

**About the Authors**

**Foreword**

**Preface**

**Abbreviations**

**Video Files of Multipurpose (MP) Catheter Manipulation**

**The Laws of Dr. F. Mason Sones**

## **1. A Brief History of Cardiac Catheterization**

- **History of a Procedure**

## **2. The Cardiac Catheterization Laboratory**

- **Catheterization Laboratory Equipment**
- **Contrast Agents**
- **Radiation Exposure and Safety**

## **3. The Tools**

- **Percutaneous Access Needles**
- **Guidewires**
- **Vascular Sheaths and Dilators**
- **Catheters**
- **Manifold**

## **4. Precatheterization Care**

- **The Rule of the Rules**

## **5. Vascular Access**

- **Percutaneous Vascular Access**
- **Femoral Artery Approach**
- **Brachial Artery Approach**
- **Radial Artery Approach**
- **Femoral Vein Approach**
- **Jugular Vein Approach**
- **Subclavian Vein Approach**
- **Basilic Vein Approach**

## **6. Coronary, Renal and Mesenteric Angiography**

- **Angiographic Views and Projections**
- **Indications and Contraindications of the Procedures**
- **Selective Cannulation of the Native Left Coronary Artery (LCA)**

- **Amplatz Coronary Catheter for Femoral, Left Brachial or Radial Approaches**
- **Selective Cannulation of the Native Right Coronary Artery (RCA)**
- **Selective Cannulation of the Renal and Mesenteric Arteries**

## **7. The Multipurpose Catheter**

- **Historical Background**
- **Multipurpose Catheter Basics**
- **Torque and Rotation**
- **Left Ventriculography with the Multipurpose Catheter**
- **Right Coronary Artery (RCA) Cannulation**
- **Left Coronary Artery (LCA) Cannulation**
- **Coronary Bypass Grafts**
- **Challenging Conditions**

## **8. Angiography of Coronary Bypass Grafts**

- **Venous and Free Arterial Grafts**
- **Pedicled Arterial Grafts**

## **9. Left and Right Ventriculography, Aortography and Pulmonary Angiography**

- **Radiologic Anatomy of the Heart and Left Ventriculography**
- **Entering the Left Ventricle**
- **Radiologic Anatomy of the Heart and Right Ventriculography**
- **Aortography**
- **Pulmonary Artery Angiography**

## **10. Right Heart Catheterization**

- **Indications and Contraindications of the Procedure**
- **Femoral Vein Approach**
- **Right Internal Jugular Vein Approach**
- **Cannulation of the Coronary Sinus**

## **11. Right and Left Heart Hemodynamics**

- **Cardiac Hemodynamics**
- **Interpretation of Right and Left Heart Pressure Tracings**
- **Cardiac Output Measurement**
- **Pulmonary and Systemic Vascular Resistance**

## **12. Shunt Detection and Calculation**

- **Oximetry for Shunt Calculations**

### **13. Endomyocardial Biopsy**

- **Indications and Contraindications of the Procedure**
- **Jugular Vein Approach**
- **Femoral Vein Approach**
- **Femoral Artery Approach**

### **14. Pericardiocentesis**

- **Indications and Contraindications of the Procedure**
- **Subxiphoid Approach**
- **Apical Approach**

### **15. Intra-Aortic Balloon Pump (IABP) Placement**

- **Indications and Contraindications of the Procedure**
- **Femoral Artery Approach**
- **Left Brachial Artery Approach**

### **16. Temporary Transvenous Pacemaker Placement**

- **Indications and Contraindications of the Procedure**
- **Femoral Vein Approach**
- **Right Internal Jugular Vein Approach**

### **17. Post-Cardiac Catheterization Care**

- **Documentation of the Procedure**
- **Vascular Access Site Closure**
- **Obtaining Hemostasis of the Radial Arteriotomy Site**

### **18. Approach to Complex Cases in Cardiac Catheterization**

- **Left Main (LM) Coronary Artery Stenosis**
- **Coronary Anomalies**
- **Coronary Spasm and Myocardial Bridge**
- **Aortic Stenosis**
- **Pulmonic Stenosis**
- **Mitral Stenosis**
- **Tricuspid Stenosis**
- **Tricuspid Regurgitation**
- **Aortic Regurgitation**
- **Mitral Regurgitation**
- **Hypertrophic Cardiomyopathy**
- **Cardiac Tamponade**
- **Restrictive Cardiomyopathy versus Constrictive Pericarditis**

- **Pulmonary Hypertension**
- **Simple Cardiac Shunts**

## **19. Useful Formulae and Normal Values**

### **Index**