



PERForm v5.0 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: **5.0**
- (#51) Patient Expired in the O.R.: Yes No
- (#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 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

- | | |
|---|--|
| <input type="checkbox"/> CenturyTM - Heart Lung Machine | <input type="checkbox"/> Medtronic Performer |
| <input type="checkbox"/> Getinge - HL 20 | <input type="checkbox"/> Sarns -- 5000 |
| <input type="checkbox"/> LivaNova - C5 | <input type="checkbox"/> Sarns -- 8000 |
| <input type="checkbox"/> LivaNova - S3 | <input type="checkbox"/> Sarns -- 9000 |
| <input type="checkbox"/> LivaNova - S5 | <input type="checkbox"/> Spectrum Quantum |
| <input type="checkbox"/> LivaNova -- SC | <input type="checkbox"/> Terumo -- Advanced Perfusion System |
| | <input type="checkbox"/> Other |

(#125) Perfusion Electronic Medical Record

- | | |
|--|---|
| <input type="checkbox"/> No Perfusion EMR | <input type="checkbox"/> Terumo -- <u>Tlink</u> |
| <input type="checkbox"/> LivaNova -- DMS | <input type="checkbox"/> <u>Talis</u> -ACG Perfusion |
| <input type="checkbox"/> LivaNova - Connect [PerfusionPRO] | <input type="checkbox"/> Spectrum Medical |
| <input type="checkbox"/> Perfusion.com - On Cloud | <input type="checkbox"/> General Electric -- Centricity |
| <input type="checkbox"/> Epic | <input type="checkbox"/> Other |
| <input type="checkbox"/> Getinge -- Metavision | |

(#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
- Other

(#140) Inline Blood Gas Trending Device

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

(#145) Cerebral Oximetry Device

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

(#250) Initial Heparin Dose Given: _____ units

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

(#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) Cardiomy 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**

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"/> <u>Microplegia</u> |
| <input type="checkbox"/> 4:1 | <input type="checkbox"/> <u>Del Nido</u> |
| <input type="checkbox"/> 8:1 | <input type="checkbox"/> KBC |
| | <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: _____°C

(#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 *second* 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

(#1245) Inotropes Used to Wean from CPB?: Yes No (#1250) How Many?: _____

(#1255) Number of Inotropes Upon ICU Arrival: _____

(#1260) Number of Inotropes 4 Hours Post-Op: _____

(#1265) Number of Inotropes 48 Hours Post-Op: _____

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

Version b March 22, 2023