

Fact Sheet: Interventional Cardiology

Interventional Cardiologist:

A doctor trained and credentialed in cardiology with special emphasis on treating cardiovascular diseases non-operatively, typically with the use of small catheters guided by X-ray imaging.

C L I N I C A L S C O P E

Coronary Heart Disease

- **Description:** The narrowing of the coronary arteries as caused by atherosclerosis. Can lead to angina pectoris (chest pain), heart attack, or both.
- **Statistics:** Coronary heart disease causes more than 530,000 deaths per year and is the single leading cause of death in America today. More than 12 million Americans have a history of heart attack, angina pectoris, or both. About 250,000 Americans die of heart attack without being hospitalized (*American Heart Association, 2002*).
- **Treatment:** Initial treatments include lifestyle changes (diet, exercise, smoking) and medications. With disease progression, diagnostic coronary angiography is often performed to assess areas of disease. Percutaneous Transluminal Coronary Angioplasty (PTCA) – opening blocked arteries with a catheter-delivered balloon – is often performed to re-establish blood flow. Stents are typically deployed to keep this diseased region from blocking off again. Last year there were more than 3.75 million interventional cardiac cases performed in over 3,665 catheterization labs across the country. Open surgical procedures (Coronary Artery Bypass Graft – CABG) are performed for patients with multiple blockages and/or repeated narrowing.

Carotid Artery Disease

- **Description:** Narrowing or blockage occurring in the carotid artery in the neck, causing particular concern due to reduction in blood flow to the brain and risk of stroke from dislodged arterial plaque.
- **Statistics:** More than 130,000 surgical procedures are performed each year to treat carotid artery disease.
- **Treatment:** Until recently, an open surgical procedure was performed (carotid endarterectomy). The use of stenting has steadily increased as an alternative to treat this condition, particularly with techniques in place to reduce the chance of embolic stroke.

Peripheral Vascular Disease (PVD)

- **Description:** Peripheral vascular disease, or PVD, is a condition in which the arteries that carry blood to the arms or legs become narrowed or clogged. This interferes with the normal flow of blood, sometimes causing pain with movement or exercise, but often causing no symptoms at all. The most common cause of PVD is atherosclerosis (often called hardening of the arteries). Atherosclerosis is a gradual process in which cholesterol and scar tissue build up, forming a substance called "plaque" that clogs the blood vessels. In some cases, PVD may be caused by blood clots that lodge in the arteries and restrict blood flow.
- **Statistics:** PVD affects 10 million people in the United States including 5% of the over-50 population' *(SIR Web site, 2004)*.
- **Treatments:** A variety of techniques are employed including angioplasty, stenting, and thrombolysis. Typically, these treatments are delivered via small catheters under X-ray guidance.

Other areas:

- **Arrhythmia management:** Abnormal heart rhythms can cause fainting, discomfort, and even death. Arrhythmias can be diagnosed non-invasively (e.g., Electrocardiogram (ECG) analysis) and via catheterization, where special catheters are used to map abnormal cardiac conduction system pathways. These procedures are performed by a sub-specialty within cardiology called Electrophysiology.
- **Open Heart Surgery:** Not all patients respond to front line therapy (medication, lifestyle changes) or

angiographic approaches. With these patients, a cardiac surgeon often performs a Coronary Artery Bypass Graft (CABG) procedure. CABG procedures have higher complication rates, longer hospital stay and recovery times when compared to less invasive, catheter-based techniques.

TERMS AND PROCEDURES

Ablation: Destroying an abnormal electrical pathway. To treat arrhythmias of the heart, X-ray guided ablation catheters are used by Electrophysiologists.

Angiography: A radiographic technique where a radio-opaque (shows up on X-ray) contrast material is injected into a blood vessel for the purpose of visualizing the anatomic structure. This technique is used to image arteries in the brain, heart, kidneys, gastrointestinal tract, aorta, neck (carotids), arms, legs, and lungs.

Angioplasty: The use of a catheter-deployed balloon to open a narrowed area of a blood vessel.

Arrhythmia: Abnormal heart rhythms, including bradycardia (slow), tachycardia (fast), fibrillation (unorganized, quivering). Can occur in the ventricles or the atria of the heart.

Embolization: Stopping the blood flow to a region (typically an aneurysm or tumor) with a variety of devices.

Endovascular: Diagnostic or therapeutic procedures performed from within a blood vessel. Often these minimally invasive techniques can reduce recovery time and overall procedure risk.

Stenosis: A narrowing in a blood vessel. Often treated with angioplasty and/or stenting.

Drug Eluting Stent: A drug coated stent intended to decrease the risk of restenosis.

Stent: A metal tube inserted into a vessel to keep the lumen open and prevent recurrent blockage.

Thrombolytic Therapy: Procedures to treat blood clots (thrombus). Refers to both Thrombolysis (dissolving a clot with a therapeutic agent via a catheter) and Thrombectomy (catheter-based removal of a clot).

PROFESSIONAL ORGANIZATIONS

For more information, contact:

- **American Heart Association** (www.americanheart.org)
- **American College of Cardiology** (www.acc.org)

- **The Society for Cardiac Angiography and Interventions** (www.scai.org)
- **Philips Medical Systems** (www.medical.philips.com)
- **Transcatheter Cardiovascular Therapeutics** (www.tctmd.com)