

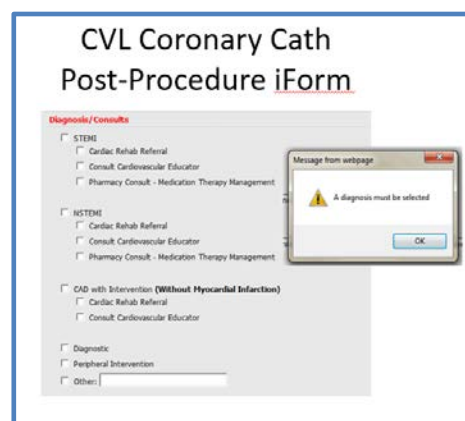
Leadership Saves Lives Integration of Pharmacy Expertise Practice Brief

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.



AMI Discharge Planning Process Timeline – Gold Standard					
Patient Presentation to ED	Admitted to the Hospital	Within 24 hours of Diagnosis	Daily Activities	Prior to Discharge	Post Discharge / NJ Services
<ul style="list-style-type: none"> History: Admitted to ED Presenting symptoms: Chest pain, shortness of breath, diaphoresis, nausea, vomiting, lightheadedness Physical Exam: Tachycardia, hypertension, clear lungs, normal heart sounds ECG: ST-T wave changes Initial labs: Troponin, CK-MB, BNP, CBC, BMP Initial imaging: ECG, CXR Initial treatment: Aspirin, Nitroglycerin, Morphine, Oxygen Initial diagnosis: Suspected AMI 	<ul style="list-style-type: none"> History: Chest pain, shortness of breath, diaphoresis, nausea, vomiting, lightheadedness Physical Exam: Tachycardia, hypertension, clear lungs, normal heart sounds ECG: ST-T wave changes Labs: Troponin, CK-MB, BNP, CBC, BMP Imaging: ECG, CXR Treatment: Aspirin, Nitroglycerin, Morphine, Oxygen Diagnosis: AMI 	<ul style="list-style-type: none"> History: Chest pain, shortness of breath, diaphoresis, nausea, vomiting, lightheadedness Physical Exam: Tachycardia, hypertension, clear lungs, normal heart sounds ECG: ST-T wave changes Labs: Troponin, CK-MB, BNP, CBC, BMP Imaging: ECG, CXR Treatment: Aspirin, Nitroglycerin, Morphine, Oxygen Diagnosis: AMI 	<ul style="list-style-type: none"> History: Chest pain, shortness of breath, diaphoresis, nausea, vomiting, lightheadedness Physical Exam: Tachycardia, hypertension, clear lungs, normal heart sounds ECG: ST-T wave changes Labs: Troponin, CK-MB, BNP, CBC, BMP Imaging: ECG, CXR Treatment: Aspirin, Nitroglycerin, Morphine, Oxygen Diagnosis: AMI 	<ul style="list-style-type: none"> History: Chest pain, shortness of breath, diaphoresis, nausea, vomiting, lightheadedness Physical Exam: Tachycardia, hypertension, clear lungs, normal heart sounds ECG: ST-T wave changes Labs: Troponin, CK-MB, BNP, CBC, BMP Imaging: ECG, CXR Treatment: Aspirin, Nitroglycerin, Morphine, Oxygen Diagnosis: AMI 	<ul style="list-style-type: none"> History: Chest pain, shortness of breath, diaphoresis, nausea, vomiting, lightheadedness Physical Exam: Tachycardia, hypertension, clear lungs, normal heart sounds ECG: ST-T wave changes Labs: Troponin, CK-MB, BNP, CBC, BMP Imaging: ECG, CXR Treatment: Aspirin, Nitroglycerin, Morphine, Oxygen Diagnosis: AMI

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.

Common Medications For the Heart	
ACE Inhibitor:	◊ Lisinopril (Prinivil®), Zosin® ◊ Ramipril (Aplodin®) ◊ Enalapril (Vasotec®) ◊ Benazepril (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)	
Statins:	◊ Atorvastatin (Lipitor®) ◊ Rosuvastatin (Crestor®) ◊ Simvastatin (Zocor®) ◊ Pravastatin (Pravachol®) ◊ Lovastatin (Mevacor®) ◊ Other _____
✓ Decrease risk of additional stents and heart surgery ✓ Lowers 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 (Brilinta®)
✓ 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 black 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 Naproxen (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 the treatment of angina (chest pain) ✓ Must be stored in original container and sealed tightly to prevent the medication from breaking down ✓ Dissolve one tablet under tongue every 5 minutes for a maximum of 3 doses ✓ If the first dose 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.	
LSI (Leadership Saves Lives) Project Initiative	

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.

