Congenital Heart Anomaly Procedures
Proposals for ICD-10-PCS Changes

ICD Coordination and Maintenance Committee Meeting

March 18, 2015

Issue: Difficulty Coding Procedures

- Difficulty coding aspects of complex heart anomaly correction procedures identified by multiple Children's Hospitals during their ICD10 preparations

- ICD-9-CM: usually one code to describe all parts of the procedure

- ICD-10-PCS: requires multiple codes to describe all parts of the procedure

- Children's Hospitals would like to code as specifically as possible
  - not use generic "Repair" root operation or "Heart" body part value

CHA's Involvement

- Children's Hospital Association became involved due to close ties with our member hospitals
  - Regular Coding Roundtable discussions
- No proposals presented to ICD C&M Committee to correct or question coding issues
- Created special Coding Workgroup to determine gaps and create proposals
  - Representatives from 8 large children's hospitals from across the nation
  - Comprised of coding managers, lead coders, and ICD10 project managers
  - Most participants are AHIMA approved ICD-10-CM and ICD-10-PCS trainers

Champions for Children's Health

Congenital Heart Anomaly Procedures

- All procedures presented are current standard of care for treatment of a variety of congenital heart defects:
  - Modified Blalock-Taussig Shunt
  - Arterial Switch
  - Rastelli Procedure
  - Repair of Common Atrioventricular Canal Defect (Endocardial Cushion Defect)
  - Repair of Truncus Arteriosus
  - Balloon Atrial Septostomy

Champions for Children's Health

Modified Blalock-Taussig Shunt

- Patient with cyanotic heart defects – Tetralogy of Fallot, pulmonary stenosis or atresia, tricuspid atresia
- Palliative procedure – create a systemic to pulmonary shunt to increase pulmonary blood flow until corrective procedure can be performed
- Procedure Description:
  - Graft (usually Gore-tex) placed between either the innominate, subclavian or carotid arteries to a pulmonary artery to re-route blood flow
- Patient may or may not need cardiopulmonary bypass

Modified Blalock-Taussig Shunt

Champions for Children's Health
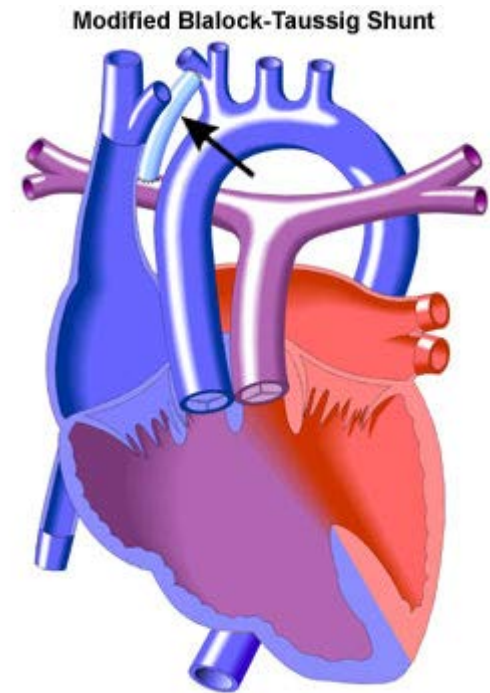
Arterial Switch w/Repositioning of Coronary Arteries

- Patient with Transposition of the Great Vessels – Aorta and Pulmonary Trunk

- Corrective procedure performed in first 2 weeks of life

- Patient may have other heart anomalies – ASD, VSD, PDA repaired at same episode

- Gap found when coding procedures in ICD-10-PCS for excision of the coronary "buttons" from the anatomic aorta and reattaching them into the "neo-aorta" created when repositioning the aorta and pulmonary trunk

- Reposition – desired root operation

Champions for Children's Health

Arterial Switch with Repositioning of Coronary Arteries – Procedure Description

- Aorta and Pulmonary Trunk transected
- *Left and right ostia coronary ostia excised from aorta with a "button" of aortic wall*
- Lecompte maneuver performed bringing pulmonary artery in front of aorta
- Reconstruction of aorta with former pulmonary trunk artery
- *Coronary "Buttons" reattached to new "neo-aorta"*
- Reconstruction of pulmonary artery trunk
- Cardiopulmonary bypass & TEE utilized

D-Transposition of the Great Vessels - The Arterial Switch Procedure

Champions for Children's Health
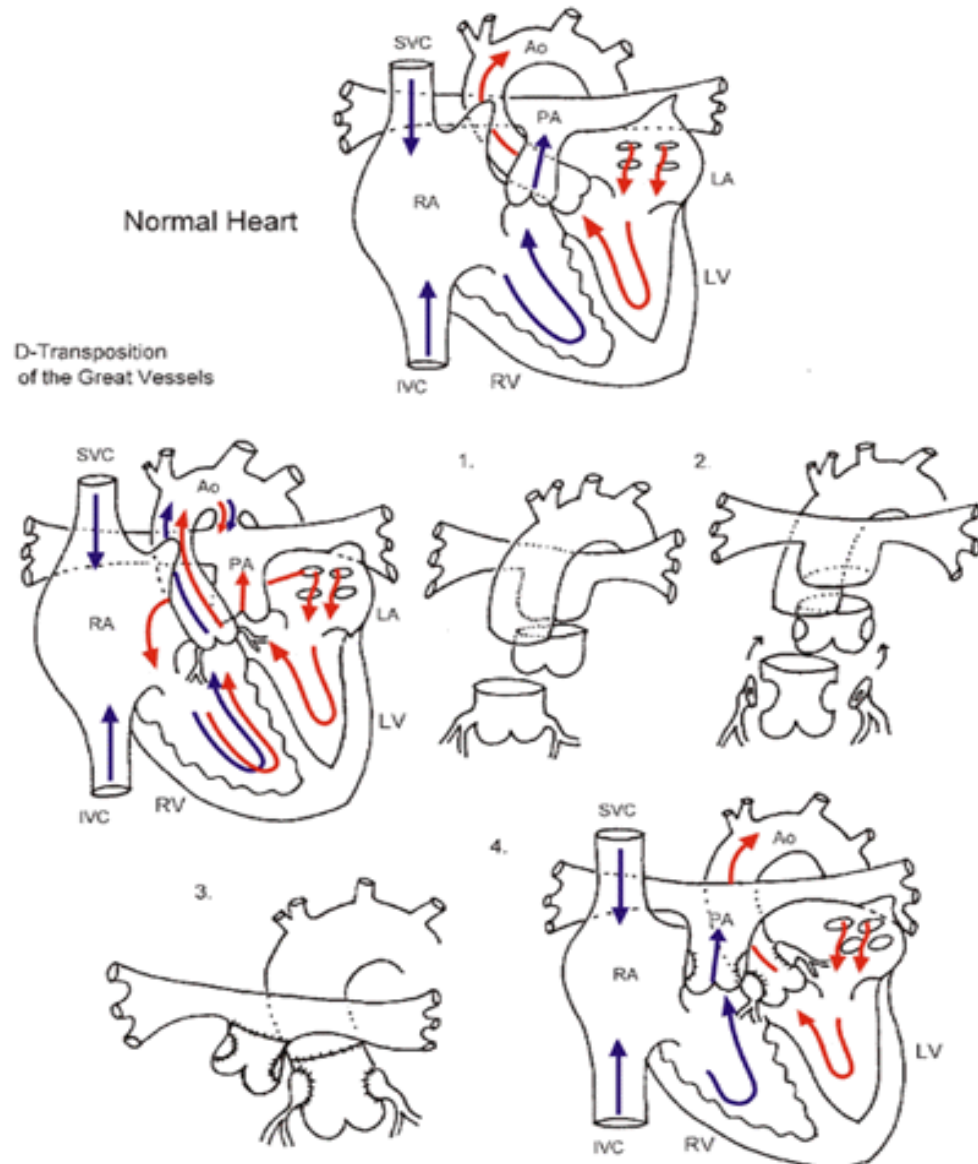
Rastelli Procedure & Accompanying Procedures

- Surgical treatment for patients with numerous congenital conditions
  - Transposition of great vessels and pulmonary stenosis
  - Pulmonary atresia with VSD
  - Double outlet right ventricle with pulmonary stenosis or atresia
  - Some patients have had a previously placed Blalock-Taussig shunt
- Gaps found when coding procedures in ICD-10-PCS for accompanying procedures
  - Ligation & division of BT shunt
  - Oversewing pulmonary valve

Champions for Children's Health

Rastelli Procedure – Procedure Description

- Right ventriculotomy performed
- Ventricular Septal Defect closed with graft material
- Pulmonary artery transected with *oversewing of the pulmonary valve*
- Valved homograft conduit anastomosed from pulmonary bifurcation/trunk to the right ventricle outflow tract
- Other procedures: *ligation and division of BT* shunt and closure atrial septal defect
- Cardiopulmonary bypass & TEE utilized

Rastelli Procedure

Normal Heart

SVC, Ao, PA, RA, LA, LV, IVC, RV

1. D-Transposition, Ventricular Septal Defect, Pulmonary Stenosis
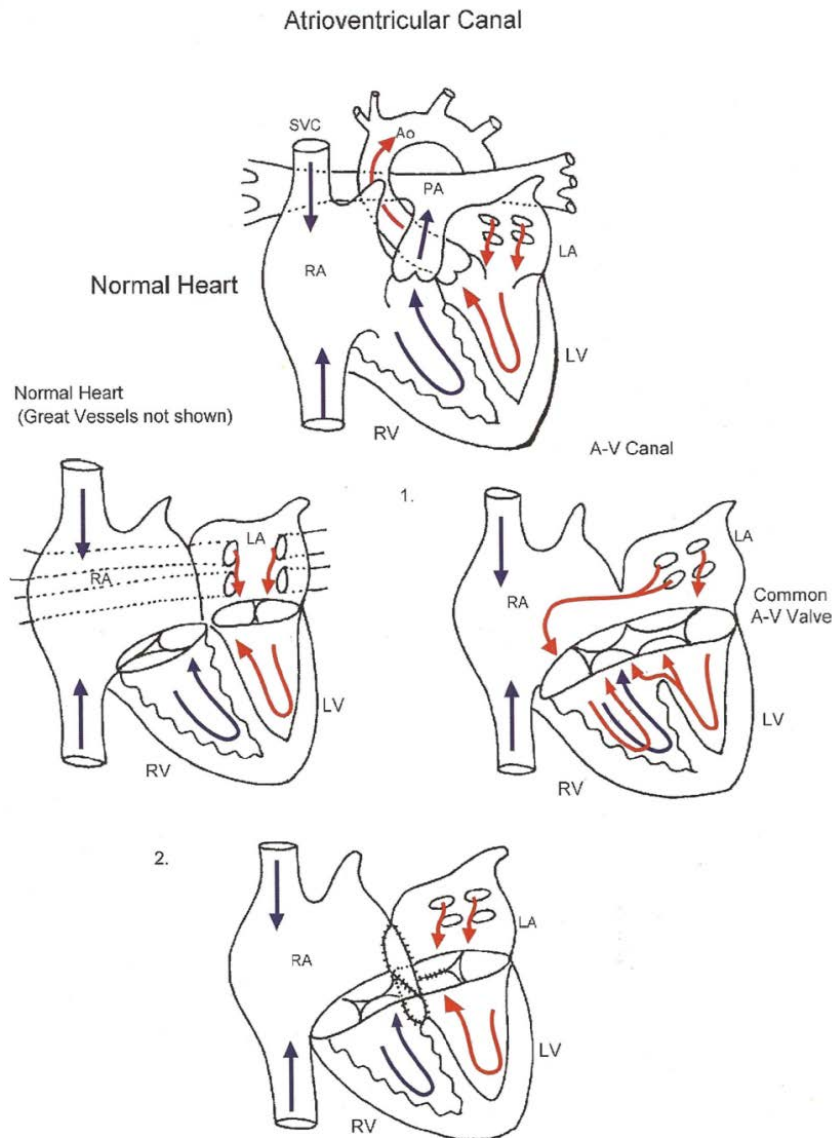
2.

3.
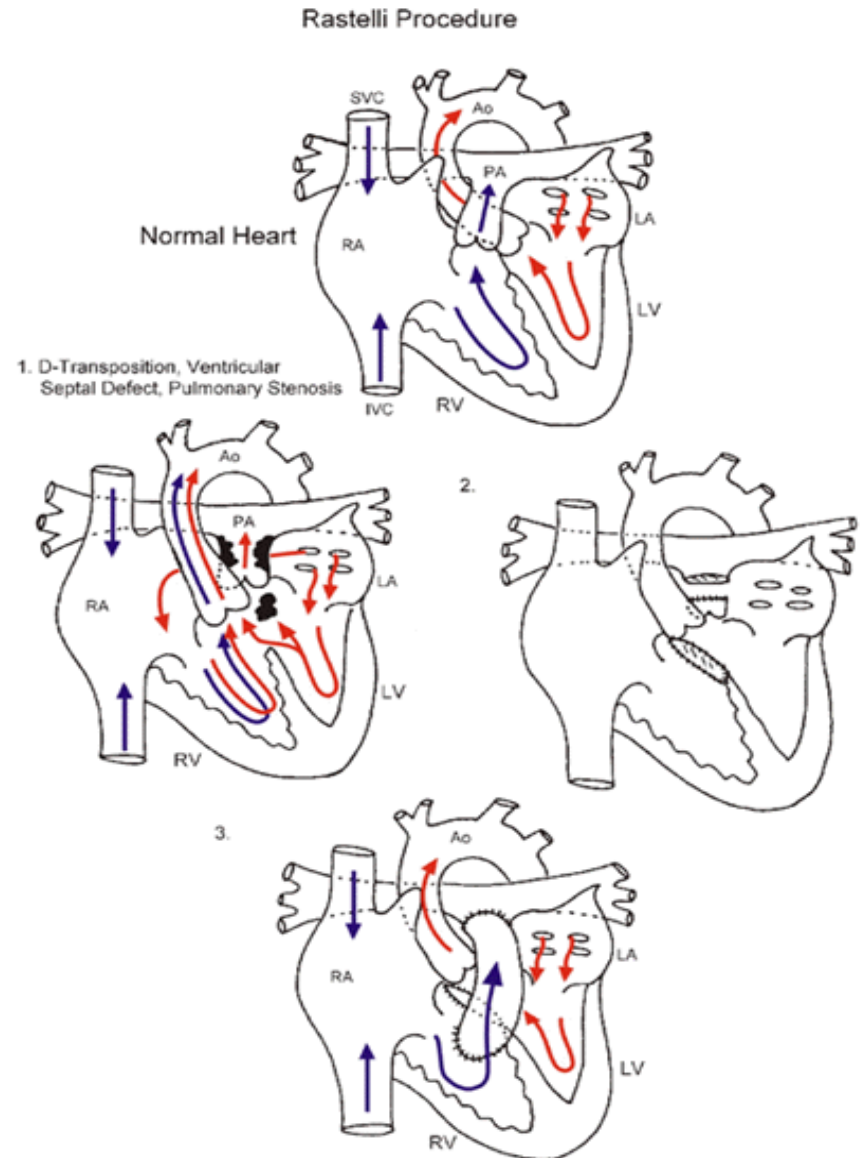
Repair Complete Common Atrioventricular Canal Defect

- Common AV Valve Defect is a combination of congenital heart defects caused by failure of normal development of the endocardial cushion
  - Atrial Septal Defect
  - Ventricular Septal Defect
  - Common atrioventricular valve fails to separate into the Mitral and Tricuspid Valves
- Often associated with Down's Syndrome patients
- Surgical intervention undertaken in early infancy
- Patients may need further interventions to correct/repair AV valve problems throughout lifetime
- Coding gaps found when attempting to code procedures to repair the AV canal and valves

Champions for Children's Health

Repair Complete Common Atrioventricular Canal Defect – Procedure Description

- Right atriotomy performed
- Ventricular Septal Defect closed with patch material (Dacron or pericardial) *incorporating AV Valve tissue to divide the valve into left and right sides*
- *Cleft in left AV valve leaflets closed with sutures*
- Atrial Septal Defect closed with patch material (Dacron or pericardial) with *suture of valve to ASD patch*
- Valves tested for leakage
- Cardiopulmonary bypass & TEE utilized

Atrioventricular Canal

Normal Heart

Normal Heart
(Great Vessels not shown)

A-V Canal

Champions for Children's Health

Persistent Truncus Arteriosus Repair

- Occurs when truncal artery fails to separate into the ascending aorta and pulmonary trunk/arteries during gestation
- Patient is born with a single great vessel straddling a large outlet ventricular septal defect
- Spectrum of severity based on the origin of pulmonary arteries from the truncal artery:
  - Type I: main pulmonary arises from the truncal artery
  - Type II: branch pulmonary arteries arise separately but in close proximity to truncal artery
  - Type III: branch pulmonary arteries may arise widely separate from the lateral aspects of truncus artery
- Truncal valve abnormalities are common and valve function must be assessed preoperatively and may require intervention at time of surgery
- Coding gaps found when attempting to code procedures to the truncal valve and artery

Champions for Children's Health

Persistent Truncus Arteriosus Repair – Procedure Description

- Pulmonary artery separated from truncal root
- Truncal vessel transected if necessary to repair truncal valve
- *Repairs to truncal valve, if necessary – i.e. replacement, repair, valvotomy, commissuroplasty, excision, etc.*
- *Truncal vessel repair – i.e. direct closure or with patch (neo-aorta)*
- Right ventriculotomy
- Closure of ventricular septal defect with patch
- Valved conduit created between right ventricle to pulmonary trunk/bifurcation
- Cardiopulmonary bypass and TEE utilized

Truncus Arteriosus

Champions for Children's Health
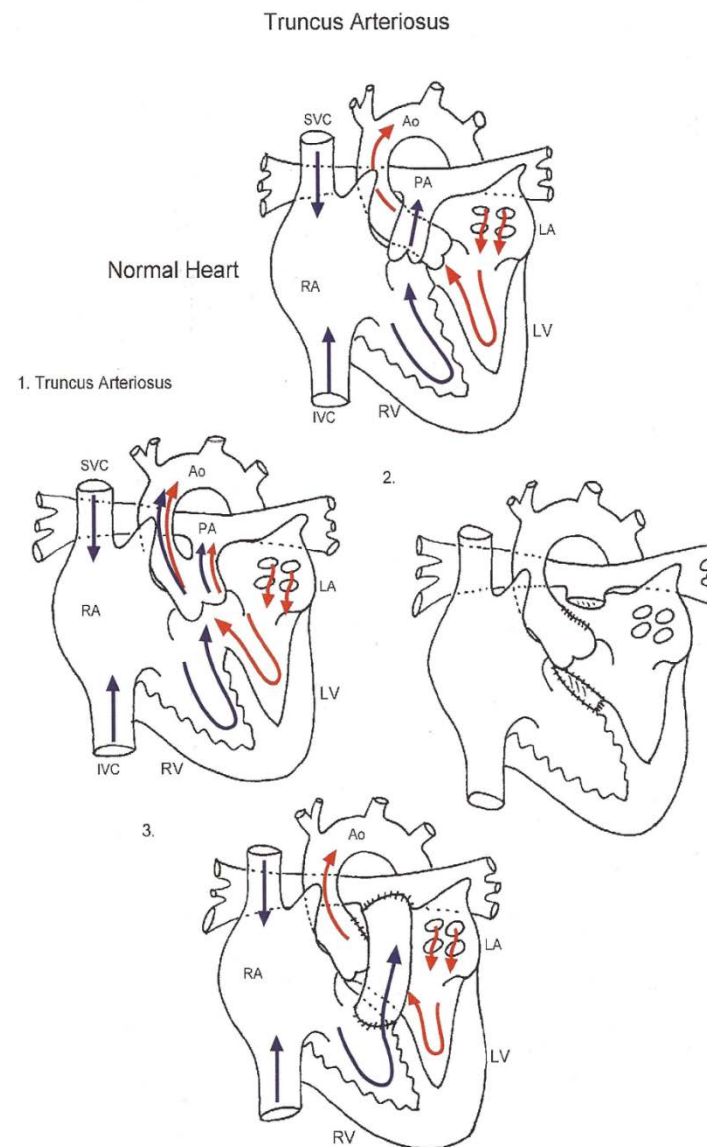
Balloon Atrial Septostomy

- Performed on patients born with dextro-transposition of the great arteries or another cyanotic heart defect with life-threatening low oxygen levels (hypoxemia)
- Performed via endovascular approach
- Used primarily for newborns under 6 weeks of age
- Allows for more oxygen-rich blood to circulate in the body
- Palliative, temporary procedural measure until further corrective surgery can be performed – can also be performed in utero
- Atrial Septal Defect: may be present in patients
  - Small/ restrictive ASD/Patent Foramen Ovale: enlarged during procedure
  - No ASD/PFO: opening is created during procedure
- Coding gap found when attempting to code this procedure

Champions for Children's Health

Balloon Atrial Septostomy – Procedure Description

- Catheterization performed; usually through umbilical vein

- Guidewire and sheath advanced into Right atrium

- Guidewire advanced across restrictive atrial septum or small ASD

- *Balloon catheter advanced across atrial septum, inflated and forcefully pulled back through the atrial septum*

- Procedure may be repeated until the septal defect is adequate in size or additional septal defects may be created in multiple areas of the atrial septum

- Performed under fluoroscopic and echocardiographic imaging

Transposition of the Great Arteries

Balloon Atrial Septostomy

PA
AO
LA
RA
LV
RV

Champions for Children's Health
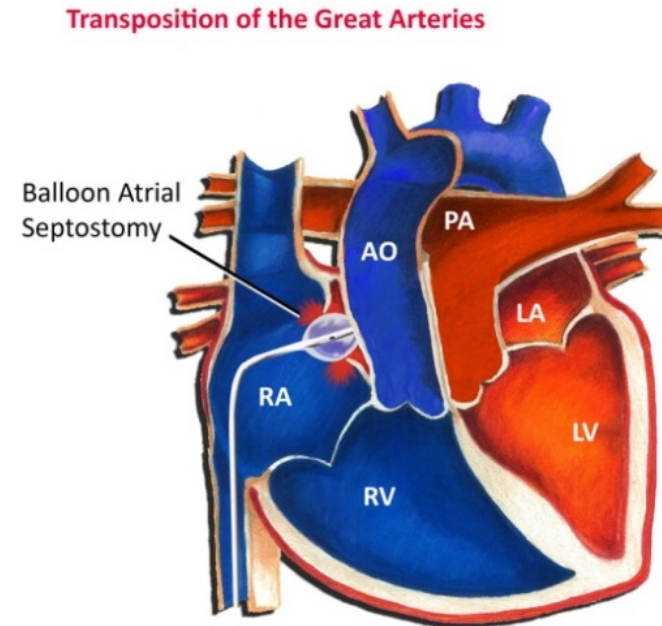
References

- Pediatric Heart Surgery – A Ready Reference for Professionals – 5th Edition, Maxishare – Children's Hospital of Wisconsin; L. Eliot May, PA-C
- Case Study Operative Reports from:
  - Children's Hospital of Philadelphia
  - Children's Hospital of Wisconsin
  - Children's Hospitals and Clinics of Minnesota

Champions for Children's Health

Thank you for your consideration!

Presenter:

Amber Davidson, RHIT, CCS, CCS-P

Health Information Specialist

Amber.Davidson@childrenshospitals.org

913-981-4140

Washington, D.C. Office:
600 13th Street, NW
Suite 500
Washington, D.C. 20005
Phone: 202-753-5500

Overland Park Office:
6803 W. 64th Street
Overland Park, KS 66202
Phone: 913-262-1436

www.childrenshospitals.org

Champions for Children's Health