

An estimated 935,000 heart attacks and 795,000 strokes occur in the United States each year. 150,000 of all Americans who died of cardiovascular diseases in 2007 were younger than age 65.<sup>1</sup> An inexpensive cardio-protective medication bundle could substantially prevent cardiovascular events.<sup>2,6</sup>

The Right Care Initiative research team recognized the value of medication protocols and convened a consensus conference in January, 2011.<sup>6</sup> Participants included experts from California universities; medical groups and health plans; the Veteran’s Administration; the Navy; the CDC; and the Karolinska Institute of Sweden. The consensus experts concluded:

**Unless contraindicated, a statin and ACE-inhibitor bundled therapy should be prescribed to patients who:**

- Have suffered a heart attack or stroke
- Are high risk for heart attacks and strokes or
- Have diabetes & over age 55 (therefore more than twice as likely to have a cardiovascular event).

**Aspirin** should be used as secondary prevention for all patients who have had a heart attack or stroke unless contraindicated. Aspirin for primary prevention has not been proven but may be used in the bundle according to the individual’s risk factors at the physician’s discretion if no contraindication.

“In patients hospitalized for a coronary event, we must do more than treat the ischemia. We must begin to aggressively treat the damaged vascular bed with combination medical therapy, including a statin (regardless of lipid levels), aspirin, a beta-blocker, and an angiotensin-converting enzyme (ACE) inhibitor. This therapy should be started before hospital discharge.

In addition, all patients with known atherosclerotic cardiovascular disease, regardless of how it was diagnosed, should receive appropriate combination therapy. And those patients at high risk, such as people with diabetes and those who score high on the Framingham risk model should also be treated aggressively.”

--Gregg C. Fonarow, MD  
*Director, Ahmanson-UCLA Cardiomyopathy Center; Director, Cardiology Fellowship Training Program; Co-Director, UCLA Preventative Cardiology Program; Associate Professor of Medicine, UCLA Division of Cardiology*

The Right Care Initiative research team is actively comparing medication protocols among high performers such as Kaiser Permanente, Sharp-Rees Stealy Medical Centers, the Veteran’s Administration, and medical groups outside California. To date, only Kaiser Permanente has widely published their cardio-protective medication protocol.

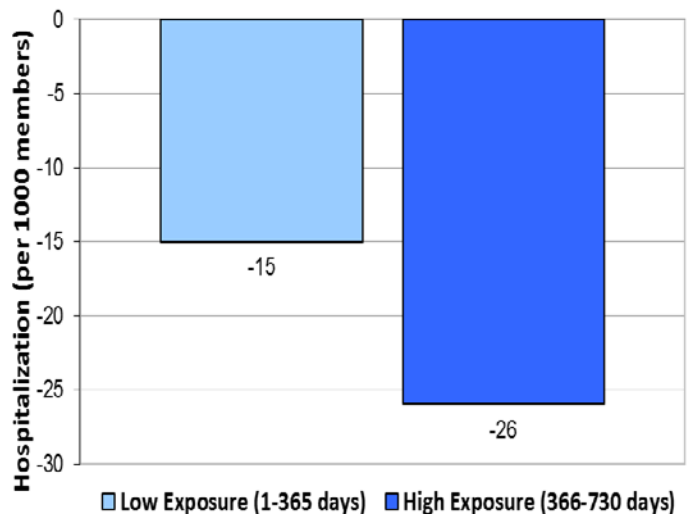
Kaiser Permanente’s medication bundle, called **ALL** in Southern California or **PHASE** in Northern California, treats patients with coronary artery disease or over 55 with diabetes. The specific content of the medication bundle may be tailored based on the patient’s calculated 10-year Framingham risk score.

- **ALL:** Aspirin, Lisinopril (ACE-inhibitor), and Lipid lowering statin (currently Simvastatin 40mg)
- **PHASE:** Preventing Heart Attacks and Strokes Everyday (ALL protocol with beta blocker therapy and lifestyle emphasis added)

**Reduced Heart Attack and Stroke Hospitalizations with ACE-Inhibitor & Statin Bundle<sup>2</sup>**

A Kaiser Permanente quality improvement study tracked 170,000 individuals over two years. Compared to those with no medication bundle exposure:

- Among the 47,268 “**low exposure**” individuals who used the medication bundle 1-365 days, 726 fewer heart attacks and strokes occurred—a reduction in hospitalization for heart attack or stroke by 15 per 1,000 members.
- Among the 21,292 “**high exposure**” individuals who used the medication bundle 366-730 days, 545 fewer heart attacks and strokes occurred—a reduction in hospitalization for heart attack or stroke by 26 per 1,000 members.



**Staggering Price of Preventable Heart Attack and Stroke According to CDC**

"In 2010, the total costs of cardiovascular diseases in the United States were estimated to be \$444 billion. Treatment of these diseases accounts for about \$1 of every \$6 spent on health care in this country. Preventing and controlling high blood pressure and high cholesterol play a significant role in cardiovascular health. For example, a 12-13 point reduction in average systolic blood pressure over 4 years can reduce heart disease risk by 21%, stroke risk by 37%, and risk of total cardiovascular death by 25%." <sup>1</sup>

Health plans and medical groups that proactively implement a cardio-protective medication bundle protocol greatly improve clinical outcomes, particularly for the critical prevention measures:

- Blood pressure control for patients with hypertension
- Lipid control for patients with heart disease
- Lipid control for patients with diabetes

Kaiser Permanente is now among the best performing plans in the U.S. for blood pressure and lipid control.<sup>5</sup> Kaiser Permanente researchers indicate that the ALL protocol contributes to their national top 10 performance in blood pressure and cholesterol control, leading to significant heart attack and stroke prevention as follows:

- For those that took the medication bundle less than one year, the bundle reduced heart attack and stroke hospitalizations by 60% compared to those that never took the medication bundle.<sup>2</sup>
- The medication bundle protocol saves their health plan about \$300 per patient per year.<sup>2</sup>
- The medication bundle utilizes inexpensive generic medications, costing just \$8/patient/month total.<sup>3</sup>
- Implementing a cardio-protective medication bundle among 10% of patients with diabetes in the U.S. could save \$2 billion.<sup>3</sup>
- The Kaiser Permanente generic bundle and protocol is now used in more than 46 California community clinics.<sup>4</sup>

**Works Cited**

1. Heart Disease and Stroke: The Nation's Leading Killers. At a Glance, 2011. Centers for Disease Control and Prevention (CDC). <http://www.cdc.gov/chronicdisease/resources/publications/AAG/dhdsp.htm>
2. Dudl, JR et al. "Preventing myocardial infarction and stroke with a simplified bundle of cardio protective medications." American Journal of Managed Healthcare. 2009. 15(10): e88-e94.
3. Dudl, JR. California State Capitol Right Care Briefing, Testimony. 18 Aug 2011.
4. Wong, W et al. "Community Implementation and Translation of Kaiser Permanente's Cardiovascular Disease Risk-Reduction Strategy." The Permanente Journal. 2011. 15(1): 36-41.
5. NCOA Quality Compass ®. 2010.
6. Center for Outcomes Improvement and Innovation and Right Care Initiative (Jan 2011). "Medication Bundling Protocols for the Prevention of Cardiovascular Events Expert Consensus Conference. UC San Diego. La Jolla, CA. Expert Summit.

