentage
International comparison if available	CardiothoraciCSrocedureSurgery\5. Source of information\ThoracicCardiac Procedure
Desired direction:	Higher numbers are better.
Target	<i>90% patients undergoing Isolated CABG surgery discharged on a lipid lowering treatment.</i>
Data sources and guidance:	-Patient medical record -Hospital administrative data

Jawda Cardiac Surgery (CS) Quality Performance Indicators

Type: CS Quality Indicator

Indicator Number: CS004

KPI Description (title):	Patients Undergoing Isolated CABG who Receive Preoperative Beta Blockade
Domain	Patient Safety
Sub-Domain	Clinical Effectiveness
Definition:	Percent of adult patients aged 18 years and older undergoing Isolated CABG surgery who received beta-blockers within 24 hours preceding surgery.
Calculation:	<p>Numerator Number of adult patients undergoing Isolated CABG surgery who received beta-blockers within 24 hours prior to incision in the operating room.</p> <p>Denominator All adult patients discharged during the reporting period that have undergone an Isolated CABG surgery procedure (<i>See Appendix-A- Isolated CABG surgery Procedure CPT Codes</i>).</p> <p>Denominator Inclusions</p> <ul style="list-style-type: none"> • Cases that are both on and off-pump • Includes first operation • Includes re-operations (patients who have undergone a previous CABG any time prior to current episode of care) <p>Denominator Exclusions</p> <ul style="list-style-type: none"> • Clinical status of the patient was emergent or emergent salvage prior to entering the operating room • Patients with clearly documented contraindications to beta blockers <p>Denominator Guidance</p> <ul style="list-style-type: none"> • The contraindication <u>must</u> be documented in the medical record
Reporting Frequency:	Quarterly
Unit of Measure:	Percentage
International comparison if available	CardiothoraciCSrocedureSurgery\5. Source of information\ThoracicCardiac Procedure
Desired direction:	Higher numbers are better
Target	90% patients undergoing Isolated CABG surgery received beta-blockers within 24 hrs. prior to surgery.
Data sources and guidance:	-Patient medical record -Hospital administrative data

Jawda Cardiac Surgery (CS) Quality Performance Indicators

Type: CS Quality Indicator

Indicator Number: CS005

KPI Description (title):	Patients Undergoing Isolated CABG Use of Internal Mammary Artery (IMA)
Domain	Patient Safety
Sub-Domain	Clinical Effectiveness
Definition:	Percentage of adult patients aged 18 years and older undergoing Isolated CABG surgery who received an internal mammary artery (IMA) graft.
Calculation:	<p>Numerator Number of adult patients undergoing Isolated CABG surgery who received a 'Left IMA', 'Right IMA' or 'Both' internal mammary artery (IMA) graft.</p> <p>Denominator All patients discharged during the reporting period that have undergone an Isolated CABG surgery procedure (<i>See Appendix-A-Isolated CABG surgery Procedure CPT Codes</i>).</p> <p>Denominator Inclusions</p> <ul style="list-style-type: none"> • Cases that are both on and off-pump • Includes first operation <p>Denominator Exclusions</p> <ul style="list-style-type: none"> • Patient had a previous CABG surgery prior to the current admission • IMA was not used and one of the following reasons was provided: <ul style="list-style-type: none"> - Subclavian stenosis - Previous cardiac or thoracic surgery - Previous mediastinal radiation - Emergent or salvage procedure - No (by- passable) LAD disease
Reporting Frequency:	Quarterly
Unit of Measure:	Percentage
International comparison if available	CardiothoraciCSrocedureSurgery\5. Source of information\ThoracicCardiac Procedure
Desired direction:	Higher numbers are better
Data sources and guidance:	-Patient medical record -Hospital administrative data

Jawda Cardiac Surgery (CS) Quality Performance Indicators

Type: CS Quality Indicator

Indicator Number: CS006

KPI Description (title):	Patients Undergoing Isolated CABG Who Develop Postoperative Renal Failure
Domain	Patient Safety
Sub-Domain	Complication
Definition:	Percent of adult patients aged 18 years and older undergoing Isolated CABG surgery that develop postoperative renal failure or require dialysis.
Calculation:	<p>Numerator Number of adult patients undergoing Isolated CABG surgery who develop postoperative renal failure or require dialysis during the hospitalization for surgery.</p> <p>Numerator Inclusions: Patients with acute renal failure or worsening renal function resulting in ONE OR BOTH of the following:</p> <ul style="list-style-type: none"> • Increase in Serum Creatinine level 3x greater than baseline or Serum Creatinine level ≥ 4.0mg/dL, acute rise must be at least 0.5mg/dL OR • A new requirement for dialysis postoperatively <p>Denominator All patients discharged during the reporting period that have undergone an Isolated CABG surgery <i>(See Appendix-A for Isolated CABG surgery Procedure CPT code)</i></p> <p>Denominator Inclusions</p> <ul style="list-style-type: none"> • Cases that are both on and off-pump • Includes first operation • Includes re-operations (patients who have undergone a previous CABG any time prior to current episode of care) <p>Denominator Exclusions</p> <ul style="list-style-type: none"> • Patients with documented history of renal failure (Present On Admission) • Exclude patients with prior renal transplants if their creatinine has been or is ≥ 4.0 or dialysis is documented as 'yes' post-transplant baseline serum creatinine ≥ 4.0 • Patients undergoing dialysis currently (prior to surgery) • Renal dialysis if ultrafiltration is the only documentation found in the record since this is for volume management <p>Denominator guidance Dialysis includes any form of peritoneal or hemodialysis the patient is receiving prior to surgery. Also, may include Continuous Veno-Venous Hemofiltration (CVVH, CVVH-D), and Continuous Renal Replacement Therapy (CRRT) as dialysis.</p>
Reporting Frequency:	Quarterly
Unit of Measure:	Percentage
International comparison if available	CardiothoraciCSrocedureSurgery\5. Source of information\ThoracicCardiac Procedure https://www.sts.org/sites/default/files/ACSD_TrainingManualV2-9_July2019.pdf

Jawda Cardiac Surgery (CS) Quality Performance Indicators

	sequence # 6870
Desired direction:	Lower numbers are better
Data sources and guidance:	-Patient medical record -Hospital administrative data

Jawda Cardiac Surgery (CS) Quality Performance Indicators

KPI Description (title):	Rate of unplanned Re-operation In Patients Having Major Cardiac Surgery
Domain	Patient Safety
Sub-Domain	Complication
Definition:	Percent of adult patients aged 18 years and older undergoing major cardiac surgery that require an unplanned return to the operating room during same hospitalization.
Calculation:	<p>Numerator Number of adult patients undergoing major cardiac surgery who require an unplanned return to the operating room during the same hospitalization up to discharge, even if beyond 30 days post-op.</p> <p>Numerator Inclusions:</p> <ul style="list-style-type: none"> • Include patients that return to an operating room suite or equivalent OR environment (i.e., ICU setting) as identified by your institution • Surgical re-intervention must be during the index surgical admission <p>Numerator Guidance:</p> <ul style="list-style-type: none"> • An unplanned return to OR is for any reason included but not limited to: Bleeding, with or without tamponade, graft occlusion, valve dysfunction, reintervention for myocardial ischemia (graft or native vessel), aortic reintervention, or other cardiac or non-cardiac reason). • For non-cardiac re-op include procedures requiring a return to the operating room, such as a tracheostomy, hematoma evacuation, etc. <p>Numerator Exclusions:</p> <ul style="list-style-type: none"> • Procedures performed outside the operating room, such as GI lab for peg tubes, shunts for dialysis, etc. • Do not capture reopening of the chest or situations of excessive bleeding that occur prior to the patient leaving the operating room at the time of the primary procedure. <p>Denominator All patients discharged during the reporting period that have undergone a major cardiac surgery procedure (See Appendix-B- Major Cardiac surgery Procedure CPT Codes).</p>
Reporting Frequency:	Quarterly
Unit of Measure:	Percentage
International comparison if available	CardiothoraciCSrocedureSurgery\5. Source of information\ThoracicCardiac Procedure
Desired direction:	Lower number are better
Data sources and guidance:	-Patient medical record -Hospital administrative data

Jawda Cardiac Surgery (CS) Quality Performance Indicators

Type: CS Quality Indicator

Indicator Number: CS008

KPI Description (title):	All cause 30-day unplanned hospital readmissions after Major Cardiac Surgery Procedure
Domain	Patient Safety
Sub-Domain	Complication
Definition:	Percent of adult patients aged 18 years and older undergoing major cardiac surgery with unplanned inpatient readmission within 30 days of discharge from surgical admission. All related and unrelated readmissions to be included.
Calculation:	<p>Numerator: Number of adult patients undergoing major cardiac surgery with unplanned inpatient readmission within 30 days of discharge from the cardiac surgery hospitalization.</p> <p>Numerator Inclusion:</p> <ul style="list-style-type: none"> • All related and unrelated unplanned inpatient admissions within 30 days of discharge • If the patient was discharged to an “Acute Rehab” floor of the same hospital and then readmitted back as an in-patient into a nursing floor, code “Yes” <p>Inclusion Guidance:</p> <ul style="list-style-type: none"> • If patient has multiple readmissions within 30 days of index discharge, only count as a single readmission • Readmissions do not need to be at same institution where the initial surgical procedure was done <p>Denominator All patients discharged alive during the reporting period that have undergone a major cardiac surgery (<i>See Appendix-B for Major Cardiac Surgery CPT Codes</i>).</p>
Reporting Frequency:	Quarterly
Unit of Measure:	Percentage
International comparison if available	https://www.sts.org/sites/default/files/ACSD_TrainingManualV2-9_July2019.pdf Sequence #7140
Desired direction:	Lower numbers are better
Data sources and guidance:	-Patient medical record -Hospital administrative data

Jawda Cardiac Surgery (CS) Quality Performance Indicators

Type: CS Quality Indicator

Indicator Number: CS009

KPI Description (title):	Rate of all-cause mortality occurring within 30 days of Major Cardiac Surgery Procedure
Domain	Patient Safety
Sub-Domain	Complication
Definition:	Percent of all-cause mortality in adult patients aged 18 years and older who have undergone major cardiac surgery.
Calculation:	<p>Numerator Number of adult patients undergoing major cardiac surgery who expire within 30 days of procedure with in-hospital or post-discharge all-cause mortality.</p> <p>Denominator All patients discharged during the reporting period that have undergone a major cardiac surgery procedure (<i>See Appendix-B- Major Cardiac surgery Procedure CPT Codes</i>).</p>
Reporting Frequency:	Quarterly
Unit of Measure:	Percentage
International comparison if available	CardiothoraciCSrocedureSurgery\5. Source of information\ThoracicCardiac Procedure
Desired direction:	Lower numbers are better
Data sources and guidance:	<ul style="list-style-type: none"> -Patient medical record -Hospital administrative data

Jawda Cardiac Surgery (CS) Quality Performance Indicators

Type: CS Quality Indicator

Indicator Number: CS010

KPI Description (title):	Postoperative Prolonged Intubation (Ventilation) After Major Cardiac Surgery Procedure
Domain	Patient Safety
Sub-Domain	Complication
Definition:	Percent of adult patients aged 18 years and older undergoing major cardiac surgery who require intubation for more than 24 hours after surgery.
Calculation:	<p>Numerator Number of adult patients undergoing major cardiac surgery who require intubation > 24 hours post operating room exit.</p> <p>Numerator Inclusions: Causes such as ARDS, pulmonary edema, and/or any patient requiring mechanical ventilation > 24 hours postoperatively.</p> <p>Numerator Guidance:</p> <ul style="list-style-type: none"> • The hours of postoperative ventilation time include operating room exit until extubation, plus any additional hours following reintubation (excluding time in Operating Room) • Ventilator hours are calculated with a decimal point so that minutes can be included. Divide the number of minutes by 60. Examples: 6 minutes = 0.1 hours 15 minutes = 0.3 hours 30 minutes = 0.5 hours 45 minutes = 0.8 hours, etc. • If patient has a trach, calculate the time patient separated from mechanical ventilator post-operatively. <p>Numerator Exclusions: Do not include the hours ventilated during return to the operating room suite, which requires re- intubation as part of general anesthesia.</p> <p>Denominator All patients discharged during the reporting period that have undergone a major cardiac surgery procedure. <i>(See Appendix-B- Major Cardiac surgery Procedure CPT Codes).</i></p>
Reporting Frequency:	Quarterly
Unit of Measure:	Percentage
International comparison if available	CardiothoraciCSrocedureSurgery\5. Source of information\ThoracicCardiac Procedure
Desired direction:	Lower numbers are better
Data sources and guidance:	-Patient medical record -Hospital administrative data

Jawda Cardiac Surgery (CS) Quality Performance Indicators

Type: CS Quality Indicator

Indicator Number: CS011

KPI Description (title):	Stroke/Cerebrovascular Accident After Major Cardiac Surgery Procedure
Domain	Patient Safety
Sub-Domain	Complication
Definition:	Percent of adult patients aged 18 years and older undergoing major cardiac surgery who have a postoperative stroke that did not resolve within 24 hours.
Calculation:	<p>Numerator Number of adult patients undergoing major cardiac surgery who have a postoperative stroke (i.e., any confirmed neurological deficit of abrupt onset caused by a disturbance in blood supply to the brain) that did not resolve within 24 hours during the hospital encounter, even if after 30 days of surgery.</p> <p>Numerator Guidance</p> <ul style="list-style-type: none"> • There are two forms of stroke: <ul style="list-style-type: none"> • Ischemic - blockage of a blood vessel supplying the brain • Hemorrhagic - bleeding into or around the brain • Embolic strokes should be coded as ischemic. • Stroke must be confirmed by physician documentation and/or imaging <p>Denominator All patients discharged during the reporting period that have undergone a major cardiac surgery procedure. (<i>See Appendix-B- Major Cardiac surgery Procedure CPT Codes</i>).</p>
Reporting Frequency:	Quarterly
Unit of Measure:	Percentage
International comparison if available	CardiothoraciCSrocedureSurgery\5. Source of information\ThoracicCardiac Procedure https://www.ninds.nih.gov/Disorders/All-Disorders/Stroke-Information-Page
Desired direction:	Lower numbers are better
Data sources and guidance:	-Patient medical record -Hospital administrative data

Jawda Cardiac Surgery (CS) Quality Performance Indicators

Type: CS Quality Indicator

Indicator Number: CS012

KPI Description (title):	Surgical Site infection for Major Cardiac Surgery Procedure
Domain	Patient Safety
Sub-Domain	Complication
Definition:	Percent of adult patients aged 18 years and older undergoing major cardiac surgery who, within 30 days postoperatively, develop surgical site wound infection involving muscle, bone, and/or mediastinum requiring operative intervention.
Calculation:	<p>Numerator Number of adult patients who within 30 days postoperatively, develop surgical site infection involving muscle, bone and/or mediastinum requiring operative intervention.</p> <p>Numerator Guidance:</p> <ul style="list-style-type: none"> • Confirmation of surgical site infection is captured via the medical record <p>Superficial Incisional SSI: Must meet the following criteria:</p> <ul style="list-style-type: none"> • Infection occurs \leq 30 days, and involves only skin/subcutaneous tissue of the incision, and patient has \geq one of the following: <ul style="list-style-type: none"> ○ Purulent drainage from the superficial incision. ○ Organisms isolated from an aseptically-obtained culture of fluid or tissue from the superficial incision. ○ Superficial incision that is deliberately opened by a surgeon, attending physician or other designee and is culture positive or not cultured and patient has \geq one of the following: <ul style="list-style-type: none"> ▪ pain or tenderness ▪ localized swelling ▪ redness ▪ heat ○ A culture with negative findings does not meet this criterion. • Diagnosis of a superficial incisional SSI by the surgeon or attending Physician or other designee. • There are two specific types of superficial incisional SSIs: <ul style="list-style-type: none"> ○ Superficial Incisional Primary (SIP) – a superficial incisional SSI that is identified in the primary incision in a patient that has had an operation with one or more incisions (chest incision for CABG) ○ Superficial Incisional Secondary (SIS) – a superficial incisional SSI that is identified in the secondary incision in a patient that has had an operation with more than one incision (e.g., donor site incision for CABG) <p>Do not include:</p> <ul style="list-style-type: none"> • A stitch abscess alone (minimal inflammation and discharge confined to the points of suture penetration) • A localized stab wound or pin site infection. • Diagnosis of “cellulitis” by itself

Deep incisional SSI: Must meet the following criteria

- Infection occurs within 30 days after the operative procedure, AND involves deep soft tissues of the incision (e.g., fascial and muscle layers) AND patient has at least one of the following:
 - Purulent drainage from the deep incision.
 - A deep incision that spontaneously dehisces or is deliberately opened by a surgeon, attending physician or other designee and is culture-positive or not cultured, AND patient has at least one of the following signs or symptoms:
 - Fever (>38°C)
 - Localized pain or tenderness
 - An abscess or other evidence of infection involving the deep incision that is detected on direct examination, during invasive procedure, or by histopathologic examination or imaging test.
 - A culture with negative findings does not meet this criterion.

There are two specific types of deep incisional SSIs:

- Deep Incisional Primary (DIP) – a deep incisional SSI that is identified in a primary incision in a patient that has had an operation with one or more incisions (e.g., chest incision for CABG)
- Deep Incisional Secondary (DIS) – a deep incisional SSI that is identified in the secondary incision in a patient that has had an operation with more than one incision (e.g., donor site incision for CABG)

Organ/Space SSI: Must meet the following criteria

- Infection occurs within 30 days after the operative procedure, and infection involves any part of the body, excluding the skin incision, fascia, or muscle layers, that is opened or manipulated during the operative procedure, and patient has at least one of the following:
 - Purulent drainage from a drain that is placed into the organ/space
 - Organisms isolated from an aseptically-obtained culture of fluid or tissue in the organ/space
 - An abscess or other evidence of infection involving the organ/space that is detected on direct examination, during invasive procedure, or by histopathologic examination or imaging test, and meets at least one criterion for a specific organ/space infection of mediastinitis below:

Mediastinitis: Must meet at least 1 of the following criteria:

- Patient has organisms cultured from mediastinal tissue or fluid obtained during an invasive procedure.
- Patient has evidence of mediastinitis seen during an invasive procedure or histopathologic examination.
- Patient has at least 1 of the following signs or symptoms:
 - Fever (>38°C)
 - Chest pain*
 - Sternal instability* and at least 1 of the following:
 - Purulent discharge from mediastinal area
 - Organisms cultured from blood or discharge from mediastinal area or Mediastinal widening on imaging test.

Jawda Cardiac Surgery (CS) Quality Performance Indicators

	Denominator: All adult patients undergoing major cardiac surgery procedure during the reporting period (<i>See Appendix-B- Major Cardiac surgery Procedure CPT Codes</i>).
Reporting Frequency:	Quarterly
Unit of Measure:	Percentage
International comparison if available	CardiothoraciCSrocedureSurgery\5. Source of information\ThoracicCardiac Procedure CDC definition of surgical site infection: https://www.cdc.gov/nhsn/pdfs/pscmanual/9pscscscurrent.pdf
Desired direction:	Lower numbers are better
Data sources and guidance:	-Patient medical record -Hospital administrative data

Jawda Cardiac Surgery (CS) Quality Performance Indicators

Type: CS Quality Indicator

Indicator Number: CS013

KPI Description (title):	Appropriate Antibiotic Timing for Major Cardiac Surgery Patients
Domain	Patient Safety
Sub-Domain	Clinical Effectiveness
Definition:	Percentage of adult patients aged 18 years and older undergoing major cardiac surgery who received prophylactic antibiotics within one hour of surgical incision (two hours if receiving vancomycin or fluoroquinolone). The surgical incision time is the time of the first incision, regardless of location.
Calculation:	<p>Numerator Number of adult patients undergoing major cardiac surgery who received a first generation or second generation cephalosporin prophylactic antibiotic (e.g., cefazolin, cefuroxime, cefamandole) within one hour of surgical incision (two hours if receiving vancomycin or fluoroquinolone) or in the event of a documented allergy, an alternate antibiotic choice (e.g., vancomycin, clindamycin)</p> <p>Denominator All adult patients discharged during the reporting period that have undergone a major cardiac surgery procedure (<i>See Appendix-B- Major Cardiac surgery Procedure CPT Codes</i>).</p> <p>Denominator Exclusions:</p> <ul style="list-style-type: none"> • Patients with clearly documented contraindications for not administering antibiotic (i.e. allergy) • Patients who had a principal diagnosis suggestive of preoperative infectious diseases • Patients whose ICD-10-CM principal procedure was performed entirely by laparoscope • Patients enrolled in clinical trials • Patients with documented infection prior to surgical procedure of interest • Patients who expired peri-operatively • Patients who were receiving antibiotics more than 24 hours prior to surgery • Patients who were receiving antibiotics within 24 hours prior to arrival
Reporting Frequency:	Quarterly
Unit of Measure:	Percentage
International comparison if available	https://www.sts.org/sites/default/files/ACSD_TrainingManualV2-9_July2019.pdf Sequence #2285 http://www.sts.org/resources-publications/clinical-practice-credentialing-guidelines/antibiotic-guidelines
Desired direction:	Higher numbers are better
Data sources and guidance:	-Patient medical record -Hospital administrative data

Jawda Cardiac Surgery (CS) Quality Performance Indicators

Appendix-A- Isolated CABG surgery Procedure CPT Codes

Isolated CABG Procedures: The determination of procedure type is based on index surgery. Cases may be considered Isolated CABG even with secondary procedure performed during same operating room encounter

Guidance: This may not be an exhaustive CPT list. Please consider the following when identifying Isolated CABG eligible cases.

CABG only

CABG – planned or unplanned due to unsuspected disease or anatomy

CABG plus Aortic or Mitral or Tricuspid or Pulmonic Valve Surgery if unplanned due to surgical complication

CABG plus PFO, Primary closure

CABG plus Anomalous origin of coronary artery from pulmonary artery repair

CABG plus Anomalous aortic origin of coronary artery from aorta (AAOCA) repairs

CABG plus VAD implant in conjunction with surgical procedure (same trip to OR) – unplanned

CABG plus aortic procedure - unplanned due to surgical complication

CABG plus Atrial Fibrillation procedure –primarily epicardial

CABG plus Carotid Endarterectomy- unplanned due to surgical complication

CABG plus Other Vascular procedure (i.e. bypass SVE, Lower Extremity or Renal artery_ -unplanned due to surgical complication)

CABG plus Other Thoracic procedure (i.e. lung resection) –unplanned due to surgical complication

Procedure Name	CPT Description	CPT Codes
ROBOTIC TECAB W/MIDCAB	CAB W/ARTL GRF 2 C ARTL GRFS	33534
BYPASS ARTERY - CORONARY REDO ON PUMP	CORONARY ARTERY BYPASS 1 CORONARY VENOUS GRAFT	33510
BYPASS GRAFT - ARTERY CORONARY OFF PUMP	CORONARY ARTERY BYPASS 1 CORONARY VENOUS GRAFT	33510
CAROTID ENDARTERECTOMY WITH CABG	C ENDARTERCOMY OPN ANY METH	33572
CORONARY ARTERY BYPASS, VEIN ONLY; SINGLE CORONARY VENOUS GRAFT	CORONARY ARTERY BYPASS 1 CORONARY VENOUS GRAFT	33510
CORONARY ARTERY BYPASS, VEIN ONLY; 2 CORONARY VENOUS GRAFTS	CORONARY ARTERY BYPASS 2 CORONARY VENOUS GRAFTS	33511
CORONARY ARTERY BYPASS, VEIN ONLY; 3 CORONARY VENOUS GRAFTS	CORONARY ARTERY BYPASS 3 CORONARY VENOUS GRAFTS	33512
CORONARY ARTERY BYPASS, VEIN ONLY; 4 CORONARY VENOUS GRAFTS	CORONARY ARTERY BYPASS 4 CORONARY VENOUS GRAFTS	33513
CORONARY ARTERY BYPASS, VEIN ONLY; 5 CORONARY VENOUS GRAFTS	CORONARY ARTERY BYPASS 5 CORONARY VENOUS GRAFTS	33514
CORONARY ARTERY BYPASS, VEIN ONLY; 6 OR MORE CORONARY VENOUS GRAFTS	CORONARY ARTERY BYPASS 6/+ CORONARY VENOUS GRAFT	33516
CORONARY ARTERY BYPASS, USING VENOUS GRAFT(S) AND ARTERIAL GRAFT(S);SINGLE VEIN GRAFT	CORONARY ARTERY BYP W VEIN &ARTERY GRAFT 1 VEIN	33517

Jawda Cardiac Surgery (CS) Quality Performance Indicators

CORONARY ARTERY BYPASS, USING VENOUS GRAFT(S) AND ARTERIAL GRAFT(S); 2VENOUS GRAFTS	CORONARY ARTERY BYP W VEIN &ARTERY GRAFT 2 VEIN	33518
CORONARY ARTERY BYPASS, USING VENOUS GRAFT(S) AND ARTERIAL GRAFT(S); 3VENOUS GRAFTS	CORONARY ARTERY BYP W VEIN &ARTERY GRAFT 3 VEIN	33519
CORONARY ARTERY BYPASS, USING VENOUS GRAFT(S) AND ARTERIAL GRAFT(S); 4VENOUS GRAFTS	CORONARY ARTERY BYP W VEIN &ARTERY GRAFT 4 VEIN	33521
CORONARY ARTERY BYPASS, USING VENOUS GRAFT(S) AND ARTERIAL GRAFT(S); 5VENOUS GRAFTS	CORONARY ARTERY BYP W VEIN &ARTERY GRAFT 5 VEIN	33522
CORONARY ARTERY BYPASS, USING VENOUS GRAFT(S) AND ARTERIAL GRAFT(S); 6OR MORE VENOUS GRAFTS	CORONARY ARTERY BYP W VEIN &ARTERY GRAFT 6 VEIN	33523
CORONARY ARTERY BYPASS, USING ARTERIAL GRAFT(S); SINGLE ARTERIAL GRAFT	CAB W/ARTL GRF 1 ARTL GRF	33533
CORONARY ARTERY BYPASS, USING ARTERIAL GRAFT(S); 2 CORONARY ARTERIALGRAFTS	CAB W/ARTL GRF 2 C ARTL GRFS	33534
CORONARY ARTERY BYPASS, USING ARTERIAL GRAFT(S); 3 CORONARY ARTERIALGRAFTS	CAB W/ARTL GRF 3 C ARTL GRFS	33535
CORONARY ARTERY BYPASS, USING ARTERIAL GRAFT(S); 4 OR MORE CORONARYARTERIAL GRAFTS	CAB W/ARTL GRF 4/> C ARTL GRFS	33536
REPAIR OF CORONARY ARTERIOVENOUS OR ARTERIOCARDIAC CHAMBER FISTULA; WITHCARDIOPULMONARY BYPASS	RPR C ARVEN/ARTERIOCAR CHAMBER FSTL W/CARD BYP	33500
REPAIR OF CORONARY ARTERIOVENOUS OR ARTERIOCARDIAC CHAMBER FISTULA;WITHOUT CARDIOPULMONARY BYPASS	RPR C ARVEN/ARTERIOCAR CHAMBER FSTL W/O CARD BYP	33501
CORONARY ENDARTERECTOMY, OPEN, ANY METHOD, OF LEFT ANTERIOR DESCENDING,CIRCUMFLEX/RIGHT CORONARY ARTERY PERFORMED IN CONJUNCTION WITHCORONARY ARTERY BYPASS GRAFT PROCEDURE, EACH VESSEL	C ENDARTERCOMY OPN ANY METH	33572
REDO OFF PUMP CORONARY ARTERY BYPASS PROCEDURE OR VALVE PROCEDURE	ROPRTJ CAB/VALVE PX > 1 MO AFTER ORIGINAL OPERJ	33530
ROBOTIC TECAB	CAB W/ARTL GRF 1 ARTL GRF	33533
OFF PUMP CABG, USING ARTERIAL GRAFT(S); 2 CORONARY ARTERIALGRAFTS	CAB W/ARTL GRF 2 C ARTL GRFS	33534
OFF PUMP CABG, USING ARTERIAL GRAFT(S); 3 CORONARY ARTERIALGRAFTS	CAB W/ARTL GRF 3 C ARTL GRFS	33535
OFF PUMP CABG, USING ARTERIAL GRAFT(S); 4 OR MORE CORONARYARTERIAL GRAFTS	CAB W/ARTL GRF 4/> C ARTL GRFS	33536

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OFF PUMP CABG, USING ARTERIAL GRAFT(S); SINGLE ARTERIAL GRAFT	CAB W/ARTL GRF 1 ARTL GRF	33533
OFF PUMP CABG, USING VENOUS GRAFT(S) AND ARTERIAL GRAFT(S); 2VENOUS GRAFTS	CORONARY ARTERY BYP W VEIN &ARTERY GRAFT 2 VEIN	33518
OFF PUMP CABG, USING VENOUS GRAFT(S) AND ARTERIAL GRAFT(S); 3VENOUS GRAFTS	CORONARY ARTERY BYP W VEIN &ARTERY GRAFT 3 VEIN	33519
OFF PUMP CABG, USING VENOUS GRAFT(S) AND ARTERIAL GRAFT(S); 4VENOUS GRAFTS	CORONARY ARTERY BYP W VEIN &ARTERY GRAFT 4 VEIN	33521
OFF PUMP CABG, USING VENOUS GRAFT(S) AND ARTERIAL GRAFT(S); 5VENOUS GRAFTS	CORONARY ARTERY BYP W VEIN &ARTERY GRAFT 5 VEIN	33522
OFF PUMP CABG, USING VENOUS GRAFT(S) AND ARTERIAL GRAFT(S); 6OR MORE VENOUS GRAFTS	CORONARY ARTERY BYP W VEIN &ARTERY GRAFT 6 VEIN	33523
OFF PUMP CABG, USING VENOUS GRAFT(S) AND ARTERIAL GRAFT(S);SINGLE VEIN GRAFT	CORONARY ARTERY BYP W VEIN &ARTERY GRAFT 1 VEIN	33517
OFF PUMP CABG, VEIN ONLY; 2 CORONARY VENOUS GRAFTS	CORONARY ARTERY BYPASS 2 CORONARY VENOUS GRAFTS	33511
OFF PUMP CABG, VEIN ONLY; 3 CORONARY VENOUS GRAFTS	CORONARY ARTERY BYPASS 3 CORONARY VENOUS GRAFTS	33512
OFF PUMP CABG, VEIN ONLY; 4 CORONARY VENOUS GRAFTS	CORONARY ARTERY BYPASS 4 CORONARY VENOUS GRAFTS	33513
OFF PUMP CABG, VEIN ONLY; 5 CORONARY VENOUS GRAFTS	CORONARY ARTERY BYPASS 5 CORONARY VENOUS GRAFTS	33514
OFF PUMP CABG, VEIN ONLY; 6 OR MORE CORONARY VENOUS GRAFTS	CORONARY ARTERY BYPASS 6/+ CORONARY VENOUS GRAFT	33516
OFF PUMP CABG, VEIN ONLY; SINGLE CORONARY VENOUS GRAFT	CORONARY ARTERY BYPASS 1 CORONARY VENOUS GRAFT	33510

Jawda Cardiac Surgery (CS) Quality Performance Indicators

Appendix-B – Major Cardiac surgery Procedure CPT Codes

Other Major Procedures: The determination of procedure type is based on index surgery.

Guidance: This may not be an exhaustive CPT list. Please consider the following when identifying eligible cases.

STS Major Procedures:

- **Isolated Aortic Valve Replacement (AV Replace)**
- **Aortic Valve Replacement + CABG (AV Replace + CABG)**
- **Mitral Valve Replacement + CABG (MV Replace + CABG)**
- **Isolated Mitral Valve Repair (MV Repair)**
 - Mitral Valve Repair with surgical Atrial fibrillation ablation
 - Mitral Valve Repair with surgical ASD closure
 - Mitral Valve Repair with surgical Tricuspid Valve Repair
- **Mitral Valve Repair + CABG (MV Repair + CABG)**
- **Isolated Mitral Valve Replacement (MV Replace)**
 - Mitral Valve Replacement with surgical Atrial fibrillation ablation
 - Mitral Valve Replacement with surgical ASD closure
 - Mitral Valve Replacement with surgical Tricuspid Valve Repair

Procedure Name	CPT Description	CPT Codes
VALVULOPLASTY, AORTIC VALVE; OPEN, WITH CARDIOPULMONARY BYPASS	VLVP AORTIC VALVE OPN W/CARD BYP	33400
OPEN AORTIC VALVULOPLASTY W/ CARDIOPULMONARY BYPASS	VLVP AORTIC VALVE OPN W/CARD BYP	33400
VALVULOPLASTY, AORTIC VALVE; OPEN, WITH INFLOW OCCLUSION	VLVP AORTIC VALVE OPN W/INFL OCCLUSION	33401
REPLACEMENT, AORTIC VALVE, WITH CARDIOPULMONARY BYPASS; WITH PROSTHETIC VALVE OTHER THAN HOMOGRAFT OR STENTLESS VALVE	RPLCMT A-VALVE PROSTC XCP HOMOGRF/STENT< VALVE	33405
MINIMALLY INVASIVE AORTIC VALVE REPLACEMENT W/ CP BYPASS	RPLCMT A-VALVE PROSTC XCP HOMOGRF/STENT< VALVE	33405
AORTIC OPEN IMPLANTATION OF PROSTHETIC HEART VALVE	RPLCMT A-VALVE PROSTC XCP HOMOGRF/STENT< VALVE	33405
REPLACEMENT, AORTIC VALVE, WITH CARDIOPULMONARY BYPASS; WITH ALLOGRAFTVALVE (FREEHAND)	RPLCMT A-VALVE ALGRFT VALVE FRHAND	33406
REPLACEMENT, AORTIC VALVE, WITH CARDIOPULMONARY BYPASS; WITH STENTLESSTISSUE VALVE	RPLCMT A-VALVE STENT< TISS VALVE	33410
AVR W/ AORTIC ANNULUS ENLARGEMENT	RPLCMT AORTIC VALVE ANNULUS ENLGMENT NONC SINUS	33411
REPLACEMENT, AORTIC VALVE; WITH TRANSVENTRICULAR AORTIC ANNULUSENLARGEMENT (KONNO PROCEDURE)	RPLCMT A-VALVE KONNO PROCEDURE	33412
AVR W/ TRANSLOCATION AUTOLOGOUS PULMONARY VALVE	RPLCMT A-VALVE ROSS PX	33413

Jawda Cardiac Surgery (CS) Quality Performance Indicators

REPLACEMENT, AORTIC VALVE; BY TRANSLOCATION OF AUTOLOGOUS PULMONARY VALVE WITH ALLOGRAFT REPLACEMENT OF PULMONARY VALVE (ROSS PROCEDURE)	RPLCMT A-VALVE ROSS PX	33413
ROBOTIC MITRAL VALVE REPAIR MAJOR	VALVOTOMY MITRAL VALVE CLOSED HEART	33420
VALVOTOMY, MITRAL VALVE; OPEN HEART, WITH CARDIOPULMONARY BYPASS	VALVOTOMY MITRAL VALVE OPN HRT W/CARD BYP	33422
MIN INVASIVE ASD / VSD REPAIR / CP BYPASS	VLVP MITRAL VALVE W/CARD BYP	33425
VALVULOPLASTY, MITRAL VALVE, WITH CARDIOPULMONARY BYPASS;	VLVP MITRAL VALVE W/CARD BYP	33425
MIN INVASIVE MITRAL VALVULOPLASTY W/ CP BYPASS	VLVP MITRAL VALVE W/CARD BYP	33425
VALVULOPLASTY MITRAL RADICAL W/ BYPASS	VLVP MITRAL VALVE W/CARD BYP	33425
VALVULOPLASTY, MITRAL VALVE, WITH CARDIOPULMONARY BYPASS; WITH PROSTHETIC RING	VLVP MITRAL VALVE W/CARD BYP W/PROSTC RING	33426
OPEN IMPLANTATION OF PROSTHETIC HEART VALVE	VLVP MITRAL VALVE W/CARD BYP W/PROSTC RING	33426
VALVULOPLASTY, MITRAL VALVE, WITH CARDIOPULMONARY BYPASS; RADICAL RECONSTRUCTION, WITH OR WITHOUT RING	VLVP MITRAL VALVE W/CARD BYP RAD RCNSTJ +-RING	33427
REPLACE - MITRAL VALVE W/ CARDIOPULMONARY BYPASS	REPLACEMENT MITRAL VALVE W/CARDIOPULMONARY BYP	33430
REPAIR OF NON-STRUCTURAL PROSTHETIC VALVE DYSFUNCTION WITH CARDIOPULMONARY BYPASS (SEPARATE PROCEDURE) AORTIC	RPR NON-STRUCTURAL PROSTC VALVE DYSF CARD BYP	33496
REPAIR OF NON-STRUCTURAL PROSTHETIC VALVE DYSFUNCTION WITH CARDIOPULMONARY BYPASS (SEPARATE PROCEDURE) MITRAL	RPR NON-STRUCTURAL PROSTC VALVE DYSF CARD BYP	33496

Major Procedures Exclusions:

- AVR+MVR,
- Pulmonic Valve Replacement
- Tricuspid Valve
- VSD(ventricular Septal Defect) , ASD(Atrial Septal Defect
- SVR (Surgical Ventricular Restoration)
- Heart Transplants
- Aortic Aneurysm procedures (Ascending Aorta, Aortic Arch, Descending Aorta, and Thoracoabdominal Aorta)
- Ventricular Assist Devices(VADS)
- All transcatheter procedures
- ECMO as an isolated procedure
- Pericardiectomy as an isolated procedure