Leadership Saves Lives
Integration of Pharmacy Expertise Practice Brief

The Problem: As LSL coalitions sought to implement the evidence-based strategy of pharmacists rounding on all patients with AMI, they confronted challenges in terms of resources, processes, and policies that impeded adopting the strategy in this specific form. Adaptations were both expected and encouraged as coalitions used creative problem solving techniques to adapt the evidence-based strategies to their unique hospital contexts.

The Response: Given these constraints, coalitions developed creative, typically low-cost and feasible solutions to provide timely pharmacist expertise, using information technology, pharmacy bridging programs, and enhanced patient and physician educational materials. Following are three case examples.

Case Study 1: Information Technology Solutions
At several LSL hospitals, the coalitions worked closely with IT to innovate within the hospital electronic record system. Coalitions developed notes templates to improve pharmacist workflow, protocols and resources for medication reconciliation, and tools to help pharmacists identify all AMI patients (including those with NSTEMI) for rounding, medication review, and/or education. One team, led by a pharmacist, embedded a hard stop for their CVL post procedure iForm that requires physicians to select options that trigger a pharmacy consult for medication therapy management. This captured approximately 90% of patients with AMI, a notable improvement from past practices.

CVL Coronary Cath Post-Procedure iForm

Case Study 2: Proactively Engaging Multidisciplinary care
One hospital developed an AMI discharge planning process timeline that explicitly defined the roles of pharmacists and other disciplines throughout the care process, from the emergency department through to post-discharge. The resulting tool helped to promote interdisciplinary input at key junctures in the patient care pathway. This proactive engagement ensured that a broader range of issues and needs were identified on admission and addressed during care and at discharge.
Case Study 3: Patient Education

Many hospitals identified a need for improved educational supports for patients and families and even referring physicians. Educational materials took a variety of forms, with some hospitals developing comprehensive, updated materials specifically for patients with AMI. At one hospital, a workgroup lead by the pharmacy champion created a comprehensive, easy-to-read patient education tool to help patients understand the range of medications commonly prescribed for heart conditions.

Medication management during care transitions

Several hospitals focused on medication risks at the point of discharge for patients with AMI. These hospitals implemented a variety of bridging programs to connect patients and families with post discharge providers including clinics, skilled nursing facilities and community based organizations in order to ensure continuity of access and adherence to medications prescribed upon discharge. Some hospitals created subsidy programs coordinated through pharmacies or community organizations. Others launched Meds-to-Beds programs to provide follow-up medications (particularly antiplatelet therapies) to patients before they leave the hospital.

In this toolkit

The toolkit includes an editable PowerPoint deck and related materials on each of the three case studies, including rationale for the approach, the resulting tool, reflections on implementation experience, and a note about the importance of tailoring this approach to your local hospital context. The toolkit also includes a link to a webinar hosted by the American College of Cardiology as part of the Surviving MI Initiative on Building a Meds-to-Beds program. Moderated by a pharmacist, the webinar includes presentations from clinical teams at three diverse hospitals across the U.S., addressing both difficulties and successes in implementation.
Tools for Integration of Pharmacist Expertise in AMI Care:
Information Technology Solutions
Rationale for the approach

LSL hospitals sought to integrate pharmacy expertise into care of all patients with AMI; barriers included resource limitations, lack of standardized processes for consultation requests, and delays in timely identification of patients needing pharmacy input.

At several sites, the coalitions worked very closely with IT to innovate within the hospital electronic record system. Through these collaborations, coalitions developed notes templates to improve pharmacist workflow, protocols and resources for medication reconciliation, and tools to help pharmacists identify all AMI patients (including those with NSTEMI) for rounding and/or education.

Solutions were lower cost alternatives to additional staff and also empowered pharmacists as in integral part of the broader care team.
“Cardiology has always been very welcoming to pharmacy. The cardiologists would like us to be more involved. A lot of it comes down to the amount of resources that we have spread among so many programs. That’s the rate-limiting step for us. They want us involved with all their AMI patients. The idea is, though, how do we automate the operations so we can allow more pharmacists to hop on the floors and get them to make the rounds?”

--- Guiding Coalition Member
The team created a new section in their electronic record (iForm) “Diagnosis/Consults” where the cardiologist must select one diagnosis. Boxes below STEMI and NSTEMI boxes autopopulate and trigger a pharmacy medication therapy management (MTM) consult. The diagnosis field is a hard stop in the form so that the cardiologist cannot move on without checking one. Pharmacist consults go to pharmacist work que, where the staff pharmacist notifies clinical pharmacist. Two additional consults that were also linked to STEMI/NSTEMI are cardiac rehab referral and cardiovascular educator consult – other issues that have come out of the LSL initiative.
Coronary Cath Post-Procedure iForm
# Medication Therapy Management Form

<table>
<thead>
<tr>
<th>Name</th>
<th>Room #</th>
<th>Age</th>
<th>Sex</th>
<th>Diagnosis: □ STEMI □ NSTEMI</th>
<th>Allergies:</th>
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**Attending**

**Home Medication List reviewed:** □ yes

**Comments:**

<table>
<thead>
<tr>
<th>New Medications Initiated:</th>
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</table>

- **Stent Placement:**
  - □ Yes – antiplatelet therapy: ____________
  - □ No

- **ACEI/ARB Therapy:**
  - STEMI: Anterior MI or Ejection Fraction <40% (EF=____%)
  - ACEI/ARB therapy within 24 hours: ____________
  - Contraindication: ____________
  - NSTEMI: Ejection Fraction <40% (EF=____%), HTN, DM, or CKD
  - ACEI/ARB therapy: ____________
  - Contraindication: ____________

- **Beta Blocker Therapy within 24 hours:** ____________
  - Contraindication: ____________

- **Aspirin Therapy within 24 hours:** ____________
  - Contraindication: ____________

- **Statin Therapy:** ____________
  - Contraindication: ____________

<table>
<thead>
<tr>
<th>Date</th>
<th>Patient Counseled? (Medications and Lifestyle modifications) Y/N</th>
<th>Patient Given Education Sheets on New Medications? Y/N</th>
<th>Towers Pharmacy BSD offered? Y/N</th>
<th>Towers Pharmacy BSD Accepted? Y/N</th>
<th>Discharge Medication List Reviewed? Y/N</th>
<th>MTM services documented in chart? Y/N</th>
<th>Comments</th>
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</table>
Implementation experience

“Using the cath lab iForm to automatically order an MTM [medication therapy management] consult [was new]. Up until May of ’15, we did not have that automatic iForm consult. We were really doing a very manual process of patient identification. Once we got that consult put automatically in place, then it worked seamlessly. I think throughout the entire project we ended up identifying 89 percent of them.”

“We are still not capturing 100% of patients, [though] we are seeing much more AMI patients. Medically managed patients are identified through daily check-ins with the cardiac educators and ICU pharmacist. We get the consults much earlier than before, so there is more time to do what we need to do.”

--- Guiding Coalition Members
The materials for the Integration of Pharmacy Expertise Practice Brief were generously shared by Baptist Health Care: Baptist Heart and Vascular Institute.

They are intended to serve as a starting point for conversations about how to improve integration of pharmacy expertise throughout the care process for patients with AMI, and should not be interpreted as an ACC-endorsed clinical guideline.

We encourage hospital teams to adapt these approaches to their own needs and local context.
Tools for Integration of Pharmacist Expertise in AMI Care:

Proactively Engaging Multidisciplinary Care
Rationale for the approach

Many LSL hospitals faced constraints in implementing pharmacists rounding on all patients with AMI, particularly for patients with 24-48 hour stays, and admissions spanning weekends. LSL guiding coalitions included pharmacists, who led development of creative solutions to integrate pharmacist input early and throughout the entire care process.

One hospital developed a comprehensive planning tool to integrate roles for physicians, nurses, nutritionists, case managers, cardiac educators and others. Pharmacy inputs begin in the emergency department and at multiple points through discharge.
Perspectives from the front line

“We've always had very, very receptive physicians. There is not a single physician that I've come across that does not swallow up our attendance and want us there. Same thing with nurses. Everybody knows the importance of pharmacy. I would say if someone is off, we just can't get somebody there. Staffing is our biggest challenge.”

--Guiding Coalition Member
# AMI Discharge Planning Process Timeline – Gold Standard

<table>
<thead>
<tr>
<th>Patient Presentation in ED</th>
<th>Admitted to the Hospital</th>
<th>Within 24 hours of Diagnosis</th>
<th>Daily Activities</th>
<th>Prior to Discharge</th>
<th>Post Discharge F/U Services</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Patient Admitted to the ED</strong></td>
<td>Nursing Background Assessment</td>
<td>Care Coordination Assessment</td>
<td>Daily interdisciplinary rounding</td>
<td>Provider (all AMI patients)</td>
<td>Pharmacy (follow-up for all AMI patients)</td>
</tr>
<tr>
<td>Home medications reviewed by medication history specialist and reconciled by provider</td>
<td>Medication Compliance</td>
<td>Medication affordability</td>
<td>MD</td>
<td>Complete discharge summary</td>
<td></td>
</tr>
<tr>
<td>Provider completes H&amp;P</td>
<td>Living situation/family support</td>
<td>30 days free cards</td>
<td>APP</td>
<td>Place discharge order</td>
<td></td>
</tr>
<tr>
<td>Diabetes patients identified</td>
<td>HS of DM, PreDM, GDM, insulin pump/GCM</td>
<td>Financial aid applications</td>
<td>Nurse</td>
<td>Educate patients and caregivers on warning signs</td>
<td></td>
</tr>
<tr>
<td>Patient Transferred to a Floor Unit</td>
<td>Resource assessment</td>
<td>Query if pt. has PCP, if not, offer referral to county clinic</td>
<td>Charge nurse</td>
<td>Make follow-up appointment with cardiology to be seen within five days</td>
<td></td>
</tr>
<tr>
<td><strong>Pharmacy</strong></td>
<td><strong>Care Coordination</strong></td>
<td><strong>Nursing</strong></td>
<td><strong>Diabetes Education</strong></td>
<td><strong>Hospitalist Consult</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Pharmacy notified of AMI patient admission</strong></td>
<td><strong>Care Coordination</strong></td>
<td><strong>Diabetes Education</strong></td>
<td><strong>New DM dx</strong></td>
<td><strong>Hospitalist consult</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Pharmacy review of medication list</strong></td>
<td><strong>Daily interdisciplinary rounding</strong></td>
<td><strong>DM dx, daily glycemic control, inpatient and discharge related needs, education</strong></td>
<td><strong>DM mgmt, and/or Glycemic control DM patient educator consult if uncontrolled</strong></td>
<td><strong>Pre OP consult</strong></td>
<td></td>
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<tr>
<td><strong>Care Coordination</strong></td>
<td><strong>Daily interdisciplinary rounding</strong></td>
<td><strong>Nursing</strong></td>
<td><strong>Daily ambulation</strong></td>
<td><strong>Feedback to care coordination</strong></td>
<td></td>
</tr>
<tr>
<td>Cardiac Education</td>
<td>Daily interdisciplinary rounding</td>
<td>Nursing</td>
<td>Daily ambulation</td>
<td>Feedback to care coordination</td>
<td></td>
</tr>
<tr>
<td>Cardiac education initiated</td>
<td>Daily interdisciplinary rounding</td>
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<td>Feedback to care coordination</td>
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<td><strong>Hospitalist Consult</strong></td>
<td><strong>New DM dx</strong></td>
<td><strong>DM dx, daily glycemic control, inpatient and discharge related needs, education</strong></td>
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<td><strong>Hospitalist Consult</strong></td>
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</table>
“One of the things that we’ve done to keep the momentum going is standing weekly meetings for this project...even when we hit hurdles, at least it has kept everybody up to date and things moving forward.”

“We’re looking at a transition of care program between the in-patient and the out-patient world...an in-patient clinical pharmacist reviews all of the discharge medication reconciliation, sits down with the patient, makes sure they’re educated on all their medications.”

“[This process] has helped Pharmacy’s relationship with...cardiologists. They consult us more and trust that we’re following patients and we’re going to catch things more so than before...we’ve always had a good relationship with the physicians, but it’s a better relationship now.”

-- Guiding Coalition Members
Disclaimer

These materials were generously shared by Wellstar Kennestone Hospital.

They are intended to serve as a starting point for conversations about how to improve integration of pharmacy expertise throughout the care process for patients with AMI, and should not be interpreted as an ACC-endorsed clinical guideline.

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<th>Post Discharge Follow-up Services</th>
</tr>
</thead>
</table>
| Patient admitted to the ED | Home medications reviewed by medication history and reconciled by provider | Nursing Background Assessment  
- Medication Compliance  
- Living situation/family support  
- Hx of DM, PreDM, GDM, Insulin | Care Coordination Assessment  
- Medication affordability  
- 30 days free cards  
- Financial aid applications  
- Resource assessment  
- Query if patient has PCP, in not offer referral to county clinic  
- WellStar charity care  
- Community transition program  
- Med supplies assist | Daily Interdisciplinary Rounding  
- MD  
- APP  
- Nurse  
- Charge nurse  
- Pharmacy  
- Care coordination | Provider (all AMI patients)  
- Complete discharge summary  
- Place discharge order  
- Educate patient and family on warning signs  
- Make follow-up appointment with cardiology within five days | Cardiac Educator:  
Follow-up for ALL AMI patients (within two days of discharge)  
- Initiate cardiac rehab |
| Provider completes H & P | | PAS Assessment  
- Insurance status | | | Pharmacy  
- Review medications list  
- Meds to beds for antiplatelets  
- Patient to leave with all home meds  
- Educate patients on discharge meds- utilize teach-back |
| Diabetes patients identified | | Patient transferred to a floor unit | | | Heart Failure Clinic  
(Within three days of discharge if heart failure) |
| | | | | | APP or MD office visit  
(Within five days of discharge) |
| | | | | | Cardiologist visit  
(Within three weeks of discharge) if patient has not been seen since discharge |

**Nursing Background Assessment**
- Medication Compliance
- Living situation/family support
- Hx of DM, PreDM, GDM, Insulin

**PAS Assessment**
- Insurance status

**Hospitalist Consult**
- New DM dx
- DM mgmt., and/or Glycemic control DM inpatient educator consult if uncontrolled

**Diabetes Education**
- DM videos played at noon and PRN
- Communication of DM dx, daily glycemic control, inpatient and discharge related needs, education

**Nursing**
- Daily ambulation
- Feedback to care coordination

**Provider**
- Complete discharge summary
- Place discharge order
- Educate patient and family on warning signs
- Make follow-up appointment with cardiology within five days

**Drug Education**
- Review medications with patient/family
- Reviews AVS with patient/family
- Reviews cath site instructions
- For transfers (LTACs, IRUs, etc), provides nurse-to-nurse reports
- TIGR cardiac education videos pre and post cath
- Utilize teach-back

**Cardiac Education**
- Cardiac education initiated
<table>
<thead>
<tr>
<th>AMI DISCHARGE PLANNING PROCESS TIMELINE</th>
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<tbody>
<tr>
<td><strong>Patient Presentation in ED</strong></td>
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<tr>
<td><strong>Admitted to the Hospital</strong></td>
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<td><strong>Within 24 hours of Diagnosis</strong></td>
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<td><strong>Daily Activities</strong></td>
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<tr>
<td><strong>Prior to Discharge</strong></td>
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<tr>
<td><strong>Post Discharge Follow-up Services</strong></td>
</tr>
<tr>
<td><strong>Pharmacy</strong></td>
</tr>
<tr>
<td>- Pharmacy notified of AMI patient admission</td>
</tr>
<tr>
<td>- Pharmacy review of medication list</td>
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<tr>
<td><strong>Diet/Nutrition</strong></td>
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<tr>
<td>- Identify modifiable risk factors</td>
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<tr>
<td>- Discuss roles of fats, cholesterol, sodium, fiber, etc.</td>
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<tr>
<td>- Post MI eating guidelines</td>
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<tr>
<td>- Different diet options</td>
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<tr>
<td><strong>Care Coordination</strong></td>
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<tr>
<td>- Charity care: financial assistance completed for self-pay where we may be able to cover for 2 weeks or 1 month of meds if we do not have a 30 day free card</td>
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<tr>
<td>- Referral for population health as necessary</td>
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<tr>
<td><strong>Default orders</strong></td>
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<tr>
<td>- Cardiac rehab</td>
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<tr>
<td>- Heart matters</td>
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<tr>
<td><strong>DM Related needs</strong></td>
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<tr>
<td>- Scripts for DM medications, supplies</td>
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<tr>
<td>- Assessment of patient caregiver</td>
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<tr>
<td><strong>Population Health follow-up for PWHP and ACO patients that meet criteria (within 3 days)</strong></td>
</tr>
<tr>
<td><strong>Medicare Universal/Community Health</strong></td>
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<tr>
<td>- Homecare support</td>
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<tr>
<td><strong>DN Related Needs</strong></td>
</tr>
<tr>
<td>- DM Mgmt Instructions</td>
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<tr>
<td>- Follow-up with PCP and/or endocrinologist</td>
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<tr>
<td><strong>Home Health</strong></td>
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Tools for Integration of Pharmacist Expertise in AMI care:

Patient Education
Rationale for the approach

As part of their root cause analysis, several hospitals identified opportunities to improve patient education resources, particularly around medication management.

Some hospitals created new resources to streamline and simplify information. Others focused on critical review and revision of existing patient education materials.

Coalition members reflected that drawing upon diverse expertise (nursing, cardiology, pharmacy, marketing) resulted in more comprehensive and user-friendly tools.

This deck highlights two tools, one focused specifically on medication management, and the other focused on cardiovascular health more broadly.
Tool #1:
Common Medications for the Heart
“We have Krames, which is an education system, and all the new medications are in there. When you print it for a patient discharge, it’s literally 50-some pages. Patients wouldn’t read all that. We came up with a one page cheat sheet of some clinical pearls that you really need to grasp out of those 50 sheets. We thought by getting rid of the fluff, we can really educate patients a little bit better, and hopefully, they’ll be more compliant, and understand their medication and how it works.”

--- Guiding Coalition Member
<table>
<thead>
<tr>
<th>Common Medications for the Heart</th>
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<tbody>
<tr>
<td><strong>ACE Inhibitor:</strong></td>
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<tr>
<td><strong>Angiotensin Receptor Blocker:</strong></td>
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<td><strong>Beta blocker:</strong></td>
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<td><strong>Aspirin:</strong></td>
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<tr>
<td><strong>Nitroglycerin:</strong></td>
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</table>

Be sure to take all medications as directed. If you have concerns related to these medications (side effects, cost, etc.) please contact your prescriber before stopping a medication or changing the dose.
"The point of going over this tool is just to make sure we catch them and specifically education, especially like on the N-type platelets so the patients don’t bounce back with re-occlusions. We feel like we can make some interventions there.”

“I think it [the roll out] all went smoothly. We’ve got a great group to work with, and everybody sees the value of doing it because they know those stack of sheets are just too much.”

“It is now available electronically and patients can view it in their medical record on the hospital patient portal.”

--Guiding Coalition Members
Tool #2: My Heart and I
“We looked at the education material that we were giving our MI patients. That was quite an eye-opener...no wonder they had so many questions when I saw them for follow-up!”

“Patients aren't compliant with their meds all the time....If they feel like they're doing well, they don't take it. They'll stop their platelet agents...They may not get follow up with their primary care doc. In the new discharge book, we put all the meds they may be on and what they're for and why they should take it. We tried to incorporate a lot into this book.”

--- Guiding Coalition Members
My Heart and I
A journey to a healthier ME

billingsclinic.com/heart
Tool #2: Implementation experience

“We looked at it from a business standpoint [to get funding]. It cost a thousand bucks to print it, but one patient, one procedure from a referring doc makes up for that right away, one bypass. After they looked at it from that standpoint, it got approved.”

“Our hardest part was trying to nail down giving them enough information, without having too much wording in the book. The more you have written down, the less likely they really are to actually read and retain it. Trying to figure out, what is the really important information that the patient absolutely needs to know, and making sure that that was in there.”

-- Guiding Coalition Members
Disclaimer

These materials were generously shared by: Billings Clinic and Mosaic Life Care.

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We encourage hospital teams to adapt these approaches to their own needs and local context.
Common Medications for the Heart

**ACE Inhibitor:** Lisinopril (Prinivil®, Zestril®) ◆ Ramipril (Altace®) ◆ Enalapril (Vasotec®) ◆ Benazapril (Lotensin®) ◆ Captopril (Capoten®) ◆ Other________

**Angiotensin Receptor Blocker:** Losartan (Cozaar) ◆ Valsartan ( Diovan) ◆ Other________

- Shown to improve outcomes in patients with heart disease
- Side effects: rash, increased potassium levels, dry cough (will not go away while taking)

**Beta blocker:** Carvedilol (Coreg®) ◆ Bisoprolol (Zebeta®) ◆ Metoprolol tartrate (Lopressor®) ◆ Metoprolol succinate (Toprol XL®) ◆ Atenolol (Tenormin®) ◆ Other________

- Shown to decrease damage to the heart and prevent sudden death
- Check pulse regularly – call doctor if less than 50 beats per minute
- Side effects: fatigue (will go away), dizziness due to drop in blood pressure
- May mask symptoms of hypoglycemia (low blood sugar)

**Statin:** Atorvastatin (Lipitor®) ◆ Rosuvastatin (Crestor®) ◆ Simvastatin (Zocor®) ◆ Pravastatin (Pravachol®) ◆ Lovastatin (Mevacor®) ◆ Other________

- Decrease risk of additional stents and heart surgery
- Lowsers bad cholesterol (LDL)
- Take at bedtime – cholesterol production increases at night
- Lovastatin should be taken with food
- Many interactions – ask doctor before taking other medications
- Side effects: muscle pains, weakness

**Antiplatelet:** Clopidogrel (Plavix®) ◆ Prasugrel (Effient®) ◆ Ticagrelor (Brillinta®)

- Helps keep your platelets from sticking together. Also keeps stent open so blood can flow if a stent was placed
- Duration of therapy will depend on type of stent and/or cardiologist
- Avoid over-the-counter medications such as Motrin®, Advil® and Aleve®
- Side effects: rash, stomach upset, headache, increased bleeding risk – ex. blood in urine, maroon or tarry stools, unexplained nose bleeds or excessive areas of bruising
- If taking Ticagrelor, do not exceed 81 mg aspirin daily

**Aspirin:** 325 mg ◆ 81 mg

- Helps keep your platelets from sticking together
- Avoid taking over-the-counter pain medications such as Ibuprofen (Motrin®, Advil®) and Naproxin (Aleve®)
- Side effects: upset stomach, ringing in the ears, increased bleeding risk – ex. blood in urine, maroon or black tarry stools, unexplained nose bleeds or excessive areas of bruising

**Nitroglycerin:**

- Used for treatment of angina (chest pain)
- Must be stored in original container and sealed tightly to prevent medications from breaking down
- Dissolve one tablet under tongue every 5 minutes for a maximum of 3 doses
- If the first does not resolve chest pain, call doctor or 911

Be sure to take all medications as directed. If you have concerns related to these medications (side effects, cost, etc.) please contact your prescriber before stopping a medication or changing the dose.

**LSL (Leadership Saves Lives) Project Initiative**
My Heart and I
A journey to a healthier ME

billingsclinic.com/heart
Cardiovascular Services

Barbara Dudczak, MD, FACC, ABOM  Per Sommer, MD, FACC
Collin Fischer, MD, FACC  Juwono (Joy) Sutedjo, MD, FACC
Roger Ng, MD
Benjamin Plank, MD, FACC  Erin Lafavor, PA
Brian Rah, MD, FACC  Steven Blohm, FNP
Scott Sample, DO, FACC  Elliy Phillips, PA
Kristin Scott-Tillery, MD
Alan Thometz, MD, FACC  Jennifer Beverly, PA
Loren Budge, MD, FACC  Tanja Sloan, PA
John Verbsky, MD, PhD  Joslyn Wanner, FNP

Follow-Up
Appointments

John Burg Cardiac Center
801 North 29th Street
4th Floor
406.238.2000

Electrophysiology

Amber Zito, PA
Zachary Appel, PA
1. What is a heart attack?

2. What happened during my hospitalization?

3. Medications

4. The first two weeks... 
   What do I need to know? 
   • Site care 
   • Activity restrictions 
   • Intimacy 
   • Alcohol 
   • Work restrictions 
   • Smoking 
   • Diet

5. What next?
   • Stress reduction tips 
   • Risk factors 
   • Cardiac rehab 
   • Early Heart Attack Care

6. Numbers I need to know

7. My questions and notes
1

What is a heart attack?
Did you have a heart attack?
☐ Yes    ☐ No

What are some other names used for “heart attack?”
• NSTEMI (non-STEMI)
• STEMI
• MI (myocardial infarction)
• AMI (acute myocardial infarction)

What is a heart attack?
A heart attack occurs when the blood flow to your heart becomes reduced due to a blockage in your vessels in your heart.

About every 43 seconds, someone in the US has a heart attack.
What is a heart attack?

This blockage can be due to a build up of fat, cholesterol and other substances, which forms a plaque on the inside lining of your vessels. This plaque can rupture causing a clot to form that can either partially or totally block your vessel.

85% of heart damage occurs within the first two hours of a heart attack. The average person in Montana waits at least 4 hours to seek medical attention when they have a heart attack!
What is a heart attack?

Watch for THE SIGNS

- Discomfort or tingling in arms, back, neck, shoulder or jaw
- Chest pain
- Shortness of breath
- Sudden dizziness
- Heartburn-like feeling
- Cold sweat
- Nausea or vomiting
- Unusual tiredness

Most common IN MEN...

Additional symptoms, most common IN WOMEN...

Think you’re having one?

1 IN 2 PEOPLE who die from heart attacks, pass away within the 1st hour of having symptoms.

Many patients experience the symptoms but they wait too long.

Every second matters to save heart muscle—and your life!

When in doubt, dial 9-1-1!
2

What happened during my hospitalization?
Heart catheterization: elective vs emergent
You may have had mild heart symptoms or chest pain, so your doctor may have done some testing that helps him/her to determine what is causing your discomfort. Your provider may choose to do a stress test, a stress echo, or perhaps a cardiac angiogram or heart catheterization.

- OR -

You may have had symptoms of a heart attack:
- Heaviness in the chest or chest pressure
- Dizziness or light-headedness
- Shortness of breath
- Nausea or sweating
- Discomfort or pain in arms, neck, jaw, shoulder or upper back
- Burning feeling under breastbone/felt like indigestion

AND so you called 911, enjoyed a fast ambulance, helicopter or airplane ride to Billings Clinic or perhaps went directly to your local emergency room (ED). That is when you started your whirlwind journey to a healthier YOU.

In the ED, they would have immediately done a test called an electrocardiogram (EKG) to determine what your heart rhythm was doing. The EKG is how they determined if you had a heart attack or not. You may have heard the terms “Acute Coronary Syndrome (ACS),” “Non-STEMI (NSTEMI),” “STEMI.” Each diagnosis would determine your course of treatment and which medications you would receive.
Angiogram or heart catheterization

An angiogram is a procedure where a catheter is inserted through an artery and passed into the heart. Contrast dye is injected so the blockages can be visualized. For angioplasty, a balloon is deployed to the site of the plaque, the balloon is inflated, and it smashes the plaque against the vessel walls, thus opening the vessel so oxygen-rich blood can flow through the vessel.

In addition to angioplasty, the physician can choose to deploy a stent at the site of the plaque. There are two different types of stents – bare metal or drug-eluting stents. The stent can be deployed which keeps the vessel open in that particular area. Your doctor will choose the correct stent for you.

You will need to be on aspirin for life and an anti-platelet medication for at least one year to prevent clotting in your new stent or in your vessels which could cause a heart attack.
3 Medications
Why do I have to take all these pills?

1. **Aspirin**
   Aspirin is used to help “thin” your blood after you have a stent placed. It prevents something in your blood called “platelets” from sticking together to form clots. You will need to take aspirin for the rest of your life.
   The most common side effect is related to increased bruising or bleeding.

2. **Anti-platelet agents**
   There are three common agents used in this class of medications. You will need to take this medication for at least 1 year to prevent platelets from sticking together to form a clot in your new stent or to cause another heart attack. Taking this medication every day is VERY IMPORTANT! The most common side effects are related to bruising or bleeding or shortness of breath. Your doctor will choose the medication that is right for you.
   - Clopidogrel (Plavix*)
   - Prasugrel (Effient*)
   - Ticagrelor (Brilinta*)
   Clopidogrel (Plavix*) and Prasugrel (Effient*) are taken once daily. It is best to try to take at the same time every day. You will also take an aspirin every day with this medication.
   Ticagrelor (Brilinta*) is taken twice daily. It is best to try to take at the same time every day (morning and bedtime). NEVER take more than 81mg of aspirin with this medication.

3. **Beta blockers**
   There are many different beta blockers available. Below are some names (generic names and brand names) of which you may be started on:
   - Metoprolol (Lopressor® or Toprol®)
   - Atenolol (Tenormin®)
   - Carvedilol (Coreg®)
   These medications have been shown to reduce short term complications and improve long term survival. They also help keep your heart beating in a nice, normal rhythm if you happen to have a fast heartbeat or “Atrial Fibrillation.” Side effects include tiredness, dizziness, and slow heart rate.
3 Medications

4. Angiotensin Converting Enzyme (ACE) Inhibitors/ Angiotensin Receptor Blocker (ARB)
You may also be started on an ACE Inhibitor (or ARB if you are unable to tolerate an ACE inhibitor). Some commonly prescribed ACE inhibitors/ARBs include:

**ACE Inhibitors**
- Captopril (Capoten®)
- Lisinopril (Prinivil®)
- Ramipril (Altace®)
- Benazepril (Lotensin®)
- Enalapril (Vasotec®)

**ARBs**
- Irbesartan (Avapro®)
- Olmesartan (Benicar®)
- Valsartan (Diovan®)
- Losartan (Cozaar®)
- Candesartan (Atacand®)

These medications relax blood vessels, allowing blood to flow easier and decrease the resistance the heart has to pump against. This decreases how hard the heart has to work. They have also been shown to improve long term survival rates after a heart attack. They may also help reduce your blood pressure. Side effects include dizziness upon standing, cough, and low blood pressure.

5. Statins
There are many Statins available now. Your doctor will choose the appropriate medication for you. Some commonly prescribed Statins include:

- Atorvastatin (Lipitor®)
- Simvastatin (Zocor®)
- Rosuvastatin (Crestor®)

These medications can do a variety of things. They reduce inflammation and stabilize vessels in your heart that have been injured from your heart attack. They may reduce your cholesterol, decrease your LDLs (the “bad guys”) and increase your HDLs (the “good guys”). Your doctor may have to adjust your dose and check your blood periodically to make sure your liver is not being affected. Be sure to report any severe muscle achiness to your doctor. You also need to avoid grapefruit juice while taking these medications. Some of these medications need to be taken at night. Be sure to discuss this with your pharmacist.

**Most importantly, take your medications as prescribed by your doctor and be sure to ask questions if you don’t understand how to take them!**
The first two weeks...
What do I need to know?
Site care
Your catheterization could be performed through a radial/wrist puncture site or a femoral/groin puncture site.

• You may shower the day after the procedure, however no soaking the site
• Do not flex or bend the wrist for 24 hours
• No heavy lifting, pushing, or pulling greater than 10 pounds for 1 week
• You may not drive or operate heavy machinery for 24 hours following the procedure
• You may notice bruising at the site, but it should be painless
• Seek medical attention if you experience any of the following:
  - Redness, warmth, swelling, or pain at the puncture site
  - Drainage
  - Fever or chills persistent for greater than 72 hours
  - Your limb becomes painful, cool to touch, or pale
  - If you start bleeding at the site, apply pressure

Activity restrictions
• No strenuous exercise for 2 weeks following a heart attack
The first two weeks... What do I need to know?

Intimacy
- You can usually return to your normal sexual activity after you have seen your doctor 1-2 weeks after discharge, and if you do not have chest pain, shortness of breath, or heart rhythm problems. Talk to your health care provider.

Here are some tips to help you return to sexual activity:
- Use a position of comfort and one that does not restrict your breathing
- Stop and rest if you have chest pain or symptoms of angina. If you have been prescribed a medicine such as nitroglycerin for chest pain, take the medicine. If your pain does not stop in a few minutes, see emergency care.
- **DO NOT** take nitroglycerin within 24 hours of taking medications such as Viagra, Levitra, or Cialis. This combination can cause your blood pressure to fall and make you faint! If your angina does not go away with rest, you feel dizzy, or like you might faint, call 911.

Alcohol
- Moderation is recommended

Work restrictions
- Check with your health care provider. Usually they recommend taking a week off work following a heart attack.

Smoking
If you smoke or use nicotine, you are strongly encouraged to stop to improve your health. If you need help quitting, talk with your health care provider or call Billings Clinic Healthline at 255-8400 or 1-800-252-1246.

Diet
- The ACC recommends following a Mediterranean diet

**Benefits of the Mediterranean diet**
Research has shown that the traditional Mediterranean diet reduces the risk of heart disease. In fact, an analysis of more than 1.5 million healthy adults demonstrated that following a Mediterranean diet was associated with a reduced risk of death from heart disease and cancer, as well as a reduced incidence of Parkinson’s and Alzheimer’s diseases.

The Dietary Guidelines for Americans recommends the Mediterranean diet as an eating plan that can help promote health and prevent disease. And the Mediterranean diet is one your whole family can follow for good health.
Key components of the Mediterranean diet
The Mediterranean diet emphasizes:

- Eating primarily plant-based foods, such as fruits and vegetables, whole grains, legumes and nuts
- Replacing butter with healthy fats, such as olive oil
- Using herbs and spices instead of salt to flavor foods
- Limiting red meat to no more than a few times a month
- Eating fish and poultry at least twice a week
- Drinking red wine in moderation (optional)

The diet also recognizes the importance of being physically active, and enjoying meals with family and friends.
Focus on fruits, vegetables, nuts, and grains
The Mediterranean diet traditionally includes fruits, vegetables and grains. For example, residents of Greece average six or more servings a day of antioxidant-rich fruits and vegetables.

Grains in the Mediterranean region are typically whole grain and usually contain very few unhealthy trans fats, and bread is an important part of the diet. However, throughout the Mediterranean region, bread is eaten plain or dipped in olive oil – not eaten with butter or margarine, which contains saturated or trans fats.

Nuts are another part of a healthy Mediterranean diet. Nuts are high in fat, but most of the fat is healthy. Because nuts are high in calories, they should not be eaten in large amounts – generally no more than a handful a day. For the best nutrition, avoid candied or honey-roasted and heavily salted nuts.

The AHA offers these healthy tips for diet
• Use up at least as many calories as you take in
• Eat a variety of nutritious foods from all the food groups
• An overall healthy diet includes a variety of fruits and veggies, whole grains, low-fat dairy, poultry and fish, and nuts and legumes
The first two weeks... What do I need to know?  

Encouraging healthy lifestyles for cardiovascular health

Hunters: How does your game measure up to traditional beef?

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<th>Fat (mg/3 ounces)</th>
<th>Cholesterol (mg/3 ounces)</th>
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Source: M.J. Marchalle, North Dakota State University Dept. of Animal Science, Morris G. Mart, Food Science Corner 12 (3), 4, 1988, (Results of research conducted at North Dakota State University)

Billings Clinic - reviewed 9/2009 Kristine Kilen, RD, CDE
What’s next?
Cardiovascular rehabilitation

Your next step in a successful recovery!
If you recently survived a heart attack, had heart surgery (bypass or valve), have recently undergone placement of a stent or angioplasty, or have been diagnosed with heart failure, it’s essential to enroll in Outpatient Cardiovascular Rehab.
Your physician has strongly recommended an appointment soon after your procedure.

Why is Cardiac Rehab important?
• Rehab can stabilize, slow or even reverse the progression of heart disease
• Improves strength and endurance
• Speeds up the recovery process
• Enables quicker return to work and recreational activities
• Reduces cardiovascular risk factors such as: lowers cholesterol, promotes weight loss, decreases blood pressure, improves blood sugar control, supports smoking cessation, reduces stress, and helps manage depression
• Promotes wellness through lifestyle changes that are essential for prevention of future heart-related events

What is Cardiac Rehab & what can I expect?
• Customized exercise program designed specifically for you to strengthen your heart
• The program is supervised by a team of nurses, exercise physiologists, respiratory therapists, and physicians
• Heart health education provided by a team of nurses, exercise physiologists, dietitians, and counselors
• Any health concerns will be reported to your physician
• Meets 2-4 days per week. Both the exercise and education classes last approximately an hour

What is the cost?
• Insurance coverage varies and will need to be addressed on an individual basis
• Common diagnoses that insurance (and Medicare) typically cover include: heart attack, open-heart surgery, angioplasty and/or stenting, stable angina, and heart failure

How to get started?
Please call (406) 247-6431 to schedule your cardiac rehab appointment.
Stress reduction tips
Stress can elevate your blood pressure and heart rate which can increase your risks of a heart attack.

Here are some tips to help reduce stress:
• Get at least 6-8 hours sleep every day
• Enjoy simple things every day
• Take a walk
• Read a good book or watch your favorite movie
• Visit with friends
• Exercise every day
• Learn to do some deep Belly Breathing:
  - Think that your belly is a big balloon and you are slowly filling it with air
  - Place your hands on your belly while you slowly breathe in and out
  - Focus on your belly while you continue to breathe slowly and deeply
  - Relaxation is the calm and peaceful feeling you get from Belly Breathing
  - Think about positive things when you do Belly Breathing
• Take a few minutes to relax each day
• Think about the good things in your life:
  - Think about someone you love
  - Think about a place you love to visit
  - Think about a nice thing that someone did for you
• Laugh more!
Risk factors that you can control

**Obesity**

Obesity can be a big risk factor for a heart attack, especially if you carry your weight around your waist. This is referred to as being “Apple-shaped” or “Pear-shaped.” It refers to where you carry the majority of your weight. Having abdominal obesity or being an “Apple” can increase your risk of diabetes and heart disease.

To find out if you have abdominal obesity, measure your waist straight around your middle and just above your belly button.

**You have abdominal obesity if your waist is**
- 35 inches or more for women
- 40 inches or more for men

**BMI**

You should try to get your BMI less than 25. (BMI = Body Mass Index)

- Normal BMI is 18.5-24.9
- Overweight is 25-29.9
- Obese Class I is 30-34.9
- Obese Class II is 35-39.9
- Obese Class III is >= 40

To calculate your BMI = weight (lbs) x 703 / height (in) x height (in)

For example: if you are 57 inches tall and 170 pounds, your BMI is:

170 lbs x 703 / 57 in x 57 in = 36.7

which means you are classified as OBESE Class II.

Time to start thinking about exercising and losing weight, as risks of heart disease and diabetes are elevated.
Risk factors that you can control

Diabetes
Elevated blood sugars can lead to a build up of cholesterol in your arteries as well as cause damage to many of your vital organs like your kidneys, heart, and eyes. Keep your sugars within normal range by losing weight, exercising and controlling your diet. There are many medications used to help keep your blood sugars within range.

High blood pressure (normal is less than 120-80mmHg.)
You can lower your blood pressure by exercising, losing weight, or by taking medications.

High cholesterol
High cholesterol or “Fats” can clog your arteries and cause a heart attack. You can lower your cholesterol by watching the amount of fat you eat in your diet, exercising every day, and by taking medications called “Statins.” Statins can lower you LDLs (bad guys), increase your HDLs (good guys) and reduce inflammation in your vessels.

Inactivity
Try to do 30 minutes of moderate-intensity aerobic (brisk walking, water aerobics, doubles tennis, general gardening, or a slow bike ride) at least 5 days a week or 25 minutes of vigorous-intensity activity (race walking, jogging or running, lap swimming, aerobic dancing, jumping rope, hiking, and singles tennis) at least 3 days a week. This does not need to be done all at one time. If you have not been active, you may need start with exercising for shorter times, and then work on increasing this to the recommended amount.
Just remember...

Early Heart Attack Care

What is EHAC or Early Heart Attack Care?

- 85% of heart damage occurs within the first 2 hours of a heart attack
- EHAC is knowing the subtle danger signs of a heart attack and acting upon them immediately – BEFORE HEART DAMAGE OCCURS
- Heart disease is the leading cause of death for both men and women in the US
- Every 25 seconds, an American will have a coronary event; every minute, someone will die from one

Know the signs of a heart attack

So what are the early symptoms of a heart attack?

Remember, people may or may not experience any or all of these symptoms.
6

Numbers I need to know
Important phone numbers

Billings Clinic Department of Cardiology:
Scheduling: (406) 238-2000, ext. 1445
Nurses Line: (406) 238-2040
Healthline: (406) 255-8400 or 1-800-252-1246

Billings Clinic Cardiac Rehabilitation:
(406) 247-6431

Other information numbers:
Pastoral Care Department:
(406) 238-2500
Care Management Department:
(406) 238-2500
Patient Financial Services Department:
(406) 238-2500
Medication Assistance Program:
(406) 238-5896

Montana Quit Line:
1-800-784-8669 or tobacofree.mt.gov

Wyoming Quit Line:
1-866-996-7848 or wy.quitnet.com

Telemedicine Sites
Montana
• Baker: Fallon Medical Center, Tammy (406) 778-5109
• Culbertson: Roosevelt Medical Center, Vickie (406) 787-6401
• Forsyth: Rosebud Health care Center, Andrea (406) 346-4227
• Glasgow: Frances Mahon Deaconess Hospital, Julie (406) 228-3626
• Glendive: Glendive Medical Center, Lori (406) 345-3345
• Hardin: Big Horn Hospital, Vera (406) 665-9616

Wyoming
• Cody: Billings Clinic Cody, Dian (307) 527-7561, ext. 1947

Cardiology Outreach Clinics
• Big Timber: Outreach Clinic every other month
• Cody: Outreach Clinic three times a month; Device Clinic every other month
• Colstrip: Telemedicine Clinic once a month
• Columbus: Outreach Clinic once a month
• Glasgow: Outreach Clinic once a month; Telemedicine Clinic once a month; Device Clinic every other month
• Glendive: Outreach Clinic once a month
• Lewistown: Outreach Clinic every other month; Electrophysiology Outreach Clinic every other month
• Livingston: Outreach Clinic three times a month
• Lovell: Outreach Clinic once a month; Telemedicine Clinic once a month
• Malta: Telemedicine Clinic once a month
• Miles City: Outreach Clinic four times a month; Device Clinic once a month
• Plentywood: Telemedicine Clinic once a month
• Red Lodge: Outreach Clinic once a month
• Sheridan: Electrophysiology Outreach Clinic every other month
## Numbers I need to know

### Cardiac Rehab

<table>
<thead>
<tr>
<th>Town</th>
<th>Phone Number (406)</th>
<th>Staff Name</th>
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<tr>
<td>Billings</td>
<td>247-6431</td>
<td>Erika S, Deb W, Casey H, Jake N</td>
<td><a href="mailto:awishman@bdh-boz.com">awishman@bdh-boz.com</a></td>
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<tr>
<td>Bozeman</td>
<td>585-5040</td>
<td>Ashley Wishman</td>
<td><a href="mailto:karen.bennett@sjh-mt.org">karen.bennett@sjh-mt.org</a></td>
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<tr>
<td>Butte</td>
<td>723-2560</td>
<td>Karen Bennett &amp; Dawn Pickett</td>
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</tr>
<tr>
<td>Columbus</td>
<td>322-1071</td>
<td>Julie Bruursema</td>
<td><a href="mailto:julie@stillwaterbillingsclinic.org">julie@stillwaterbillingsclinic.org</a></td>
</tr>
<tr>
<td>Conrad</td>
<td>271-3211</td>
<td>Cathy Jones</td>
<td></td>
</tr>
<tr>
<td>Dillon</td>
<td>683-3170</td>
<td>Deanna Nelson</td>
<td><a href="mailto:dnelson@barrettshospital.org">dnelson@barrettshospital.org</a></td>
</tr>
<tr>
<td>Glasgow</td>
<td>1-800-322-3634 ext. 3310</td>
<td>Bev Falcon</td>
<td><a href="mailto:bev.falcon@fmdh.org">bev.falcon@fmdh.org</a></td>
</tr>
<tr>
<td>Glendive</td>
<td>345-3309</td>
<td>Penny Maher</td>
<td><a href="mailto:cardiac@gmc.org">cardiac@gmc.org</a></td>
</tr>
<tr>
<td>Great Falls</td>
<td>455-2180</td>
<td>Pam Crisp</td>
<td><a href="mailto:pamelacrisp@benefis.org">pamelacrisp@benefis.org</a></td>
</tr>
<tr>
<td>Havre</td>
<td>262-1185</td>
<td>Corey Labrie</td>
<td><a href="mailto:colabrie@yahoo.com">colabrie@yahoo.com</a></td>
</tr>
<tr>
<td>Helena</td>
<td>447-2622</td>
<td>Kristene Palmer</td>
<td><a href="mailto:kkpalmer@stpetes.org">kkpalmer@stpetes.org</a></td>
</tr>
<tr>
<td>Helena-VA</td>
<td>447-7708</td>
<td>P. Jim Lund</td>
<td><a href="mailto:paul.lund@va.gov">paul.lund@va.gov</a></td>
</tr>
<tr>
<td>Kalispell</td>
<td>751-4504</td>
<td>Cathy Lisowski</td>
<td><a href="mailto:clisowski@krmc.org">clisowski@krmc.org</a></td>
</tr>
<tr>
<td>Lewistown</td>
<td>535-6209</td>
<td>Debbie Lee</td>
<td><a href="mailto:debbylee@msn.com">debbylee@msn.com</a></td>
</tr>
<tr>
<td>Libby</td>
<td>283-7279</td>
<td>Ruth Fenn</td>
<td><a href="mailto:ruth.fenn@sjh.com">ruth.fenn@sjh.com</a></td>
</tr>
<tr>
<td>Livingston</td>
<td>823-6459</td>
<td>Christine Usher</td>
<td><a href="mailto:christine.usher@livingstonhealthcare.org">christine.usher@livingstonhealthcare.org</a></td>
</tr>
<tr>
<td>Miles City</td>
<td>233-2635</td>
<td>Diane Molstad</td>
<td><a href="mailto:diane.molstad@hrr-mt.org">diane.molstad@hrr-mt.org</a></td>
</tr>
<tr>
<td>Missoula (St. Pats)</td>
<td>329-5824</td>
<td>Susi Mathis</td>
<td><a href="mailto:smathis@stpatrick.org">smathis@stpatrick.org</a></td>
</tr>
<tr>
<td>Missoula (Community)</td>
<td>728-4100 ext. 7560</td>
<td>Julie Bauer</td>
<td><a href="mailto:jbaumert@communitymed.org">jbaumert@communitymed.org</a></td>
</tr>
<tr>
<td>Polson</td>
<td>883-8478 or 883-2377</td>
<td>Lisa Bertoglio</td>
<td><a href="mailto:lbertoglio@saintjoes.org">lbertoglio@saintjoes.org</a></td>
</tr>
<tr>
<td>Red Lodge</td>
<td>446-0627</td>
<td>Heidi Hunseger</td>
<td><a href="mailto:hhunseger@beartoothbillingsclinic.org">hhunseger@beartoothbillingsclinic.org</a></td>
</tr>
<tr>
<td>Ronan</td>
<td>676-4441 ext. 230</td>
<td>Lydia Walton</td>
<td><a href="mailto:lwalton@stchtn.org">lwalton@stchtn.org</a></td>
</tr>
<tr>
<td>Sidney</td>
<td>488-2124</td>
<td>Brandi Franck</td>
<td><a href="mailto:brandi.franck@sidneyhealth.org">brandi.franck@sidneyhealth.org</a></td>
</tr>
<tr>
<td>Whitefish</td>
<td>862-2515 ext. 153</td>
<td>Cathyl Relf</td>
<td></td>
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### Wyoming

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<thead>
<tr>
<th>Town</th>
<th>Phone Number (307)</th>
<th>Staff Name</th>
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<tbody>
<tr>
<td>Buffalo</td>
<td>684-6320</td>
<td>Karen Sullivan</td>
<td><a href="mailto:karens@jclevelthcare.com">karens@jclevelthcare.com</a></td>
</tr>
<tr>
<td>Casper</td>
<td>577-2240</td>
<td>Denise Lusk</td>
<td>Fax (307) 577-2968</td>
</tr>
<tr>
<td>Cody</td>
<td>578-2286</td>
<td>Linda Mendl-Kalb</td>
<td><a href="mailto:lmendlkalb@wph.cody.org">lmendlkalb@wph.cody.org</a></td>
</tr>
<tr>
<td>Gillette</td>
<td>688-2330</td>
<td>Kelly Tyron</td>
<td></td>
</tr>
<tr>
<td>Lander</td>
<td>332-4420 or 335-6391</td>
<td>Rita Peterson</td>
<td></td>
</tr>
<tr>
<td>Lovell</td>
<td>548-5268</td>
<td>Melanie Schmitt</td>
<td><a href="mailto:mschmitt@snbh.com">mschmitt@snbh.com</a></td>
</tr>
<tr>
<td>Powell</td>
<td>754-1227 or 754-1228</td>
<td>Dianna Garsuch</td>
<td><a href="mailto:dgarsuch@pvhc.org">dgarsuch@pvhc.org</a></td>
</tr>
<tr>
<td>Sheridan</td>
<td>672-1062</td>
<td>Jenny Clemens, Rhonda, Thelma</td>
<td><a href="mailto:jennclemens@sheridanhospital.org">jennclemens@sheridanhospital.org</a></td>
</tr>
<tr>
<td>Thermopolis</td>
<td>864-3083</td>
<td>Bree</td>
<td></td>
</tr>
<tr>
<td>Worland</td>
<td>347-5755</td>
<td>Robyn Jones</td>
<td><a href="mailto:robyn.jones@bannerhealth.com">robyn.jones@bannerhealth.com</a></td>
</tr>
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### North Dakota

<table>
<thead>
<tr>
<th>Town</th>
<th>Phone Number (701)</th>
<th>Staff Name</th>
<th>E-mail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Williston</td>
<td>776-7400 or 1-800-544-3579</td>
<td>Gloria Fenster (Mercy Medical Ctr.)</td>
<td></td>
</tr>
</tbody>
</table>

**Release of Information:** Billings Clinic 238-2589 · fax: 248-2677 | Billings Clinic Hospital 657-4348 | Cardiology fax: 238-2066
My questions and notes
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References

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6. www.cardiosmart.org/~/media/Images/Infographics/2015/Heart-Attack.ashx
The only accredited chest pain center in Montana

801 North 29th Street
Billings, Montana 59101
238-2000 or 1-800-332-7156
billingsclinic.com/heart