



A GUIDE FOR CARDIOVASCULAR CATH LAB PATIENTS

PACEMAKER PROCEDURES

Bring this booklet on the day of your procedure.

DALE MICHELS CENTER FOR HEART CARE

430 E. Division Street, Fond du Lac • Cardiology (920) 926-8230

For additional information, visit agnesian.com/cathlab.

agnesian.com

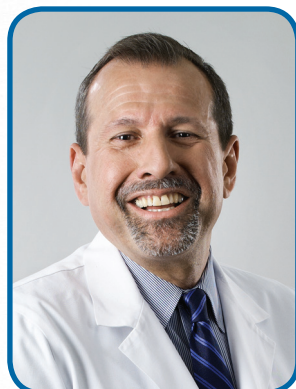
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AGNESIAN HEALTHCARE'S DALE MICHELS CENTER FOR HEART CARE

Agnesian HealthCare offers comprehensive heart care services close to home in Fond du Lac. These services, offered through the Dale Michels Center for Heart Care, bring to the region a diverse and complete package of quality cardiac and vascular procedures, including open-heart surgery (coronary artery bypass grafts), coronary angioplasty, stent placements, cardiac catheterizations, peripheral angiograms and other procedures.

For more information, call Cardiology Services at (920) 926-8230.

OUR INTERVENTIONAL CARDIOLOGISTS



Juan Diaz, MD, FACC

University of Illinois
College of Medicine



Richard Santa-Cruz, MD, FACC

University of Miami
School of Medicine

OUR CARDIOTHORACIC SURGEON



R. Eric Lilly, MD

Duke University
School of Medicine

PROCEDURE DETAILS

Your Procedure: _____

Physician: _____

Date: _____ Arrival Time: _____

THE NIGHT BEFORE MY PROCEDURE:

- Do not eat or drink after _____.
- If you take insulin, decrease your nighttime dose by: _____

THE MORNING OF MY PROCEDURE:

- If you take insulin, decrease your morning dose by: _____
- Take all of your morning medications with sips of water **EXCEPT:** _____

- If you take Warfarin (Coumadin), have a contrast dye allergy or have impaired kidney function:

- Shower or bathe the night before or the morning of your procedure.

PLEASE BRING THE FOLLOWING WITH YOU ON THE DAY OF YOUR PROCEDURE:

- **If you use a CPAP at home, bring it with you.**
- You may want to bring a book or electronic device to entertain yourself while you wait for your procedure to start. Your start time may vary due to the length of procedures prior to yours, or if emergencies arise.
- A current list of your medications.
- Bring an overnight bag with home comforts if desired, as you may stay overnight.

Contact the Cardiology department at (920) 926-8230 with questions.

Please arrive on time to check in at hospital registration, located by Café Coffee, just off the hospital lobby. The main entrance is located off Division Street by the stop and go lights.

PROCEDURE INFORMATION

What do I need to do before my procedure?

- You will need to arrange transportation to the hospital and later that day or the following day depending on your procedure results. We will not know when you will be discharged until the procedure is completed. Plan to spend the night just in case.

When you arrive

- You can expect to spend about two hours in one of our pre-procedural rooms. During this time, we may:
 - Sign consent forms
 - Perform physical assessments
 - Update your medical history and medications
 - Obtain blood work
 - Perform diagnostic tests, such as an EKG
 - Start an IV to administer fluids and medications
 - Prep the skin area of your procedure site
 - Give oral medications in pill form prior to your procedure to prevent a contrast dye reaction and to help you relax
- The physician performing your procedure will speak with you. This is a good time for you to ask questions about your procedure and the recovery process.

During your procedure

- You will be brought to the Cardiovascular Cath Lab procedure room where you are expected to lay flat on the X-ray table with the support of a pillow for your head. The procedure room tends to be very cool, which is by design, so we will comfort you with a warm blanket. Cardiovascular Cath Lab associates will then proceed to prep you for the procedure by attaching a heart monitor and other

pertinent equipment. You will have oxygen placed in your nose and your procedure site will be washed with an antibacterial cleanser. Your arms will be secured to your sides for your safety and infection prevention. They will be released once the procedure is completed.

- You will be given an antibiotic through your IV.
- A sterile drape will be placed over your body. Since the location of the incision is near the collar bone, the drape will cover your face. We will make a small window for you to look out from and communicate with your nurse.
- The nurse with you in your procedure will administer conscious sedation through your IV to help you relax and stay comfortable. We will administer sedation while closely monitoring your vital signs for your safety.
- If you begin to experience any discomfort, please let the nurse or physician know so that we can make you comfortable.
- A tiny needle will be used to inject local anesthetic into the skin at the procedure site. You will feel a pinch and a burn from this medication but the area will become numb very quickly.
- The physician will take X-ray images as he guides the wires into the correct place in your heart.
- As the X-ray images are taken, the table will move and the lights will turn on and off.
- The physician will create a pocket under the skin where the pacemaker will sit.
- After the pacemaker is in place, the physician will suture the area closed and apply a sterile dressing.
- The physician will speak to you and your family about your results when the procedure is completed.

PACEMAKER INSERTION OR GENERATOR CHANGE

Why do I need a pacemaker?

Pacemakers are implanted to help control your heartbeat and/or correct irregular heart rhythms, which may be referred to as heart block or sick sinus syndrome. They may also be occasionally used to treat heart failure.

What is a pacemaker?

A pacemaker is a device that sends small electrical impulses to the heart muscle to maintain a suitable rate or to stimulate the lower chambers of the heart (ventricles).

A pacemaker has two main parts:

1. Pulse Generator - A small metal compartment that contains a battery and electronic circuits.
2. Leads (electrodes) - Wires that carry electrical signals between the pulse generator and your heart. They are placed in a chamber or chambers of your heart. The pacemaker may have one or two leads.

- Once a pacemaker is implanted, the average battery life is five to 10 years. When the battery reaches end of life, your healthcare provider will inform you and refer you for a generator change. This entails taking the old pulse generator out and connecting a new generator. The new generator will be put back into the existing pocket. The leads do not get changed.

Types of pacemakers

- Single-chamber - These types of pacemakers carry electrical impulses from the pulse generator to the right ventricle of your heart.
- Dual-chamber - These types of pacemakers carry electrical impulses from the pulse generator to both the right ventricle and the right atrium of your heart. The impulses help control the timing of contractions between the two chambers.

Single Chamber Pacemaker

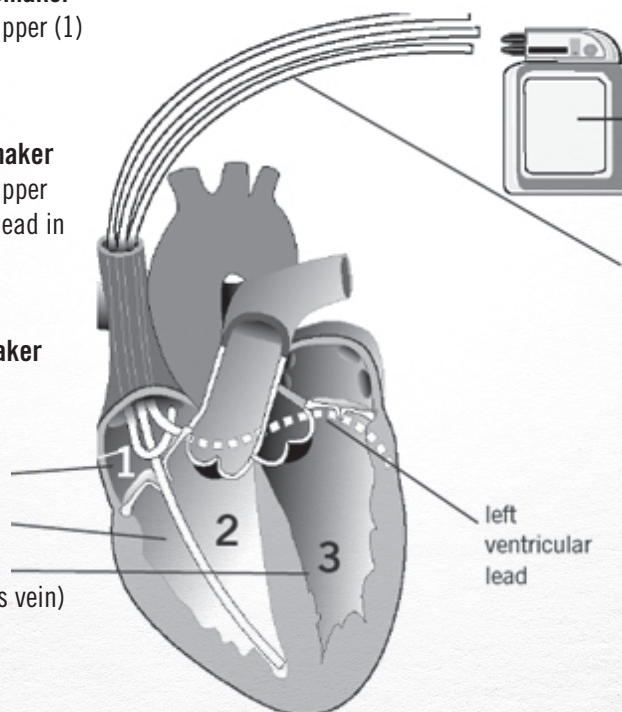
Uses one lead in the upper (1) or lower chamber (2) of the heart

Dual Chamber Pacemaker

Uses one lead in the upper chamber (1) and one lead in the lower chamber (2) of the heart

Biventricular Pacemaker (pictured here)

Uses three leads, placed in the:
1 - Right atrium
2 - Right ventricle
3 - Left ventricle (via the coronary sinus vein)



Pulse Generator

Houses the battery and a tiny computer

Leads

Wires that send impulses from the pulse generator to the heart muscle, as well as sense the heart's electrical activity. Each impulse causes the heart to contract. The pacemaker may have one to three leads to treat your heart problem.

After your procedure

- If you had a new pacemaker inserted, you will spend the night so we can monitor your heart rhythm.
- If you only had your generator changed, you will likely go home the same day.
- To reduce the risk of bleeding complications, you should sit up in bed higher than 30 degrees.
- Your incision must be kept clean and dry until your follow-up appointment in the cardiology clinic. You will be told a date and time for your follow-up appointment prior to discharge. This is when your sutures will be removed. You should not remove the dressing or submerge in water. Avoid using powders, creams or lotions.
- For the first 24 hours, if you had a new pacemaker implanted, do not use your arm on the same side as the device. A sling can be provided as a reminder to keep your arm in a down position.
- You may have some discomfort at the incision site.
- Before discharge, your device will be checked using wireless technology that provides your healthcare provider with access to data including your heart rate, rhythm, battery life and overall pacemaker function.
- Before discharge, a nurse from the pacemaker clinic or representative from the pacemaker company will speak to you and educate you on how to use the home equipment.

Risks of the procedure, although very rare:

- Bleeding, bruising, infection or pain at the catheter insertion site
- An allergic reaction to the contrast dye
- Artery damage
- Kidney concerns
- Heart attack or heart arrhythmia
- Stroke
- Death (very rare)

Call your healthcare provider immediately if you experience any of the signs or symptoms listed below:

Drainage - pus coming from the incision

Opening of the edges of the incision

In**C**reased pain (that is not getting better) around the incision or swelling

Temperature - warmth around the incision or fever

Odor from the wound

Redness worsening around the incision

Pacemaker Clinic: (920) 926-4781 • Cardiology: (920) 926-8230

FREQUENTLY-ASKED CARDIOVASCULAR CATH LAB PROCEDURE QUESTIONS

Q. Why can't I eat before my procedure?

We do not want you to have anything to eat or drink before your procedure to make sure that your stomach is empty. This helps to decrease the risk of nausea, vomiting and breathing complications.

Q. Why can't I take my Metformin?

Contrast will be given to you in your arteries during the procedure. Your kidneys get rid of the contrast through your urine, which is how Metformin is excreted as well. By not taking your Metformin, it allows your kidneys to completely excrete the contrast minimizing the risk of damaging your kidneys. This is also why it is important to stay hydrated after your procedure, to flush out the contrast dye from your system.

Q. Why do I need an IV started before the procedure?

An IV is started to administer IV fluids and medications, such as conscious sedation, pain medication and blood thinners.

Q. Why do I have to have my procedural site shaved?

Removing hair just prior to the procedure using a clipper reduces the risk of infection.

Q. Why do I have to arrive 1.5 hours prior to my procedure start time?

You have to arrive early to provide adequate time for your blood work results to be reported and to allow your nurse enough time to complete the pre-procedural assessments, history review and procedural preparation tasks.

Q. Why are the cath lab procedural rooms so cold?

The temperature is kept below a certain level to maintain equipment sterility; this was done by design per regulations. Also so our specialized X-ray equipment doesn't overheat.

Q. How long do stents last and are they removable?

Stents are permanent and cannot be removed. There are no nerve endings inside your arteries so you will not feel your stent. Stents cannot move after being deployed by the physician. Also, the stent will not rust.

Q. Will I be asleep for the procedure?

Cath lab procedures are performed while you are awake but sedated. A Cardiovascular Cath Lab staff member will start an IV and administer conscious sedation to you once you are in the procedure room. This way of sedation allows you to be comfortable and for your physician to still be able to communicate with you.

If you have any questions prior to your procedure, please call the Cardiology department at (920) 926-8230, or write down your questions for the physician on the last page of this booklet and bring along on day of your procedure.

RESOURCES

Agnesian Pharmacies

Agnesian Pharmacy Main Street
145 N. Main Street, Fond du Lac
(920) 926-4660

Agnesian Pharmacy Markesan
730 N. Margaret Street, Markesan
(920) 398-3261

Agnesian Pharmacy
North Fond du Lac
723 Park Ridge Lane
North Fond du Lac
(920) 926-8660

Agnesian Pharmacy Plus
420 E. Division Street, Fond du Lac
(920) 926-8585

Agnesian Pharmacy Waupun
904 W. Main Street, Waupun
(920) 324-3010

Agnesian Pharmacy West
912 S. Hickory Street, Fond du Lac
(920) 929-7480

Agnesian Prescription Center
Brownsville
900 Main Street, Brownsville
(920) 583-1310

Agnesian Prescription Center
Health Plaza A
421 Camelot Drive, Fond du Lac
(920) 926-5455

Agnesian Prescription Center
Mayville
360 S. Mountin Drive, Mayville
(920) 387-7570

Anticoagulation Management Services

Ripon Medical Center
845 Parkside Street, Ripon
(920) 745-3320

St. Agnes Hospital
430 E. Division Street, Fond du Lac
(920) 926-4580

Waupun Memorial Hospital
620 W. Brown Street, Waupun
(920) 324-8444

Cardiac Rehabilitation

Ripon Medical Center
845 Parkside Street, Ripon
(920) 745-3655

St. Agnes Hospital
430 E. Division Street, Fond du Lac
(920) 926-5041

Waupun Memorial Hospital
620 W. Brown Street, Waupun
(920) 324-6544

Cardiology Clinic

Fond du Lac Regional Clinic
420 E. Division Street, Fond du Lac
(920) 926-8230

Cardiothoracic Surgery

Fond du Lac Regional Clinic
420 E. Division Street, Fond du Lac
(920) 926-8231

Cardiovascular Cath Lab

St. Agnes Hospital
430 E. Division Street, Fond du Lac
(920) 926-5006

Pacemaker Clinic

Fond du Lac Regional Clinic
420 E. Division Street, Fond du Lac
(920) 926-4781

Vascular Services

Fond du Lac Regional Clinic
420 E. Division Street, Fond du Lac
(920) 926-8540

Nurses' Station

St. Agnes Hospital
4 South: (920) 926-5140
5 West: (920) 926-4230
5 South: (920) 926-5150
6 South: (920) 926-5160
Day Surgery: (920) 926-4900
Intensive Care Unit: (920) 926-4730

Creekside Café (St. Agnes Hospital Cafeteria)

Hours of Operation:
Monday through Sunday
6:30 a.m. to 6:30 p.m.

Weekday Grill Hours:
6:30 a.m. to 10 a.m.
11 a.m. to 1:30 p.m.
4:30 p.m. to 6:30 p.m.

Café Coffee (Proudly serving Starbucks)

St. Agnes Hospital
Hours of Operation:
Monday through Thursday
6:30 a.m. to 5:30 p.m. &
Friday 6:30 a.m. to 3:30 p.m.

Closed on Weekends

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