



PERForm v6.0 Data Collection Form



Demographics and Case Details

- (#502041)** Site Patient ID _____ **(#30)** Medical Record Number _____
- (#5)** Patient Last Name _____
- (#10)** Patient Middle Name _____
- (#15)** Patient First Name _____
- (#20)** Date of Birth ____/____/____ **(#25)** Sex: M F Unknown
- (#45)** Date of Admission ____/____/____ **(#50)** Date of Surgery ____/____/____
- (#0)** PERForm Registry Version: **6.0**
- (#40)** STS Record ID _____
- (#55)** Hospital (Name and NPI #) _____
- (#65)** Surgeon (Name and NPI #) _____
- (#85)** Perfusionist—Primary _____
- (#86)** Second Perfusionist _____

Procedure Type

- (#115)** Procedure Type: CABG Valve CABG + Valve Heart Transplant Other
- (#117)** CPB Utilization: None Combination Full

Circuit & Bypass Thumbprint

- (#119)** Plateletpheresis: Yes No
- (#119.1)** Plateletpheresis Products Produced: PRP PPP Platelet Gel
- (#119.2)** PRP Utilized: Radial Artery Harvest Site Saphenous Vein Harvest Site
Sternotomy Site Thoracotomy Site Other
- (#119.3)** PPP Utilized: Radial Artery Harvest Site Saphenous Vein Harvest Site
Sternotomy Site Thoracotomy Site Other
- (#119.4)** Platelet Gel Utilized: Radial Artery Harvest Site
Saphenous Vein Harvest Site Sternotomy Site Thoracotomy Site Other
- (#120)** Heart-Lung Machine

- Century™ - Heart Lung Machine
- Getinge - HL 20
- LivaNova - C5
- LivaNova - S3
- LivaNova - S5
- LivaNova – SC

- Medtronic Performer
- Sarns – 5000
- Sarns -- 8000
- Sarns -- 9000
- Spectrum Quantum
- Terumo – Advanced Perfusion System
- Other

(#125) Perfusion Electronic Medical Record

- No Perfusion EMR
- LivaNova – DMS
- LivaNova - Connect [PerfusionPRO]
- Perfusion.com - On Cloud
- Epic
- Getinge – Metavision

- Terumo – Tlink
- Talis-ACG Perfusion
- Spectrum Medical
- General Electric -- Centricity
- Other

(#130) Heart-Lung Machine Safety Devices:

- Arterial Line Pressure Monitoring
- Cardioplegia Delivery System Pressure Monitoring
- Venous Reservoir Pressure Monitoring
- Arterial Bubble Detector
- Level Sensor
- Arterial Outflow Temperature Monitoring
- Arterial Line Filter
- 1-Way valve (Vent Line)
- 1-Way Valve (Arterial Line for Centrifugal Pump)
- Hard Stop Detent Controls
- Electronically Activated Clamps
- Low Speed Alarm
- Anesthetic Gas Scavenge Line
- Hand Crank
- Backup Gas Supply
- Backup Battery Supply
- Functioning Flashlight

(#135) Heater Cooler Device Type:

- CardioQuip - MCH-1000(i)
- CardioQuip - MCH-1000(m)
- Cincinnati Sub-Zero – Hemotherm
- LivaNova - 3T
- Medtronic – Biocal
- Sarns - HX2
- Sarns – TCM
- Sarns - TCM2
- Sarns – 11160
- Terumo - Dual Heater Cooler
- Maquet - HCU-30

- Quantum – Mr. Frosty
- Other

Maquet HCU-

(#140) Inline Blood Gas Trending Device

- LivaNova - BCare5 arterial only venous only arterial & venous
- LivaNova – B-Capta arterial only venous only arterial & venous
- Medtronic – BioTrend arterial only venous only arterial & venous
- Spectrum – Viper: arterial only venous only arterial & venous
- Terumo - CDI-500: arterial only venous only arterial & venous
- Other
- None

(#145) Cerebral Oximetry Device

- No Cerebral Oximeter
- CASMED - FORE-SIGHT Elite
- Covidien - INVOS 5100C
- Nonin - SensSmart X-100
- CDI-550
- Mespere - NeurOs
- Other

(#150) Anticoagulation Monitoring Device

- Abbot - iStat
- Accriva - Hemochron
- Accriva – Hemochron Jr.
- Medtronic – Hepcon HMS
- Medtronic – HMS Plus
- Medtronic – ACT Plus
- Other

(#155) Autotransfusion Device

- Fresenius – CATS Fresenius Kabi CATSmart System
- Haemonetics: Cell Saver V Cell Saver V+ Elite Elite +
- LivaNova: Bratt II Electa Xtra
- Medtronic: Autolog Autolog IQ
- Other None

(#160) Oxygenator

- Getinge – Quadrox
- LivaNova: Apex HP KiDS D100 KiDS D101
- LivaNova: Inspire 6 Inspire 8 PrimO2x Synthesis
- Medtronic: Affinity – NT Fusion Pixie Pediatric
- Terumo: Capiox FX15 Capiox FX25
- Terumo: Capiox RX15 Capiox RX25 Capiox NX19
- Sorin – Inspire
- Other

(#165) Arterial Filter Pore Size (Microns)

- 20 25 27 30 32 33 37 38 40 43 Other

(#170) BioCoating Area

- None All but Cannula Limited Components Tip to Tip

(#175) BioCoating Type

- Baxter – Duraflow Gish – GBS Jostra – Bioline
- LivaNova: PHISIO SMARTx

Maquet – Safeline
Medtronic: Balance Cortiva Trillium
Terumo – Xcoating
Other

(#180) System Type: Open Closed No Venous Reservoir

(#185) Arterial Pump Device

Roller pump Spectrum CP-37 Centrifugal Pump
Jostra – Rotaflow
LivaNova: Revolution CP5
Medtronic: Affinity CP Centrifugal Blood Pump Medtronic – Biomedicus
Medtronic: BP50 Pediatric Bio-pump BPX80 Adult Bio-pump
Sarns - Disposable Centrifugal Pump
Terumo: CAPIOX SP Centrifugal Pump CAPIOX ICP Centrifugal Pump
Other

(#190) Leukocyte Depleting Filter Used: Yes No

(#195) Pulsatile Perfusion Used: Yes No

(#200) Augmented Venous Drainage: None Vacuum Kinetic

(#205) Acid-Base Management Strategy: Alpha-Stat Combination pH-Stat

(#210) If pH-Stat or Combination is chosen, was Cooling Phase pH Stat Used: Yes No

(#215) pH-Stat Management—Temperature for Combination, Cooling: _____ °C

Anticoagulation Management

(#226) Anticoagulation Type: Direct Thrombin Inhibitor Heparin

(#227) Direct Thrombin Inhibitor Specified: Bivalirudin Argatroban Other

(#230) Method for Monitoring Anticoagulation

ACT
 Heparin concentration (e.g., HMS, heparin-protamine titration)
 PT/PTT
 Other

(#235) If “ACT” selected, Target ACT _____ seconds

(#240) Viscoelastic Testing Used

No
 Yes—Prior to CPB onset
 Yes—During CPB
 Yes—After CPB cessation

(#245) Method of Determining Initial Heparin Dose

Fixed Weight-Based
 Heparin Dose Response

(#251) Total Heparin Dose for CPB: _____ units

(#251.1) Total Heparin Dose Given during CPB: _____ units

(#251.2) Antifibrinolytic Used: None Aminocaproic Acid (Amicar) Tranexamic Acid Both

(#252) Thrombate/AT-III used: Yes No

(#255) Method for Calculating Initial Protamine Dose

- Fixed dose
- Heparin protamine titration
- Ratio dose of heparin given
- Protamine not given
- Other

(#260) Total Protamine Dose: _____ mg

(#1220) Cardiotomy Suction: Yes No

(#265) Timing of Pump Sucker Termination

- Prior to, or at initiation of, protamine delivery
- 1-25% of protamine given
- 26-49% of protamine given
- >=50% of protamine given

(#270) Evidence of Clotting in the Circuit: Yes No

Priming Volumes

(#275) Static Volume: _____ ml

(#280) Saline Volume: _____ ml

(#285) Lactated Ringer's Volume: _____ ml

(#290) Balanced Electrolyte Solution Volume: _____ ml

(#300) Other Prime Solution Volume: _____ ml

(#305) 5% Albumin Volume: _____ ml

(#310) Starch Volume: _____ ml

(#315) 25% Albumin Volume: _____ ml

(#330) Heparin Dose: _____ units

(#335) Heparin Volume: _____ ml

(#345) Mannitol Dose: _____ grams

(#350) Mannitol Volume: _____ ml

(#360) Sodium Bicarbonate Dose: _____ meq

(#365) Sodium Bicarbonate Volume: _____ ml

(#375, #385, #400, #415, #430, #445) Prime meds (drop-down menu): Doses & Volumes

(#500) Prime RBC Units: ____ (#505) FFP Units: ____ (#506) Cryoprecipitate Units (bags): ____

(#620) Total Prime Volume: **Auto-calculated**

DO₂i

(#621) DO₂i (Oxygen Delivery) calculated during bypass? Yes No

(#625) How frequently was DO₂i calculated during this case?

Continuously Intermittent

(#627) Was there a pre-determined target DO₂i for this case? Yes No

What was the predetermined target DO₂i for this case? _____ mL/min/m²

Bypass Details

(#520) Pump Time: _____ minutes (#525) Cross-Clamp Time: _____ minutes

(#530) Clamp/Arrest Type: Yes, Cardioplegia Yes, V-fibrillation None

Cardioplegia

(#535) Cardioplegia Solution

- | | |
|-------------------------------------|--|
| <input type="checkbox"/> None | <input type="checkbox"/> Variable |
| <input type="checkbox"/> 1:1 | <input type="checkbox"/> Crystalloid (custodial) |
| <input type="checkbox"/> 2:1 | <input type="checkbox"/> Microplegia |
| <input type="checkbox"/> 4:1 | <input type="checkbox"/> Del Nido |
| <input type="checkbox"/> 8:1 | <input type="checkbox"/> KBC |
| <input type="checkbox"/> St. Thomas | <input type="checkbox"/> Other |

(#545) Cardioplegia Regime: Intermittent Continuous Single Dose

If Intermittent—(#555) # of C.P. Doses: ____ (#560) Max Interval Between Doses: _____ mins

If Intermittent—(#575) Maintenance Cardioplegia Dose Temp: Cold Tepid Warm

If Intermittent—(#580) Route of Additional Cardioplegia Doses

- Antegrade-aortic root
- Antegrade-coronary ostium (left, right or both)
- Antegrade - bypass graft
- Retrograde

(#550) Topical Cooling—Heart: Yes No

(#565) Cardioplegia Induction Temperature: Cold Tepid Warm

(#570) Route of Cardioplegia Induction Dose

- Antegrade-aortic root
- Antegrade-coronary ostium
- Retrograde

(#585) Hot Shot Used?

- No
- Yes: Standard CPS Buckberg CPS Blood only Combination Microplegia

(#562) Additional Cardioplegia Administered for Electrical Activity? Yes No

(#587) First Dose Cardioplegia Volume: _____ ml **(#590)** Total Cardioplegia Volume: _____ ml

(#595) Proximal Technique Used: Single Clamp Reperfusion None

(#625) Core Highest Temperature: _____ °C **(#630)** Core Lowest Temperature: _____ °

(#635) Core Temperature Site

- Bladder
- Nasopharyngeal
- Esophageal
- Jugular bulb
- Rectal
- Tympanic
- Other

(#705) Highest Arterial Inflow Blood Temp: _____ °C

(#710) Target CPB Separation Temp: _____ °C **(#715.2)** Actual CPB Separation Temp: _____ °C

Hematocrits

(#720) First in O.R.: _____ %

(#735) Last Pre-PCB: _____ %

(#725) First on CPB: _____ %

(#740) Lowest on CPB: _____ %

(#750) Prior to Circulatory Arrest: _____ %

(#730) Last on CPB: _____ %

(#747) Last in O.R.: _____ %

(#755) Last Pre-CPB Lactate: _____ **(#763)** Last Lactate in O.R.: _____

(#765) RBC's Given: Yes No

(#770) Intraop CPB RBC Units: _____ **(#775)** Intraop Non-CPB RBC Units: _____

(#780) FFP Given: Yes No

(#785) Intraop CPB FFP Units: _____ **(#790)** Intraop Non-CPB FFP Units: _____

(#795) Platelets (PLT) Given: Yes No

(#800) Intraop CPB PLT Units: _____ **(#805)** Intraop Non-CPB PLT Units: _____

(#810) Cell Saver Volume (CSV) Given: Yes No

(#815) Intraop CPB CSV: _____ ml (#820) Intraop Non-CPB CSV: _____ ml

(#806) Cryoprecipitate (CRYO) Given: Yes No

(#807) Intraop CPB CRYO Units: _____ (#808) Intraop Non-CPB CRYO Units: _____

(#825) Whole Blood (WBL) Given: Yes No

(#830) Intraop CPB WBL Volume: _____ ml (#835) Intraop Non-CPB WBL Units: _____ ml

(#840) Was RB volume washed with autotransfusion device prior to administration?: Yes No

(#845) Hematocrit prior to *first* RBC unit transfused: _____%

(#850) Reason for *first* RBC unit transfused (select all that apply):

- | | |
|---|--|
| <input type="checkbox"/> Hematocrit level | <input type="checkbox"/> Patient Age |
| <input type="checkbox"/> Low SVO ₂ | <input type="checkbox"/> Cerebrovascular Disease |
| <input type="checkbox"/> Low Reservoir Level | <input type="checkbox"/> Acute Hemorrhage |
| <input type="checkbox"/> Pressor Requirements | <input type="checkbox"/> Maintain DO ₂ Delivery |
| <input type="checkbox"/> Cerebral Oximetry | <input type="checkbox"/> Other |

(#890) Hematocrit prior to *second* RBC unit transfused: _____%

(#895) Reason for *first* RBC unit transfused (select all that apply):

- | | |
|---|--|
| <input type="checkbox"/> Hematocrit level | <input type="checkbox"/> Patient Age |
| <input type="checkbox"/> Low SVO ₂ | <input type="checkbox"/> Cerebrovascular Disease |
| <input type="checkbox"/> Low Reservoir Level | <input type="checkbox"/> Acute Hemorrhage |
| <input type="checkbox"/> Pressor Requirements | <input type="checkbox"/> Maintain DO ₂ Delivery |
| <input type="checkbox"/> Cerebral Oximetry | <input type="checkbox"/> Other |

Bypass Volumes

(#900) 0.9% Normal Saline: _____ ml (#920) Cardioplegia Crystalloid Vol.: _____ ml

(#905) Lactated Ringer's: _____ ml (#925) Albumin 5%: _____ ml

(#910) Balanced Electrolyte: _____ ml (#930) Albumin 25%: _____ ml

(#920) Other Solutions: _____ ml (#935) Starch Solution: _____ ml

Total Volume: **autocalculated**

Circulatory Arrest

(#1005) Total Circulatory Arrest Time: _____ minutes

(#1010) Duration of Cooling: _____ minutes

(#1015) Topical Cooling of Patient's Brain: Yes No

(#1015) Topical Cooling of Patient's Brain: Yes No

(#1035) Direction of Cerebral Perfusion

None Antegrade Retrograde Both

(#1036.1) Antegrade Target Flow Rate: _____ml

(#1036.2) Antegrade Actual Flow Rate: _____ml

(#1036.3) Retrograde Target Flow Rate: _____ml

(#1036.4) Retrograde Actual Flow Rate: _____ml

(#1040) Route of Cerebral Perfusion (select all that apply)

Axillary Innominate graft Innominate Direct Left carotid direct Other

(#1027) Pre-Circulatory Arrest Medications given: Yes No

(#1030) If pre-circulatory arrest meds given, select all that apply:

Magnesium: Mannitol: Steroid bolus: Other:

Return to Bypass

(#1045) Return to Bypass: Yes No **(#1050)** Additional Bypass Mins: _____mins

Reason(s) for return to bypass (select all that apply)

(#1055) Hemodynamic Instability

(#1060) Technical—Bleeding

(#1065) Respiratory Insufficiency

(#1070) Technical—Valve

(#1075) Technical—Graft Revision

(#1076) Protamine Reaction

(#1080) Other **(#1085)** "Other" reason: _____

Medications Given on Bypass

(#1100) Furosemide Total Dose: _____mg **(#1105)** Sodium Bicarb Total Dose: _____mg

(#1107) Vasopressors Given During CPB: Yes No

(#1110) If Vasopressors given, select all that apply

Vasopressin **(#1105)** Dose: _____units

Norepinephrine **(#1105)** Dose: _____µg (micrograms)

Phenylephrine **(#1105)** Dose: _____mg (milligrams)

Volume Management

Urine Volumes

(#1130) Pre-CPB Vol.: _____ml **(#1135)** CPB Vol.: _____ml **(#1137)** Post-CPB Vol.: _____ml

Residual Pump Volume

(#1150) Direct Infusion: _____ml **(#1155)** Centrifugation: _____ml **(#1137)** Ultrafiltration: _____ml

(#1165) Autologous Circuit Prime: Yes No (#1170) Autologous prime volume: ____ml
 (#1175) Ultrafiltration: Yes No
 (#1180) Zero-Balance UF: Yes No
 (#1181) Zero-Balance UF Vol. Added: ____ml (#1182) Zero-Balance UF Vol. Removed: ____ml
 (#1185) Post-op Ultrafiltration: Yes No
 (#1190) Ultrafiltrate CPB Volume: ____ml (#1195) Ultrafiltrate Non-CPB Volume: ____ml
 (#1200) ANH Blood Harvest: Yes No (#1205) ANH Blood Harvest Volume: ____ml
 ANH Vol. Returned: (#1210)Pre-CPB: ____ml (#1215)Pre-CPB: ____ml (#1216)Post-CPB: ____ml

Glucose Management

(#1225) First Intraoperative: ____mg/dL
 (#1230) Highest Intraoperative: ____mg/dL
 (#1235) Last Intraoperative: ____mg/dL
 (#1240) Intraoperative Insulin Used: Yes No

Inotrope Usage

(#1250) Inotrope Count at Wean: _____

Patient Safety

(#1300) Perfusion Checklist: Yes No
 (#1305) Perfusion Transfer of Care: Yes No
 (#1310) Timing of Transfer of Care: Prior to CPB: During CPB: After CPB:

(#1313) Adverse Safety Event? Yes No

(#1315) If "Yes" (select all that apply)

- | | |
|---|---|
| <input type="checkbox"/> Arterial Air | <input type="checkbox"/> Electrical Failure |
| <input type="checkbox"/> Oxygenator Failure | <input type="checkbox"/> Gas Supply Failure |
| <input type="checkbox"/> Pumphead Failure | <input type="checkbox"/> Thrombus |
| <input type="checkbox"/> Level Sensor | <input type="checkbox"/> Air Lock |

(#1316) If an Oxygenator Failure Occurred, Did it require Oxygenator Change-Out: Yes No

(#1317) Post-Operative Debrief: Yes No

(#51) Patient Expired in the O.R.: Yes No