ANZSCTS CARDIAC SURGERY DATABASE DATA COLLECTION FORM

1.0 Medical Record No.

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SECTION 1: PATIENT DEMOGRAPHICS

2.0 Last Name

3.0 First Name

4.0 Middle Name

5.0 Date of Birth (d d / m m / y y y y)

6.0 Sex ◯ Male ◯ Female

7.0 Address

8.0 Suburb

9.0 State

10.0 Post Code

11.0 Ph Number 1

12.0 Ph Number 2

13.0 E-mail Address

14.0 Insurance ◯ Private ◯ DVA ◯ Medicare ◯ Self-Insured ◯ Overseas ◯ Other

15.0 Medicare No. **OR** → 15.1 Patient does not have a Medicare No. ◯ Not Registered

16.0 Department of Veteran Affairs No.

17.0 Is patient Aboriginal or Torres Strait Islander ◯ Yes ◯ No **If YES** → Indicate indigenous group -*select all that apply* ◯ Aboriginal ◯ Torres Strait Islander

18.0 Elective Day of Surgery Admit? ◯ Yes ◯ No

19.0 Admission Date (d d / m m / y y y y)

20.0 Surgery Date (d d / m m / y y y y)

21.0 Discharge Date (d d / m m / y y y y)

22.0 Cardiac operation number on day for this patient ☐ (1-6) -1 = unobtainable

SECTION 2: PATIENT RISK FACTORS

24.0 Smoking History ◯ Yes ◯ No ◯ Unknown **If YES** → 24.1 Current Smoker ◯ Yes ◯ No ◯ Unknown

25.0 Diabetes ◯ Yes ◯ No **If YES** → 25.1 Control Method ◯ None ◯ Diet ◯ Oral ◯ Insulin

26.0 Hypercholestrolaemia ◯ Yes ◯ No

RENAL

27.0 Last Pre-Operative Creatinine: ☐☐☐☐ µmol/l
(For conversion from mmol/l see overleaf)

28.0 Dialysis ◯ Yes ◯ No

29.0 Transplant ◯ Yes ◯ No

30.0 Pre-Operative Haemoglobin: ☐☐☐ g/L

31.0 Hypertension ◯ Yes ◯ No

32.0 Cerebrovascular Disease ◯ Yes ◯ No **If YES** → 32.1 Type ◯ Coma ◯ CVA ◯ RIND or TIA ◯ Carotid Test
If Type = CVA → 32.2 When ◯ Recent ◯ Remote

33.0 Carotid Test Result ◯ Yes ◯ No

34.0 Peripheral Vascular Disease ◯ Yes ◯ No

35.0 Respiratory Disease ◯ Yes ◯ No **If YES** → 35.1 Type ◯ Mild ◯ Moderate ◯ Severe

36.0 Infective Endocarditis ◯ Yes ◯ No **If YES** → 36.1 Type ◯ Active ◯ Treated

37.0 Immunosuppressive Therapy ◯ Yes ◯ No

ANZSCTS CARDIAC SURGERY DATABASE

Medical Record No.

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SECTION 1: PATIENT DEMOGRAPHICS *-DEFINITIONS*	
15.0 Medicare Number	The full Medicare number of the patient if the patient is registered with Medicare. Note: The full Medicare number is comprised of the family number AND the individual reference number).
16.0 DVA Number	The full DVA number of the patient if they are admitted as a DVA patient. If the patient is registered with Medicare and is admitted as a private patient enter MEDC and not DVA.
18.0 DOSA Patient	Patient admitted for scheduled elective procedure on same day as procedure. Note: Patients admitted to a Medihotel on the night prior to surgery still qualify as a DOSA.
19.0 Admission Date	Date patient admitted/transferred to hospital where surgery performed.
20.0 Surgery Date	Date on which the first surgical incision was made for the current cardiac surgical procedure.
21.0 Discharge Date	Date patient discharged from being an inpatient at the hospital where the procedure was performed. Discharge to hospital in the home, rehabilitation hospital or unit or to a local referring hospital is considered as discharge from hospital.
22.0 Operation Number	Sequential number of cardiac operation(s) performed on the day of the index operation. Note: where a patient has two (or more) cardiac operations on the same day that warrants a new form, code '1' on the first CRF and '2' on the second CRF.

SECTION 2: PATIENT RISK FACTORS *-DEFINITIONS*	
24.0 Smoking History	A history confirming any form of tobacco use in the past.
24.1 Current Smoker	Smoked within one month of surgery.
25.0 Diabetes	A history of diabetes, regardless of duration of disease or need for anti-diabetic agents.
25.1 Diabetes Control	The most aggressive diabetes control therapy at the time of surgery (insulin>oral>diet).
26.0 Hypercholesterolaemia	A history of hypercholesterolaemia diagnosed and/or treated by a physician and/or cholestrol >5.0mmol/L, HDL<1.0mmol/L or triglycerides>2.0mmol/L.
27.0 Pre-Operative Creatinine	Last serum creatinine in µmol/L recorded prior to surgery. To convert from mmol/L multiply by 1000 (i.e. move decimal point 3 spaces to the right).
30.0 Pre-Operative Haemoglobin	Last haemoglobin recorded prior to surgery.
31.0 Hypertension	Patient has a diagnosis of hypertension, documented by **one or more** of the following: a.) History of hypertenion diagnosed and treated with medication, diet, and/or exercise; b.) Blood pressure exceeding 140 systolic or 90 diastolic on at least two occasions; c.) Current use of antihypertensive medication
32.0 Cerebrovascular Disease	Documentation by any of the following; unresponsive coma >24hrs at any time prior to the index admission OR CVA with symptoms remaining >72 hours after onset OR RIND (recovery within 72hrs) OR TIA with recovery within 24 hours OR non-invasive carotid test with 50% diameter stenosis (equivalent to 75% cross-sectional area stenosis).
33.0 Cerebrovascular Disease - Carotid Test Result	Non-invasive/invasive carotid test result indicating 50% or greater diameter stenosis (equivalent to 75% cross-sectional area stenosis).
34.0 Peripheral Vascular Disease	Examples include: a.) Claudication either with exertion or rest or b.) Amputation for arterial insufficiency or c.) vascular reconstruction, bypass surgery or percutaneous intervention to the extremities or d.) documented aortic aneurysm or e.) documented renal artery stenosis or f.) positive non-invasive testing documented.
35.1 Respiratory Disease Type	Specify the severity of the chronic lung/respiratory disease. Mild = on chronic inhaled or oral bronchodilator therapy. Moderate = chronic oral steroid therapy aimed at lung disease Severe = room air pO_2 <60 or Room air pCO_2 >50 or mechanical ventilation for chronic lung disease
36.0 Infective Endocarditis 36.1 Infective Endocarditis Type	A patient presenting with valvular disease of infectious aetiology with past or present positive blood culture or postop histology or microbiological confirmation. Active = currently on antibiotic therapy for endocarditis Treated = no antibiotic medication (other than prophylactic medication) is being given at time of surgery
37.0 Immunosuppressive Therapy	Use of any form of immunosuppressive therapy within 30 days of the operative procedure or chronic long term steroid use (eqv. to Prednisolone dosage more than or equal to 5mg within 30 days, anti-rejection medication or chemotherapy).

SECTION 3: PRE-OPERATIVE CARDIAC STATUS

38.0 Previous Myocardial Infarction ◯ Yes ◯ No **If YES** → 38.1 Type ◯ NSTEMI ◯ STEMI ◯ Unknown

If YES → 38.2 When ◯ <=6hrs ◯ >6 but <24hrs ◯ 1-7 days ◯ >7 to 21 days ◯ >21 days

39.0 Angina CCS Classification ☐
Value must be between 0 - 4

If CCS > 0 → **Treatment of Angina**

39.1 IV GTN *(day of surgery)* ◯ Yes ◯ No

39.2 IV Heparin *(<=12 hours prior to surgery)* ◯ Yes ◯ No

39.3 Full Dose Low MW Heparinoids *(<=24 hours prior to surgery)* ◯ Yes ◯ No

40.0 History of Congestive Heart Failure (CHF) ◯ Yes ◯ No **If YES** → 40.1 CHF at Current Admission ◯ Yes ◯ No

41.0 NYHA Class ☐
Value must be between 1 - 4

42.0 Cardiogenic Shock (at time of op) ◯ Yes ◯ No

43.0 Resuscitation (within one hour prior to op) ◯ Yes ◯ No

44.0 Arrhythmia ◯ Yes ◯ No **If YES** → Type ◯ Atrial ◯ Heart Block ◯ Ventricular ◯ Other

If Atrial → Type ◯ Paroxysmal ◯ Permanent ◯ Unknown

45.0 Permanent Pacemaker In Situ ◯ Yes ◯ No

Medications at Time of Surgery

46.0 Inotropes ◯ Yes ◯ No

47.0 IV Nitrates (GTN) ◯ Yes ◯ No

48.0 Anticoagulation Therapy *(see list below)* ◯ Yes ◯ No

49.0 Steroids ◯ Yes ◯ No

Antiplatelet Therapy (within last 7 days)

50.0 Aspirin Only ◯ Yes ◯ No **If YES** → 50.1 When (cessation) ☐ days

51.0 Thienopyridine *(see list below)* ◯ Yes ◯ No **If YES** → 51.1 When (cessation) ☐ days

must be between 0 and 7 - If less than 24 hours write '0'

52.0 Ticagrelor ◯ Yes ◯ No **If YES** → 52.1 When (cessation) ☐ days

53.0 Tirofiban or Eptifibatide ◯ Yes ◯ No **If YES** → 53.1 When (cessation) ☐ days

54.0 Abciximab ◯ Yes ◯ No **If YES** → 54.1 When (cessation) ☐ days

55.0 Other Antiplatelet ◯ Yes ◯ No **If YES** → 55.1 When (cessation) ☐ days

Examples of Anticoagulants include (but are not limited to)

Brand Name	Generic Name
HEPARIN -UNFRACTIONATED	
	Heparin
HEPARIN -LMW (INJECTABLE)	
Fragmin	Dalteparin
Lovenox	Enoxaparin
Tinzaparin	Innohep
PARENTERAL THROMBIN INHIBITORS	
Angiomax	Bivalirudin
Argatroban	Argatroban
Anxtra	Fondaparinux
Iprivask	Desirudin
Refludan	Lepirudin
ORAL THROMBIN INHIBITORS	
Pradaxa	Dabigatran
Coumadin, Marevan	Warfarin
FACTOR Xa INHIBITORS	
Xarelto	Rivaroxaban
Axrixtra	Fondaparinux
Eliquis	Apixaban

Thienopyridine Agents

Brand Name	Generic Name
Plavix	Clopidogrel
Ticlid	Ticlopidine
Effient	Prasugrel

SECTION 3: PRE-OPERATIVE CARDIAC STATUS - *DEFINITIONS*

38.0 Previous Myocardial Infarction- Patient hospitalised at any time for a Myocardial Infarction (MI) documented in the medical record or during the current admission..

Non ST- Elevation MI (NSTEMI)

AT LEAST one of the following biomarkers for detecting myocardial necrosis MUST be present (refer to note regarding Reference Control Limits)

1.Troponin T or I: Maximal concentration of troponin T or I > the MI diagnostic limit on at least one occasion within the first 24 hours from the index clinical event;

2.CK-MB:
- Maximal value of CK-MB > 2x the upper limit of normal (ULN) on one occasion during the first hours after the index clinical event; OR
- Maximal value of CK-MB (preferable CK-MB mass) > ULN on two successive samples.

3.Total CK: Only where troponin or CK-MB assays are unavailable, total CK> 2x the ULN (or the B fraction of CK) may be employed.

NOTE- The preferred assays to use as biomarkers for the myocardial necrosis are troponin, CK-MB or total CK (in that order).

AND ONE of the following:

1.Either ST segment depression or T wave abnormalities in the ECG; or

2. In the presence or absence of chest discomfort. Ischaemic symptoms may include;
   - Unexplained nausea and vomiting; or
   - Persistent shortness of breath secondary to left ventricular failure; or
   - Unexplained weakness, dizziness, light headedness, or syncope

ST- Elevation MI (STEMI)

AT LEAST ONE of the following biochemical indicators for detecting myocardial necrosis MUST be present (see below for a definition of Reference Control Limits)

1.Troponin T or I: Maximal concentration of troponin T or I > the MI diagnostic limit on at least one occasion within the first 24 hours from the index clinical event;

2.CK-MB:
- Maximal value of CK-MB > 2x the upper limit of normal (ULN) on one occasion during the first hours after the index clinical event; OR
- Maximal value of CK-MB (preferable CK-MB mass) > ULN on two successive samples.

3.Total CK: Only where troponin or CK-MB assays are unavailable, total CK > 2x the ULN (or the B fraction of CK) may be employed.

NOTE- The preferred assays to use as biomarkers for the myocardial necrosis are troponin, CK-MB or total CK (in that order).

AND ONE of the following ECG changes:

1.ST segment elevation: New or presumed new ST segment elevation at the J point in two or more contiguous leads with the cut-off points >=0.2mV in leads V1, V2, or V3 or >= 0.1 mV in other leads;

2. Development of any Q wave in leads V1 through V3, or the development of a Q-wave >=30ms (0.03s) in leads I, II, aVL, aVF, V4, V5, or V6. (Q wave changes must be present in any two contiguous leads, and be >= 1mm in depth).

Defining Reference Control Values (MI Diagnostic Limit and Upper Limit of Normal):
Reference values must be determined in each laboratory by studies using specific assays with appropriate quality control, as reported in peer-reviewed journals. Acceptable imprecision (coefficient of variation) at the 99th percentile for each assay should be defined as <=10%. Each individual laboratory should confirm the range of reference values in their specific setting.

SECTION 4: PREVIOUS INTERVENTIONS

56.0 Previous Cardiothoracic Intervention ***(open or percutaenous)*** ◯ Yes ◯ No → **If YES continue below, if NO skip to Section 5**

Previous Cardiac Surgery

56.1 Previous ***open cardiac*** surgery ◯ Yes ◯ No → **If YES continue answering below, If NO skip to Q 56.2**

56.1.1 No. of prior cardiac operations with cardiopulmonary bypass ☐ (0-9)

56.1.2 No. of prior cardiac operations without cardiopulmonary bypass ☐ (0-9)

56.1.3 - 5 Type of previous surgery -***select all that apply*** ◯ CABG ◯ Off Pump CABG ◯ Valve ◯ Other Cardiac

Previous Percutaneous Intervention

56.2 Previous Percutaenous Intervention ◯ Yes ◯ No → **If YES continue answering below, If NO skip to Section 5**

56.2.1 Previous TAVR ◯ Yes ◯ No

56.2.2 Previous PTCA/Stent ◯ Yes ◯ No **If YES** → In which admission? ◯ This Admission ◯ Remote

If YES to This Admission Interval ☐☐☐ hrs

56.2.3 Non Surgical Balloon Valvuloplasty ◯ Yes ◯ No

56.2.4 ASD/PFO Device Closure ◯ Yes ◯ No

56.2.5 VSD Device ◯ Yes ◯ No

56.2.6 Left Atrial Appendage Occlusion ◯ Yes ◯ No

56.2.7 Electrophysiology Ablation ◯ Yes ◯ No

56.2.8 Percutaneous Mitral Valve Repair ◯ Yes ◯ No

56.2.9 Previous TMVR ◯ Yes ◯ No

SECTION 5: HAEMODYNAMICS

57.0 Patient Height ☐☐☐ cm

58.0 Patient Weight ☐☐☐ kg } *Perfusionist to complete*

59.0 Cardiac Catheterisation (Angiography) ◯ Yes ◯ No **If YES** → 59.1 Date ☐☐ / ☐☐ / ☐☐☐☐ (d d / m m / y y y y)

60.0 LVEF Method ◯ No ◯ Angiogram ◯ Radionuclide ◯ Echocardiogram ◯ MRI ◯ Unknown

60.1 LVEF ☐☐ %

60.2 LVEF Estimate ◯ Normal (>60%) ◯ Mild Impairment (46-60%) ◯ Moderate (30-45%) ◯ Severe (<30%)

61.0 Left Main Coronary Artery Stenosis >50% ◯ Yes ◯ No

62.0 No. Diseased Coronary Systems: ◯ None ◯ One ◯ Two ◯ Three

SECTION 4: PREVIOUS INTERVENTIONS - *DEFINITIONS*	
56.0 Previous Cardiothoracic Intervention (open or percutaneous)	Has the patient undergone any previous cardiovascular intervention, either open or percutaneous, prior to the index operation? This includes all forms of percutaneous angioplasty and transcathetar procedures for cardiac interventions or prior interventions in the same admission episode.
56.2.4 ASD/PFO Device Closure	Closure by percutaneous technique of atrial septal defect or patient foramen ovale prior to the index admission (including those done in current admission).
56.2.5 VSD Device Closure	Closure by percutaneous technique of Ventricular Septal Defect (including those done in current admission).

SECTION 5: HAEMODYNAMICS - *DEFINITIONS*	
60.0 LVEF Method	Was the Left Ventricular Ejection Fraction measured, and how was this information obtained? 1 = Not measured 2 = Angiogram(angiographic LV gram, obtained during cardiac catheterisation) 3 = Radionuclide (nuclear) 4 = Echocardiogram (TTE or TOE) 5 = Magnetic Resonance Imaging
61.0 Left Main Coronary Artery Stenosis > 50%	Any stenosis that involves any parts of the left main. Left main coronary stenosis is present when there is >50% compromise of vessel diameter in any angiographic view.
62.0 Number of Diseased Coronary Systems	The number of (the three) major coronary systems (LAD system, circumflex system, and/or right coronary system) with >50% narrowing in any angiographic view. The number of diseased systems should be the number of systems requiring surgical approach at that operation. NOTE: Left main disease (>50%) is counted as TWO systems (LAD and circumflex). For example, left main and RCA would count as THREE in total. Dominant circumflex counts as TWO systems. LMCAD associated with dominant circumflex counts as THREE systems. If a system has not been grafted previously and the graft has no haemodynamically significant stenosis, then that system is NOT counted as diseased. If a previous graft requires replacement, then that system IS counted as diseased. IF THERE ARE NO DISEASED CORONARY ARTERY SYSTEMS THEN INDICATE 0.

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SECTION 6: OPERATIVE STATUS / CATEGORY

63.0 Consultant Surgeon (code)

64.0 Operating Surgeon ☐ Consultant ☐ Senior Registrar ☐ Trainee Registrar ☐ Overseas Fellow ☐ Oversight

65.0 Status -***please read definition overleaf*** ◯ Elective ◯ Urgent ◯ Emergency ◯ Salvage

If procedure has been classified as URGENT → Provide a reason for urgent classification from list below

- ◯ Acute Myocardial Infarction (AMI) stabilised and not requiring emergency operation
- ◯ Pre-op Intra-Aortic Balloon Pump (IABP)
- ◯ Threatening coronary anatomy with acute symptoms
- ◯ Unstable angina requiring IV therapy
- ◯ Severe acute valve dysfunction either native or prosthetic

66.0 Direct transfer from cathlab/ ICU to theatre ***-see definition*** ◯ Yes ◯ No

Category

67.0 Coronary Artery Bypass ◯ Yes ◯ No

68.0 Valve Surgery ◯ Yes ◯ No

69.0 Other Cardiac Surgery ◯ Yes ◯ No → **If YES select surgery type from list below, if NO skip to Q 70.0**

- ◯ LV Aneurysm
- ◯ LVOT Myectomy
- ◯ LV Recontruction
- ◯ Cardiopulmonary Transplant
- ◯ Atrial Arrhythmia Surgery
- ◯ Acquired VSD
- ◯ LV Rupture Repair
- ◯ Pulmonary Embolectomy
- ◯ Other Congenital
- ◯ Other
- ◯ ASD
- ◯ Pericardiectomy
- ◯ Cardiac Tumour
- ◯ Permanent LV Epicardial Lead
- ◯ Trauma
- ◯ Pulm. Thrombo - Endarterectomy
- ◯ Cardiac Transplant
- ◯ Left Atrial Appendage Closure

If YES to ATRIAL ARRHYTHMIA Surgery → PREDOMINANT Lesion Set and Technique — Lesion Set ☐ 1 - 9 (see overleaf)

Energy Source ☐ 1 - 8 (see overleaf)

If YES to OTHER Surgery → **Record the specific procedure that was performed**

70.0 Aortic Procedure ◯ Yes ◯ No → **If YES continue answering below if NO skip to Q 71.0**

70.1 Aortic Pathology/Aeitiology

- ◯ Aortic Aneurysm
- ◯ Aortic Dissection → **If YES** 70.1.1 When ◯ Acute (<=2 weeks) ◯ Non-Acute (>2 weeks)
- ◯ Traumatic Transection (occuring within the last 2 weeks)
- ◯ Calcification
- ◯ Other

70.2- 70.3 Aortic Procedure Type

- ◯ Direct Aortoplasty
- ◯ Endarterectomy
- ◯ Patch Repair
- ◯ Replacement → **If Procedure was a Replacement** Location ◯ Ascending ◯ Arch ◯ Descending ◯ Thoraco-Abdominal

71.0 Other Non-Cardiac ◯ Yes ◯ No → **If YES continue answering below, if NO skip to SECTION 7**

71.1 Carotid Endarterectomy ◯ Yes ◯ No

71.2 Lung Resection ◯ Yes ◯ No

71.3 Other Vascular Surgery ◯ Yes ◯ No

71.4 Other Thoracic Surgery ◯ Yes ◯ No

74.5 Other ◯ Yes ◯ No → **If YES** **Record the specific procedure that was performed**

SECTION 6: OPERTAIVE STATUS / CATEGORY -*DEFINITIONS*

65.0 STATUS	
Elective	The procedure could be deferred without increased risk of compromised cardiac outcome.
Urgent	Not routine - clinical reasons for operating in this admission - a) Within 72 hours of angiography if index operation was performed in the same admission as angiography (here 'same admission' includes situations where angiography was performed in another hospital prior to direct transfer to current hospital where index operation is to be performed) **OR** b) Within 72 hours of an unplanned admission (in patients who had a previous angiogram and was scheduled for surgery but admitted acutely) **OR** c) Procedure required during same hospitalisation in a **clinically compromised** patient in order to minimise chance of further clinical deterioration.
Emergency	Unscheduled surgery required in next available theatre on same day (as admission) due to refractory angina or haemodynamic compromise.
Salvage	The patient underwent CPR en route to the operating room, prior to surgical incision.

65.1 Urgent Reason	1. Acute Myocardial Infarction (AMI) stabilised and not requiring emergency operation. 2. Pre-op Intra-Aortic Balloon Pump (IABP) 3. Threatening coronary anatomy with acute symptoms 4. Unstable angina requiring IV therapy 5. Severe acute valve dysfunction either native or prosthetic

66.0 Direct Transfer from Cathlab/ICU to theatre	Patient required direct transfer to theatre for ongoing management as a results of a cardiac catheter lab event. Includes transfers directly from cardiac catheter lab, ICU or general ward as well as patients who have been temporarily transferred to a ward, usually CCU or ICU for stablisation while the OR is being prepared. Typically due to indications such as ischaemia, rest angina despite maximal treatment, pulmonary oedema requiring intubation, or shock.

69.0 Other Cardiac Surgery	
VSD (Acquired)	The index operation is for the correction of an acquired (usually ischaemic) ventricular septal defect (VSD).
ASD	The index operation is for the correction of an atrial septal defect (excludes closure of incidental PFO)
LVOT Myectomy	This procedure is performed for either hypertrophic obstructive cardiomyopathy or left ventricular muscular dynamic LVOT obstruction, or in cases of tunnel stenosis in the left ventricular outflow tract. This procedure involves excision of left ventricular endocardial muscle out of the left ventricular outflow tract.
LV Rupture Repair	The index operation is for ischaemic rupture of the free wall of the left ventricle. Does not include traumatic LV rupture repair.
Pulm. Thrombo-Endarterectomy	The index operation performed for chronic pulmonary thrombo-embolic disease. It involves cardiopulmonary bypass, and usually hypothermic circulatory arrest, and incisions are made in the right and left (or both) pulmonary arteries, and an endartectomy performed out into the distal branches.
LV Reconstruction	The index operation is for reshaping of the left ventricle by lateral excision (Batista). Does not include resection and repair of chronic left ventricular aneurysm, by whatever technique.
Permanent LV Epicardial Lead	The index operation includes insertion of a permanent LV Epicardial Lead.
Atrial Arrhythmia Surgery	The index operation is for paroxysmal, persistent or permanent atrial tachyarrhythmia.

69.17.1 - 69.17.2 Atrial Arrhythmia Surgery	
Lesion Set:	**Technique or Energy Source:**
1=Cox-Maze III 2=Radial 3=Mini-Maze 4=Left Atrial Reduction 5=Pulmonary Vein Isolation 6=Left Arial Only 7=Right Atrial Only 8=Other 9=Cox-Maze IV	1=Cut & Sew 2=Unipolar Radiofrequency 3=Bipolar Radiofrequency 4=Cryoablation 5=Microwave 6=Laser 7=Ultrasound 8=Other

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SECTION 7: MINIMALLY INVASIVE

72.0 Minimally Invasive Open Technique Attempted (non-standard incision) ◯ Yes ◯ No

73.0 Robotically Assisted ◯ Yes ◯ No

SECTION 8: CPB AND SUPPORT

74.0 Cardiopulmonary Bypass Used ◯ Yes ◯ No → **If YES continue answering below if NO skip to Q 75.0**

74.1 Cardioplegia ◯ Yes ◯ No → **If YES** Type ◯ Hyperkalaemic ◯ Bretschneider HTK (Custodial)

74.3 Cumulative Cross-Clamp Time ☐☐☐ min

74.4 Cumulative Cardiopulmonary Bypass Time (Perfusion Time) ☐☐☐ min

74.5 Intra-Operative Haemoglobin ☐☐☐ g/L

75.0 Intra Aortic Balloon Pump (IABP) ◯ Yes ◯ No → **If YES** When ◯ Pre-Operative ◯ Intra-Operative ◯ Post-Operative

Indication ◯ Haemodynamic Instability ◯ CBP Wean ◯ PTCA/PCI Support ◯ Prophylactic ◯ Unstable Angina

76.0 Other Mechanical Support (ECMO) ◯ Yes ◯ No → **If YES** When ◯ Pre-Operative ◯ Intra-Operative ◯ Post-Operative

Indication ◯ Cardiac Failure ◯ Rescue/Salvage ◯ Respiratory Failure ◯ Hypothermia

77.0 Other Mechanical Support (VAD) ◯ Yes ◯ No → **If YES** When ◯ Pre-Operative ◯ Intra-Operative ◯ Post-Operative

Indication ◯ Bridge to Transplantation ◯ Bridge to Recovery ◯ Destination ◯ Postcardiotomy Ventricular Failure ◯ Device Malfunction ◯ End of Life

78.0 Intra-Operative TOE ◯ Yes ◯ No

79.0 Intra-Operative Antifibrinolytic Use ◯ Yes ◯ No → **If YES** 79.1Type ◯ Trasylol ◯ Aminocaproic Acid ◯ Unknown ◯ ATACAS ◯ Tranexamic Acid ◯ Other

SECTION 9: CORONARY BYPASS

80.0 Intraoperative decision to graft coronary artery ◯ Yes ◯ No ◯ Unknown

81.0 ITA used ◯ Yes ◯ No → **If YES continue answering below if NO skip to Q 82.0**

81.1 LITA used ◯ Yes ◯ No → **If YES** 81.1.1 Skeletonised ◯ Yes ◯ No

81.2 RITA used ◯ Yes ◯ No → **If YES** 81.2.1 Skeletonised ◯ Yes ◯ No

82.0 No. of RA conduits harvested ☐ (0-2)

83.0 No. of distal arterial grafts ☐ (0-9)

84.0 No. of ITA distal anastomoses ☐ (0-6)

85.0 No. of radial distal anastomoses ☐ (0-6)

86.0 No. of vein distal anastomoses ☐ (0-9)

87.0 No. of GEPA distal anastomoses ☐ (0-6)

88.0 Arterial T or Y grafts used ◯ Yes ◯ No

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SECTION 10: VALVE SURGERY

Valve Procedure

	Enter code from list below		Model No	Serial	Lot No	Size
Aortic		Implant				
		Explant				
Mitral		Implant				
		Explant				
Tricuspid		Implant				
		Explant				
Pulmonary		Implant				
		Explant				

PROCEDURE CODES

1. No
2. Annuloplasty Only
3. Replacement
4. Mitral or Tricuspid: Repair or Reconstruction with Annuloplasty
5. Mitral or Tricuspid: Repair or Reconstruction without Annuloplasty
6. Root Reconstruction with Valved Conduit
7. Root Reconstruction with Valve Sparing
8. Re-suspension of the Aortic Valve
9. Resection of Sub-Aortic Stenosis
10. Commissurotomy or Valvotomy with Annuloplasty Ring
11. Commissurotomy or Valvotomy without Annuloplasty Ring
12. Repair of Paravalvular Leak
13. Valvectomy (no replacement)
15. Ross Procedure
16. Inspection Only
17. Decalcification of Valve Only
18. Aortic Subcommissural Annuloplasty
19. Cusp Modification
20. Thrombus Removal
21. Root Enlargement (Manougian type excludes Nicks)
22. Transcatheter Aortic Valve Replacement (TAVR)
23. Aortic Valvuloplasty with subcommissural annuloplasty
24. Aortic Valvuloplasty without subcommissural annuloplasty
25. Alfieri Suture
26. Removal of tumour valve tissue (e.g. Fibroelastoma)
27. Insertion of a Mitraclip device
28. Transcatheter Mitral Valve Replacement (TMVR)
29. Replacement of Pulmonary Root as part of a Ross Procedure

Valve Pathophysiology

	Aortic	Mitral	Tricuspid	Pulmonary
Stenosis	○ Yes ○ No	○ Yes ○ No	○ Yes ○ No	○ Yes ○ No
Regurgitation/ Insufficiency (0-4)				
Pathology/ Aetiology (see codes)				

INSUFFICIENCY CODES

0	None
1	Trivial
2	Mild
3	Moderate
4	Severe

VALVE AETIOLOGY CODES

1. Rheumatic
2. Congenital
3. Ischaemic
4. Idiopathic Calcific
5. Myxomatous Degen.
6. Failed Prior Repair
7. Prosthetic Valve Failure
8. Peri-Prosthetic Leak
9. Prosthetic Valve Thrombosis
10. Active Infection
11. Previous Infection
12. Marfan's
13. Annuloaortic Ectasia
14. Other Degen. Disease
15. Dissection
16. Tumour
17. Trauma
18. Iatrogenic
20. Functional
21. Carcinoid Syndrome
22. Failed TAVR
23. Failed TMVR
99. Other

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SECTION 11: BLOOD PRODUCT USE

THIS SECTION REFERS TO CUMULATIVE (INTRA-OPERATIVE + POST-OPERATIVE) BLOOD PRODUCT USE

94.0 RBC ◯ Yes ◯ No → **If YES** 94.1 Number of Bank RBC (units) ☐☐

95.0 Non RBC ◯ Yes ◯ No → **If YES** 95.1 Number of Platelets (units) ☐☐ 95.2 Number of Novo7(mg) ☐☐.☐

95.3 Number of Cryo (units) ☐☐ ***See overleaf for conversion***

SECTION 12: POST-OPERATIVE DATA

96.0 ICU Admission - Date/Time ☐☐/☐☐/☐☐☐☐ (d d / m m / y y y y) ☐☐:☐☐ (H H : M M)

97.0 Extubation - Date/Time ☐☐/☐☐/☐☐☐☐ (d d / m m / y y y y) ☐☐:☐☐ (H H : M M)

98.0 ICU Discharge - Date/Time ☐☐/☐☐/☐☐☐☐ (d d / m m / y y y y) ☐☐:☐☐ (H H : M M)

99.0 Re-admitted to ICU ◯ Yes ◯ No

100.0 Re-intubation ◯ Yes ◯ No

100.1 Re-intubation - Date/Time ☐☐/☐☐/☐☐☐☐ (d d / m m / y y y y) ☐☐:☐☐ (H H : M M)

100.2 Re-extubation- Date/Time ☐☐/☐☐/☐☐☐☐ (d d / m m / y y y y) ☐☐:☐☐ (H H : M M)

101.0 ICC Loss (First 4 hours post surgery): ☐☐☐☐ mls

COMPLICATIONS - Must not have been present pre-operatively

102.0 Return to theatre ◯ Yes ◯ No → **If YES**

Re-op Valve Dysfunction	◯ Yes	◯ No
Re-op Bleeding or Tamponade	◯ Yes	◯ No
Re-op Graft Occlusion	◯ Yes	◯ No
Re-op Deep Sternal Wound Infection	◯ Yes	◯ No
Re-op Deep Thoracotomy Wound Infection	◯ Yes	◯ No
Re-op Insertion of Pacemaker/AICD	◯ Yes	◯ No
Re-op Other Cardiac	◯ Yes	◯ No
Re-op Other Non-Cardiac	◯ Yes	◯ No

103.0 New Renal Insufficiency ◯ Yes ◯ No → **If YES** Haemofiltration ◯ Yes ◯ No

104.0 Highest Post-Operative Creatinine Level ☐☐☐☐ µmol/l

105.0 Peri-/Post-Operative MI ◯ Yes ◯ No

106.0 Peri-/Post-Operative Cardiogenic Shock ◯ Yes ◯ No

107.0 Lowest Post-Operative Haemoglobin ☐☐☐ g/L

108.0 - 110.0 Cardiac Inotrope or Vasopressor use (Mark all that apply)

for longer than 4 hours post-operatively	◯ Yes	◯ No
for Low Cardiac Output Syndrome	◯ Yes	◯ No
for Low SVR Syndrome	◯ Yes	◯ No

111.0 New Cardiac Arrhythmia ◯ Yes ◯ No → **If YES**

Heart Block (requiring PPM)	◯ Yes	◯ No
Other Brady-Arrhythmia (requiring PPM)	◯ Yes	◯ No
Cardiac Arrest	◯ Yes	◯ No
Atrial Arrhythmia (requiring treatment)	◯ Yes	◯ No
Ventricular Tachycardia	◯ Yes	◯ No

112.0 -114.0 New Neurologic →

Stroke Permanent (>72hrs)	◯ Yes	◯ No
Stroke Transient (<72 hrs)	◯ Yes	◯ No
Continuous Coma (=> 24 hrs)	◯ Yes	◯ No

115.0 -117.0 New Pulmonary →

Ventilation Prolonged (>24 hrs)	◯ Yes	◯ No
Pulmonary Embolism	◯ Yes	◯ No
Pneumonia	◯ Yes	◯ No

118.0 -122.0 New Infection →

Sternal Deep Wound	◯ Yes	◯ No
Superficial Access Wound	◯ Yes	◯ No
Donor Site Deep Wound	◯ Yes	◯ No
Deep Access Wound of Parasternal Site	◯ Yes	◯ No
Septicaemia	◯ Yes	◯ No

123.0 -124.0 New Vascular →

Aortic Dissection	◯ Yes	◯ No
Acute Limb Ischaemia	◯ None	◯ Upper Limb ◯ Lower Limb

125.0 -127.0 New Other →

Anticoagulant Complications	◯ Yes	◯ No
GIT Complications	◯ Yes	◯ No
Multi-System Failure	◯ Yes	◯ No

SECTION 11: BLOOD PRODUCT USE -*DEFINITIONS*	
94.0 Blood Products: RBC	Allogenic red blood cells (RBC) transfused intra and/or postoperatively. Does not include pre-donated blood, pump residual blood, cellsaver blood or chest tube recirculated blood.
95.0 Blood Products: Non RBC	A transfusion of blood products other than RBC (eg. FFP, Platelets) given intra and/or post-operatively. (Excludes Albumin)
95.2 Novo 7 Conversion Calculation	Novo 7 comes in 1, 2, 4 and 8 mg vials. Dose administered is between 50-90mcg per kg. E.g. 50mcg x 70kg person = 3500mcg=3.5mg

SECTION 12: POST-OPERATIVE DATA -*DEFINITIONS*	
102.0 Return to Theatre	Patient returned to the operating theatre. Includes operative procedures done in the ICU that normally would be performed in the operating room.
103.0 New Renal Insufficiency	Acute post-operative renal insufficiency characterised by one of the following: a.) Increased serum creatinine to >0.2mmol/l (>200 µmol/l) AND a doubling or greater increase in creatinine over the baseline pre-operative value AND the patient did not require pre-operative dialysis/haemofiltration; b.) A new post-operative requirement for dialysis/haemofiltration where they did not require this pre-operatively. **Renal insufficiency must not be present pre-operatively.** Pre-operative renal transplant does not count as renal insufficiency if the patient did not have impaired liver function and did not require dialysis/haemofiltration.
103.1 Haemofiltration	Acute institution of haemofiltration (or dialysis) as treatment for new renal failure. Excludes haemofiltration for removal of fluid with normal serum urea and creatinine.
105.0 Peri-/Post-operative MI	Diagnosed by finding at least two of the following criteria: a.) Enzyme level elevation: either 1) CK-MB>30 units; or 2) troponin >20.0 micrograms /L, or established level at own institution (provided operation does not involve myocardial incision); b.) New wall motion abnormalities; c.) Serial ECG (at least two) showing Q waves, duration =>0.03ms in 2 contiguous leads.
106.0 Peri-/Post-operative Cardiogenic Shock	Only select 'yes' if ALL the following criteria apply: a.) Sustained (>30 mins) episode of systolic blood pressure <90mm Hg or the requirement for parenteral inotropic or vasopressor agents or mechanical support (e.g. intra-aortic balloon pump (IABP), extracorporeal circulation, ventricular assist devices to maintain BP>90mm Hg); **AND** b.) Evidence of elevated filing pressures (e.g. pulmonary congestion on examination or chest radiograph); **AND** c.) Evidence of end organ hypoperfusion (e.g. urine output 30mL/hours, or cold/diaphoretic extremities, or obtunded mental status if previously normal, etc.).
109.0 Cardiac Inotrope Use for Low Cardiac Output Syndrome	An inotrope(s) was administered for low cardiac output syndrome longer than four hours post-operatively (with the intent to improve cardiac output, irrespective of the reasons for that decision). Does not include Milrinone.
110.0 Cardiac- Vasopressor Use for Low SVR Syndrome	When a primarily alpha adrenergic agonist is given for low systemic vascular resistance syndrome for longer than four hours post-operatively with the intent to increase SVR (where SVR<800). This is usually in presence of high cardiac output. Does not include Noradrenaline given with Milrinone.
111.1 Heart Block	New heart block requiring implantation of permanent pacemaker prior to discharge.
111.2 Other Bradyarrhythmia	New other bradyarrhythmia, not otherwise specified, requiring implantation of permanent pacemaker prior to discharge.
111.3 Cardiac Arrest	Either a.) VF; b.) Rapid VT with haemodynamic instability; c.) asystole; (d) Pulseless electrical activity (PEA)
111.4 New Atrial Arrhythmia	New onset atrial fibrillation/flutter requiring treatment. Does not include recurrence of AF present pre-operatively.
111.5 New Ventricular Tachycardia	New onset of ventricular tachycardia (> 6 beat run) requiring treatment.
112.0 Stroke Permanent	A stroke or new central neurological deficit (defined as persistant loss of neurological function caused by an ischaemic or haemorrhagic event) persisting for > 72 hours peri or post-operatively.
113.0 Stroke Transient	A transient new central neurological deficit that was completely resolved within 72 hours (TIA, RIND).
114.0 Continuous Coma => 24hrs	New postoperative coma that persists for at least 24 hours. Only applicable to a non-sedated patient.
115.0 Ventilation Prolonged > 24hrs	Pulmonary insufficiency requiring prolonged ventilatory support > 24hrs (cumulative). E.g. Adult Respiratory Distress Syndrome and pulmonary oedema. Cumulative period is used if patient is re-intubated.
116.0 New Pulmonary Embolism	Diagnosed by study such as ventilation/perfusion (V/Q) scan or angiogram.
117.0 Pneumonia	Pneumonia diagnosed post-operatively by one of the following: a.) Postive cultures of sputum or trans-tracheal aspirate; b.) Clinical, including haematological findings consistent with the diagnosis of pneumonia and radiographic evidence
118.0 Infection - Sternal Deep	Infection of sternal bone, muscle and/or mediastinum. Must have wound debridement and **one** of following: a.) Positive culture; b.) Treatment with antibiotics.
119.0 Infection - Superficial Access	Infection involving the skin and subcutaneous tissue of the incision occurring within 30-days after the operative procedure AND Patient must have one of the following: a.) Purulent drainage from the superficial incision; b.) Organisms isolated from an aseptically obtained culture of fluid or tissue from the superficial incision; c.) Superficial incision deliberately opened by surgeon AND is culture-positive or not cultured AND patient has at least **one** of the following signs of infection: pain or tenderness, localised swelling, heat; d.) Diagnosis of Superficial Incisional Surgical Site Infection by operating surgeon or assisting physician.

SECTION 12: POST-OPERATIVE DATA -*DEFINITIONS cont*	
120.0 Donor Site Deep Wound Infection	Infection involving deep soft tissues (e.g. fascial and muscle layers and/or organs/spaces opened or manipulated during surgery) occurring within 30 days after the operative procedure if implant not present AND patient exhibits one of the following: a.) Purulent drainage from deep soft tissue but not from the organ/space component of the surgical site; b.) Spontaneous dehiscence at incision site or the wound is deliberately explored by a surgeon with the patient showing evidence of one or more of the following signs or symptoms: - Fever > 38°C, localised pain or tenderness with culture-positive specimen. A culture-negative finding does not meet this criterion unless the patient was on antibiotics immediately prior to the wound being explored and/or the culture being taken. - Organisms isolated from an aseptically obtained culture of fluid or tissue obtained from an organ/space. - An abscess or other evidence of infection involving a deep/organ space found on direct examination, during reoperation, or by histopathologic or radiologic examination. - Diagnosis of or antimicrobial treatment of a deep incisional or organ/space surgical site infection by operating surgeon or assisting physician.
121.0 Deep Access Wound Infection of Parasternal Site -Not of Sternotomy	An infection involving a thoracotomy or parasternal site. Must have **one** of the following conditions: a.) Wound opened with excision of tissue; b.) Positive culture; c.) Treatment with antibiotics
122.0 Infection - Septicaemia	Septicaemia requires positive blood cultures supported by at least two of the following indices of clinical infection: a.) Fever; b.) Elevated granulocyte cell counts; c.) Elevated and increasing CRP; d.) Elevated and increasing ESR, post-operatively.
123.0 Aortic Dissection	Dissection occuring in any part of the aorta.
124.0 Acute Limb Ischaemia	Any evidence of limb ischaemia.
125.0 Anticoagulant complications	Bleeding, hemorrhage, and/or embolic events related to anticoagulant therapy.
126. GIT complications	Postop occurrence of any GIT complication including: a.) GI bleeding requiring transfusion; b.) pancreatitis w ith abnormal amylase/lipase requiring nasogastric suction therapy; c.) cholecystitis requiring cholecystectomy or drainage; d.) mesenteric ischaemia requiring exploration; e.) hepatitis; f.) other GI complication
127.0 Multi-system failure	Postop multi-system failure involving two or more of the following major organ systems failing concurrently for at least 48 hours: a.) Renal - New renal failure (defined previously); b.) Respiratory - Requires endotracheal intubation for respiratory dysfunction; c.) Cardiac - the use of inotropes and/or IABP to treat low cardiac output; d.) Hepatic failure on the basis of enzymes, and bilirubin estimation

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SECTION 13: MORTALITY / DISCHARGE / READMISSION

DISCHARGE

128.0 Patient discharged to

- ◯ Home
- ◯ Local or Referring Hospital
- ◯ Hospital in the Home
- ◯ Hospital Mortality
- ◯ Rehabilitation Unit/Hospital
- ◯ Other Cardiac Unit

MORTALITY

128.1 Post Discharge within 30 days of surgery: ◯ Yes ◯ No ◯ Unknown

128.2 Mortality Date: d d / m m / y y y y

Provide date of death in hospital during the index admission at any time after the procedure, or death after discharge from hospital within thirty days of the procedure

128.3 Mortality Location: ◯ Operating Room ◯ Hospital ◯ Home (inc. hospital in the home) ◯ Other Care facility

128.4 Mortality Primary Cause:
(choose **one** of the following)

- ◯ Cardiac Cause — **If yes** → ◯ Ischaemic ◯ Other Cardiac ◯ Unknown
- ◯ Neurologic Event
- ◯ Renal Failure
- ◯ Vascular Event (peripheral vascular or aortic but not aortic dissection)
- ◯ Infection — **If yes** → ◯ Septicaemia ◯ Endocarditis ◯ Other Infection ◯ Unknown
- ◯ Respiratory Failure
- ◯ Valvular Dysfunction
- ◯ Multisystem Failure (as previously defined in 127.0)
- ◯ Other
- ◯ Unknown
- ◯ Pulmonary Embolism
- ◯ Aortic Dissection

129.0 Cognisant patient elected to withdraw from treatment (see definition below) ◯ Yes ◯ No

READMISSION

130.0 Readmitted <=30 Days from procedure: ◯ Yes ◯ No

(Does not include planned transfer to rehabilitation facility, short-stay wards or emergency. Date of surgery counts as day zero.)

Readmitted reason:
(choose **one** of the following)

- ◯ Anticoagulant Complication
- ◯ Arrhythmia
- ◯ Congestive Heart Failure (CHF)
- ◯ Valve Dysfunction
- ◯ Pericardial Effusion
- ◯ Cardiac Tamponade
- ◯ Pleural Effusion
- ◯ Other Complication related to Cardiac Surgery (e.g. renal, hepatic, GI etc)
- ◯ Deep Sternal Infection
- ◯ Incisional Complication
- ◯ Pneumonia or other Respiratory Complication
- ◯ Myocardial Infarction (MI)
- ◯ Recurrent Angina
- ◯ Other readmission unrelated to Cardiac Surgery

DEFINITIONS	
128.0 Discharge	Home: Discharged to home, with no planned contact before routine review Hospital in the home: Discharged to home, with planned visits to home by medical or paramedical staff Rehabilitation Unit/Hospital: Discharged for inpatient rehabilitation Local or referring hospital: Discharged for continuing acute care Hospital Mortality Other Cardiac Unit: Transferred to another hospital for further cardiac surgical intervention (e.g ECMO)
128.1 Mortality Post-discharge	Specify whether the patient died after discharge from hospital but within 30 days of surgery.
128.5 Mortality Cause - Cardiac Mortality Cause - Infection	Specify whether the patient died from cardiac ischaemia or from another cardiac complication. Specify whether the patient died from septicaemia, endocarditis or other infection.
129.0 Cognisant patient withdraws from treatment	Patient who was aware of the consequences to his/her actions, elected to withdraw treatment in circumstances where they would survive if treatment was continued. NOTE: Completing "yes" to this field implies automatic review of patient's hospital file and permission for ANZSCTS personnel to review their case.
130.3 Readmission reason - Congestive heart failure	Readmitted as an inpatient within 30 days from the date of surgery for CHF, evidenced by one or more of following; a.) paroxysmal nocturnal dyspnoea (PND); b.) deteriorating dyspnoea on exertion (DOE) due to HF OR c.) chest x-ray (CXR) showing pulmonary congestion.
130.11 Readmission reason - Pneumonia or other respiratory complication	Readmitted as an in-patient within 30 days from surgery for pneumonia or other respiratory complications. Diagnosed by one of the following; a.) **positive cultures** of sputum or trans-tracheal aspirate OR b.) clinical, including haematological findings consistent with the diagnosis of pneumonia and radiographic evidence.
130.13 Readmission reason - Recurrent angina	Readmitted as an inpatient within 30 days from surgery for recurrent angina. Objective confirmation that chest pain is due to ischaemia by exercise test (ECG, nuclear, echo, exercise test or angiography) is required to meet this diagnosis.