

# Cardiac Monitor

SUMMER 2017 / FOR PHYSICIANS

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### Welcome New Physician

**Keith Jones, MD**, is a vascular surgeon joining Mercy Medical Group's San Juan location. Dr. Jones received his medical degree from the University of Connecticut School of Medicine and completed his internship and residency at Loyola University Medical Center, followed by a fellowship at Albany Medical Center. Dr. Jones is accredited by the American Board of Surgery.



### Referral Resources

**CHAMP®** 916.564.2880

**Cardiac Rehabilitation**

Mercy General Hospital	916.453.4521
Mercy San Juan	916.537.5299
Sierra Nevada Memorial	530.274.6103
Woodland Memorial	530.662.3961
	ext. 4531

**Pulmonary Rehab./Smoking Cessation**

Mercy General Hospital	916.453.4268
Mercy San Juan	916.537.5299
Sierra Nevada Memorial	530.274.6084
Woodland Memorial	530.662.4964
	ext. 4531

**Cardiac Education Forum  
& Support Group**

916.453.4521

**Heart Caring**

916.733.6245

**Adv. Heart Disease Clinic**

916.453.4768

### Saving Life and Limb: Diagnosis and Treatment of Critical Limb Ischemia

Handel Robinson, MD

Critical limb ischemia (CLI) is a clinical syndrome that features ischemic pain at rest and/or tissue loss related to peripheral artery disease by atherosclerosis.

CLI carries a high short-term risk of limb loss as well as greater risk of cardiovascular events. In 2016, the journal *Circulation* cited a study that found that patients with CLI face a 30-50% risk of myocardial infarction and stroke over a one-year period, an outcome worse than severe heart failure or most cancers.

#### Diagnosis and Treatment

CLI is diagnosed when rest pain or tissue loss (ulcers or gangrene) is present alongside the hemodynamic criteria of low ankle or toe pressures, or low transcutaneous oxygen (TcO2) values. Ankle pressure criteria range from <40 to 70 mmHg, toe pressures <30 to 50 mmHg, TcO2 <20 to 40 mmHg.



Duplex ultrasound, and noninvasive angiography with computerized tomographic angiography (CTA) or magnetic resonance angiography, can demonstrate arterial obstruction. Angiography can be used to help determine whether revascularization is feasible and, if so, what the most effective treatment approach would be.

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### Recognizing a Critical Limb Ischemia Emergency

Due to the high risk of limb loss, primary care and other referring physicians play a critical role in recognizing critical limb ischemia quickly enough for patients experiencing a CLI emergency to receive the necessary care.

When evaluating CLI, note the five "P's":

- Pain
- Pallor
- Pulselessness
- Paraesthesia
- Paralysis

When these symptoms are present, immediate referral to a vascular surgeon is necessary.

# Cryoballoon Ablation Study Receives Attention

Arash Aryana, MS, MD, FACC, FHRS



In the recent issue of the Heart Rhythm Journal, Aryana et al published the results of a multicenter study comparing 755 consecutive

patients who underwent a first-time cryoballoon ablation for treatment of symptomatic paroxysmal or persistent atrial fibrillation (AF).

Of these, 355 patients were ablated using a pre-specified dosing algorithm proposed by Aryana et al, as compared to 400 control patients ablated using the non-standardized conventional method. The tested algorithm has originally been proposed by Aryana et al and is based on their earlier published work which examined several

procedural indicators and markers of a successful AF ablation procedure.

The main objective of the current study was to establish a simple and easy-to-follow, but effective, ablation dosing “decision tree” that could be replicated across various cardiac electrophysiology laboratories and practitioners.

The results of the study show that the proposed dosing algorithm can be effectively used to guide and individualize the AF ablation strategy. As such, the dosing algorithm was associated with shorter and fewer cryo-applications, reduced fluoroscopic utilization, decreased ablation time, shorter left atrial dwell time and reduced procedure time, but with similar clinical efficacy and safety as compared to the conventional method.

Furthermore, the dosing strategy was specifically associated with a lower incidence of atrial flutters/tachycardias and fewer pulmonary vein reconnections during long-term follow-up. Hence, this study demonstrates that the novel cryoablation dosing algorithm proposed by Aryana et al can help standardize the AF ablation strategy and yield improved procedural endpoints and efficiency as compared to the current, non-standardized approach.

Within the first month following its publication, this study has already been recognized as one of the top 5 ‘most read’ articles among cardiac electrophysiologists. Furthermore, the proposed algorithm is being implemented at many centers throughout the United States and in Europe.

## CME Opportunities

### Cardiology & Electrophysiology Symposium

Dignity Health Heart and Vascular Institute will host its 27th Annual Cardiology & Electrophysiology CME Symposium on Saturday, Oct. 14 at the Hyatt Regency in Sacramento. Topics will include innovations for structural heart disease; strategies for congestive heart failure; managing atrial fibrillation.

Online registration is open at [DignityHealth.org/GSSACardioCME](http://DignityHealth.org/GSSACardioCME).

### Cardiovascular Nursing Conference

Dignity Health Heart and Vascular Institute will present its annual Cardiovascular Nursing Conference on Wednesday, Sept. 13 at the Scottish Rite Masonic Center in Sacramento.

This year’s event will include a wide variety of topics presented by Dignity Health physicians and nurses, including treatment of critical limb ischemia; atrial fibrillation procedures; sepsis guidelines; and the integration of functional medicine into cardiovascular care.

Six hours of RN Continuing Education Units have been applied for. The conference is free to Dignity Health employees and \$50 for non-employees.

To register, visit [DignityHealth.org/CVRNGSSACConf](http://DignityHealth.org/CVRNGSSACConf).

Critical Limb Ischemia (continued from first page)

The treatment goal for CLI is revascularization. An endovascular-first approach is often advocated based on a lower procedural risk; however, specific patterns of disease may be best treated by open surgical revascularization. Balloon angioplasty and stenting form the backbone of endovascular techniques, with drug-eluting stents and drug-coated balloons offering low rates of repeat revascularization.

Medical therapy after revascularization targets risk factors for atherosclerosis and assesses wound healing and new or recurrent flow-limiting disease.

### Recognizing Critical Limb Ischemia

Recognizing CLI in patients early in the progression of the disease is critical in preventing loss of limb.

CLI typically affects the legs, feet and hands and is marked by severe pain and skin ulcers, sores, or gangrene. CLI occurs over several weeks or months.

The pain caused by CLI can be severe enough to wake up an individual at night. This “rest pain” is often in the leg and can be relieved temporarily by hanging the leg off the bed or standing up and walking.

Other symptoms include:

- Pain or numbness in the feet
- Shiny, smooth, dry skin of the legs or feet
- Thickening of the toenails
- Absent or diminished pulse in the legs or feet
- Open sores, skin infections or ulcers that will not heal
- Dry gangrene (dry, black skin) of the legs or feet

### Critical Limb Ischemia Risk Factors

Risk factors for critical limb ischemia are the same as those for atherosclerosis:

- Age
- Smoking
- Overweight or obesity
- Sedentary lifestyle
- High cholesterol
- High blood pressure
- Family history of vascular disease
- In addition, an estimated 50% of patients with CLI have diabetes.

Due to the high risk of limb loss and cardiovascular events, CLI demands a multi-discipline approach that may include endovascular revascularization, open surgical revascularization, podiatry care, wound care, and other specialties to maximize patient outcomes.

## Hospitals Honored for Care



Dignity Health Heart and Vascular Institute hospitals received high praise from one of the nation’s leading reporting agencies this year. Healthgrades honored our local hospitals with the following awards:

### Mercy General Hospital

Named one of America’s 50 Best Hospitals for Cardiac Surgery and one of America’s 100 Best Hospitals for Cardiac Care and also received the Distinguished Hospital - Clinical Excellence; Critical Care – Excellence Award; and 5-Star Ratings for Coronary Artery Bypass (15 years in a row), Valve Surgery, Heart Attack and Heart Failure.

### Mercy San Juan Medical Center

Named one of America’s 100 Best Hospitals and also received the Distinguished Hospital – Clinical Excellence honor; the Critical Care – Excellence Award; and a 5-Star rating for Heart Failure.

### Methodist Hospital of Sacramento

Received the Critical Care – Excellence Award and 5-Star Rating for Heart Attack.

### Mercy Hospital of Folsom

Received the Critical Care – Excellence Award.

### Sierra Nevada Memorial Hospital

Received a 5-Star Rating for Heart Attack.

# New Treatments in Atrial Fibrillation



Atrial fibrillation (AF) is the most common type of irregular heartbeat, affecting an estimated three million Americans.

One out of every six ischemic strokes is believed to be related to AF. Dignity Health Heart and Vascular Institute is leading the way in implementing more effective treatment options for AF and stroke prevention.

The Atrial Fibrillation (AF) Clinic at Dignity Health Heart and Vascular Institute treats patients with persistent or permanent AF who are difficult to treat or continue to be symptomatic. The clinic provides a multidisciplinary evaluation by electrophysiologists, cardiologists and surgeons who work together with the patient to determine the best therapy to enhance their quality of life. An RN Program Coordinator assists patients with assessments, procedure planning, monitoring, and long-term follow up. The team offers advanced therapies such as Watchman and Epicardial/Endocardial Ablations.

## Watchman Procedure

The Watchman® Left Atrial Appendage (LAA) Closure Technology is a catheter-delivered umbrella-like device with an implant success rate of 95%. The Watchman is the only FDA-approved LAA closure device that effectively reduces stroke risk from thromboembolism from the LAA in patients with AF.

## About Dignity Health Heart and Vascular Institute's Advanced Heart Disease Clinic

Dignity Health Heart and Vascular Institute is home to one of the largest and most recognized cardiac surgical teams in the state. The Advanced Heart Disease Clinic consists of a multidisciplinary team with extensive experience in treating patients with various stages of heart failure and AF, from advanced procedures including TAVR, TMVR, da Vinci, LVAD, complex VT ablation, LAA Closure, and placement of biventricular pacing/ICD devices, to disease management through CHAMP®, our Congestive Heart Active Management Program.

The Watchman device is indicated for AF patients who:

- Are at increased risk for stroke and systemic embolism based on CHADS<sup>2</sup> or CHA<sub>2</sub>DS<sup>2</sup>-VASc scores and are recommended for anticoagulation therapy
- Are deemed by their physicians to be suitable for warfarin
- Have an appropriate rationale to seek a non-pharmacologic alternative to warfarin

## Epicardial/Endocardial Ablation

For patients who have permanent, persistent AF with structural heart disease, Dignity Health Heart and Vascular Institute is among a few providers to offer a staged approach utilizing Epicardial minimally invasive surgical ablation followed by Endocardial (catheter) ablation if AF persists.

Candidates include patients who have:

- Lived with AF for many years
- Structural heart disease
- Enlarged or growing left atrium (>4.5 cm)
- Failed other AF treatments



## How to Refer a Patient

To refer a patient to Dignity Health Heart and Vascular Institute's Advanced Heart Disease Clinic, call 877.999.8287 ext. 4 or 916.453.4768

## Physician Leaders

Arash Aryana, MD, FACC  
*Cardiac Electrophysiologist*

John Dein, MD, FACS  
*Cardiac Surgeon*

Walt Marquardt, MD, FACC  
*Cardiologist*

Gearoid O'Neill, MD, FACC  
*Cardiac Electrophysiologist*

## Atrial Fibrillation Coordinator

Nathanael White, RN, BSN

# Transcatheter Mitral Valve Repair (TMVR)



Dignity Health Heart and Vascular Institute of Greater Sacramento is among a select group of providers in the nation offering patients Transcatheter Mitral Valve Repair (TMVR)—a minimally invasive procedure to treat moderate-severe to severe mitral regurgitation.



## What is TMVR?

TMVR is a minimally invasive procedure that treats severe mitral regurgitation without requiring open heart surgery. The procedure is FDA-approved for patients who are high-risk for surgical mitral valve repair.

The MitraClip® is inserted via the femoral vein. The anterior and posterior leaflets of the mitral valve are clipped together, resulting in a reduction in the mitral regurgitant jet.

## Why TMVR for your patients?

- Faster recovery times
- Less pain
- Improved quality of life

**“With TMVR, I was out of the hospital quickly and recovery wasn't a problem at all. I'm back to hunting and fishing!”**

*– 94-year old TMVR patient*

## About Dignity Health Heart and Vascular Institute's Advanced Heart Disease Clinic

Dignity Health Heart and Vascular Institute is home to one of the largest and most recognized cardiac surgical teams in the state. The Advanced Heart Disease Clinic consists of a multidisciplinary team with extensive experience in treating patients with various stages of heart failure, from advanced procedures including TAVR, TMVR, da Vinci, LVAD, complex VT ablation, surgical and catheter treatments for atrial fibrillation, and placement of biventricular pacing/ICD devices, to disease management through CHAMP®, our Congestive Heart Active Management Program.

\*Lim, DS et al. JACC (2013). doi:10.1016/j.jacc.2013.10.021

## Why refer your patients to the Advanced Heart Disease Clinic for evaluation and treatment?

The multidisciplinary team at the Advanced Heart Disease Clinic has extensive experience in minimally invasive cardiac surgical techniques, including TAVR and da Vinci.

All TMVR procedures are performed in a hybrid catheterization lab, using general anesthesia and advanced trans-esophageal echocardiography.

A 73% reduction in heart failure hospitalizations has been documented in patients who had a transcatheter mitral valve repair.\*

## How to Refer a Patient

To refer a patient to Dignity Health Heart and Vascular Institute's Advanced Heart Disease Clinic, call 877-999-8287 (ext. 3) or 916-453-4768

## Physician Leaders

Michael Chang, MD, FACC  
*Cardiologist*

Joseph Kozina, MD, FACC  
*Cardiologist*

Allen Morris, MD, FACS  
*Cardiac Surgeon*

Frank Slachman, MD, FACS  
*Cardiac Surgeon*

## Valve Coordinators

Gina Collier, RN, NP

Marci McElman, RN, BSN

Amanda Peoples, RN, BSN, NP

Leigh-Ann Wright, RN