

Assessment of Common Cardiac Murmurs in Adults

When evaluating the adult with cardiac murmur:

Ask about major symptoms of heart disease; chest pain, HF symptoms, palpitations, syncope, activity intolerance.

The bell of the stethoscope is most helpful for auscultating lower pitched sounds while the diaphragm for those with higher pitch.

Systolic murmurs are graded on a 1- 6 scale, from barely audible to audible with stethoscope off the chest. Diastolic murmurs are usually graded on the same scale but abbreviated to grades 1-4, as these murmurs are not loud enough to reach gr 5 & 6.

A critical part of the evaluation of a person with a heart murmur is the decision to offer antimicrobial prophylaxis. No prophylaxis is needed with benign murmurs. Please refer to the American Heart Association's Guideline for the latest advice.

Murmur	Important Cardiac Exam Findings	Additional Findings	Comments
Physiologic (AKA innocent, functional)	Gr 1- 3/6 early to midsystolic murmur, Heard best at LSB but usually audible over precordium.	No radiation beyond precordium. Softens or disappears with standing, increases in intensity with activity, fever, anemia. S1, S2 intact, normal PMI	Etiology probably flows over aortic valve. May be heard in ~80% of thin adults if examined in soundproof room. Asymptomatic with no report of chest pain, HF symptoms, palpitations, syncope, activity intolerance
Aortic stenosis	Gr 1-4/6 harsh systolic murmur, usually crescendo- decrescendo pattern, heard best at 2d RICS, apex, softens with standing.	Radiates to carotids, may have diminished S2, slow filling carotid pulse, narrow pulse pressure, loud S4, heaving PMI. Greater the degree of stenosis, later the peak of murmur.	In younger adults, usually congenital bicuspid valve. In older, usually calcific, rheumatic in nature. Dizziness, syncope ominous signs, pointing to severely decreased cardiac output
Aortic sclerosis	Gr 2-3/ 6 systolic ejection murmur heard best at 2d RICS	Carotid upstroke full, not delayed, no S4, absence of symptoms	Benign thickening and/or calcification of aortic valve leaflets. No change in valve pressure gradient. AKA "50 over 50" murmur as found in >50% those over 50 years.
Aortic regurgitation	Gr 1-3/4 high pitched blowing diastolic murmur heard best at 3d LICS	May be enhanced by forced expiration, leaning forward. Usually with S3, wide pulse pressure, sustained thrusting apical impulse	More common in men, usually from rheumatic heart disease but occasionally due to 3 ^o syphilis.
Mitral stenosis	Gr 1-3/4 low-pitched late diastolic murmur heard best at the apex, localized. Short crescendo-decrescendo rumble, like a bowling ball rolling down an alley or distant thunder	Often with opening snap, accentuated S1 in the mitral area. Enhanced by left lateral decubitus position, squat, cough, immediately post Valsalva	Nearly all rheumatic in origin. Protracted latency period then gradual decreased in exercise tolerance leading to rapid downhill course due to low cardiac output. AF common.

Developed by Margaret A. Fitzgerald, DNP, FNP-BC, NP-C, FAANP, CSP. Available through Fitzgerald Health Education Associates, Inc. 978.794.8366.
Email permissions@fhea.com, www. fhea.com

References:

Goolsby, M. J. (2011) Advanced Assessment: Interpreting Findings and Formulating Differential Diagnoses, 2nd Edition, Philadelphia: F. A. Davis.

Mangione, S. (2007) Physical Diagnosis Secrets, 2nd Edition, St. Louis: Elsevier Health Sciences.

Murmur	Important Cardiac Exam Findings	Additional Findings	Comments
Atrial septal defect (uncorrected)	Gr 1-3/6 systolic ejection murmur at the pulmonic area	Widely split S2, right ventricular heave	Typically without symptoms until middle age then present with CHF. Persistent ostium secundum in mid septum.
Pulmonary hypertension	Narrow splitting S2, murmur of tricuspid regurgitation	Report of shortness of breath nearly universal	Seen with RVH, RAH as identified by ECG, echo. Secondary PH may be a consequence of Redux , “phen/fen” use
Mitral regurgitation	Gr 1- 4/6 high pitched blowing systolic murmur, often extending beyond S2. Sounds like long “haaa”, “hooo”. Heard best at RLSB	Radiates to axilla, often with laterally displaced PMI. Decreased with standing, Valsalva maneuver. Increased by squat, hand grip.	Found in ischemic heart disease, endocarditis, RHD. With RHD, often with other valve abnormalities (AS, MS, AR)
Mitral valve prolapse	Gr 1-3/6 late systolic crescendo murmur with honking quality heard best at apex. Murmur follows midsystolic click	With Valsalva or standing, click moves forward into earlier systole, resulting in a longer sounding murmur. With hand grasp, squat, click moves back further into systole, resulting in a shorter murmur	Often seen with minor thoracic deformities such as pectus excavatum, straight back, and shallow AP diameter. Chest pain is sometimes present, but there is question as to whether MVP itself is cause.

Developed by Margaret A. Fitzgerald, DNP, FNP-BC, NP-C, FAANP, CSP. Available through Fitzgerald Health Education Associates, Inc. 978.794.8366.
 Email permissions@fhea.com, www. fhea.com

References:

Goolsby, M. J. (2011) Advanced Assessment: Interpreting Findings and Formulating Differential Diagnoses, 2nd Edition, Philadelphia: F. A. Davis.

Mangione, S. (2007) Physical Diagnosis Secrets, 2nd Edition, St. Louis: Elsevier Health Sciences.

Prevention of Endocarditis: Guidelines from the American Heart Association

Primary Reasons for Revisions of the IE Prophylaxis Guidelines
Infectious endocarditis (IE) is much more likely to result from frequent exposure to random bacteremias associated with daily activities than from bacteremia caused by a dental, GI tract, or GU tract procedure.
Prophylaxis may prevent an exceedingly small number of cases of IE, if any, in individuals who undergo a dental, GI tract, or GU tract procedure.
The risk of antibiotic-associated adverse events exceeds the benefit, if any, from prophylactic antibiotic therapy.
Maintenance of optimal oral health and hygiene may reduce the incidence of bacteremia from daily activities and is more important than prophylactic antibiotics for a dental procedure to reduce the risk of IE.

Cardiac Conditions Associated With the Highest Risk of Adverse Outcome From Endocarditis for Which Prophylaxis With Dental Procedures Is Reasonable
Prosthetic cardiac valve of prosthetic material used for cardiac valve repair
Previous IE
Congenital heart disease (CHD)*
Unrepaired cyanotic CHD, including palliative shunts and conduits
Completely repaired congenital heart defect with prosthetic material or device, whether placed by surgery or by catheter intervention, during the first 6 months after the procedure [^]
Repaired CHD with residual defects at the site or adjacent to the site of a prosthetic patch or prosthetic device (which inhibit endothelialization)
Cardiac transplantation recipients who develop cardiac valvulopathy

*Except for the conditions listed above, antibiotic prophylaxis is no longer recommended for any other form of CHD

[^]Prophylaxis is reasonable because endothelialization of prosthetic material occurs within 6 months after the procedure.

Dental, Oral or Respiratory Tract or Esophageal Procedures: Give 30-60 minutes before procedure	
Adults	Children
Amoxicillin 2 g PO	Amoxicillin 50 mg/kg PO
<i>If unable to take oral medication</i>	
Ampicillin 2g IM or IV	Ampicillin 50mg/kg IM or IV
Cefazolin or ceftriaxone 1g IM or IV	Cefazolin or ceftriaxone 50mg/kg IM or IV
<i>Oral, if penicillin or ampicillin allergic</i>	
Clindamycin 600 mg	Clindamycin 20 mg/kg
Cephalexin* 2g	Cephalexin 50 mg/kg
Azithromycin or clarithromycin 500 mg	Azithromycin or clarithromycin 15 mg/kg
<i>If penicillin or ampicillin allergic and unable to take oral medication</i>	
Cefazolin or ceftriaxone 1g IM or IV	Cefazolin or ceftriaxone 50mg/kg IM or IV
Clindamycin 600 mg IM or IV	Clindamycin 20 mg/kg IM or IV

*Or other first or second-generation oral cephalosporin in equivalent adult or pediatric dosage.

[^]Cephalosporins should not be used in an individual with a history of anaphylaxis, angioedema, or urticaria with penicillins or ampicillin.