

# CARDIOVASCULAR UPDATE

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2004

## Acute Coronary Syndrome: Guidelines for Better Outcomes



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The term "Acute Coronary Syndrome" (ACS) includes a wide variety of clinical presentations, from unexpected sudden death to unstable angina to major Q-wave myocardial infarction. Patients who present with signs and symptoms of acute ischemic heart disease are now described as having ACS.

ACS accounts for nearly two million hospitalizations annually in the United States. The mortality of ACS continues to be very high and exceeds 25%, including patients who never reach the hospital. Unstable angina (UA) and non-ST-segment elevation myocardial infarction (NSTEMI) are common manifestations of this disease. All ACS episodes share the same underlying pathology of an imbalance in myocardial oxygen supply and demand. The imbalance has five potential causes:

- Non-occlusive thrombus on preexisting plaque
- Dynamic obstruction, such as coronary vasospasm
- Narrowing from atherosclerosis without evidence of a clot or vasospasm
- Inflammation or infection
- Secondary unstable angina (from hypoxemia for example)

The most common cause of ACS is thrombus formation and subsequent coronary artery occlusion. Some patients who develop ACS have symptoms that

are nonspecific and vague, such as unexplained fatigue, dyspnea, and atypical chest discomfort. Also, some patients have had undiagnosed anginal symptoms for months which have been ignored or minimized by the patient. Difficulty assessing ACS by clinicians has led to delayed diagnosis and treatment as well.

The old saying, "time is muscle," continues to apply. When patients report cardiac symptoms, immediate evaluation and quick treatment for ACS using the current American College of Cardiology (ACC) and American Heart Association (AHA) ACS Guidelines can improve patient care and save lives.

### IMPROVING OUTCOMES

The two main approaches for reducing morbidity and mortality from ischemic heart disease are prevention and improved acute management. Over the long term, medical therapy for prevention of ACS and recurrent myocardial infarction includes

- aspirin
- antiplatelet agents
- adrenergic blocking agents
- lipid-lowering agents
- smoking cessation

By following guidelines and providing specialized care of potential ACS patients, the long-term clinical outcomes for patients will be optimized and care will become more cost-effective. See the enclosed insert for more information on these guidelines or visit [www.americanheart.org](http://www.americanheart.org) or [www.acc.org](http://www.acc.org).

## Chest Pain Center Now Open

### *Rapid, safe evaluation and treatment*

MultiCare Cardiovascular Services has opened a Chest Pain Center (CPC) on the new 7L Cardiovascular Short Stay Unit. While the Emergency Department will continue to triage chest pain patients, the CPC provides a comprehensive management strategy for the evaluation and treatment of chest pain patients based on guidelines from the American College of Cardiology and the American Heart Association.

The specific objective of the CPC is to evaluate patients, provide rapid patient treatment and optimize resource utilization. Like the most successful chest pain centers around the country, MultiCare's CPC will focus equally on identifying cardiac ischemia, latent coronary artery disease and risk factors. One specific aim is to detect disease that might be overlooked with a more traditional approach, as the key (*continued on page 3*)

## New Department Name: Preventive Cardiology

The Cardiac Rehabilitation department at Tacoma General Hospital has changed its name to Preventive Cardiology to reflect the full scope of its mission and services. Current services include:

- Cardiac Rehabilitation
- Exercise Stress Testing
- Pharmacological Induced Stress Testing
- Holter Monitoring
- Women's Heart Center

These services go beyond those of traditional cardiac rehabilitation, bringing a multidisciplinary approach to both primary and secondary preventive care. All of the department's current services will retain the same titles.

For more information or questions about MultiCare's Preventive Cardiology program, please contact Glenn Bean, Clinical Coordinator at 253-403-2414.

*Leading hospital-based programs around the country with Preventive Cardiology Departments include*

Cleveland Clinic, Johns Hopkins, University of Maryland Heart Center, Tufts New England Medical Center, and Providence Medical Center, Everett; and Deaconess Medical Center, Spokane.

## Cholesterol Treatment for High Risk Heart Patients

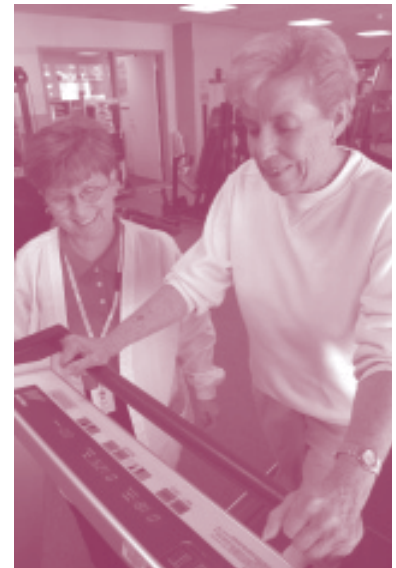
More intensive cholesterol treatment is an option for people at high risk for heart attack and death from cardiovascular disease, according to updated recommendations from the National Cholesterol Education Program (NCEP).

'High risk' includes those who have already had a heart attack or have other risk factors, and who have more than a 20 percent estimated risk of heart attack or cardiac death within 10 years. This includes patients with angina, diabetes, previous angioplasty or bypass surgery, or obstructed blood vessels to the extremities or brain.

Earlier NCEP guidelines recommended cholesterol-lowering medications for high risk patients with LDL cholesterol levels of 130 mg/dL or higher. The updated recommendations call for drug therapy in almost all high risk patients with LDL cholesterol of 100 mg/dL or higher.

The major recommendation of the updated guidelines include:

- High risk: To reduce LDL cholesterol levels to under 100 mg/dL, the panel makes an LDL goal of less than 70 mg/dL a therapeutic option for people at very high risk of heart attack.



- Moderately high risk (patients with a 10 to 20 percent risk of heart attack within the next ten years): Treatment should be given if LDL cholesterol levels are 130 mg/dL or higher. An optional consideration of drug therapy for levels between 100-129 mg/dL has been added.

While changes in the guidelines focus on drug treatment, addressing lifestyle risk factors continues to be extremely important. For more information go to [www.americanheart.org](http://www.americanheart.org).

## Rehab Boosts Heart Attack Survival Rate

'Cardiac rehabilitation' is a medically supervised program helping patients regain strength and reduce risk factors after a heart attack, bypass surgery or angioplasty.

According to a Mayo Clinic study published in the Journal of American College of Cardiology, cardiac rehabilitation provides an increase of more than 50 percent in a patient's chance of surviving at least three years after a heart attack. The study also noted that women and elderly patients are less likely to be referred and to participate in rehabilitation programs.

"Hopefully this study will encourage physicians to give all of their patients, but especially women, the extra nudge to participate in rehab," remarked Dr. Veronique Roger, the Mayo Clinic cardiologist who led the study. "Participation in cardiac rehab is one very important element of an effective treatment plan".

For more information on the study go to [www.mayoclinic.com](http://www.mayoclinic.com). For referrals or information on the cardiac rehabilitation services at Tacoma General Hospital call 253-403-1058.

**Chest Pain Center Now Open** (continued from page 1)

to current treatments is early intervention and rapid initiation of therapy.

Traditionally, patients have been admitted to the Coronary Care Unit when a definitive diagnosis cannot be made, but in many cases this is unnecessary and contributes to capacity issues. The CPC offers an efficient, effective system for treating low to intermediate risk patients with symptoms of acute coronary syndrome (ACS). High risk patients or those with a diagnostic EKG would be treated in the Emergency Department and admitted to the inpatient cardiac units.

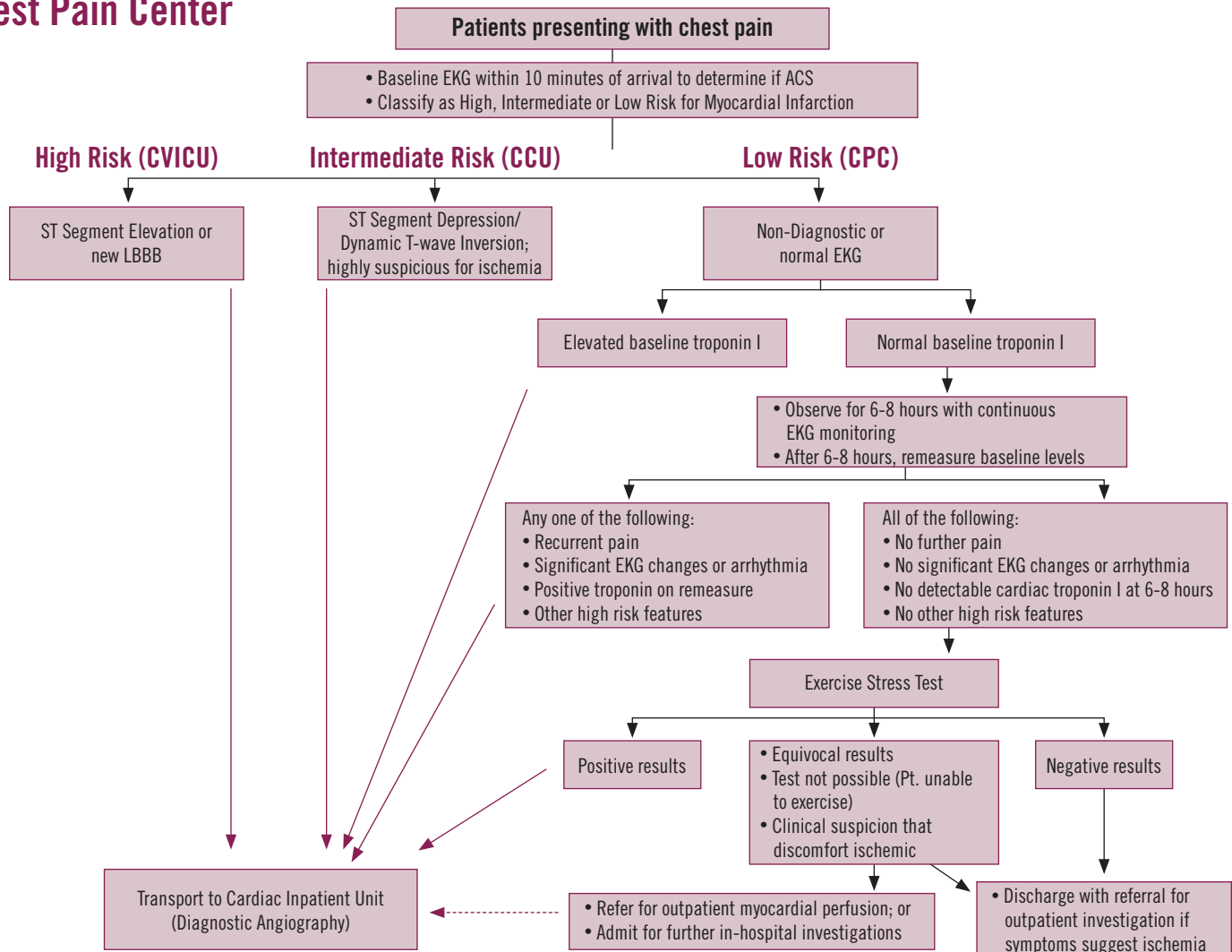
**Diagnosing Chest Pain Patients**

Patients in the Chest Pain Center are evaluated over an eight-hour period, using serial cardiac biomarkers, EKGs and continuous cardiac monitoring. If all tests are negative and the patient remains symptom-free, the patient may either be discharged home or sent for further non-invasive diagnostic testing, such as an exercise stress test, stress echocardiography or nuclear imaging. Patients with positive findings for myocardial ischemia are transferred to the inpatient cardiac units.

**Quick, Safe and Cost-Effective**

Chest Pain Centers provide rapid, safe evaluation and treatment of chest pain patients at costs of between 20-50% of the typical 1-3 day inpatient work-up – meaning that the cost of “heart attack” care for low-probability ischemic patients is reduced by \$1000 to \$3000 per patient. Studies also show that approximately 80% of patients admitted to a CPC are discharged home from this unit.

**Chest Pain Center**



## New Heart Failure Resources

MultiCare Cardiovascular Services now has two new heart failure resources. The first is a new heart failure order set developed by pharmacist Mi Young Lee and Jerry Chambers, RN, Coordinator of Cardiac Education.

The new order set includes the latest research-based guidelines approved for heart failure medications, lab, testing and therapies. Beginning in November, it will be available on the MultiCare Intranet by clicking 'references and tools', then 'physician order sets'.

A Heart Failure Telephone Management program has also been added. Patients who have been hospitalized for congestive heart failure are invited to participate in a discharge program using telephone follow-up by an RN or ARNP.

For more information on this program, contact the Cardiac Education Coordinator at 253-403-4459.

## CHF Holiday Food Drive

For the past several years the Congestive Heart Failure (CHF) Clinic has conducted a food drive, making Thanksgiving and Christmas baskets for patients with special dietary considerations.

This year, the goal is to provide a turkey dinner for 25 needy families of four. From November 1-22, food collection boxes will be set up around the MultiCare main campus for donations. Contributions of low salt and low fat foods are requested. The clinic is also accepting donations of cash or food gift cards from Albertson's or Safeway for the purchase of turkeys. To donate cash or gift cards, please drop them off at the CHF Clinic or call 253-403-4590 and one of the staff members will pick them up.

CHF clients will also receive a cookbook of traditional, yet heart-wise recipes compiled by our clinical dietitian, Janice Raymond, MS, RD, CNSD.

Thanks and Happy Holidays from the CHF Clinic!

Wendy Carnahan, LPN  
Tammi Hudspeth, RN, BSN  
Bobbie Hurst, MSW  
Peggy Kean, RN  
Janice Raymond, RD, CNSD  
Susan Rowe, Pharm D.

## Suggested Food Items

Canned pumpkin pie  
Premade low salt pie crust  
Cranberry sauce  
Potatoes  
Low salt chicken broth  
Low salt butter  
Fresh or canned green bean  
Canned fruit and vegetables  
Canned milk (for pies)  
Cool Whip®  
Salt substitute



**SAVE THE DATES**

### Mel Evans 10th Annual Seminar In Cardiovascular Nursing Education

**Wednesday, October 27, 2004**

Topics for this year's seminar include:

- AHA Evidenced-Based Guidelines for Cardiovascular Disease Prevention in Women
- Acute Coronary Syndrome
- Healing the Healer
- ICD's and Pacemakers
- Vascular Care: New Treatments and Innovations

For more information contact the **MultiCare Institute for Learning and Development** at 253-403-1280.

MultiCare Diabetes Services presents:  
**World Class Diabetes Care in South Puget Sound**

### A Free Diabetes Forum

**Saturday, November 6, 2004**  
**9:00am - 12:45pm**

**Tacoma Elk's Lodge No. 174**  
**1965 South Union Avenue**  
**Tacoma**

Presentations by a top-notch team of educators, dietitians and physicians offer practical advice and the latest information for living well with diabetes. Topics include:

- Taking Care of Your Diabetic Feet
- Special Concerns for Communities of Color
- Ethnic Flavor in the Kitchen
- The 12 Questions to Ask Your Diabetes Care Provider



## MultiCare Heart Centers

### SERVICES

Regional Heart & Vascular Center  
Cardiac Catheterization Lab  
Cardiothoracic Surgery  
Advanced Diagnostics  
Invasive and Non-Invasive Diagnostic Testing  
Electrophysiology  
Congestive Heart Failure Clinic  
Women's Heart Center  
Cardiac Rehabilitation  
Support & Education Programs

### LOCATIONS

#### Tacoma General Hospital

315 Martin Luther King Jr. Way  
Tacoma, WA 98405  
253-403-1109

#### Allenmore Hospital

1901 S. Union  
Tacoma, WA 98405  
253-459-6633

#### Covington MultiCare Clinic

17700 S.E. 272nd Street  
Covington, WA 98042  
253-372-7010

*Cardiovascular Update* is published quarterly for physicians and health care professionals by MultiCare Cardiovascular Services. For more information on our services please call 253-403-1109 or email glenn.bean@multicare.org

## Acute Coronary Syndrome

### Guidelines at a Glance:

When patients arrive with chest pain, the goal is to determine whether the pain is of a cardiac origin.

#### A. Initial Triage of Patients with suspected ACS:

1. Patients should be referred to a facility for evaluation by a physician and receive a 12 Lead ECG.
2. Patients with prolonged chest discomfort at rest (i.e., greater than 20 minutes), hemodynamic instability, or recent syncope or pre-syncope should be referred immediately to an emergency department or specialized chest pain center.

#### B. Initial Evaluation:

1. Obtain patient history.
2. Complete physical examination.
3. Complete ECG within 5 minutes of patient's arrival.
4. Obtain serum markers of cardiac injury (CK-MB, Troponin).
5. Assign patients with symptoms suggestive of ACS to 1 of 4 categories:  
A non-cardiac diagnosis, chronic stable angina, possible ACS and definite ACS through integration of the history, physical exam, 12 Lead ECG and initial cardiac marker tests.
6. Patients with non-cardiac diagnosis should be treated as indicated by alternate diagnosis.
7. Patients with chronic, stable angina should be treated following ACC/AHA guidelines for Chronic Stable Angina.
8. Patients with "Definite or Suspected" should be risk stratified to one of three categories below. Treatment should be initiated based upon Risk Category and the Guideline for the Management of Patients with Unstable Angina and Non-ST Segment Elevation Myocardial Infarction. (See Algorithm for the Evaluation and Management of Patients Suspected of Having an Acute Coronary Syndrome, adapted from the November 2002 report of the ACC/AHA Task Force on Practice Guidelines.

#### C. Initial Treatment - all patients

1. Bedrest
2. Continuous ECG monitoring
3. Oxygen
4. Pain relief
5. ECG with pain
6. Repeat cardiac markers and 12 Lead ECG six hours from original onset of pain

## Risk Stratification

### Risk Stratification:

1. ST-segment elevation:  
Patients with persistent ST-segment elevation are having an STEMI and should be referred to immediate reperfusion therapy. There is no need to wait for confirmation by biomarker elevations or other signs.
2. ST-segment depression (ST-segment depression is the most common ECG abnormality in patients presenting with NSTEMI ACS and is a major predictor of mortality. Patients with ST-segment depression have either unstable angina or NSTEMI, which is determined by cardiac biomarker assays.)

High Risk for Death or MI	Intermediate Risk	Low Risk for Death or MI
At least one of the following features must be present:	No high-risk features but must have one of the following:	No high- or intermediate-risk features but must have <u>any</u> of the following:
ST depression (>0.5 mm)	T-wave inversion > 2.0 mm	Normal or unchanged ECG with pain
Markedly elevated cardiac markers	Slightly elevated cardiac markers (ie, TnT>0.01 but <0.1ng/ml)	Normal cardiac markers
Transient ST elevation (>0.5mm)	Prior MI, CABG or PCI	
Accelerating tempo of ischemic symptoms in preceding 48 hours	Age > 70 years	
Signs of CHF (Rales or new S <sub>3</sub> )		
New MR murmur		
Hypotension (SBP < 100)		
Tachycardia (pulse > 100)		
Bradycardia (pulse < 60)		
Sustained ventricular arrhythmias		
Age > 75 years		

**Figure 1, Algorithm for the Evaluation and Management of Patients Suspected of Having an ACS**

