Prevention of Coronary Artery Disease in People at Risk

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Endocrinology Subchief, Kaiser South San Francisco Hospital
Associate Clinical Professor of Medicine, UCSF
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Objectives for Today

1. Determine, based on application of the
Speaker Disclosure for Dr. Jaffe

I have no financial relationship with any medically related enterprise other than Kaiser Permanente

I am not an investigator for a pharmaceutical sponsored trial

I am not on a pharmacy sponsored speakers bureau

I do not own stock in pharmaceutical companies

I bought my own laser pointer at Office Depot
Objectives

Identify individuals at high risk for cardiovascular disease.

Determine goal A1C, LDL, and BP for individuals at high risk for cardiovascular diseases.

Prescribe appropriate medications to reduce the risk of cardiovascular disease.
Who are these famous people?
“Heart disease and stroke are the leading causes of death in the United States. Although most cardiovascular disease (CVD) is preventable, proven prevention approaches are not being adequately applied in clinical practice.”

Elias Zerhouni, MD,
NIH Director,
April 2004
Death Rate Trends by Cause

Deaths from Infectious Diseases, Heart Disease, and Cancer

Massachusetts: 1842-1993

Percent of Total Deaths

Infectious disease

Heart Diseases

Cancer

1918?
Preventing Heart Disease

Done by controlling Risk Factors:

1. Assessing an individual’s risk level
2. Making lifestyle changes as appropriate
3. Using Medications when indicated
4. Controlling LDL, BP, and Diabetes
Assessing Risk - Risky Business

1. Primary Prevention
   Low Risk

2. Primary Prevention
   Moderate Risk

3. Secondary Prevention
   Highest Risk
Assessing Major Risk Factors

- Cigarette Smoking
- Hypertension
- FHx Early CAD in 1st Degree Relative
  - (Male <55 or Female <65)
- HDL < 40
  - HDL >60 cancels out one Risk Factor
- Age: Male > 45 or Female > 55
Assessing Major Risk Factors - ATP3

Count Major Risk Factors

- 0-1 Major Risk Factors
  - No calculation required
  - 10 year risk almost always <10%

- 2 or More Risk Factors
  - Perform Risk Calculation

- CAD or CAD Risk Equivalent
  - No Calculation required
  - Treat LDL, even if not elevated
Assessing Major Risk Factors- ATP3

NHLBI Risk Assessment Tool for Estimating 10-year Risk of Developing Hard CHD (Myocardial Infarction and Coronary Death)

Age: ___ years
Gender: ___female ___male
Total Cholesterol: ___ mg/dL
HDL Cholesterol: ___ mg/dL
Smoker: ___ no ___yes
Systolic Blood Pressure: ___mm/Hg
Currently on med to treat HTN ___ No ___Yes

Prevent Heart Attacks and Strokes Everyday
Assessing Major Risk Factors

Google search “NHLBI risk calculator”

Can download to PDA or bookmark the site:

http://hp2010.nhlbihin.net/atpiii/calculator.asp
## When To Treat: ATP3

<table>
<thead>
<tr>
<th>Condition</th>
<th>LDL Goal</th>
<th>Start Tx</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAD/Risk Eq</td>
<td>&lt;100*</td>
<td>All</td>
</tr>
<tr>
<td>2+ RF’s</td>
<td>&lt;130</td>
<td>130, if risk 10-20%</td>
</tr>
<tr>
<td></td>
<td>&lt;130</td>
<td>160, if risk &lt;10%</td>
</tr>
<tr>
<td>0-1 RF’s</td>
<td>&lt;160</td>
<td>190</td>
</tr>
</tbody>
</table>

* Optional goal <70 if very high risk

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Prevent Heart Attacks and Strokes Everyday
## When To Treat: Northern California Kaiser

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Very High Risk</th>
<th>CAD, DM, PAD, CVA, TIA CKD, AAA</th>
<th>Smoker or HTN¹</th>
<th>0-1 Risk Factors²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treat with diet &amp; drugs at:</td>
<td>Any LDL</td>
<td>Any LDL</td>
<td>LDL &gt; 130</td>
<td>LDL &gt; 130</td>
</tr>
<tr>
<td>To goal of:</td>
<td>LDL of 70-90⁴ Optional LDL-C goal &lt; 70</td>
<td>LDL-C &lt; 100⁵ Optional LDL-C goal &lt; 80</td>
<td>LDL &lt; 130⁶</td>
<td>LDL &lt; 130</td>
</tr>
</tbody>
</table>

1. HTN: Hypertension
2. Risk Factors: Includes age, gender, race, and family history

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Prevent Heart Attacks and Strokes Everyday

**Kaiser Permanente**

**PHASE**
# When to Treat: Southern California

### Prevent Heart Attacks and Strokes Everyday

![Chart](chart.png)

**Kaiser Permanente**

**PHASE**
Conclusion: The current evidence does not support the routine use of any of the 9 risk factors for further risk stratification of intermediate-risk persons.

CRP, coronary artery calcium score as measured by EBCT, Lp(a), homocysteine, leukocyte count, fasting blood glucose, periodontal disease, ABI, and carotid IMT

Cardiovascular Risk Assessment

Coronary Risk Equivalents

- Known CAD
- Diabetes (Age >55)
- AAA, PAD, Symptomatic Carotid Disease
- Any 10 yr CAD Risk Assessment >20%
- Chronic Kidney Disease?
- Stroke and TIA?
Diabetes is a Cardiac Risk Equivalent


Figure 1. Kaplan–Meier Estimates of the Probability of Death from Coronary Heart Disease in 1059 Subjects with Type 2 Diabetes and 1378 Nondiabetic Subjects with and without Prior Myocardial Infarction. MI denotes myocardial infarction. 1 bars indicate 95 percent confidence intervals.

Prevent Heart Attacks and Strokes Everyday

Kaiser Permanente®
Cardiovascular Risk Assessment

Coronary Risk Equivalents

- AAA, PAD
- Symptomatic Carotid Disease

Why? Because these individuals were enrolled in many landmark trials such as HOPE and HPS.

Prevent Heart Attacks and Strokes Everyday
Cardiovascular Risk Assessment

What about Stroke and TIA?

- Included in HOPE and HPS
- Also included in PROGRESS and SPARCL

Seems reasonable to include these high risk individuals since ACEI, ASA, Statin, BP control and LDL control are appropriate
CHD Risk Equivalents - CKD

CV Events by CKD Stage in Kaiser (NEJM M/Go)

GFR 45
Should CKD be a coronary risk equivalent?

Editorial by Tonelli Am J Kidney Dis 2006

“Restricting CKD equivalent status to people with a GFR < 45 ml/min or even less than 30 ml/min might be a consideration…”
Preventing Heart Disease

Done by controlling Risk Factors:

1. Assessing an individual’s risk level

2. Making lifestyle changes as appropriate

3. Using Med Quartet if indicated:
   Aspirin, Beta Blocker, Statin, and ACEI

4. Controlling LDL, BP, and Diabetes
## Impact of Lifestyle Changes

<table>
<thead>
<tr>
<th>Lifestyle Change</th>
<th>Risk Reduction for CV Events</th>
<th>Number Needed to Treat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tobacco Cessation</td>
<td>↓ 36%</td>
<td>12&lt;sup&gt;1&lt;/sup&gt;</td>
</tr>
<tr>
<td>Physical Activity</td>
<td>↓ 20-24%</td>
<td>37-46 in 3-5 yrs&lt;sup&gt;2&lt;/sup&gt;</td>
</tr>
<tr>
<td>Healthy Eating</td>
<td>↓ 10-75%</td>
<td>12-93 in 2-3 yrs&lt;sup&gt;3&lt;/sup&gt;</td>
</tr>
<tr>
<td>Weight Management</td>
<td>Improves multiple risk factors</td>
<td></td>
</tr>
</tbody>
</table>

Preventing Heart Disease

Done by controlling Risk Factors:
1. Assessing an individual’s risk level
2. Making lifestyle changes as appropriate
3. Using Meds when indicated
4. Controlling LDL, BP, and Diabetes
## Secondary CAD Prevention:
### 4 Proven Drug Therapies

<table>
<thead>
<tr>
<th>Drug Therapy</th>
<th>Risk Reduction in CV Events</th>
<th>Number Needed to Treat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antiplatelet</td>
<td>↓ 22%</td>
<td>41 in 2 yrs&lt;sup&gt;1&lt;/sup&gt;</td>
</tr>
<tr>
<td>Statin</td>
<td>↓ 28-37%</td>
<td>28-40 in 3-5 yrs&lt;sup&gt;2&lt;/sup&gt;</td>
</tr>
<tr>
<td>ACE inhibitor</td>
<td>↓ 23%</td>
<td>27 in 4 yrs&lt;sup&gt;3&lt;/sup&gt;</td>
</tr>
<tr>
<td>Beta Blocker</td>
<td>↓ 24%</td>
<td>56 in 1-2 yrs&lt;sup&gt;4&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

Aspirin Treatment - What dose?

Aspirin as low as 30 mg/d fully suppresses platelet thromboxane production

Evidence predominantly from secondary-prevention observational studies, shows that aspirin dosages > 75 to 81 mg/d do not enhance efficacy

Larger dosages associated with increased incidence of bleeding, primarily gastrointestinal

# CV Med Use in Diabetes is Age Dependent

<table>
<thead>
<tr>
<th>Age</th>
<th>What and Why</th>
<th>Typical Daily Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>50M</td>
<td>Aspirin advised if $\geq 1$ RF</td>
<td>ASA 81 mg</td>
</tr>
<tr>
<td>60F</td>
<td>or if 10 year risk $&gt;10%$</td>
<td></td>
</tr>
<tr>
<td>40</td>
<td>Statin beneficial in HPS</td>
<td>Simvastatin 40 mg</td>
</tr>
<tr>
<td>55</td>
<td>ACEI beneficial in HOPE</td>
<td>Lisinopril 20 mg</td>
</tr>
</tbody>
</table>

Executive Summary: Standards of Medical Care in Diabetes—2008. Diabetes Care 31: S5-11S


“The recommendation has changed to consider aspirin therapy as a primary prevention strategy in those with diabetes at increased cardiovascular risk (10-year risk >10%). This includes men >50 years of age or women >60 years of age with at least one additional major risk factor.”

Summary of Revisions: Summary of Revisions for the 2010 Clinical Practice Recommendations. Diabetes Care January 2010 33:S
Statins- Heart Protection Study (HPS)

Logrank p<0.0001

Proportion with event (%)

Years of follow-up

Placebo-allocated

Simvastatin-allocated

Simvastatin 40mg

Prevent Heart Attacks and Strokes Everyday
HOPE Trial

![Graph showing the comparison between Placebo and Ramipril 10 mg over days of follow-up. The graph indicates a statistically significant difference (P<0.001) with the Ramipril group showing a lower proportion of patients over time compared to the Placebo group.]

Prevent Heart Attacks and Strokes Everyday
The ONTARGET Investigators, Telmisartan, Ramipril, or Both in Patients at High Risk for Vascular Events

*N Engl J Med 2008*

**ARBs vs ACEI vs. Both for CAD Prevention**

No Difference!
Beta Blockers Increase Survival

Systematic reviews have found strong evidence that beta blockers reduce the risk of all cause mortality, coronary mortality, recurrent non-fatal myocardial infarction, and sudden death in people after myocardial infarction. …

One systematic review (search date 1993, 26 RCTs, > 24 000 people), which compared oral beta–blockers versus placebo within days or weeks of an acute myocardial infarction and continued for between 6 weeks and 3 years. The review found that beta blockers reduced mortality compared with placebo (RR 0.77, 95% CI 0.70 to 0.86).  BMJ Clinical Evidence 2005
Preventing Heart Disease

Done by controlling Risk Factors:

1. Assessing an individual’s risk level
2. Making lifestyle changes as appropriate
3. Using Med Quartet if indicated:
   - Aspirin, Beta Blocker, Statin, and ACEI
4. Controlling LDL, BP, and Diabetes
## Impact of Meeting CV Goals

<table>
<thead>
<tr>
<th>Risk Reduction in CV Events</th>
<th>Number Needed to Treat</th>
</tr>
</thead>
<tbody>
<tr>
<td>LDL &lt; 100</td>
<td>16%</td>
</tr>
<tr>
<td>BP &lt; 139/89</td>
<td>25%</td>
</tr>
<tr>
<td>A1C &lt; 9</td>
<td>18% but no change in mortality</td>
</tr>
<tr>
<td></td>
<td>24-32 in 5 yrs</td>
</tr>
<tr>
<td></td>
<td>29-86 in 5 yrs</td>
</tr>
</tbody>
</table>


Controlling Blood Sugar
What’s the “best” A1C in DM2?

“Results showed a U-shaped association, with the lowest HR at an A1C about 7.5%. Low and high mean A1C values were associated with increased all cause mortality and cardiac events. If confirmed, diabetes guidelines might need revision to include a minimum A1C value.”

The Lancet, 27 January 2010
What’s the “best” A1C in DM2?

The Lancet, 27 January 2010
## Tight A1C Control - 18% decrease in Coronary Heart Disease

### Meta-analysis

**Figure 2: Probability of events of coronary heart disease with intensive glucose-lowering versus standard treatment**

*Included non-fatal myocardial infarction and death from all-cardiac mortality.*

### Results

<table>
<thead>
<tr>
<th>Study</th>
<th>Participants</th>
<th>Events</th>
<th>Weight of study size</th>
<th>Odds ratio (95% CI)</th>
<th>Odds ratio (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>UKPDS47</td>
<td>3071/1549</td>
<td>426/259</td>
<td>8.6%</td>
<td>0.75 (0.54-1.04)</td>
<td></td>
</tr>
<tr>
<td>PROactive13-20*</td>
<td>2605/2633</td>
<td>164/202</td>
<td>20.2%</td>
<td>0.81 (0.65-1.00)</td>
<td></td>
</tr>
<tr>
<td>ADVANCE3</td>
<td>5571/5569</td>
<td>310/337</td>
<td>36.5%</td>
<td>0.92 (0.78-1.07)</td>
<td></td>
</tr>
<tr>
<td>VADT21,22</td>
<td>892/899</td>
<td>77/90</td>
<td>9.0%</td>
<td>0.85 (0.62-1.17)</td>
<td></td>
</tr>
<tr>
<td>ACCORD8</td>
<td>5128/5123</td>
<td>205/248</td>
<td>25.7%</td>
<td>0.82 (0.68-0.99)</td>
<td></td>
</tr>
<tr>
<td>Overall</td>
<td>17267/15773</td>
<td>1182/1136</td>
<td>100%</td>
<td>0.85 (0.77-0.93)</td>
<td></td>
</tr>
</tbody>
</table>

Tight A1C Control- BUT........
No decrease in Overall Mortality!!!

A1C Goals

A1C < 7  Age < 65 and no CAD, PAD, CVA, TIA, CHF, CRF/ESRD, Dementia, Blindness, or Lower Extremity Amputation

A1C < 8  Age > 65 and/or CAD, PAD, CVA, TIA, CHF, CRF/ESRD, Dementia, Blindness, or Lower Ext. Amputation
Glucose Control Care Path

Glucose Control Algorithm

**TREATMENT TARGETS:**
- **A1C < 7 %**
- **Fasting SMBG: 90 - 130**

**A1C > 7?**
- **Yes**
  - Start METFORMIN: 660 mg (½ pill BID → 1 pill BID → 2 pills BID)
  - Increase dose q 2 weeks until goal is reached.

**Fasting SMBG > 130 after 6 weeks?**
- **Yes**
  - Add NPH Insulin: start 10 units at hs. Increase 2 units q 2 days until goal is reached.
  - Add GLIPIZIDE: 5 mg (½ pill BID → 1 pill BID → 2 pills BID)
  - Increase dose q 2 weeks until goal is reached.

**Fasting SMBG > 130 after 6 weeks?**
- **Yes**
  - Add ACTOS: 15 mg → 30 mg qd.
  - Increase dose in 1 month if goal is not reached.
  - **Add NPH INSULIN**: Start 50 units at hs. Increase 2 units q 2 days until goal is reached*

**A1C > 8.57?**
- **Yes**
  - Start METFORMIN & GLIPIZIDE together

---

**Metformin 500 mg ½ tab bid**
- Pt self titrates up to 2 tabs bid

**Add Glipizide 5 mg ½ tab bid**
- Pt self titrates up to 2 tabs bid

**Add NPH insulin 10 units SQ HS**
- Pt titrates 2 units every 2 days

(Can add TZD if close to goal before insulin)
Cost per month to lower A1C by 1%

Prices from Consumer Reports 2/2009 Health.org Best Buy Drugs
A1C Reduction from Nathan NEJM 2007

- Glipizide
- Metformin
- Netaglinide
- Rosiglitazon
- Pioglitazone
- Sitagliptin
LDL Goals
LDL < 100 Reduces Coronary Events

LDL Cholesterol Optional Goal < 70

Optional LDL Goal < 70 if CAD AND:

- Diabetes
- Acute coronary syndrome
- Multiple/poorly controlled Risk Factors
- Risk Factors of the Metabolic Syndrome (especially TG>200, HDL <40)
Lipid Medication Care Path

Recommended Treatment Pathway

<table>
<thead>
<tr>
<th>Step</th>
<th>Drug and Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Simvastatin 40 mg (if LDL &lt; 160)</td>
</tr>
<tr>
<td>2</td>
<td>Simvastatin 80 mg (start 80 mg if LDL &gt; 160 or acute coronary syndrome)</td>
</tr>
<tr>
<td>3</td>
<td>Combination tx (niacin, resin, ezetimibe, etc.)</td>
</tr>
</tbody>
</table>

CM Cholesterol Clinical Practice Guidelines (2009)
Niacin- New Role for Old Drug

Niacin + Statin combo in the news lately

2 new branded meds

Advicor (lovastatin + niacin ER)

Simcor (simvasatin + niacin ER)

Sevaral favorable trials (HATS, OCEANS)

Lowers LDL and TG and raises HDL

Slo-Niacin can be added to Statins

Simva 80 + Slo-Niacin 1-1.5 g daily max
Simva 40 + Slo-Niacin 2 g daily max

Start with 250 mg BID or HS, titrate every 1-4 weeks to 500 bid or 1000 HS

Niaspan (Niacin ER Branded) > $1000/yr
Simcor (Simvastin + Niaspan) > $1000/yr
Slo-Niacin OTC < $50/yr
Blood Pressure and Heart Disease
Blood Pressure and Secondary Prevention

BP $\leq$ 129/79 mm Hg (SBP 120’s or lower)

   Diabetes, CKD, CHF, CVA/TIA

BP $\leq$ 139/89 mm Hg (SBP 130’s or lower)

   CAD, AAA, PAD

Optional $\leq$ 129/79 (SBP 120’s or lower)
**Recommended Treatment Pathway (If CAD, AAA)**

<table>
<thead>
<tr>
<th>Step</th>
<th>Drug Class</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Beta Blocker</td>
<td>Atenolol</td>
</tr>
<tr>
<td>2</td>
<td>ACEI</td>
<td>Lisinopril</td>
</tr>
<tr>
<td></td>
<td></td>
<td>and if still BP over goal then add…</td>
</tr>
<tr>
<td>3</td>
<td>Thiazide</td>
<td>HCTZ</td>
</tr>
<tr>
<td>3</td>
<td>Add DHP CCB</td>
<td>Amlodipine</td>
</tr>
</tbody>
</table>
HTN Care Path (no CAD, nl LVEF)

Management of Adult Hypertension

BLOOD PRESSURE (BP) GOALS
- ≤ 130/89 mm Hg – Uncomplicated Hypertension
- ≤ 129/70 mm Hg – Diabetes or CKD Stages 1–3, CVA, TIA

ACE-Inhibitor / Thiazide Diuretic

- Lisinopril / HCTZ
  - (Advance as needed)
  - 20/25 mg 1 daily
  - 20/25 mg 2 daily
  - 20/25 mg 3 daily

Pregnancy Potential: Avoid ACE-Inhibitors

If not in control

Calcium Channel Blocker

- Add amlodipine 5 mg X 1 daily + 5 mg X 1 daily = 10 mg daily

If not in control

Beta-Blocker OR Epinoprilatone

- Add atenolol 25 mg daily = 50 mg daily (Keep heart rate ≤ 55)
  - OR
  - If on thiazide AND spironolactone 99.9% effective AND K ≤ 4.8
    - Add spironolactone 12.5 mg HCTZ 25 mg daily

If not in control

- Consider medication non-adherence.
- Consider interfering agents (e.g., NSAIDs, excessive alcohol).
- Consider white coat effect. Consider BP checks by medical assistant (e.g., two checks with 2 readings each, 1 week apart).
- Consider discontinuing tamlopil / HCTZ and changing to chlorthalidone 25 mg plus temozol 40 mg daily.
- Consider additional agents (hydralazine, bendrofluazide, nifedipine, minoxidil).
- Consider stopping atenolol and adding diltiazem to amiodipine, keeping heart rate ≤ 55.
- Avoid using diuretics, verapamil, or diltiazem together with a beta-blocker. These heart-rate slowing drug combinations may cause symptomatic bradycardia over time.
- Consider secondary enology.
- Consider consultation with a hypertension specialist.
HTN Care Path (no CAD, nl LVEF)

ACE-Inhibitor / Thiazide Diuretic
- Lisinopril / HCTZ
  (Advance as needed)
  - 20 / 25 mg X ½ daily
  - 20 / 25 mg X 1 daily
  - 20 / 25 mg X 2 daily
- Pregnancy Potential: Avoid ACE-Inhibitors

If ACEI intolerant or pregnancy potential
- Thiazide Diuretic
  - Chlorthalidone 12.5 mg → 25 mg
  - OR
  - HCTZ 25 mg → 50 mg

If not in control
- Calcium Channel Blocker
  - Add amlodipine 5 mg X ½ daily → 5 mg X 1 daily → 10 mg daily

If not in control
- Beta-Blocker OR Spironolactone
  - Add atenolol 25 mg daily → 50 mg daily (Keep heart rate > 55)
  - OR
  - IF on thiazide AND eGFR ≥ 60 ml/min AND K < 4.5
    Add spironolactone 12.5 mg daily → 25 mg daily

Prevent Heart Attacks and Strokes Everyday
Diuretics Rule!!!

Diuretics superior to ACEI and CCB for CHF

Diuretics + ACEI Combo Rocks!!!

HYVET NEJM 358:1887, 2008

Placebo

ACEI + Diuretic

P=0.02

Follow-up (yr)

No. of Events per 100 Patients
1 Pill, 3 steps.. Remember 20/25!

ACE-Inhibitor / Thiazide Diuretic

Lisinopril / HCTZ
(Advance as needed)
20 / 25 mg X ½ daily
20 / 25 mg X 1 daily
20 / 25 mg X 2 daily

Pregnancy Potential: Avoid ACE-Inhibitors
2nd Pill, 3 steps.. Sound Familiar?

If not at goal on ACEI + Diuretic then add...

**Calcium Channel Blocker**

Add amlodipine 5 mg X ½ daily ➔ 5 mg X 1 daily ➔ 10 mg daily
Diuretic Dose Matters

“Best Dose”
Chlorthalidone 25 mg
Or HCTZ 37.5 - 50 mg

Davis BR the ALLHAT Collaborative Research Group, Benazepril plus Amlodipine or Hydrochlorothiazide for Hypertension. N Engl J Med 2009 360: 1147-1150
What’s the 4th med (3rd pill)?

If not at goal on Prinzide + Diuretic + CCB then...

**Beta-Blocker OR Spironolactone**

Add atenolol 25 mg daily → 50 mg daily (Keep heart rate > 55)

OR

IF on thiazide AND eGFR ≥ 60 ml/min AND K < 4.5
Add spironolactone 12.5 mg daily → 25 mg daily
Triple Drug Therapy for CAD

Meds:
- ASA
- Beta Blockers
- Statins

Overall 1-year survival in the population of hospital survivors of AMI, according to the number of medications (antiplatelet, β-blockers, and statins) prescribed at discharge. The gray line represents patients receiving triple combination therapy.
## What’s Possible for BP, LDL Control & Med Use?

### Optimal Med TX in COURAGE at 5 yrs

<table>
<thead>
<tr>
<th>Risk Factor Control</th>
<th>On Medication</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SBP</strong></td>
<td><strong>ACE/ ARB</strong></td>
</tr>
<tr>
<td><strong>DBP</strong></td>
<td><strong>Statin</strong></td>
</tr>
<tr>
<td><strong>LDL</strong></td>
<td><strong>Aspirin</strong></td>
</tr>
<tr>
<td></td>
<td><strong>B blocker</strong></td>
</tr>
</tbody>
</table>

**Great BP/LDL Control & Med Use is Possible**

A strategy to reduce cardiovascular disease by more than 80%

N J Wald, M R Law 2003 BMJ

Statin (atorvastatin 10 mg or simvastatin 40 mg)

3 blood pressure meds at 1/2 standard dose (for example, thiazide, blocker, and ACE inhibitor

Folic acid (0.8 mg)*

Aspirin (75 mg)

Results in 80% reduction of events in 4 years

*Folic Acid no longer felt to be advisable

Trials underway in Spain and India
CAD Prevention Involves

Identifying Individuals at Risk

CAD, DM, CVA/TIA, CKD, PAD, AAA, Primary Prev

Determine goal A1C, LDL, and BP

A1C 6’s or 7’s
LDL 90’s
BP 120/70’s or 130/80’s

Prescribe appropriate medications

Statin, Niacin, Diuretic, ACE Inhibitor, Aspirin, Beta Blocker, CCB, Spirinolactone, metformin, glipizide, insulin, etc.
Famous People Again