



Measure Information

This document contains the information submitted by measure developers/stewards, but is organized according to NQF's measure evaluation criteria and process. The item numbers refer to those in the submission form but may be in a slightly different order here. In general, the item numbers also reference the related criteria (e.g., item 1b.1 relates to sub criterion 1b).

Brief Measure Information

NQF #: 0339

Corresponding Measures:

De.2. Measure Title: RACHS-1 Pediatric Heart Surgery Mortality Rate (PDI 06)

Co.1.1. Measure Steward: Agency for Healthcare Research and Quality

De.3. Brief Description of Measure: In-hospital deaths per 1,000 pediatric heart surgery admissions among patients with congenital heart disease ages 17 years and younger. Excludes obstetric discharges; cases with transcatheter interventions as a single cardiac procedure, performed without bypass but with catheterization; cases with septal defect repairs as single cardiac procedures without bypass; cases with heart transplants; premature infants with patent ductus arteriosus (PDA) closure as the only cardiac procedure; age less than 30 days with PDA closure as only cardiac procedure; transfers to another hospital; cases with an unknown disposition; and neonates with birth weight less than 500 grams.

[NOTE: The software provides the rate per hospital discharge. However, common practice reports the measure as per 1,000 discharges. The user must multiply the rate obtained from the software by 1,000 to report in-hospital deaths per 1,000 hospital discharges.]

1b.1. Developer Rationale: Quality improvement efforts can be enhanced and stimulated by a clear understanding of how an entity (e.g., an institution) is performing in comparison to other entities. Information regarding overall performance can be difficult to obtain because of the extreme diversity of conditions that comprise congenital heart disease. Even the most common lesions make up only a small fraction of most surgical case loads. Measurement tools that can include all or most of a total surgical caseload should provide a more precise and better reflection of overall performance.

S.4. Numerator Statement: Number of deaths (DISP=20) among cases meeting the inclusion and exclusion rules for the denominator.

S.6. Denominator Statement: Discharges, for patients ages 17 years and younger, with either

- any-listed ICD-9-CM procedure codes for congenital heart disease (1P); or
- any-listed ICD-9-CM procedure codes for non-specific heart surgery (2P) and any-listed ICD-9-CM diagnosis codes for congenital heart disease (2D).

S.8. Denominator Exclusions: Exclude cases:

- with any-listed ICD-9-CM procedure codes for closed heart valvotomy (3AP) as the only congenital heart disease procedure and any-listed ICD-9-CM procedure codes for catheterization (6P) without any-listed ICD-9-CM procedure codes for extracorporeal circulation (5P)
- with any-listed ICD-9-CM procedure codes for atrial septal enlargement (3BP) as the only congenital heart disease procedure and any-listed ICD-9-CM procedure codes for catheterization (6P) without any-listed ICD-9-CM procedure codes for extracorporeal circulation (5P)
- with any-listed ICD-9-CM procedure codes for atrial septal defect repair (3CP) as the only congenital heart disease procedure and any-listed ICD-9-CM procedure codes for catheterization (6P) without any-listed ICD-9-CM procedure codes for extracorporeal circulation (5P)
- with any-listed ICD-9-CM procedure codes for ventricular septal defect repair (3DP) as the only congenital heart disease procedure and any-listed ICD-9-CM procedure codes for catheterization (6P) without any-listed ICD-9-CM procedure codes for extracorporeal circulation (5P)
- with any-listed ICD-9-CM procedure codes for other surgical occlusion (3FP) as the only congenital heart disease procedure and any-listed ICD-9-CM procedure codes for catheterization (6P) without any-listed ICD-9-CM procedure codes for extracorporeal circulation (5P)

- with patent ductus arteriosus (PDA)[†] and any-listed ICD-9-CM procedure codes for catheterization (6P) without any-listed ICD-9-CM procedure codes for extracorporeal circulation (5P)
- with any-listed ICD-9-CM procedure codes for atrial septal defect repair and enlargement (4P) as the only congenital heart disease procedure without any-listed ICD-9-CM procedure codes for extracorporeal circulation (5P)
- with any-listed ICD-9-CM procedure codes for heart transplant (7P)
- with any-listed ICD-9-CM diagnosis codes for premature infant (4D) and PDA[†]
- with any-listed ICD-9-CM diagnosis codes for atrial septal defect or ventricular septal defect (5D) and PDA[†]
- age less than or equal to 30 days with PDA[†]
- transferring to another short-term hospital (DISP=2)
- neonates with birth weight less than 500 grams (Birth Weight Category 1)
- MDC 14 (pregnancy, childbirth and puerperium)
- with missing discharge disposition (DISP=missing), gender (SEX=missing), age (AGE=missing), quarter (DQTR=missing), year (YEAR=missing) or principal diagnosis (DX1=missing)

[†] PDA is defined as any-listed ICD-9-CM diagnosis code for PDA[†] closure (3D) as the only congenital heart disease diagnosis code besides atrial septal defect or ventricular septal defect (5D), and any-listed ICD-9-CM procedure code for occlusion of thoracic vessel (3EP) as the only congenital heart disease procedure code.

See Pediatric Quality Indicators Appendices:

- Appendix I – Definitions of Neonate, Newborn, Normal Newborn, and Outborn
- Appendix L- Low Birth Weight Categories

De.1. Measure Type: Outcome

S.17. Data Source: Claims

S.20. Level of Analysis: Facility

IF Endorsement Maintenance – Original Endorsement Date: May 15, 2008 Most Recent Endorsement Date: Jan 31, 2012

IF this measure is included in a composite, NQF Composite#/title:

IF this measure is paired/grouped, NQF#/title:

De.4. IF PAIRED/GROUPED, what is the reason this measure must be reported with other measures to appropriately interpret results? None

1. Evidence, Performance Gap, Priority – Importance to Measure and Report

Extent to which the specific measure focus is evidence-based, important to making significant gains in healthcare quality, and improving health outcomes for a specific high-priority (high-impact) aspect of healthcare where there is variation in or overall less-than-optimal performance. **Measures must be judged to meet all sub criteria to pass this criterion and be evaluated against the remaining criteria.**

1a. Evidence to Support the Measure Focus – See attached Evidence Submission Form

[0339_Evidence_MSF5.0_Data-636426399542864692.doc](#)

1a.1 For Maintenance of Endorsement: Is there new evidence about the measure since the last update/submission?

Do not remove any existing information. If there have been any changes to evidence, the Committee will consider the new evidence. Please use the most current version of the evidence attachment (v7.1). Please use red font to indicate updated evidence.

1b. Performance Gap

Demonstration of quality problems and opportunity for improvement, i.e., data demonstrating:

- considerable variation, or overall less-than-optimal performance, in the quality of care across providers; and/or
- Disparities in care across population groups.

1b.1. Briefly explain the rationale for this measure (e.g., how the measure will improve the quality of care, the benefits or improvements in quality envisioned by use of this measure)

If a COMPOSITE (e.g., combination of component measure scores, all-or-none, any-or-none), SKIP this question and answer the

composite questions.

Quality improvement efforts can be enhanced and stimulated by a clear understanding of how an entity (e.g., an institution) is performing in comparison to other entities. Information regarding overall performance can be difficult to obtain because of the extreme diversity of conditions that comprise congenital heart disease. Even the most common lesions make up only a small fraction of most surgical case loads. Measurement tools that can include all or most of a total surgical caseload should provide a more precise and better reflection of overall performance.

1b.2. Provide performance scores on the measure as specified (current and over time) at the specified level of analysis. (*This is required for maintenance of endorsement. Include mean, std dev, min, max, interquartile range, scores by decile. Describe the data source including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities include.*) This information also will be used to address the sub-criterion on improvement (4b1) under Usability and Use.

Adjusted per 1,000 rates by patient and hospital characteristics, 2007

Mean	Standard error	Location	P-value: Relative to Northeast
63.931	7.946	Northeast	1.000
30.730	2.637	Midwest	0.000
44.326	1.760	South	0.016
33.496	3.316	West	0.000

1b.3. If no or limited performance data on the measure as specified is reported in 1b2, then provide a summary of data from the literature that indicates opportunity for improvement or overall less than optimal performance on the specific focus of measurement.

See the following report for a complete treatment of the methodology: "Methods: Applying AHRQ Quality Indicators to Healthcare Cost and Utilization Project (HCUP) Data for the National Healthcare Quality Report" [URL: <http://hcupnet.ahrq.gov/QI%20Methods.pdf?JS=Y>]

1b.4. Provide disparities data from the measure as specified (current and over time) by population group, e.g., by race/ethnicity, gender, age, insurance status, socioeconomic status, and/or disability. (*This is required for maintenance of endorsement. Describe the data source including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities included.*) For measures that show high levels of performance, i.e., "topped out", disparities data may demonstrate an opportunity for improvement/gap in care for certain sub-populations. This information also will be used to address the sub-criterion on improvement (4b1) under Usability and Use.

1) Estimate 2) Standard error 3) P-value: Relative to marked group-c 4) P-value:
2007 relative to 2006

Median income of patient's ZIP code:

First quartile (lowest income) 44.830 2.315 0.394 0.112

Second quartile 39.643 2.577 0.671 0.053

Third quartile 32.492 2.639 0.034 0.679

Fourth quartile (highest income)c 41.414 3.276 0.043

Expected payment source:

Private insurancec 29.862 2.198 0.297

Medicare * * * DNC

Medicaid 45.617 1.707 0.000 0.129

Other insurance 52.447 8.437 0.010 0.494

Uninsured / self-pay / no charge 44.691 10.293 0.159 0.182

1b.5. If no or limited data on disparities from the measure as specified is reported in 1b.4, then provide a summary of data from the literature that addresses disparities in care on the specific focus of measurement. Include citations. Not necessary if performance data provided in 1b.4

AHRQ 2007 Nationwide Inpatient Sample (NIS)

2. Reliability and Validity—Scientific Acceptability of Measure Properties

Extent to which the measure, as specified, produces consistent (reliable) and credible (valid) results about the quality of care when implemented. **Measures must be judged to meet the sub criteria for both reliability and validity to pass this criterion and be evaluated against the remaining criteria.**

2a.1. Specifications The measure is well defined and precisely specified so it can be implemented consistently within and across organizations and allows for comparability. eMeasures should be specified in the Health Quality Measures Format (HQMF) and the Quality Data Model (QDM).

De.5. Subject/Topic Area (check all the areas that apply):

Surgery, Surgery : Cardiac

De.6. Non-Condition Specific(check all the areas that apply):

De.7. Target Population Category (Check all the populations for which the measure is specified and tested if any):

Children

S.1. Measure-specific Web Page (Provide a URL link to a web page specific for this measure that contains current detailed specifications including code lists, risk model details, and supplemental materials. Do not enter a URL linking to a home page or to general information.)

<http://www.qualityindicators.ahrq.gov/Downloads/Modules/PDI/V45/TechSpecs/PDI%2006%20RACHS-1%20Pediatric%20Heart%20Surgery%20Mortality%20Rate.pdf>

S.2a. If this is an eMeasure, HQMF specifications must be attached. Attach the zipped output from the eMeasure authoring tool (MAT) - if the MAT was not used, contact staff. (Use the specification fields in this online form for the plain-language description of the specifications)

This is not an eMeasure Attachment:

S.2b. Data Dictionary, Code Table, or Value Sets (and risk model codes and coefficients when applicable) must be attached. (Excel or csv file in the suggested format preferred - if not, contact staff)

Attachment Attachment: [PDI_Regression_Coefficients-_Code_Tables_and_Value_Sets_-_Copy-636426399541614692.xlsx](#)

S.2c. Is this an instrument-based measure (i.e., data collected via instruments, surveys, tools, questionnaires, scales, etc.)? Attach copy of instrument if available.

Attachment:

S.2d. Is this an instrument-based measure (i.e., data collected via instruments, surveys, tools, questionnaires, scales, etc.)? Attach copy of instrument if available.

S.3.1. For maintenance of endorsement: Are there changes to the specifications since the last updates/submission. If yes, update the specifications for S1-2 and S4-22 and explain reasons for the changes in S3.2.

S.3.2. For maintenance of endorsement, please briefly describe any important changes to the measure specifications since last measure update and explain the reasons.

S.4. Numerator Statement (Brief, narrative description of the measure focus or what is being measured about the target population, i.e., cases from the target population with the target process, condition, event, or outcome) DO NOT include the rationale for the measure.

IF an OUTCOME MEASURE, state the outcome being measured. Calculation of the risk-adjusted outcome should be described in the calculation algorithm (S.14).

Number of deaths (DISP=20) among cases meeting the inclusion and exclusion rules for the denominator.

S.5. Numerator Details (All information required to identify and calculate the cases from the target population with the target

process, condition, event, or outcome such as definitions, time period for data collection, specific data collection items/responses, code/value sets – Note: lists of individual codes with descriptors that exceed 1 page should be provided in an Excel or csv file in required format at S.2b)

IF an OUTCOME MEASURE, describe how the observed outcome is identified/counted. Calculation of the risk-adjusted outcome should be described in the calculation algorithm (S.14).

Number of deaths (DISP=20) among cases meeting the inclusion and exclusion rules for the denominator.

S.6. Denominator Statement (Brief, narrative description of the target population being measured)

Discharges, for patients ages 17 years and younger, with either

- any-listed ICD-9-CM procedure codes for congenital heart disease (1P); or
- any-listed ICD-9-CM procedure codes for non-specific heart surgery (2P) and any-listed ICD-9-CM diagnosis codes for congenital heart disease (2D).

S.7. Denominator Details (All information required to identify and calculate the target population/denominator such as definitions, time period for data collection, specific data collection items/responses, code/value sets – Note: lists of individual codes with descriptors that exceed 1 page should be provided in an Excel or csv file in required format at S.2b.)

IF an OUTCOME MEASURE, describe how the target population is identified. Calculation of the risk-adjusted outcome should be described in the calculation algorithm (S.14).

Discharges, for patients ages 17 years and younger, with either

- any-listed ICD-9-CM procedure codes for congenital heart disease (1P); or
- any-listed ICD-9-CM procedure codes for non-specific heart surgery (2P) and any-listed ICD-9-CM diagnosis codes for congenital heart disease (2D).

ICD-9-CM Congenital heart disease procedure codes (1P)1:

3500 CLOSED VALVOTOMY NOS
3501 CLOSED AORTIC VALVOTOMY
3502 CLOSED MITRAL VALVOTOMY
3503 CLOSED PULMON VALVOTOMY
3504 CLOSED TRICUSP VALVOTOMY
3505 ENDOVAS REPL AORTIC VALVE
3506 TRNSAPCL REP AORTIC VALVE
3507 ENDOVAS REPL PULM VALVE
3508 TRNSAPCL REPL PULM VALVE
3510 OPEN VALVULOPLASTY NOS
3511 OPN AORTIC VALVULOPLASTY
3512 OPN MITRAL VALVULOPLASTY
3513 OPN PULMON VALVULOPLASTY
3514 OPN TRICUS VALVULOPLASTY
3520 OPN/OTH REP HRT VLV NOS
3521 OPN/OTH REP AORT VLV-TIS
3522 OPN/OTH REP AORTIC VALVE
3523 OPN/OTH REP MTRL VLV-TIS
3524 OPN/OTH REP MITRAL VALVE
3525 OPN/OTH REP PULM VLV-TIS
3526 OPN/OTH REPL PUL VALVE
3527 OPN/OTH REP TCSPD VLV-TS
3528 OPN/OTH REPL TCSPD VALVE
3531 PAPILLARY MUSCLE OPS
3532 CHORDAE TENDINEAE OPS
3533 ANNULOPLASTY
3534 INFUNDIBULECTOMY
3535 TRABECUL CARNEAE CORD OP
3539 TISS ADJ TO VALV OPS NEC
3541 ENLARGE EXISTING SEP DEF

3542 CREATE SEPTAL DEFECT
3550 PROSTH REP HRT SEPTA NOS
3551 PROS REP ATRIAL DEF-OPN
3552 PROS REPAIR ATRIA DEF-CL
3553 PROS REP VENTRIC DEF-OPN
3554 PROS REP ENDOCAR CUSHION
3560 GRFT REPAIR HRT SEPT NOS
3561 GRAFT REPAIR ATRIAL DEF
3562 GRAFT REPAIR VENTRIC DEF
3563 GRFT REP ENDOCAR CUSHION
3570 HEART SEPTA REPAIR NOS
3571 ATRIA SEPTA DEF REP NEC
3572 VENTR SEPTA DEF REP NEC
3573 ENDOCAR CUSHION REP NEC
3581 TOT REPAIR TETRAL FALLOT
3582 TOTAL REPAIR OF TAPVC
3583 TOT REP TRUNCUS ARTERIOS
3584 TOT COR TRANSPOS GRT VES
3591 INTERAT VEN RETRN TRANSP
3592 CONDUIT RT VENT-PUL ART
3593 CONDUIT LEFT VENTR-AORTA
3594 CONDUIT ARTIUM-PULM ART
3595 HEART REPAIR REVISION
3598 OTHER HEART SEPTA OPS
3599 OTHER HEART VALVE OPS
3699 HEART VESSEL OP NEC
3733 EXC/DEST HRT LESION OPEN
3736 EXC,DESTRCT,EXCLUS LAA
375 HEART TRANSPLANTATION
3751 HEART TRANSPLANTATION
3752 IMP TOT INT BI HT RP SYS
390 SYSTEMIC-PULM ART SHUNT
3921 CAVAL-PULMON ART ANASTOM

1 The procedure or diagnosis codes are continuously updated. The current list of ICD-9-CM codes is valid for October 2012 through September 2013. Italicized codes are not active in Fiscal Year 2013.

ICD-9-CM Non-specific heart surgery procedure codes (2P):

3834 AORTA RESECTION & ANAST
3835 THOR VESSEL RESECT/ANAST
3844 RESECT ABDOM AORTA W REPL
3845 RESECT THORAC VES W REPL
3864 EXCISION OF AORTA
3865 THORACIC VESSEL EXCISION
3884 OCCLUDE AORTA NEC
3885 OCCLUDE THORACIC VES NEC
3949 VASC PROC REVISION NEC
3956 REPAIR VESS W TIS PATCH
3957 REP VESS W SYNTH PATCH
3958 REPAIR VESS W PATCH NOS
3959 REPAIR OF VESSEL NEC

ICD-9-CM Congenital heart disease diagnosis codes (2D)1:

7450 COMMON TRUNCUS
74510 COMPL TRANSPOS GREAT VES

74511 DOUBLE OUTLET RT VENTRIC
74512 CORRECT TRANSPOS GRT VES
74519 TRANSPOS GREAT VESS NEC
7452 TETRALOGY OF FALLOT
7453 COMMON VENTRICLE
7454 VENTRICULAR SEPT DEFECT
7455 SECUNDUM ATRIAL SEPT DEF
74560 ENDOCARD CUSHION DEF NOS
74561 OSTIUM PRIMUM DEFECT
74569 ENDOCARD CUSHION DEF NEC
7457 COR BILOCULARE
7458 SEPTAL CLOSURE ANOM NEC
7459 SEPTAL CLOSURE ANOM NOS
74600 PULMONARY VALVE ANOM NOS
74601 CONG PULMON VALV ATRESIA
74602 CONG PULMON VALVE STENOS
74609 PULMONARY VALVE ANOM NEC
7461 CONG TRICUSP ATRES/STEN
7462 EBSTEIN'S ANOMALY
7463 CONG AORTA VALV STENOSIS
7464 CONG AORTA VALV INSUFFIC
7465 CONGEN MITRAL STENOSIS
7466 CONG MITRAL INSUFFICIENC
7467 HYPOPLAS LEFT HEART SYND
74681 CONG SUBAORTIC STENOSIS
74682 COR TRIATRIATUM
74683 INFUNDIB PULMON STENOSIS
74684 OBSTRUCT HEART ANOM NEC
74685 CORONARY ARTERY ANOMALY
74687 MALPOSITION OF HEART
74689 CONG HEART ANOMALY NEC
7469 CONG HEART ANOMALY NOS
7470 PATENT DUCTUS ARTERIOSUS
74710 COARCTATION OF AORTA
74711 INTERRUPT OF AORTIC ARCH
74720 CONG ANOM OF AORTA NOS
74721 ANOMALIES OF AORTIC ARCH
74722 AORTIC ATRESIA/STENOSIS
74729 CONG ANOM OF AORTA NEC
7473 PULMONARY ARTERY ANOM
74731 PULMON ART COARCT/ATRES
74732 PULMONARY AV MALFORMATN
74739 OTH ANOM PUL ARTERY/CIRC
74740 GREAT VEIN ANOMALY NOS
74741 TOT ANOM PULM VEN CONNEC
74742 PART ANOM PULM VEN CONN
74749 GREAT VEIN ANOMALY NEC

1 The procedure or diagnosis codes are continuously updated. The current list of ICD-9-CM codes is valid for October 2012 through September 2013. Italicized codes are not active in Fiscal Year 2013.

S.8. Denominator Exclusions (*Brief narrative description of exclusions from the target population*)

Exclude cases:

- with any-listed ICD-9-CM procedure codes for closed heart valvotomy (3AP) as the only congenital heart disease procedure and any-listed ICD-9-CM procedure codes for catheterization (6P) without any-listed ICD-9-CM procedure codes for extracorporeal

circulation (5P)

- with any-listed ICD-9-CM procedure codes for atrial septal enlargement (3BP) as the only congenital heart disease procedure and any-listed ICD-9-CM procedure codes for catheterization (6P) without any-listed ICD-9-CM procedure codes for extracorporeal circulation (5P)
- with any-listed ICD-9-CM procedure codes for atrial septal defect repair (3CP) as the only congenital heart disease procedure and any-listed ICD-9-CM procedure codes for catheterization (6P) without any-listed ICD-9-CM procedure codes for extracorporeal circulation (5P)
- with any-listed ICD-9-CM procedure codes for ventricular septal defect repair (3DP) as the only congenital heart disease procedure and any-listed ICD-9-CM procedure codes for catheterization (6P) without any-listed ICD-9-CM procedure codes for extracorporeal circulation (5P)
- with any-listed ICD-9-CM procedure codes for other surgical occlusion (3FP) as the only congenital heart disease procedure and any-listed ICD-9-CM procedure codes for catheterization (6P) without any-listed ICD-9-CM procedure codes for extracorporeal circulation (5P)
- with patent ductus arteriosus (PDA)[†] and any-listed ICD-9-CM procedure codes for catheterization (6P) without any-listed ICD-9-CM procedure codes for extracorporeal circulation (5P)
- with any-listed ICD-9-CM procedure codes for atrial septal defect repair and enlargement (4P) as the only congenital heart disease procedure without any-listed ICD-9-CM procedure codes for extracorporeal circulation (5P)
- with any-listed ICD-9-CM procedure codes for heart transplant (7P)
- with any-listed ICD-9-CM diagnosis codes for premature infant (4D) and PDA[†]
- with any-listed ICD-9-CM diagnosis codes for atrial septal defect or ventricular septal defect (5D) and PDA[†]
- age less than or equal to 30 days with PDA[†]
- transferring to another short-term hospital (DISP=2)
- neonates with birth weight less than 500 grams (Birth Weight Category 1)
- MDC 14 (pregnancy, childbirth and puerperium)
- with missing discharge disposition (DISP=missing), gender (SEX=missing), age (AGE=missing), quarter (DQTR=missing), year (YEAR=missing) or principal diagnosis (DX1=missing)

[†] PDA is defined as any-listed ICD-9-CM diagnosis code for PDA[†] closure (3D) as the only congenital heart disease diagnosis code besides atrial septal defect or ventricular septal defect (5D), and any-listed ICD-9-CM procedure code for occlusion of thoracic vessel (3EP) as the only congenital heart disease procedure code.

See Pediatric Quality Indicators Appendices:

- Appendix I – Definitions of Neonate, Newborn, Normal Newborn, and Outborn
- Appendix L- Low Birth Weight Categories

S.9. Denominator Exclusion Details (All information required to identify and calculate exclusions from the denominator such as definitions, time period for data collection, specific data collection items/responses, code/value sets – Note: lists of individual codes with descriptors that exceed 1 page should be provided in an Excel or csv file in required format at S.2b.)

ICD-9-CM Closed heart valvotomy procedure codes (3AP):

3500 CLOSED VALVOTOMY NOS
3501 CLOSED AORTIC VALVOTOMY
3502 CLOSED MITRAL VALVOTOMY
3503 CLOSED PULMON VALVOTOMY
3504 CLOSED TRICUSP VALVOTOMY

ICD-9-CM Atrial septal enlargement procedure codes (3BP):

3541 ENLARGE EXISTING SEP DEF
3542 CREATE SEPTAL DEFECT

ICD-9-CM Atrial septal defect repair procedure codes (3CP):

3551 PROS REP ATRIAL DEF-OPN
3571 ATRIA SEPTA DEF REP NEC

ICD-9-CM Ventricular septal defect repair procedure codes (3DP):

3553 PROS REP VENTRIC DEF-OPN

3572 VENTR SEPTA DEF REP NEC

ICD-9-CM Occlusion of thoracic vessel procedure codes (3EP):

3885 OCCLUDE THORACIC VES NEC

ICD-9-CM PDA closure diagnosis code (3D):

7470 PATENT DUCTUS ARTERIOSUS

ICD-9-CM Other surgical occlusion procedure codes (3FP):

3884 OCCLUDE AORTA NEC

3885 OCCLUDE THORACIC VES NEC

3959 REPAIR OF VESSEL NEC

ICD-9-CM Atrial septal defect repair and enlargement procedure codes (4P):

3541 ENLARGE EXISTING SEP DEF

3552 PROS REPAIR ATRIA DEF-CL

ICD-9-CM Extracorporeal circulation procedure code (5P):

3961 EXTRACORPOREAL CIRCULAT

ICD-9-CM Atrial septal defect or ventricular septal defect diagnosis codes (5D):

7454 VENTRICULAR SEPT DEFECT

7455 SECUNDUM ATRIAL SEPT DEF

ICD-9-CM Catheterization procedure codes (6P):

3721 RT HEART CARDIAC CATH

3722 LEFT HEART CARDIAC CATH

3723 RT/LEFT HEART CARD CATH

8842 CONTRAST AORTOGRAM

8843 CONTR PULMON ARTERIOGRAM

8844 CONTR THOR ARTERIOGR NEC

8850 ANGIOCARDIOGRAPHY NOS

8851 VENA CAV ANGIOCARDIOGRAM

8852 RT HEART ANGIOCARDIOGRAM

8853 LT HEART ANGIOCARDIOGRAM

8854 RT & LT HEART ANGIOCARD

8855 CORONAR ARTERIOGR-1 CATH

8856 CORONAR ARTERIOGR-2 CATH

8857 CORONARY ARTERIOGRAM NEC

8858 NEGATVE-CONTR CARDIOGRAM

ICD-9-CM Heart transplant procedure codes (7P)1:

375 HEART TRANSPLANTATION

3751 HEART TRANSPLANTATION

3752 IMP TOT INT BI HT RP SYS

1 The procedure or diagnosis codes are continuously updated. The current list of ICD-9-CM codes is valid for October 2012 through September 2013. Italicized codes are not active in Fiscal Year 2013.

ICD-9-CM Premature infant diagnosis codes (4D):

76500 EXTREME IMMATUR WTNOS

76501 EXTREME IMMATUR <500G

76502 EXTREME IMMATUR 500-749G

76503 EXTREME IMMATUR 750-999G

76504 EXTREME IMMAT 1000-1249G

76505 EXTREME IMMAT 1250-1499G
 76506 EXTREME IMMAT 1500-1749G
 76507 EXTREME IMMAT 1750-1999G
 76508 EXTREME IMMAT 2000-2499G
 76509 EXTREME IMMAT 2500+G
 76510 PRETERM INFANT NEC WTNOS
 76511 PRETERM NEC <500G
 76512 PRETERM NEC 500-749G
 76513 PRETERM NEC 750-999G
 76514 PRETERM NEC 1000-1249G
 76515 PRETERM NEC 1250-1499G
 76516 PRETERM NEC 1500-1749G
 76517 PRETERM NEC 1750-1999G
 76518 PRETERM NEC 2000-2499G
 76519 PRETERM NEC 2500+G

S.10. Stratification Information *(Provide all information required to stratify the measure results, if necessary, including the stratification variables, definitions, specific data collection items/responses, code/value sets, and the risk-model covariates and coefficients for the clinically-adjusted version of the measure when appropriate – Note: lists of individual codes with descriptors that exceed 1 page should be provided in an Excel or csv file in required format with at S.2b.)*

The user has the option to stratify by gender, birth weight, age in days, age in years, race / ethnicity, primary payer, and custom stratifiers.

S.11. Risk Adjustment Type (Select type. Provide specifications for risk stratification in measure testing attachment)

Statistical risk model

If other:

S.12. Type of score:

Rate/proportion

If other:

S.13. Interpretation of Score *(Classifies interpretation of score according to whether better quality is associated with a higher score, a lower score, a score falling within a defined interval, or a passing score)*

Better quality = Lower score

S.14. Calculation Algorithm/Measure Logic *(Diagram or describe the calculation of the measure score as an ordered sequence of steps including identifying the target population; exclusions; cases meeting the target process, condition, event, or outcome; time period for data, aggregating data; risk adjustment; etc.)*

The indicator is expressed as a rate, and is defined as outcome of interest / population at risk or numerator / denominator. A standardized mortality ratio will also be reported. The AHRQ Quality Indicators (AHRQ QI) software performs five steps to produce the rates. 1) Discharge-level data is used to mark inpatient records containing the outcome of interest and 2) the population at risk. For provider indicators, the population at risk is also derived from hospital discharge records; for area indicators, the population at risk is derived from U.S. Census data. 3) Calculate observed rates. Using output from steps 1 and 2, rates are calculated for user-specified combinations of stratifiers. 4) Calculate expected rates. Regression coefficients from a reference population database are applied to the discharge records and aggregated to the provider or area level. 5) Calculate risk-adjusted rate. Use the indirect standardization to account for case-mix, based on the standardized mortality ratio. 6) Calculate smoothed rate. A univariate shrinkage factor is applied to the risk-adjusted rates. The shrinkage estimate reflects a reliability adjustment unique to each indicator. Full information on calculation algorithms and specifications can be found at http://qualityindicators.ahrq.gov/modules/pdi_resources.aspx.

S.15. Sampling *(If measure is based on a sample, provide instructions for obtaining the sample and guidance on minimum sample size.)*

IF an instrument-based performance measure (e.g., PRO-PM), identify whether (and how) proxy responses are allowed.

Not applicable

S.16. Survey/Patient-reported data *(If measure is based on a survey or instrument, provide instructions for data collection and*

guidance on minimum response rate.)

Specify calculation of response rates to be reported with performance measure results.

S.17. Data Source (Check *ONLY* the sources for which the measure is SPECIFIED AND TESTED).

If other, please describe in S.18.

[Claims](#)

S.18. Data Source or Collection Instrument (Identify the specific data source/data collection instrument (e.g. name of database, clinical registry, collection instrument, etc., and describe how data are collected.)

IF instrument-based, identify the specific instrument(s) and standard methods, modes, and languages of administration.

The data source is hospital discharge data such as the HCUP State Inpatient Databases (SID) or equivalent using UB-04 coding standards. The data collection instrument is public-use AHRQ QI software available in SAS or Windows versions.

S.19. Data Source or Collection Instrument (available at measure-specific Web page URL identified in S.1 OR in attached appendix at A.1)

[URL](#)

S.20. Level of Analysis (Check *ONLY* the levels of analysis for which the measure is SPECIFIED AND TESTED)

[Facility](#)

S.21. Care Setting (Check *ONLY* the settings for which the measure is SPECIFIED AND TESTED)

[Inpatient/Hospital](#)

If other:

S.22. COMPOSITE Performance Measure - Additional Specifications (Use this section as needed for aggregation and weighting rules, or calculation of individual performance measures if not individually endorsed.)

2. Validity – See attached Measure Testing Submission Form

[0339_MeasureTesting_MSF5.0_Data-636426399543958442.doc](#)

2.1 For maintenance of endorsement

Reliability testing: If testing of reliability of the measure score was not presented in prior submission(s), has reliability testing of the measure score been conducted? If yes, please provide results in the Testing attachment. Please use the most current version of the testing attachment (v7.1). Include information on all testing conducted (prior testing as well as any new testing); use red font to indicate updated testing.

2.2 For maintenance of endorsement

Has additional empirical validity testing of the measure score been conducted? If yes, please provide results in the Testing attachment. Please use the most current version of the testing attachment (v7.1). Include information on all testing conducted (prior testing as well as any new testing); use red font to indicate updated testing.

2.3 For maintenance of endorsement

Risk adjustment: For outcome, resource use, cost, and some process measures, risk-adjustment that includes social risk factors is not prohibited at present. Please update sections 1.8, 2a2, 2b1, 2b4.3 and 2b5 in the Testing attachment and S.140 and S.11 in the online submission form. NOTE: These sections must be updated even if social risk factors are not included in the risk-adjustment strategy. You **MUST** use the most current version of the Testing Attachment (v7.1) -- older versions of the form will not have all required questions.

3. Feasibility

Extent to which the specifications including measure logic, require data that are readily available or could be captured without

undue burden and can be implemented for performance measurement.

3a. Byproduct of Care Processes

For clinical measures, the required data elements are routinely generated and used during care delivery (e.g., blood pressure, lab test, diagnosis, medication order).

3a.1. Data Elements Generated as Byproduct of Care Processes.

Coded by someone other than person obtaining original information (e.g., DRG, ICD-9 codes on claims)

If other:

3b. Electronic Sources

The required data elements are available in electronic health records or other electronic sources. If the required data are not in electronic health records or existing electronic sources, a credible, near-term path to electronic collection is specified.

3b.1. To what extent are the specified data elements available electronically in defined fields (i.e., data elements that are needed to compute the performance measure score are in defined, computer-readable fields) Update this field for maintenance of endorsement.

Yes

3b.2. If ALL the data elements needed to compute the performance measure score are not from electronic sources, specify a credible, near-term path to electronic capture, OR provide a rationale for using other than electronic sources. For maintenance of endorsement, if this measure is not an eMeasure (eCQM), please describe any efforts to develop an eMeasure (eCQM).

3b.3. If this is an eMeasure, provide a summary of the feasibility assessment in an attached file or make available at a measure-specific URL. Please also complete and attach the NQF Feasibility Score Card.

Attachment:

3c. Data Collection Strategy

Demonstration that the data collection strategy (e.g., source, timing, frequency, sampling, patient confidentiality, costs associated with fees/licensing of proprietary measures) can be implemented (e.g., already in operational use, or testing demonstrates that it is ready to put into operational use). For eMeasures, a feasibility assessment addresses the data elements and measure logic and demonstrates the eMeasure can be implemented or feasibility concerns can be adequately addressed.

3c.1. Required for maintenance of endorsement. Describe difficulties (as a result of testing and/or operational use of the measure) regarding data collection, availability of data, missing data, timing and frequency of data collection, sampling, patient confidentiality, time and cost of data collection, other feasibility/implementation issues.

IF instrument-based, consider implications for both individuals providing data (patients, service recipients, respondents) and those whose performance is being measured.

None

3c.2. Describe any fees, licensing, or other requirements to use any aspect of the measure as specified (e.g., value/code set, risk model, programming code, algorithm).

4. Usability and Use

Extent to which potential audiences (e.g., consumers, purchasers, providers, policy makers) are using or could use performance results for both accountability and performance improvement to achieve the goal of high-quality, efficient healthcare for individuals or populations.

4a. Accountability and Transparency

Performance results are used in at least one accountability application within three years after initial endorsement and are publicly reported within six years after initial endorsement (or the data on performance results are available). If not in use at the time of initial endorsement, then a credible plan for implementation within the specified timeframes is provided.

4.1. Current and Planned Use

NQF-endorsed measures are expected to be used in at least one accountability application within 3 years and publicly reported within 6 years of initial endorsement in addition to performance improvement.

Specific Plan for Use	Current Use (for current use provide URL)
Public Reporting	
Quality Improvement (Internal to the specific organization)	

4a1.1 For each CURRENT use, checked above (update for maintenance of endorsement), provide:

- Name of program and sponsor
- Purpose
- Geographic area and number and percentage of accountable entities and patients included
- Level of measurement and setting

4a1.2. If not currently publicly reported OR used in at least one other accountability application (e.g., payment program, certification, licensing) what are the reasons? (e.g., Do policies or actions of the developer/steward or accountable entities restrict access to performance results or impede implementation?)

4a1.3. If not currently publicly reported OR used in at least one other accountability application, provide a credible plan for implementation within the expected timeframes -- any accountability application within 3 years and publicly reported within 6 years of initial endorsement. (Credible plan includes the specific program, purpose, intended audience, and timeline for implementing the measure within the specified timeframes. A plan for accountability applications addresses mechanisms for data aggregation and reporting.)

4a2.1.1. Describe how performance results, data, and assistance with interpretation have been provided to those being measured or other users during development or implementation.

How many and which types of measured entities and/or others were included? If only a sample of measured entities were included, describe the full population and how the sample was selected.

4a2.1.2. Describe the process(es) involved, including when/how often results were provided, what data were provided, what educational/explanatory efforts were made, etc.

4a2.2.1. Summarize the feedback on measure performance and implementation from the measured entities and others described in 4d.1.

Describe how feedback was obtained.

4a2.2.2. Summarize the feedback obtained from those being measured.

4a2.2.3. Summarize the feedback obtained from other users

4a2.3. Describe how the feedback described in 4a2.2.1 has been considered when developing or revising the measure specifications or implementation, including whether the measure was modified and why or why not.

Improvement

Progress toward achieving the goal of high-quality, efficient healthcare for individuals or populations is demonstrated. If not in use for performance improvement at the time of initial endorsement, then a credible rationale describes how the performance results could be used to further the goal of high-quality, efficient healthcare for individuals or populations.

4b1. Refer to data provided in 1b but do not repeat here. Discuss any progress on improvement (trends in performance results, number and percentage of people receiving high-quality healthcare; Geographic area and number and percentage of accountable entities and patients included.)

If no improvement was demonstrated, what are the reasons? If not in use for performance improvement at the time of initial endorsement, provide a credible rationale that describes how the performance results could be used to further the goal of high-quality, efficient healthcare for individuals or populations.

4b2. Unintended Consequences

The benefits of the performance measure in facilitating progress toward achieving high-quality, efficient healthcare for individuals or populations outweigh evidence of unintended negative consequences to individuals or populations (if such evidence exists).

4b2.1. Please explain any unexpected findings (positive or negative) during implementation of this measure including unintended impacts on patients.

[Coding professionals follow detail guidelines, are subject to training and credentialing requirements, peer review and audit.](#)

4b2.2. Please explain any unexpected benefits from implementation of this measure.

5. Comparison to Related or Competing Measures

If a measure meets the above criteria and there are endorsed or new related measures (either the same measure focus or the same target population) or competing measures (both the same measure focus and the same target population), the measures are compared to address harmonization and/or selection of the best measure.

5. Relation to Other NQF-endorsed Measures

Are there related measures (conceptually, either same measure focus or target population) or competing measures (conceptually both the same measure focus and same target population)? If yes, list the NQF # and title of all related and/or competing measures.

[Yes](#)

5.1a. List of related or competing measures (selected from NQF-endorsed measures)

5.1b. If related or competing measures are not NQF endorsed please indicate measure title and steward.

5a. Harmonization of Related Measures

The measure specifications are harmonized with related measures;

OR

The differences in specifications are justified

5a.1. If this measure conceptually addresses EITHER the same measure focus OR the same target population as NQF-endorsed measure(s):

Are the measure specifications harmonized to the extent possible?

5a.2. If the measure specifications are not completely harmonized, identify the differences, rationale, and impact on interpretability and data collection burden.

5b. Competing Measures

The measure is superior to competing measures (e.g., is a more valid or efficient way to measure);

OR

Multiple measures are justified.

5b.1. If this measure conceptually addresses both the same measure focus and the same target population as NQF-endorsed measure(s):

Describe why this measure is superior to competing measures (e.g., a more valid or efficient way to measure quality); OR provide a rationale for the additive value of endorsing an additional measure. (Provide analyses when possible.)

No competing measures found.

Related Measures: Pediatric Heart Surgery Volume (PDI 7) NQF #0340

Appendix

A.1 Supplemental materials may be provided in an appendix. All supplemental materials (such as data collection instrument or methodology reports) should be organized in one file with a table of contents or bookmarks. If material pertains to a specific submission form number, that should be indicated. Requested information should be provided in the submission form and required attachments. There is no guarantee that supplemental materials will be reviewed.

Attachment:

Contact Information

Co.1 Measure Steward (Intellectual Property Owner): Agency for Healthcare Research and Quality

Co.2 Point of Contact: Pamela, Owens, Pam.Owens@ahrq.hhs.gov, 301-427-1412-

Co.3 Measure Developer if different from Measure Steward: Children's Hospital Boston

Co.4 Point of Contact: Nina, Rauscher, nina.rauscher@childrens.harvard.edu, 617-355-6567-

Additional Information

Ad.1 Workgroup/Expert Panel involved in measure development

Provide a list of sponsoring organizations and workgroup/panel members' names and organizations. Describe the members' role in measure development.

None

Measure Developer/Steward Updates and Ongoing Maintenance

Ad.2 Year the measure was first released: 2006

Ad.3 Month and Year of most recent revision: 08, 2011

Ad.4 What is your frequency for review/update of this measure? Annual

Ad.5 When is the next scheduled review/update for this measure? 12, 2012

Ad.6 Copyright statement: The AHRQ QI software is publicly available; no copyright disclaimers

Ad.7 Disclaimers:

Ad.8 Additional Information/Comments: