

**NATIONAL QUALITY FORUM'S  
SUBMITTED PEDIATRIC CARDIAC SURGERY MEASURES**

Measure Number	Measure Title	Measure Description	Measure Steward	Numerator	Denominator	Exclusions	Data Source	Level of Analysis
#PCS-001-09	<b>Participation in a national database for pediatric and congenital heart surgery</b>	Participation in at least one multi-center, standardized, data collection, and feedback program that provides benchmarking of the physician's data relative to national and regional programs and uses process and outcome measures	Society of Thoracic Surgeons	Whether or not there is participation in at least one multi-center, data collection, and feedback program for pediatric and congenital heart surgery.	N/A	Any operation that is not a pediatric or congenital cardiac operation. Cardiac operations are defined as operations that are of operation types of "CPB" or "No CPB cardiovascular"	Electronic Health/Medical Record, Electronic Clinical Database, Name: The Society of Thoracic Surgeons Congenital Heart Surgery Database, Electronic Clinical Registry, Electronic Claims	Group of clinicians, Facility, Integrated delivery system, Health plan, Community/Population
#PCS-002-09	<b>Multidisciplinary conference to plan pediatric and congenital heart surgery cases</b>	Occurrence of a pre-operative multidisciplinary planning conference to plan pediatric and congenital heart surgery cases. This conference will involve multiple members of the healthcare team, with recommended participation, including but not limited to: cardiology, cardiac surgery, anesthesia, and critical care.	Society of Thoracic Surgeons	Whether or not there is a pre-operative multidisciplinary conference involving cardiology, cardiac surgery, anesthesia, and critical care to plan surgical cases for pediatric and congenital heart surgery	N/A	Any operation that is not a pediatric or congenital cardiac operation. Cardiac operations are defined as operations that are of operation types of "CPB" or "No CPB cardiovascular"	Electronic Health/Medical Record, Electronic Clinical Database: The Society of Thoracic Surgeons Congenital Heart Surgery Database, Electronic Clinical Registry, Electronic Claims, Paper Medical Record	Group of clinicians, Facility, Integrated delivery system, Health plan, Community/Population
#PCS-003-09	<b>Multidisciplinary rounds involving multiple members of the healthcare team</b>	Occurrence of multidisciplinary rounds for pediatric and congenital cardiac surgery patients involving multiple members of the healthcare team, with recommended participation, including but not limited to: cardiology,	Society of Thoracic Surgeons	Whether or not the facility implements multidisciplinary rounds involving cardiology, cardiac surgery, and critical care professionals for pediatric and congenital cardiac surgery patients	N/A	Any operation that is not a pediatric or congenital cardiac operation. Cardiac operations are defined as operations that are of operation types of "CPB" or "No CPB cardiovascular" (CPB is cardiopulmonary bypass)	Electronic Health/Medical Record, Electronic Clinical Database: The Society of Thoracic Surgeons Congenital Heart Surgery Database,	Group of clinicians, Facility, Integrated delivery system, Health plan, Community/Population

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		cardiac surgery, critical care, primary caregiver, family, nurses, pharmacist and respiratory therapist. Involvement of the family is encouraged.					Electronic Claims, Paper Medical Record	
#PCS-004-09	<b>Regularly scheduled quality assurance and quality improvement cardiac care conference</b>	Occurrence of a regularly scheduled quality assurance and quality improvement cardiac care conference to discuss care provided to patients who undergo pediatric and congenital cardiac surgery operations and to discuss opportunities for improvement. This conference should be held at least every three months (quarterly).	Society of Thoracic Surgeons	Whether or not the facility holds a regularly scheduled quality assurance and quality improvement cardiac care conference to discuss care provided to patients who undergo pediatric and congenital cardiac surgery operations and to discuss opportunities for improvement. This conference should be held at least every three months (quarterly).	N/A	Any operation that is not a pediatric or congenital cardiac operation. Cardiac operations are defined as operations that are of operation types of "CPB" or "No CPB cardiovascular" (CPB is cardiopulmonary bypass)	Electronic Health/Medical Record, Electronic Clinical Database: The Society of Thoracic Surgeons Congenital Heart Surgery Database, Electronic Claims, Paper Medical Record	Group of clinicians, Facility, Integrated delivery system, Health plan, Community/Population
#PCS-005-09	<b>Availability of intraoperative transesophageal echocardiography (TEE)</b>	Availability of intraoperative transesophageal echocardiography (TEE) for pediatric and congenital heart operations	Society of Thoracic Surgeons	Whether or not intraoperative transesophageal echocardiography (TEE) is available for pediatric and congenital cardiac surgery operations	N/A	Any operation that is not a pediatric or congenital cardiac operation. Cardiac operations are defined as operations that are of operation types of "CPB" or "No CPB cardiovascular" (CPB is cardiopulmonary bypass)	Electronic Health/Medical Record, Electronic Clinical Database: The Society of Thoracic Surgeons Congenital Heart Surgery Database, Electronic Claims, Paper Medical Record, Hospital Records	Group of clinicians, Facility, Integrated delivery system, Health plan, Community/Population
#PCS-006-09	<b>Availability of institutional pediatric ECLS (extracorporeal life support)</b>	Availability of an institutional pediatric extracorporeal life support (ECLS)	Society of Thoracic Surgeons	Whether or not the facility has available an institutional	N/A	Any operation that is not a pediatric or congenital cardiac operation. Cardiac	Electronic Health/Medical Record Electronic	Facility, Integrated delivery system

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	support)	program for pediatric and congenital cardiac surgery patients		pediatric extracorporeal life support (ECLS) program for pediatric and congenital cardiac surgery operations		operations are defined as operations that are of operation types of "CPB" or "No CPB cardiovascular" (CPB is cardiopulmonary bypass)	Clinical Database, Name: The Society of Thoracic Surgeons Congenital Heart Surgery Database, Electronic Clinical Registry, Name: The Society of Thoracic Surgeons Congenital Heart Surgery Database, Electronic Claims, Electronic Pharmacy Data, Paper Medical Record, Institutional documentation of an ECLS program by participation in the Extracorporeal Life Support Organization	
#PCS-007-09	<b>Surgical volume for pediatric and congenital heart surgery</b>	Surgical Volume for pediatric and congenital heart surgery	Society of Thoracic Surgeons	Number of pediatric and congenital heart surgery operations	N/A	Any operation that is not a pediatric or congenital cardiac operation. Cardiac operations are defined as operations that are of operation types of "CPB" or "No CPB cardiovascular" (CPB is cardiopulmonary bypass)	Electronic Health/Medical Record, Clinical Database, Name: The Society of Thoracic Surgeons Congenital Heart Surgery Database, Electronic Clinical Registry, Name: The Society of Thoracic Surgeons Congenital Heart Surgery	Group of clinicians, facility, integrated delivery system, health plan, community/population

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							Database, Electronic Claims, Paper Medical Record	
#PCS-008-09	<b>Surgical volume for pediatric and congenital heart surgery, stratified by the five STS-EACTS mortality levels</b>	Surgical volume for pediatric and congenital heart surgery stratified by the five STS-EACTS mortality levels, a multi-institutional validated complexity stratification tool	Society of Thoracic Surgeons	Number of pediatric and congenital cardiac surgery operations (types "CPB" and "No-CPB cardiovascular") in each of the strata of complexity specified by the five STS-EACTS mortality levels, a multi-institutional validated complexity stratification tool.	N/A	Any operation that is a pediatric or congenital open heart surgery (operation types of "CPB" or "No CPB cardiovascular") that cannot be classified into a level of complexity by the five STS-EACTS mortality levels.	Electronic Health/Medical Record, Clinical Database, Name: The Society of Thoracic Surgeons Congenital Heart Surgery Database, Electronic Clinical Registry, Name: The Society of Thoracic Surgeons Congenital Heart Surgery Database, Electronic Claims, Paper Medical Record	Group of clinicians, facility, integrated delivery system, health plan, community/population
#PCS-010-09	<b>Timing of antibiotic administration for pediatric and congenital cardiac surgery patients</b>	Percent of patients undergoing pediatric and congenital cardiac surgery who received prophylactic antibiotics within one hour of surgical incision (two hours if receiving Vancomycin)	Society of Thoracic Surgeons	Number of pediatric and congenital cardiac surgery patients who received prophylactic antibiotics within one hour of surgical incision (two hours if Vancomycin). In the event that surgery is delayed, as long as the patient is re-dosed (if clinically appropriate) the patient should be included in the numerator	All patients undergoing pediatric and congenital cardiac surgery operations.	Patients who: <ul style="list-style-type: none"> <li>• had principal or admission diagnosis of preoperative infectious disease</li> <li>• were receiving antibiotics at time of admission</li> <li>• have medical records that do not include antibiotic start date/time or incision date/time</li> <li>• were receiving antibiotics more than 24 hours prior to surgery</li> <li>• have physician documentation</li> </ul>	Electronic Health/Medical Record, Clinical Database, Name: The Society of Thoracic Surgeons Congenital Heart Surgery Database, Electronic Clinical Registry, Name: The Society of Thoracic Surgeons Congenital Heart Surgery Database, Electronic Claims, Paper Medical Record, Electronic Pharmacy Data	Individual clinician, Group of clinicians, facility, integrated delivery system, health plan

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						<p>of infection prior to surgical procedure</p> <p>Any operation that is not a pediatric or congenital cardiac operation. Cardiac operations are defined as operations that are of operation types of "CPB" or "No CPB cardiovascular" (CPB is cardiopulmonary bypass)</p>		
#PCS-011-09	<b>Selection of antibiotic administration for pediatric and congenital cardiac surgery patients</b>	Percent of patients undergoing pediatric and congenital cardiac surgery who received body weight appropriate prophylactic antibiotics recommended for the operation	Society of Thoracic Surgeons	Number of pediatric and congenital cardiac surgery patients who received body weight appropriate prophylactic antibiotics recommended for the operation	Number of pediatric and congenital cardiac surgery operations	<p>Patients who:</p> <ul style="list-style-type: none"> <li>• had principal or admission diagnosis of preoperative infectious disease</li> <li>• were receiving antibiotics at time of admission</li> <li>• have medical records that do not include antibiotic start date/time or incision date/time</li> <li>• were receiving antibiotics more than 24 hours prior to surgery</li> <li>• have physician documentation of infection prior to surgical procedure.</li> </ul> <p>Any operation that is not a pediatric or congenital cardiac operation. Cardiac operations are defined as operations that are</p>	Electronic Health/Medical Record, Clinical Database, Name: The Society of Thoracic Surgeons Congenital Heart Surgery Database, Electronic Clinical Registry, Name: The Society of Thoracic Surgeons Congenital Heart Surgery Database, Electronic Claims, Paper Medical Record, Electronic Pharmacy Data, Paper Medical Records	Individual clinician, Group of clinicians, facility,

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						of operation types of "CPB" or "No CPB cardiovascular" (CPB is cardiopulmonary bypass)		
#PCS-012-09	Use of an expanded pre-procedural and post-procedural "time-out"	<p>Use of an expanded pre-procedural and post-procedural "time-out" that includes the following elements:</p> <ol style="list-style-type: none"> <li>1. The conventional pre-procedural "time-out", which includes identification of patient, operative site, procedure and history of any allergies.</li> <li>2. A pre-procedural briefing wherein the surgeon shares with all members of the operating room team the essential elements of the operative plan; including diagnosis, planned procedure, outline of essentials of anesthesia and bypass strategies, anticipated or planned implants or device applications, and anticipated challenges.</li> <li>3. A post-procedural debriefing wherein the surgeon succinctly reviews with all members of the operating room team the essential elements of the operative plan, identifying both the successful components and the opportunities for improvement. This debriefing should take place prior to the patient leaving the operating room or its equivalent, and may be followed by a more</li> </ol>	Society of Thoracic Surgeons	<p>Whether or not the facility implements an expanded pre-procedural and post-procedural "time-out" for all patients undergoing pediatric and congenital heart surgery operations. Pre-procedural and post-procedural time-out includes the following elements:</p> <ol style="list-style-type: none"> <li>1. The conventional pre-procedural "time-out", which includes identification of patient, operative site, procedure and history of any allergies.</li> <li>2. A pre-procedural briefing wherein the surgeon shares with all members of the operating room team the essential elements of the operative plan; including diagnosis, planned procedure, outline of essentials of anesthesia and bypass strategies, anticipated or planned implants or device</li> </ol>	N/A	Any operation that is not a pediatric or congenital cardiac operation. Cardiac operations are defined as operations that are of operation types of "CPB" or "No CPB cardiovascular" (CPB is cardiopulmonary bypass.)	Electronic Health/Medical Record, Clinical Database, Name: The Society of Thoracic Surgeons Congenital Heart Surgery Database, Electronic Clinical Registry, Name: The Society of Thoracic Surgeons Congenital Heart Surgery Database, Electronic Claims, Paper Medical Record, Electronic Pharmacy Data	Individual clinicians, Group of clinicians

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		<p>in-depth dialogue involving team members at a later time. (The actual debriefing in the operating room is intentionally and importantly brief; in recognition of the fact that periods of transition may be times of instability or vulnerability for the patient).</p> <p>4. A briefing or hand-off protocol at the time of transfer (arrival) to the Intensive Care Unit at the end of the operation, involving the anesthesiologist, surgeon, physician staff of the Intensive Care Unit (including critical care and cardiology) and nursing</p>		<p>applications, and anticipated challenges.</p> <p>3. A post-procedural debriefing wherein the surgeon succinctly reviews with all members of the operating room team the essential elements of the operative plan, identifying both the successful components and the opportunities for improvement. This debriefing should take place prior to the patient leaving the operating room or its equivalent, and may be followed by a more in-depth dialogue involving team members at a later time. (The actual debriefing in the operating room is intentionally and importantly brief; in recognition of the fact that periods of transition may be times of instability or vulnerability for the patient).</p> <p>4. A briefing or hand-off protocol at the time of transfer (arrival) to the Intensive Care Unit at the end of the operation, involving the</p>				

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				anesthesiologist, surgeon, physician staff of the Intensive Care Unit (including critical care and cardiology) and nursing				
#PCS-018-09	<b>Operative mortality stratified by the five STS-EACTS mortality levels</b>	Operative mortality stratified by the five STS-EACTS mortality levels, a multi-institutional validated complexity stratification tool	Society of Thoracic Surgeons	Number of patients who undergo pediatric and congenital open heart surgery in a given level of complexity stratification and die during either of the following two time intervals: 1. Prior to hospital discharge 2. Within 30 days of the date of surgery	Number of index cardiac operations in each level of complexity stratification using the five STS-EACTS mortality levels, a multi-institutional validated complexity stratification tool	Any operation that is not a pediatric or congenital cardiac operation. Cardiac operations are defined as operations that are of operation types of "CPB" or "No CPB cardiovascular" (CPB is cardiopulmonary bypass) Any operation that is a pediatric or congenital open heart surgery (operation types of "CPB" or "No CPB cardiovascular") that cannot be classified into a level of complexity by the five STS-EACTS mortality levels.	Electronic Health/Medical Record, Clinical Database, Name: The Society of Thoracic Surgeons Congenital Heart Surgery Database, Electronic Clinical Registry, Name: The Society of Thoracic Surgeons Congenital Heart Surgery Database, Electronic Claims, Paper Medical Record	Group of clinicians, facility, integrated delivery system, health plan, community/population
#PCS-021-09	<b>Standardized mortality ratio for congenital heart surgery, risk adjustment for congenital heart surgery (RACHS-1)</b>	Adjusted ratio of observed to expected rate of in-hospital mortality following surgical repair of congenital heart defect among patients <18 years of age, risk-adjusted using the risk adjustment for congenital heart surgery (RACHS-1) method.	Children's Hospital, Boston	Cases of congenital heart surgery among patients <18 years of age resulting in in-hospital death	Total cases of congenital heart surgery among patients <18 years of age	Patients >=18 years of age, those undergoing heart transplantation, neonates or premature infants with patent ductus arteriosus repair as the only cardiac surgical procedure, transcatheter interventions, surgical cases unable to be assigned to a RACHS-1 risk category.	Electronic Health/Medical Record, Electronic Clinical Database, Paper Medical Records, Data elements may be obtained from an administrative database (e.g., Healthcare Cost and Utilization Project (HCUP) Kids' Inpatient Database (KID), Pediatric Health Information System (PHIS));	Can be measured at all levels



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							<p>from a clinical database (e.g., Pediatric Cardiac Care Consortium (PCCC), Society of Thoracic Surgeons (STS) Congenital Heart Surgery Database)*; from hospital-specific electronic medical records; or from paper medical records.  * The STS database does not currently include all variables, but there are plans to add them</p>	