# Table 2: Modified World Health Organization (WHO) Classification of Maternal Cardiovascular Risk: Application

<table>
<thead>
<tr>
<th>WHO Pregnancy Risk Classification (Risk of pregnancy by medical condition)</th>
<th>Cardiovascular Conditions by WHO Risk Class</th>
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</table>
| **WHO Risk Class I**  
*No detectable increased risk of maternal mortality and no or mild increase in morbidity.* | • Uncomplicated, small or mild  
  o Pulmonary stenosis  
  o Patient ductus arteriosus  
  o Mitral valve prolapse  
• Successfully repaired simple lesions (atrial or ventricular septal defect, patent ductus arteriosus, anomalous pulmonary venous drainage).  
• Atrial or ventricular ectopic beats, isolated |
| **WHO Risk Class II** (If otherwise well and uncomplicated)  
*Small increased risk of maternal mortality or moderate increase in morbidity.* | • Unoperated atrial or ventricular septal defect  
• Repaired tetralogy of Fallot  
• Most arrhythmias |
| **WHO Risk Class II or III** (Depending on individual)  
*Risk as indicated in Class II (above) or Class III (below).* | • Mild left ventricular impairment  
• Hypertrophic cardiomyopathy  
• Native or tissue valvular heart disease not considered WHO I or IV  
• Marfan syndrome without aortic dilatation  
• Aorta <45 mm in aortic disease associated with bicuspid aortic valve  
• Repaired Coarctation |
| **WHO Risk Class III**  
*Significantly increased risk of maternal mortality or severe morbidity. Expert counseling required. If pregnancy is decided upon, intensive specialist cardiac and obstetric monitoring needed throughout pregnancy, childbirth and the puerperium.* | • Mechanical valve  
• Systemic right ventricle  
• Fontan circulation  
• Cyanotic heart disease ( unrepaired)  
• Other complex congenital heart disease  
• Aortic dilatation 40-45 mm in Marfan Syndrome  
• Aortic dilatation 45-50 mm in aortic disease associated with bicuspid aortic valve |
| **WHO Risk Class IV** (Pregnancy contraindicated)  
*Extremely high risk of maternal mortality or severe morbidity; pregnancy contraindicated. If pregnancy occurs termination should be discussed. If pregnancy continues, care as for class III.* | • Pulmonary arterial hypertension of any cause  
• Severe systemic ventricular dysfunction (LVEF <30%, NYHA III-IV)*  
• Previous peripartum cardiomyopathy with any residual impairment of left ventricular function  
• Severe symptomatic mitral or aortic stenosis  
• Marfan syndrome with aorta dilated >45 mm  
• Aortic dilation >50 mm in aortic disease associated with bicuspid aortic valve  
• Native severe Coarctation |

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*LVEF = left ventricular ejection fraction; NYHA = New York Heart Association