

Table of Contents

Model Detail	3
Dynamic View	3
ACS Evaluation Process	3
Administer Antiplatelet/Anticoagulant Therapy.....	6
Admit to Hospital.....	6
Characterize Chest Pain	6
Clinical Presentation	6
Discharge Plan	7
Discharge	7
Evaluate LV function.....	7
Evaluate Results.....	7
Initiate Anti-Ischemic Medical Therapy.....	8
Initiate ECG monitoring	8
Interview & History	8
Monitor Patient	8
Observe	9
Perform cardiac biomarker testing.....	9
Perform stress test.....	9
Re-evaluate Symptoms	9
Repeat cardiac biomarker testing.....	9
ST Segment Elevation MI.....	10
Stable Angina.....	10
Unable to diagnose.....	10
Unstable Angina / Non ST-Segment Elevation MI	10
ECG Report.....	11
LV Function Results	11
Lab Results.....	11
Stress Test Report	11
Transfer.....	11
ACS Diagnosis?.....	12
ACS Diagnosis?.....	12
ACS Diagnosis?.....	12
Continue to ACS Treatment diagram	13
Follow Chronic Stable Angina Guidelines	13
Follow STEMI Guidelines	13
Non-cardiac event	13
Not ACS, discontinue ACS protocol	13
Patient identified in clinical setting.....	13
Patient identified in community setting.....	14
ST Elevation?.....	14
Symptoms Suggestive of ACS.....	14
ACS Treatment Process	14
ACS Process Flow	14

Adjust Anticoagulation Therapy	16
Adjust Anticoagulation Therapy	16
Adjust Medications	16
Admission intake process	16
Arrange Cardiac Catheterization.....	16
Assess Left Ventricular Ejection Fraction	17
Cardiac Catheterization Lab Visit.....	17
Coronary Artery Disease?.....	17
Evaluate Diseased Vessels	17
Left Main Disease?	18
Non-invasive Therapy.....	18
Perform Diagnostic Angiography	18
Perform Percutaneous Intervention.....	18
Schedule Patient for Coronary Artery Bypass Graft.....	19
Discontinue ACS Treatment Plan.....	19
Coronary Artery Bypass Graft (CABG) (to be developed)	19
Discharge Plan	19
Initiate Standing Orders per Local Protocol	20
Monitor Patient	20
Monitor Symptoms	20
Perform Stress Test.....	20
Cardiac Cath Report.....	20
Report to Quality Improvement Registry	21
Submit data to clinical trial	21
Continued from ACS Evaluation diagram.....	21
Determine Invasive or Conservative Strategy	21
Determine Risk Level	22
Discharge	22
Ejection Fraction ≤ 40 ?.....	22
Stable or Improving?.....	22

Model Documentation

Model Detail

This document provides a complete overview of all element details. For simpler and more focused reports, simply copy this initial template and turn off the sections not required.

Dynamic View

Type: **Package**
Status: Proposed. Version 1.0. Phase 1.0.
Package: Views
Detail: Created on 2/3/2001. Last modified on 12/7/2007
GUID: {9CB8FC8E-6A13-4e28-BF4D-F59CB63E8C0E}
Activity Diagram
Acute Coronary Syndromes

ACS Evaluation Process

Type: **Package**
Status: Proposed. Version 1.0. Phase 1.0.
Package: Dynamic View
Detail: Created on 3/5/2001. Last modified on 12/8/2007
GUID: {67B4EA68-FDC6-4e12-B7CE-163038AF23F8}

The model attempts to generally represent the activities associated with managing Acute Coronary Syndromes, specifically Unstable Angina/Non-ST segment elevation myocardial infarction, from the point at which a patient presents with active symptoms at a medical facility through diagnosis, treatment and discharge. Focus is placed on the common diagnostic and treatment pathways, with future development expected to include other pathways and clinical activities (e.g. stress testing, imaging Studies, CABG).

The objective is to illustrate the patient care process with an orientation toward the data generated or used in the assessment, diagnosis and treatment. This activity diagram will be used as a tool for clinical, informatics and technical specialties to communicate.

Acute Coronary Syndromes (ACS)

Acute coronary syndromes is an umbrella term used to cover any group of clinical symptoms compatible with acute myocardial ischemia. Acute myocardial ischemia is chest pain due to insufficient blood supply to the heart muscle that results from coronary artery disease (also called coronary heart disease). (AmericanHeart.org)

The primary reference for this illustration is the ACC/AHA 2007 Guidelines for the Management of Patients With Unstable Angina/Non-ST-Elevation Myocardial Infarction. (Circulation 2007; 116; 803-877)

ACS Evaluation - (Activity diagram)

Created By: on 3/12/2007
Last Modified: 12/16/2007
Version: 1.0. **Locked:** False
GUID: {672EED64-09C1-4da0-B7AA-C5F2F1AC3B9A}

The ACS Evaluation diagram includes the activities between presentation and hospital admission.

Note: Admission is not always an obvious milestone, extended care in an emergency department or chest pain unit

may support patients during emergent cardiac cath and other testing without formally qualifying as a hospital admission.

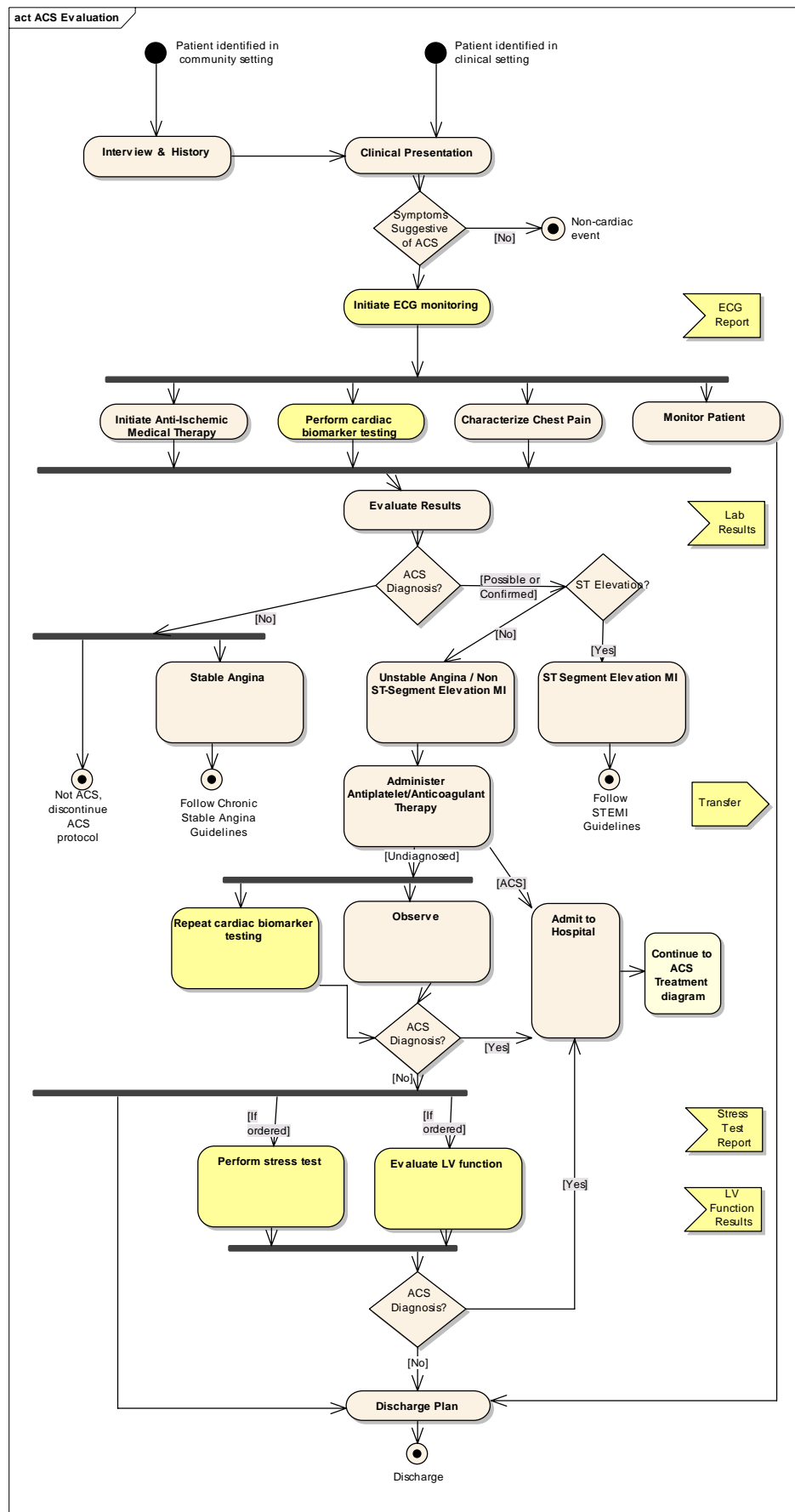


Figure: 1

Administer Antiplatelet/Anticoagulant Therapy

Type: Activity
Status: Proposed. Version 1.0. Phase 1.0.
Package: ACS Evaluation Process **Keywords:**
Detail: Created on 11/26/2007. Last modified on 12/11/2007.
GUID: {914E253E-B3A3-478d-AC3B-324E09BFFAE2}

Antiplatelet/anticoagulation therapy is a primary treatment to impact the progression of acute coronary syndrome and its associated adverse outcomes.

This includes antiplatelet therapy (e.g. aspirin, ticlopidine, clopidogrel), anticoagulants (e.g. unfractionated heparin, low-molecular weight heparin, direct thrombin inhibitors, factor Xa inhibitors) or platelet GP IIb/IIIa receptor antagonists.

Selection of drugs is based on many factors, including clinical characteristics and local practice considerations.

Admit to Hospital

Type: Activity
Status: Proposed. Version 1.0. Phase 1.0.
Package: ACS Evaluation Process **Keywords:**
Detail: Created on 12/4/2007. Last modified on 12/8/2007.
GUID: {1BB6646E-9B04-4f88-AD47-7F3832635F05}

Hospital admission may be either to the initial care facility or the patient may be transferred to a site with cardiac catheterization and percutaneous intervention (PCI) capabilities.

The decision to transfer depends on the acuity and progression of ACS symptoms, treatment strategy, distance from target hospital and other clinical and logistical considerations.

Characterize Chest Pain

Type: Activity
Status: Proposed. Version 1.0. Phase 1.0.
Package: ACS Evaluation Process **Keywords:**
Detail: Created on 3/2/2007. Last modified on 12/6/2007.
GUID: {D6B4970B-9F13-4263-8EA9-042865B21309}

Evaluation of chest pain (frequency, duration, severity, location, circumstance) for symptoms consistent with ACS and overall patient discomfort.

Clinical Presentation

Type: Activity
Status: Proposed. Version 1.0. Phase 1.0.
Package: ACS Evaluation Process **Keywords:**
Detail: Created on 3/2/2007. Last modified on 12/6/2007.
GUID: {AC6A40C7-2325-4a43-BF2C-75B5AE889C61}

The performance of a physical exam to determine whether or not ACS is suspected. Based on the patient's history,

risk factor status (e.g. prior CAD, diabetes) and the outcome of the physical exam, the clinician will make a determination of the likelihood of ACS.

The primary objective of the clinical presentation process is to determine whether or not the person is suspected of having ACS and expedite triage following local practice guidelines shortening time to treatment.

Discharge Plan

Type: **Activity**
Status: Proposed. Version 1.0. Phase 1.0.
Package: ACS Evaluation Process *Keywords:*
Detail: Created on 12/4/2007. Last modified on 12/16/2007.
GUID: {59F3346B-81F8-44fb-9BCE-C201EA874B2D}

Discharge planning and communicating with the patient includes self-care instructions, medications, referrals and scheduling of follow-up care, lifestyle counseling (e.g. smoking cessation), and other efforts to ensure appropriate disease management.

Discharge

Type: **ActivityFinal**
Status: Proposed. Version 1.0. Phase 1.0.
Package: ACS Evaluation Process *Keywords:*
Detail: Created on 12/4/2007. Last modified on 12/16/2007.
GUID: {EBCDC720-1533-424a-81B7-F25C85E68517}

Evaluate LV function

Type: **Activity**
Status: Proposed. Version 1.0. Phase 1.0.
Package: ACS Evaluation Process *Keywords:*
Detail: Created on 11/26/2007. Last modified on 12/6/2007.
GUID: {CBF55EBF-7FDC-4fb6-A93E-704F69200A1D}

Left ventricular function can be used to evaluate the effectiveness of the heart pumping oxygenated blood into the arterial system. Impaired LV functioning warrants further investigation.

Evaluate Results

Type: **Activity**
Status: Proposed. Version 1.0. Phase 1.0.
Package: ACS Evaluation Process *Keywords:*
Detail: Created on 3/23/2007. Last modified on 12/8/2007.
GUID: {91EDC3D1-10E5-4b05-B829-E6A36280281D}

The best-available results are considered by a clinician to determine whether a patient has ACS. The information should include the evaluation of the patient's history, consideration of the outcome of the physical exam, available test results and review of a ECG. However, it is important to note that test results may not all be immediately available and treatment can be initiated based on available information and local treatment strategies (e.g. local percutaneous intervention capabilities).

Initiate Anti-Ischemic Medical Therapy

Type: **Activity**
Status: Proposed. Version 1.0. Phase 1.0.
Package: ACS Evaluation Process *Keywords:*
Detail: Created on 11/26/2007. Last modified on 12/6/2007.
GUID: {598E015D-B5F1-4402-8D35-124C522F2A39}

Administer anti-ischemic therapy, including nitrates, morphine, beta-adrenergic blockers, calcium channel blockers, or renin-angiotensin-aldosterone inhibitors and discontinue COX-2 inhibitors and NSAIDs. This is to target ischemic symptoms the patient is experiencing accompanied by modification of potentially beneficial or high risk pharmacotherapy.

Initiate ECG monitoring

Type: **Activity**
Status: Proposed. Version 1.0. Phase 1.0.
Package: ACS Evaluation Process *Keywords:*
Detail: Created on 4/2/2007. Last modified on 12/11/2007.
GUID: {C7450DC1-88FB-4821-80CD-99B3BC032211}

The evaluation of a person's heart by reviewing the ECG waveform for specific abnormalities. This is typically initiated immediately by triage staff (not necessarily requiring a physician) upon recognizing a potential cardiac problem.

12 lead ECG and serial or continuous ECGs are preferred to increase diagnostic sensitivity and support treatment decision making.

Interview & History

Type: **Activity**
Status: Proposed. Version 1.0. Phase 1.0.
Package: ACS Evaluation Process *Keywords:*
Detail: Created on 3/2/2007. Last modified on 12/6/2007.
GUID: {AA165BA2-933E-4d96-8815-0131122E5066}

The process of establishing the person as a patient, collecting relevant data about their history and initial determination of acute distress. This process generally includes the collection of identifying information, addresses, and additional financially relevant information. It also includes the process of collecting relevant demographic and historic information from the patient. A key aspect of the process for patients with suspected Acute Coronary Syndromes is expedited progression toward treatment decisions.

Monitor Patient

Type: **Activity**
Status: Proposed. Version 1.0. Phase 1.0.
Package: ACS Evaluation Process *Keywords:*
Detail: Created on 12/11/2007. Last modified on 12/11/2007.
GUID: {CA07E82B-CEBE-4b84-941A-EEB7C41C6E35}

Patient monitoring includes following local standard of care procedures. For example telemetry monitoring (for abnormal heart rate or arrhythmia) is often performed on all cardiac patients throughout care, chemistry and hematology labs (which can impact drug dosing) are often routinely obtained; and newly revealed medical history, symptoms or adverse events are identified and responded to.

Observe

Type: **Activity**
Status: Proposed. Version 1.0. Phase 1.0.
Package: ACS Evaluation Process *Keywords:*
Detail: Created on 11/26/2007. Last modified on 12/6/2007.
GUID: {C30081E2-3E13-435b-A7BF-404C47F2B891}

Observe the patient for 12 hours or more from symptom onset.

Perform cardiac biomarker testing

Type: **Activity**
Status: Proposed. Version 1.0. Phase 1.0.
Package: ACS Evaluation Process *Keywords:*
Detail: Created on 3/2/2007. Last modified on 12/6/2007.
GUID: {743459B3-0739-47f6-9AD9-5B4A88516ECB}

Draw a blood specimen and perform the lab tests to measure markers indicating cardiac necrosis. It is expected that lab tests will be run immediately and results returned urgently to clinician following local acute cardiac care protocols.

These typically include creatinine kinase-MB, troponin (T or I), or myoglobin.

Perform stress test

Type: **Activity**
Status: Proposed. Version 1.0. Phase 1.0.
Package: ACS Evaluation Process *Keywords:*
Detail: Created on 11/26/2007. Last modified on 12/6/2007.
GUID: {FD418D99-28B7-4448-BDF5-D1CCC1289AF3}

Stress testing (exercise or pharmacological) to provoke ischemia can be used in the evaluation of potential ACS when other defining characteristics are not present. Stress testing can also be done on an outpatient basis.

Re-evaluate Symptoms

Type: **Activity**
Status: Proposed. Version 1.0. Phase 1.0.
Package: ACS Evaluation Process *Keywords:*
Detail: Created on 12/4/2007. Last modified on 12/6/2007.
GUID: {69A6471D-A2F8-443a-876D-0C5F890F8A15}

Repeat cardiac biomarker testing

Type: **Activity**
Status: Proposed. Version 1.0. Phase 1.0.
Package: ACS Evaluation Process *Keywords:*
Detail: Created on 11/26/2007. Last modified on 12/11/2007.

GUID: {EACDB6A5-590A-44e3-8A47-EA596E50BB11}

Repeat cardiac biomarker testing. This typically includes two additional sets of biomarkers drawn 4-6 hours apart.

ST Segment Elevation MI

Type: Activity
Status: Proposed. Version 1.0. Phase 1.0.
Package: ACS Evaluation Process **Keywords:**
Detail: Created on 12/4/2007. Last modified on 12/8/2007.
GUID: {7CA74FF1-9DAC-4a07-B82B-7E43BE5E52DE}

"STEMI is defined as an ACS in which there is cardiac marker evidence of myocardial necrosis (e.g., positive CK-MB) and new (or presumably new if no prior ECG is available) ST-segment elevation on the admission ECG."

American College of Cardiology Key Data Elements and Definitions for Measuring the Clinical Management and Outcomes of Patients With Acute Coronary Syndromes, page 2128.

Stable Angina

Type: Activity
Status: Proposed. Version 1.0. Phase 1.0.
Package: ACS Evaluation Process **Keywords:**
Detail: Created on 12/11/2007. Last modified on 12/11/2007.
GUID: {0F120CC8-39BC-4978-AF15-2B3503678661}

Unable to diagnose

Type: Activity
Status: Proposed. Version 1.0. Phase 1.0.
Package: ACS Evaluation Process **Keywords:**
Detail: Created on 12/4/2007. Last modified on 12/8/2007.
GUID: {42A76130-CE29-4a57-8AB1-966979874C22}

Many acute myocardial infarctions can be difficult to diagnose due to the variability in symptoms at presentation. For example, not experiencing chest discomfort, which occurs more frequently in patients that are more likely to be older, women, have diabetes mellitus, prior heart failure and delay in seeking medical attention. Active monitoring is necessary to ensure appropriate treatment can be initiated.

Unstable Angina / Non ST-Segment Elevation MI

Type: Activity
Status: Proposed. Version 1.0. Phase 1.0.
Package: ACS Evaluation Process **Keywords:**
Detail: Created on 12/4/2007. Last modified on 12/16/2007.
GUID: {C475CDC9-1E2B-46e8-A328-174AF3C674E9}

Angina pectoris (or equivalent type of ischemic discomfort) with any 1 of the 3 following features:

- Angina occurring at rest and prolonged, usually greater than 20 minutes;
- New onset angina of at least Canadian Cardiovascular Society Grading Scale (or CCS classification system) classification severity III or greater
- Recent acceleration in angina accentuated by an increase in severity of at least 1 CCS class to at least CCS class III. The biomarkers of necrosis are below the threshold of myocardial infarction.

ECG Report

Type: **Event**
Status: Proposed. Version 1.0. Phase 1.0.
Package: ACS Evaluation Process *Keywords:*
Detail: Created on 12/7/2007. Last modified on 12/16/2007.
GUID: {429CFD51-79B7-4eef-AC6E-4DF116EF07EF}

ECG results can be presented in multiple formats, for example a printout of the waveform, summary interpretation report, or computer assisted rendering with automatically annotated abnormalities. ECG's obtained during patient transport may be electronically transmitted to receiving facility prior to patient arrival.

LV Function Results

Type: **Event**
Status: Proposed. Version 1.0. Phase 1.0.
Package: ACS Evaluation Process *Keywords:*
Detail: Created on 12/7/2007. Last modified on 12/7/2007.
GUID: {324C767C-6C3A-4d82-96D1-7E93DD9E47DC}

LV Function results are reported within the context of the diagnostic procedure report. There are different modalities for evaluating this parameter, each with a different report.

Lab Results

Type: **Event**
Status: Proposed. Version 1.0. Phase 1.0.
Package: ACS Evaluation Process *Keywords:*
Detail: Created on 12/7/2007. Last modified on 12/7/2007.
GUID: {29479E52-7535-44ed-80E5-0E9B3E8CE8A0}

Laboratory results are typically reported within a clinical information system; however alternate expedited workflows can include voice, fax or other active communication to clinician.

Stress Test Report

Type: **Event**
Status: Proposed. Version 1.0. Phase 1.0.
Package: ACS Evaluation Process *Keywords:*
Detail: Created on 12/7/2007. Last modified on 12/7/2007.
GUID: {982C3939-615F-4d45-957B-6C888B9AECC3}

Stress test results are typically reported in summary format to the ordering physician.

Transfer

Type: **Event**
Status: Proposed. Version 1.0. Phase 1.0.
Package: ACS Evaluation Process *Keywords:*
Detail: Created on 12/16/2007. Last modified on 12/16/2007.
GUID: {229BD7BC-A612-4ae9-ACCC-6B8E330DF312}

The time from symptom onset to initial evaluation and treatment is of critical importance to clinical outcomes. It is reasonable for type of treatment to depend on both local practices and available resources. It is common for Acute Coronary Syndrome patients to be transferred to a facility capable of performing cardiac catheterization and percutaneous intervention. Sending the clinical findings from the initial evaluation along with the patient and incorporating them into the receiving facilities standard workflow is critical.

ACS Diagnosis?

Type: **DecisionNode**
Status: Proposed. Version 1.0. Phase 1.0.
Package: ACS Evaluation Process *Keywords:*
Detail: Created on 12/4/2007. Last modified on 12/6/2007.
GUID: {CF6E7D2A-C57F-422e-8564-DF0328108FC2}

The clinician reconsiders the ACS diagnosis based on additional clinical observations.

ACS Diagnosis?

Type: **DecisionNode**
Status: Proposed. Version 1.0. Phase 1.0.
Package: ACS Evaluation Process *Keywords:*
Detail: Created on 12/4/2007. Last modified on 12/6/2007.
GUID: {325BF152-3E9B-406b-B760-DCC3CAE5B774}

The clinician reconsiders the ACS diagnosis based on additional clinical observations.

ACS Diagnosis?

Type: **DecisionNode**
Status: Proposed. Version 1.0. Phase 1.0.
Package: ACS Evaluation Process *Keywords:*
Detail: Created on 11/26/2007. Last modified on 12/8/2007.
GUID: {1406CECE-8C0E-4a47-A43A-C622DC511B70}

"Unstable angina/NSTEMI constitutes a clinical syndrome subset of ACS that is usually, but not always, caused by atherosclerotic CAD and is associated with an increased risk of cardiac death and subsequent MI. In the spectrum of ACS, UA/NSTEMI is defined by ECG ST-segment depression or prominent T-wave inversion and/or positive biomarkers of necrosis (e.g., troponin) in the absence of ST-segment elevation and in an appropriate clinical setting (chest discomfort or anginal equivalent).

"Acute coronary syndrome" has evolved as a useful operational term to refer to any constellation of clinical symptoms that are compatible with acute myocardial ischemia. It encompasses MI (STEMI and NSTEMI) and UA" ACC/AHA UA/NSTEMI Guideline Revision p821.

Continue to ACS Treatment diagram

Type: **Action**
Status: Proposed. Version 1.0. Phase 1.0.
Package: ACS Evaluation Process *Keywords:*
Detail: Created on 12/11/2007. Last modified on 12/11/2007.
GUID: {1427719E-2B7D-4d5c-9FC5-F2B35ADACCD7}

Follow Chronic Stable Angina Guidelines

Type: **ActivityFinal**
Status: Proposed. Version 1.0. Phase 1.0.
Package: ACS Evaluation Process *Keywords:*
Detail: Created on 12/11/2007. Last modified on 12/11/2007.
GUID: {7CCDA959-F1C5-4ebf-8151-9FC22D0A9475}

Follow STEMI Guidelines

Type: **ActivityFinal**
Status: Proposed. Version 1.0. Phase 1.0.
Package: ACS Evaluation Process *Keywords:*
Detail: Created on 12/7/2007. Last modified on 12/7/2007.
GUID: {CB4DD59A-A0AF-4ee5-89CA-3F39E8077C10}

Non-cardiac event

Type: **ActivityFinal**
Status: Proposed. Version 1.0. Phase 1.0.
Package: ACS Evaluation Process *Keywords:*
Detail: Created on 4/2/2007. Last modified on 12/5/2007.
GUID: {E48144F9-A754-4496-B311-FFDFB0C5BF9D}

The initial evaluation may indicate a suspected ACS patient does not need further cardiac evaluation or treatment.

Not ACS, discontinue ACS protocol

Type: **ActivityFinal**
Status: Proposed. Version 1.0. Phase 1.0.
Package: ACS Evaluation Process *Keywords:*
Detail: Created on 12/4/2007. Last modified on 12/8/2007.
GUID: {81A608FF-7D0B-4077-ACEB-AA3C8ADC7077}

Patient identified in clinical setting

Type: **ActivityInitial**
Status: Proposed. Version 1.0. Phase 1.0.
Package: ACS Evaluation Process *Keywords:*
Detail: Created on 12/16/2007. Last modified on 12/16/2007.
GUID: {EE900CAD-1BA2-49a1-B14F-B47C0914F438}

A patient with potential ACS can be identified while already in a clinical care setting, such as a walk-in to the emergency department, Chest Pain Clinic, Heart Failure Clinic, Inpatient consult or other facility with the ability to

provide initial evaluation and treatment for ACS.

Patient identified in community setting

Type: **ActivityInitial**
Status: Proposed. Version 1.0. Phase 1.0.
Package: ACS Evaluation Process *Keywords:*
Detail: Created on 12/16/2007. Last modified on 12/16/2007.
GUID: {FF24B647-6D2C-4363-81DB-0418AF5ACC47}

A patient with potential ACS can be identified by a community resource. For example a private medical office, drugstore, urgent care clinic, health maintenance clinic, or nursing home.

ST Elevation?

Type: **DecisionNode**
Status: Proposed. Version 1.0. Phase 1.0.
Package: ACS Evaluation Process *Keywords:*
Detail: Created on 12/11/2007. Last modified on 12/11/2007.
GUID: {189C705E-9B88-4b07-A071-40C13A44FD3D}

ST segment elevation is an abnormality identified by electrocardiogram.

Symptoms Suggestive of ACS

Type: **DecisionNode**
Status: Proposed. Version 1.0. Phase 1.0.
Package: ACS Evaluation Process *Keywords:*
Detail: Created on 2/28/2007. Last modified on 12/11/2007.
GUID: {1803429D-C051-4766-914C-9ECFDD3D7DAE}

Based on the clinical presentation and relevant information about patient history, the clinician needs to determine whether or not acute coronary syndrome is suspected.

ACS Treatment Process

Type: **Package**
Status: Proposed. Version 1.0. Phase 1.0.
Package: Dynamic View
Detail: Created on 12/4/2007. Last modified on 12/4/2007
GUID: {673D90F0-DADA-40d0-A775-93DA0F8C51BB}

ACS Process Flow

Type: **Package**
Status: Proposed. Version 1.0. Phase 1.0.
Package: ACS Treatment Process
Detail: Created on 12/4/2007. Last modified on 12/8/2007
GUID: {610829D8-ADB9-4e4d-8EF5-8DED7EB4F168}

ACS Treatment - (Activity diagram)

Created By: on 3/12/2007

Last Modified: 12/16/2007

Version: 1.0. Locked: False

GUID: {AB5F98A2-62D0-4b20-9765-5C7BE1BB6528}

The ACS Treatment diagram includes the activities between diagnosis with UA/NSTEMI and hospital discharge.

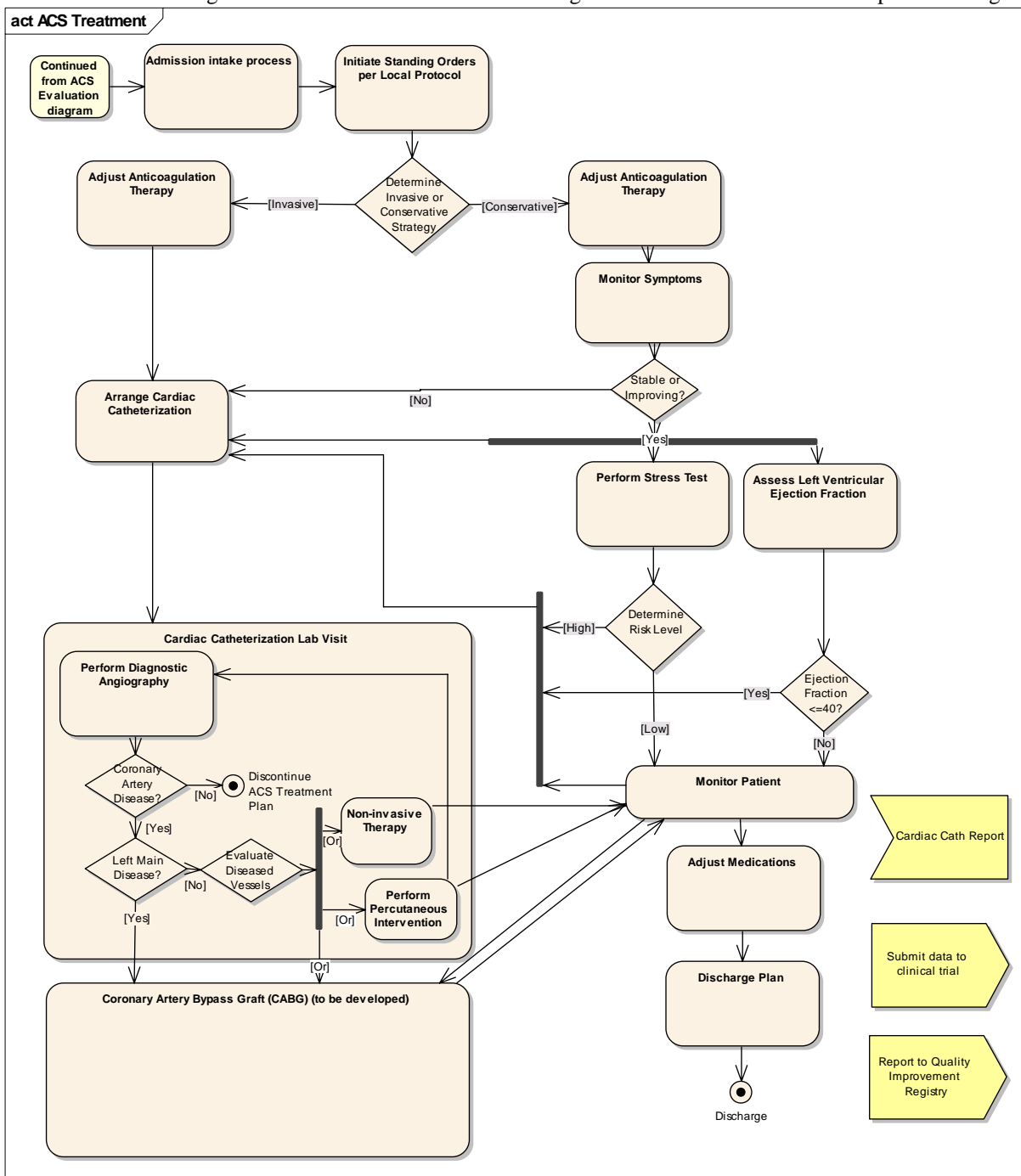


Figure: 2

Adjust Anticoagulation Therapy

Type: **Activity**
Status: Proposed. Version 1.0. Phase 1.0.
Package: ACS Process Flow **Keywords:**
Detail: Created on 12/4/2007. Last modified on 12/11/2007.
GUID: {4C9EE838-6011-4b22-BA57-409DCC881CF4}

Anticoagulation therapy in the setting of Unstable Angina/Non-ST Elevation MI using an invasive strategy seeks a balance between anticoagulation effects and increased risk of bleeding, which can be exacerbated by instrumentation during the procedure. The timing of diagnostic angiography and potential percutaneous intervention must be considered with the effects of the pharmacologic treatment selected.

Adjust Anticoagulation Therapy

Type: **Activity**
Status: Proposed. Version 1.0. Phase 1.0.
Package: ACS Process Flow **Keywords:**
Detail: Created on 12/4/2007. Last modified on 12/6/2007.
GUID: {11B9FB46-7FDF-4336-A696-004C2A39B09E}

For UA/NSTEMI patients in whom an initial conservative strategy is selected and who have recurrent ischemic discomfort with clopidogrel, ASA, and anticoagulant therapy, it is reasonable to add a GP IIb/IIIa antagonist before diagnostic angiography.

ACC/AHA UA/NSTEMI Guidelines 2007, p811.

Adjust Medications

Type: **Activity**
Status: Proposed. Version 1.0. Phase 1.0.
Package: ACS Process Flow **Keywords:**
Detail: Created on 12/6/2007. Last modified on 12/6/2007.
GUID: {DB56FD8F-D668-4f1a-8197-99003F3575E1}

Long term pharmacotherapy includes antiplatelet therapy (modified by stent type, if applicable and bleeding risk), beta-blockers, renin-aldosterone system inhibitors, nitroglycerin, calcium channel blockers, warfarin, and lipid and blood pressure management.

Admission intake process

Type: **Activity**
Status: Proposed. Version 1.0. Phase 1.0.
Package: ACS Process Flow **Keywords:**
Detail: Created on 12/4/2007. Last modified on 12/11/2007.
GUID: {3C3C3C4F-9479-428f-AD25-B929B4437821}

The admission intake process typically collects additional demographic, insurance, medical history and other clinical or administrative information.

Arrange Cardiac Catheterization

Type: **Activity**
Status: Proposed. Version 1.0. Phase 1.0.
Package: ACS Process Flow *Keywords:*
Detail: Created on 12/4/2007. Last modified on 12/11/2007.
GUID: {36DC264E-F5D2-4a95-80AE-545DD74087FA}

Assess Left Ventricular Ejection Fraction

Type: **Activity**
Status: Proposed. Version 1.0. Phase 1.0.
Package: ACS Process Flow *Keywords:*
Detail: Created on 12/4/2007. Last modified on 12/6/2007.
GUID: {7F6CABCD-21A3-4faa-AA85-BA522B67AE72}

Left ventricular function can be used to evaluate the effectiveness of the heart pumping oxygenated blood into the arterial system. Impaired LV functioning warrants further investigation.

Cardiac Catheterization Lab Visit

Type: **Activity**
Status: Proposed. Version 1.0. Phase 1.0.
Package: ACS Process Flow *Keywords:*
Detail: Created on 12/4/2007. Last modified on 12/4/2007.
GUID: {BE05021C-3B2B-4c54-BC1D-C6D3EB1727B5}

A visit to the cardiac catheterization lab is defined as the set of activities performed within a single episode of care in the cath lab facility. Characteristics of this episode include fluoroscopy time or volume of contrast media administered.

Significant focus is placed on the timing relationship between disease progression and cath lab activities due to the effect of shortened time to treatment on clinical outcomes.

Multiple diagnostic or treatment procedures can be performed within a cath lab visit. The iterations of these efforts, and identification of treatment target, interventions and outcomes contributes to a complex clinical and operational environment.

Coronary Artery Disease?

Type: **DecisionNode**
Status: Proposed. Version 1.0. Phase 1.0.
Package: ACS Process Flow *Keywords:*
Detail: Created on 12/7/2007. Last modified on 12/7/2007.
GUID: {932C322A-EE39-4a1b-BCE3-E4F5CF41D36E}

Evaluate Diseased Vessels

Type: **DecisionNode**
Status: Proposed. Version 1.0. Phase 1.0.
Package: ACS Process Flow *Keywords:*
Detail: Created on 12/7/2007. Last modified on 12/7/2007.

GUID: {AE3C3106-B3A2-41a0-A31B-E7894D627B42}

1 or 2 diseased vessels is often managed with medical therapy, although PCI or CABG can be appropriate based on the individual patient situation.

3 Vessel Disease or 2 Vessel Disease with proximal LAD involvement is often managed with PCI, although CABG can be appropriate based on individual patient situation.

3 Vessel Disease or 2 Vessel Disease with proximal LAD involvement, in the presence of left ventricular dysfunction or treated diabetes is typically sent to CABG.

Left Main Disease?

Type: DecisionNode
Status: Proposed. Version 1.0. Phase 1.0.
Package: ACS Process Flow **Keywords:**
Detail: Created on 12/7/2007. Last modified on 12/8/2007.
GUID: {79E19D04-B63D-4a4a-8900-22A92894EEA4}

The Left Main artery is a primary vessel carrying blood into a branching system of coronary arteries. Blockage in the Left Main is particularly significant due to the negative impact of reduced downstream blood flow.

Non-invasive Therapy

Type: Activity
Status: Proposed. Version 1.0. Phase 1.0.
Package: ACS Process Flow **Keywords:**
Detail: Created on 12/4/2007. Last modified on 12/11/2007.
GUID: {71F7844D-38A4-4e09-8662-81A3C3041353}

Non-invasive therapy refers to pharmacologic treatment for coronary artery disease.

Perform Diagnostic Angiography

Type: Activity
Status: Proposed. Version 1.0. Phase 1.0.
Package: ACS Process Flow **Keywords:**
Detail: Created on 12/4/2007. Last modified on 12/6/2007.
GUID: {69393F7B-B3D9-46c5-AADB-81B6747344F1}

Diagnostic angiography uses contrast media infused into the coronary arteries which makes it possible to visualize blood flow and identify blockages.

Perform Percutaneous Intervention

Type: Activity
Status: Proposed. Version 1.0. Phase 1.0.

Package: ACS Process Flow *Keywords:*
Detail: Created on 12/4/2007. Last modified on 12/7/2007.
GUID: {02F2F5EA-0734-4e2c-B2BE-3334F52F9005}

Percutaneous intervention includes use of trans-catheter mechanical devices to reduce blockage and return coronary blood flow, most commonly stenting. During and after PCI coronary artery blood flow is assessed using same methodology as during angiography. Upon completion of procedure additional angiographic images are reviewed.

Multiple interventions can be performed during a single procedure.

Schedule Patient for Coronary Artery Bypass Graft

Type: **Activity**
Status: Proposed. Version 1.0. Phase 1.0.
Package: ACS Process Flow *Keywords:*
Detail: Created on 12/4/2007. Last modified on 12/4/2007.
GUID: {9CA59A25-D3ED-4b61-9638-F0090E6CE20B}

Discontinue ACS Treatment Plan

Type: **ActivityFinal**
Status: Proposed. Version 1.0. Phase 1.0.
Package: ACS Process Flow *Keywords:*
Detail: Created on 12/4/2007. Last modified on 12/4/2007.
GUID: {B77981BF-4827-4302-9B3D-C731A1BB3FF4}

Coronary Artery Bypass Graft (CABG) (to be developed)

Type: **Activity**
Status: Proposed. Version 1.0. Phase 1.0.
Package: ACS Process Flow *Keywords:*
Detail: Created on 12/4/2007. Last modified on 12/11/2007.
GUID: {D89AB386-2F8D-4010-A56E-4F5D1BF482F9}

Coronary Artery Bypass Graft (CABG) is a surgical procedure using vessels harvested from an unrelated site (often the patient's leg) that are implanted as coronary arteries to carry oxygenated blood entering the vasculature around the blocked vessel to distal arteries alleviating the reduced blood flow due to arterial stenosis.

**CABG is included in this diagram to represent this common surgical procedure, and to illustrate the expected extension of this model to other diagnostic and treatment modalities.

Discharge Plan

Type: **Activity**
Status: Proposed. Version 1.0. Phase 1.0.
Package: ACS Process Flow *Keywords:*
Detail: Created on 12/4/2007. Last modified on 12/16/2007.
GUID: {ECDF0E51-8B7C-4322-BBDA-2F7F6529DC36}

Discharge planning and communicating with the patient includes self-care instructions, medications, referrals and scheduling of follow-up care, lifestyle counseling (e.g. smoking cessation), and other efforts to ensure appropriate disease management.

Initiate Standing Orders per Local Protocol

Type: Activity
Status: Proposed. Version 1.0. Phase 1.0.
Package: ACS Process Flow **Keywords:**
Detail: Created on 12/4/2007. Last modified on 12/4/2007.
GUID: {13D9A3D5-3DCC-4695-9118-F02FA298C64B}

Local care practices usually dictate standard monitoring and treatment options. Examples include routine monitoring of vital signs, blood oxygen, chemistry and hematology laboratory tests, evaluation of patient pain, wound care or other concerns.

Monitor Patient

Type: Activity
Status: Proposed. Version 1.0. Phase 1.0.
Package: ACS Process Flow **Keywords:**
Detail: Created on 12/4/2007. Last modified on 12/8/2007.
GUID: {A3207A39-6B4B-4439-A82F-6916330752C4}

Patients under care for ACS following a conservative strategy may have deteriorating clinical condition warranting PCI or CABG (or repeat procedures, which is possible within a single hospitalization.)

Monitor Symptoms

Type: Activity
Status: Proposed. Version 1.0. Phase 1.0.
Package: ACS Process Flow **Keywords:**
Detail: Created on 12/4/2007. Last modified on 12/6/2007.
GUID: {BCE797AC-853C-47ea-9A1C-9F73F6809CFA}

Monitor chest pain (frequency, duration, severity, location, circumstance) for symptoms consistent with ACS and overall patient discomfort.

Perform Stress Test

Type: Activity
Status: Proposed. Version 1.0. Phase 1.0.
Package: ACS Process Flow **Keywords:**
Detail: Created on 12/4/2007. Last modified on 12/6/2007.
GUID: {543B9E06-3B0E-48aa-BDF9-DEE531012647}

Stress testing (exercise or pharmacological) to provoke ischemia can be used in the evaluation of potential ACS when other defining characteristics are not present. Stress testing can also be done on an outpatient basis.

Cardiac Cath Report

Type: Event
Status: Proposed. Version 1.0. Phase 1.0.

Package: ACS Process Flow *Keywords:*
Detail: Created on 12/7/2007. Last modified on 12/8/2007.
GUID: {41F397C6-9F59-4588-9778-27F5FD8481D2}

A cath report is typically produced in summary format from compiling quantitative findings during the procedure with documentation provided by the performing physician and provided to the ordering physician.

Report to Quality Improvement Registry

Type: **Event**
Status: Proposed. Version 1.0. Phase 1.0.
Package: ACS Process Flow *Keywords:*
Detail: Created on 4/2/2007. Last modified on 12/7/2007.
GUID: {D544F85C-FFB0-4dd5-B346-027EBE5D7AFF}

At participating sites, when an ACS patient reaches a treatment milestone (such as discharge) a patient summary report is submitted to one or more quality improvement registries.

Submit data to clinical trial

Type: **Event**
Status: Proposed. Version 1.0. Phase 1.0.
Package: ACS Process Flow *Keywords:*
Detail: Created on 12/7/2007. Last modified on 12/8/2007.
GUID: {5E09979D-9471-4018-9A41-75994130908F}

If a patient is enrolled in a clinical trial, data from the encounter is submitted to the clinical trial coordinating center for inclusion in study database, and subsequent analyses and reporting to regulatory authorities. Although specific clinical events may be reported during the initial hospitalization to expedite evaluation of safety during the clinical trial, typically a batch of data is submitted at discharge.

Continued from ACS Evaluation diagram

Type: **Action**
Status: Proposed. Version 1.0. Phase 1.0.
Package: ACS Process Flow *Keywords:*
Detail: Created on 12/11/2007. Last modified on 12/11/2007.
GUID: {9C5ECF4F-39EE-409b-BD70-F12A93B46F66}

Determine Invasive or Conservative Strategy

Type: **DecisionNode**
Status: Proposed. Version 1.0. Phase 1.0.
Package: ACS Process Flow *Keywords:*
Detail: Created on 12/4/2007. Last modified on 12/4/2007.
GUID: {2EEF39D0-B647-46b6-AFDA-CDFF739046ED}

Determine Risk Level

Type: DecisionNode
Status: Proposed. Version 1.0. Phase 1.0.
Package: ACS Process Flow **Keywords:**
Detail: Created on 12/4/2007. Last modified on 12/4/2007.
GUID: {7AFAA649-80B1-4b40-919F-7B520EDD6C58}

Discharge

Type: ActivityFinal
Status: Proposed. Version 1.0. Phase 1.0.
Package: ACS Process Flow **Keywords:**
Detail: Created on 12/4/2007. Last modified on 12/4/2007.
GUID: {E7A7C043-1420-486f-B337-A9FA2EABEAE6}

Ejection Fraction <=40?

Type: DecisionNode
Status: Proposed. Version 1.0. Phase 1.0.
Package: ACS Process Flow **Keywords:**
Detail: Created on 12/4/2007. Last modified on 12/8/2007.
GUID: {E19D1A7F-6BB0-4400-B95E-A23EABD29732}

Ejection Fraction (EF) is quantitative measure of the blood volume being expelled from the Left Ventricular, typically reported in % (of total LV volume). Low EF indicates reduced blood flow from the heart, which reduces oxygen and other necessary products to the body.

Stable or Improving?

Type: DecisionNode
Status: Proposed. Version 1.0. Phase 1.0.
Package: ACS Process Flow **Keywords:**
Detail: Created on 12/6/2007. Last modified on 12/6/2007.
GUID: {3932ABEC-8500-4a7d-9BA6-8DFE778F1571}