

Table 1	GRADING HEART MURMURS
Grade	Description
1	Soft murmur heard only under quiet conditions
2	Soft murmur heard under even noisy conditions
3	Easily heard prominent murmurs
4*	Loud murmur associated with a thrill
5	Loud murmur with the edge of the stethoscope tilted against the chest plus a thrill
6	Very loud murmur that can be heard 5 mm to 10 mm from the chest plus a thrill

*\*Note: Diastolic murmurs are only graded to grade 4*

**Murmur Descriptors:**

1. Timing
  - diastolic vs systolic
  - continuous
  - early vs mid vs late vs holosystolic
2. Grade
3. Location
4. Radiation
5. Quality/Contour
  - musical/blowing/soft/vibratory
  - harsh/machine-like
6. Extra features
  - change with position
  - extra heart sounds
  - click

**All Benign Murmurs Exhibit These Characteristics:**

1. Less than a grade III
2. Along left sternal border
3. Asymptomatic child
4. No extra heart sounds
5. Not harsh
6. Systolic
7. Louder when supine

**Initial Investigations**

1. ECG
2. Pre and post ductal O2 sats
3. Four limb BP
4. +/- CXR
5. +/- Echo if above tests abnormal or inconclusive

Murmur	Closing PDA	Pulmonary Flow	Stills	Venous Hum	PPS
<b>Cause</b>	• due to the lack of physical closure of the ductus arteriosus	• due to increased RV pressure after birth – decreased pulmonary resistance and increased systemic resistance means that the strong RV of the neonate strongly pushes blood into the newly lower pressure pulmonary system causing turbulence	• due to vibrations of the left ventricular trabeculae	• “waterfall murmur” • due to turbulent draining of blood from the head through the jugular venous system with	• due to acceleration of flow of blood through a tight corner of a pulmonary artery branch
<b>Age of pt</b>	• usually <48 hrs old	• newborns <4-6 weeks (usually <1 week) • preschoolers	• 2-6 y/o	• 3-8 y/o	• up to 6-9 mos
<b>Timing</b>	• early/mid systolic	• systolic	• systolic ejection	• continuous	• systolic
<b>Grade</b>	• I-III	• I-II	• I-II	• I-III	• I-II
<b>Location</b>	• left upper sternal border	• left upper sternal border	• left lower sternal border	• suprascapular	• upper sternal border radiating to the axilla
<b>S3/S4</b>	• none	• none	• none	• none	• none
<b>Quality</b>	• high pitched, musical	• blowing	• vibratory • louder when supine	• blowing • a little harsh • disappears when turning head to opposite side OR when occluded OR when supine • only heard when upright	
<b>DDx</b>	• VSD → mid to lower sternal border → early to holosystolic → radiates to axilla → harsh • Pulmonary flow • Pulmonary stenosis	• valvular pulmonary stenosis → harsh → louder → has a click → loud S2 → radiates to the back • ASD → fixed split S2 due to increased pulmonary flow that causes the pulmonary valve to close later	• VSD • Aortic stenosis (louder with sitting) • pulmonic stenosis		