

of adverse outcomes. Neither hemodialysis nor transplant is a contraindication to pregnancy, but both require close multidisciplinary management. When renal disease worsens during pregnancy, close collaboration between the internist and the maternal-fetal medicine specialist is essential so that decisions regarding delivery can be weighed to balance the sequelae of prematurity for the neonate versus long-term sequelae for the mother with respect to future renal function.

CARDIAC DISEASE

Cardiac disease is the leading cause of maternal mortality in the United States. Prepregnancy cardiac disease and cardiac disease caused by pregnancy are both major contributors. Patient education, risk stratification, optimization of hemodynamics, and multidisciplinary planning with a pregnancy heart team are the tenets of management independent of etiology. Patients with pulmonary hypertension ([Chap. 283](#)), severe ventricular dysfunction (ejection fraction <30% or New York Heart Association class III–IV), severe mitral or aortic stenosis, severe aortic dilation, or Fontan circulation with any complication are at the highest risk of maternal mortality. Pregnancy is contraindicated in these women, with most experts recommending termination of pregnancy due to maternal risk. Risk stratification including a detailed history with attention to symptoms, echocardiography, and cardiopulmonary exercise testing guides monitoring and management for most patients. Contemporary guidelines support continuing most nonteratogenic prepregnancy medications and reserving cesarean delivery for obstetric indications with rare exceptions.

■ VALVULAR HEART DISEASE (See also [Chaps. 261–268.](#))

Mitral Stenosis The pregnancy-induced increase in blood volume, cardiac output, and tachycardia can increase the transmitral pressure gradient and cause pulmonary edema or tachyarrhythmias in women with mitral stenosis. Women with moderate to severe