

**Maine Medical Center  
Maine Transplant Program  
Policies and Procedures  
Pretransplant Cardiac Evaluation Policy**

**Purpose**

To outline a comprehensive process whereby all candidates for kidney transplantation are evaluated for cardiac risk factors prior to consideration for surgery and immunosuppression.

**Policy**

Each patient evaluated for transplantation will undergo heart testing in order to minimize the risk of atherothrombotic complications optimize patient and graft survival outcomes.

**Procedures**

Persons being evaluated for transplantation are risk stratified according to the following guidelines:

*Low risk group*

Definition:

- Male < 35 years, pre-menopausal female
- Absence of DM, CHF, MI, angina
- Short duration of renal disease

Workup:

- ECG
- Transthoracic echocardiogram

*Moderate risk group*

Definition:

- Absent history of coronary artery, peripheral vascular or cerebrovascular disease
- Smoker
- Normal ECG

Workup:

- ECG
- Transthoracic echocardiogram
- Provocative stress test: Cardiac PET preferred over myocardial perfusion imaging having advantages in terms of assessing for presence of ischemia/infarction and also carries prognostic significance regarding functional reserve
- Coronary angiography indicated if non-invasive testing suggests the presence of coronary artery disease

*High risk group*

Definition:

- Diabetes as the cause ESRD
- History of coronary artery, peripheral vascular or cerebrovascular disease
- Abnormal ECG (pathologic Q waves, ST elevation or depression > 1 mm, inverted T waves)
- Positive stress test for ischemic changes

Workup: When the patient is deemed to be “ready” for transplantation (defined as approval of a living donor or anticipated receipt of deceased donor within 12 months), referral for Cardiology Consultation is implemented

- Transthoracic echocardiogram
- Coronary angiography
- Left and right heart catheterization

The “Cardiac Workup Checklist” will be utilized by the RN Coordinator to guide the cardiac evaluation process.

Preemptive patients will be stratified per the risk groups defined above and tested accordingly. High risk preemptive patients will be referred to Maine Health Cardiology for complete evaluation and consultation. If cardiac catheterization is indicated, the patient may be admitted to MMC by Nephrology in collaboration with Cardiology and started on dialysis post procedure by nephrology as necessary. Cardiac PET is an acceptable alternative.

### **Decision Making Process**

Patients evaluated according to the above algorithm will be discussed at the multidisciplinary candidate review committee meeting. One of three outcomes will ensue:

- Deemed suitable for transplantation and waitlisted;
- Deemed at excessive risk of complications and death and turned down; or
- Deferred pending compilation of additional information or mitigation of factors identified as exclusion criteria in the “Inclusion and Exclusion Criteria for Kidney Transplantation” program policy

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## **Appendix: Pulmonary Hypertension Policy**

### **Purpose**

Outline the Maine Transplant Program Policy and Procedure pertaining to the evaluation and management of pulmonary hypertension (PH) in transplant candidates with emphasis on inclusion and exclusion criteria.

### **Background**

Pulmonary hypertension is found in approximately 20% of CKD patients and has been repeatedly shown to be a major, independent risk factor for morbidity and mortality during dialysis and after kidney transplantation.

### **Policy**

- All patients deemed at moderate and increased risk for cardiovascular disease have transthoracic echocardiography performed as part of the pretransplant evaluation (defined in the “Pretransplant Cardiac Workup Policy”)
- Pulmonary hypertension is suggested by the finding of right ventricular systolic pressure > 55 mmHG by echocardiography.
- When PH is identified by echo, the patient will be referred to cardiology for right heart catheterization according to the pulmonary hypertension RHC protocol thereafter.
- Risk factor modification will be advised.
- Persistent, uncontrolled pulmonary hypertension defined as RHC PA pressure > 55 mgHg is a contraindication to kidney transplantation.