ALL HEART/PHASE Convening
The New Cholesterol Guidelines

Should I be on a Statin?
March 5, 2015

Wiley Chan, MD
Co-Chair, NHLBI Implementation Science Work Group
Member, State of Oregon Health Evidence Review Commission
Chair, Evidence-based Guidelines Subcommittee
Retired from Kaiser Permanente
Kaiser Permanente National Guideline Program
Co-Clinical Lead, Dyslipidemia
Methodologist
Kaiser Permanente, NorthWest
Director, Guidelines & Evidence-Based Medicine
Physician, Internal Medicine

Agenda

Atherosclerosis / Why Statins?
The Paradigm Shift
The New Guidelines
• Statins: Benefits and Harms
• Calculating Risk
KPNW Implementation Strategy
Atherosclerosis and Lipid-Lowering

- Why is Atherosclerotic Cardiovascular Disease (ASCVD) getting all this attention?
- Why do we focus so much on lipids in reducing ASCVD?
- What lipid markers should we focus on?
- Why do we prefer statins to other lipid-lowering drugs?

10 Leading Cause of Deaths (All Ages)

- Heart Disease: 597,689 deaths
- Malignant Neoplasm: 574,743 deaths
- Chronic Lung Disease: 138,080 deaths
- Cerebrovascular Disease: 129,476 deaths
- Unintentional Injury: 120,859 deaths
- Alzheimer’s Disease: 83,494 deaths
- Diabetes Mellitus: 69,071 deaths
- Nephritis: 50,476 deaths
- Influenza & Pneumonia: 50,097 deaths
- Suicide: 38,364 deaths

Data from: National Vital Statistics System, National Center for Health Statistics, CDC.
Odds Ratio and Population Attributable Risk of Potentially Modifiable Risk Factors

Dyslipidemia: Largest Odds Ratios

4.42 (3.43-5.70)
3.76 (2.33-4.38)

52% (44.0-60.2)
53.8% (48.3-59.2)

INTERHEART. Effect of Potentially Modifiable Risk Factors Associated with Myocardial Infarction in 52 Countries: Case-Control Study. Lancet 2004;364:937-952

What Do We Measure?

Plasma lipoproteins

Chylomicrons & remnants

Apo B48

VLDL

Apo B100

IDL

Apo B100

LDL

Apo B100

Lp(a)

Non-HDL-C

Atherogenic Lipoproteins

Atherogenic Triglyceride-rich Lipoproteins

LDL-C

HDL-C

Robinson JG. JACC 2009;55:42-44

Wiley Chan, MD
**Structure of LDL**

- **Surface Monolayer of Phospholipids and Free Cholesterol**
- **Hydrophobic Core of Triglyceride and Cholesteryl Esters**


**Heterogeneity of HDL**

- **Particle Shape**
  - Discoidal
  - Spherical

- **Apolipoprotein Composition**
  - A-I HDL
  - A-I/A-II HDL
  - A-II HDL

- **Particle Size**
  - HDL$_{2b}$
  - HDL$_{2a}$
  - HDL$_{3a}$
  - HDL$_{3b}$
  - HDL$_{3c}$

- **Lipid Composition**
  - TG, CE, and PL

Replacing TC & HDL-C with Lipid-Related Markers Worsens Risk Prediction

The model analyzed patients and compared conventional risk factors, including smoking status, history of diabetes, and total and high-density lipoprotein cholesterol (HDL-C), each of which were included as individual linear terms. The models were stratified by sex. Overall, the C-index for a model containing conventional cardiovascular disease (CVD) risk factors was 0.7244 (95% CI, 0.7200-0.7289). The net reclassification improvement analysis was calculated only for participants in studies that had at least 10 years of follow-up.


Atherosclerosis: A Progressive Process

Increasing Age & Total Cholesterol (SBP, Smoking, Diabetes)
**Effects of HRT vs. Simvastatin**
Hypercholesterolemic Postmenopausal Women

- TC: -14%
- LDL-C: -26*
- HDL-C: 7%
- Lp(a): 7%
- Lp(a): 0%
- TG: -14%

*P < 0.001.

HRT=hormone replacement therapy; E=estrogen; P=medroxyprogesterone.


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**WHI: Estrogen + Progestin**
Increased CHD, Stroke, VTE, & CVD

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Hazard Ratio</th>
<th>Nominal 95% CI</th>
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<tbody>
<tr>
<td>Follow-up time, mean (SD), mo</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Cardiovascular disease†</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHD</td>
<td>1.29</td>
<td>1.02-1.63</td>
</tr>
<tr>
<td>CHD death</td>
<td>1.18</td>
<td>0.70-1.97</td>
</tr>
<tr>
<td>Nonfatal MI</td>
<td>1.32</td>
<td>1.02-1.72</td>
</tr>
<tr>
<td>CABG/PTCA</td>
<td>1.04</td>
<td>0.84-1.28</td>
</tr>
<tr>
<td>Stroke</td>
<td>1.41</td>
<td>1.07-1.85</td>
</tr>
<tr>
<td>Fatal</td>
<td>1.20</td>
<td>0.58-2.60</td>
</tr>
<tr>
<td>Nonfatal</td>
<td>1.50</td>
<td>1.08-2.08</td>
</tr>
<tr>
<td>Venous thromboembolic disease</td>
<td>2.11</td>
<td>1.49-2.87</td>
</tr>
<tr>
<td>Deep vein thrombosis</td>
<td>2.07</td>
<td>1.39-3.25</td>
</tr>
<tr>
<td>Pulmonary embolism</td>
<td>2.13</td>
<td>1.09-3.86</td>
</tr>
<tr>
<td>Total cardiovascular disease</td>
<td>1.22</td>
<td></td>
</tr>
</tbody>
</table>
Lipid Research Clinics: Time to First Event

- Significant difference at 7.4 years
  - ARR = 1.7%
- Separation of curves by ~2 years

MIRA CI: Time to First Event*

- Separation of curves by ~4 weeks
- Significant difference at 16 weeks
  - ARR = 2.6%

*Death (any cause), nonfatal MI, resuscitated cardiac arrest, recurrent symptomatic myocardial ischemia with objective evidence requiring emergency rehospitalization.
Schwartz GG et al. JAMA. 2001;285:1711-1718
Effects of Statins on Myocardial Perfusion in CHD Patients

A
Rest Baseline

B
Stress Baseline

C
Stress After 3 mo Tx

D
Stress After 2 mo washout

Lovastatin 20 mg BID + cholestyramine

Proposed Mechanisms of Event Reduction by Statin Therapy

- Improved endothelium-dependent vasodilation
- Stabilization of atherosclerotic lesions
  - Especially nonobstructive, vulnerable plaques
- Reduction in inflammatory stimuli
  - Lipoproteins and modified lipoproteins
- Prevention, slowed progression, or regression of atherosclerotic lesions

Libby P. Circulation 1995;91:2844-2850
Incremental Benefit of Adding Other Lipid-Lowering Agents to Statins

- Limited evidence suggests that combinations of lipid-lowering agents do not improve clinical outcomes more than high-dose statin monotherapy.


Atherosclerosis and Lipid-Lowering

- Atherosclerotic Cardiovascular Disease (ASCVD) is the leading cause of death in the US (CDC, 2010)
- Among potentially modifiable risk factors, dyslipidemia has the highest Odds Ratio and Population-Attributable Risk (INTERHEART. Lancet 2004)
- Among lipid-lowering agents, statins have:
  - The most extensive evidence, greatest magnitude of ASCVD event reduction, and best safety profile
  - Rapid reduction in ASCVD event rates
  - Effects beyond cholesterol-lowering
    - Improve endothelial function
    - Enhance stability of atherosclerotic plaques
    - Decrease oxidative stress and inflammation
    - Inhibit thrombogenic response
- No evidence of incremental benefit of adding other agents to high-intensity statins (Sharma. AHRQ 2009)
Agenda

Atherosclerosis / Why Statins?

The Paradigm Shift

The New Guidelines
• Statins: Benefits and Harms
• Calculating Risk

KPNW Implementation Strategy

Audience Response System

How much do moderate-intensity statins reduce the relative risk of ASCVD?

A. 10%
B. 25%
C. 35%
D. 45%
E. 60%
Why the Major Change?

Old Paradigm
- **LDL-C centric**
  - Epidemiologic and pathophysiologic reasoning
  - Early RCTs designed around LDL-C centric perspective

New Paradigm
- **ASCVD risk & statin-intensity centric**
  - Vast majority of lipid-lowering studies showing efficacy at reducing CVD risk used statins
  - Later RCTs tested statins at ever-lower LDL-C thresholds
    - Latest RCTs imposed LDL-C ceilings
    - Latest RCTs gave fixed-dose statins, based on ASCVD risk
  - Analysis shows that statin CVD Relative Risk Reduction holds across the spectrum of risk, and that statin-intensity explains CVD reduction effect as well as LDL-C-lowering
  - No confidence in determining target LDL-C
  - No evidence that adding non-statins increases benefit

Relative %Reduction CVD Risk Proportional to %Reduction in LDL-C

<table>
<thead>
<tr>
<th>Average LDL-C reduction in primary prevention RCTs was 1 mmol/L or 39 mg/dL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Low-intensity statins</strong></td>
</tr>
<tr>
<td>• Pravastatin 10-20 mg</td>
</tr>
<tr>
<td>• Lovastatin 10-20 mg</td>
</tr>
<tr>
<td>LDL-C ↓ ≈ 30%</td>
</tr>
<tr>
<td>≈ 25% RRR Major CVD</td>
</tr>
<tr>
<td><strong>Moderate-intensity statins</strong></td>
</tr>
<tr>
<td>• Pravastatin 40-80 mg</td>
</tr>
<tr>
<td>• Lovastatin 40-80 mg</td>
</tr>
<tr>
<td>• Simvastatin 20-40 mg</td>
</tr>
<tr>
<td>• Atorvastatin 10-20 mg</td>
</tr>
<tr>
<td>LDL-C ↓ ≈ 30%- &lt;50%</td>
</tr>
<tr>
<td>≈ 35% RRR Major CVD</td>
</tr>
<tr>
<td><strong>High-intensity statins</strong></td>
</tr>
<tr>
<td>• Atorvastatin 40-80 mg</td>
</tr>
<tr>
<td>• Rosuvastatin 20-40 mg</td>
</tr>
<tr>
<td>• Simvastatin 80 mg (no new starts)</td>
</tr>
<tr>
<td>LDL-C ↓ ≥50%</td>
</tr>
<tr>
<td>47% RRR Major CVD in JUPITER</td>
</tr>
</tbody>
</table>

CTTC. Lancet 2010;376:1670-1681; Ridker. NEJM 2008;359:2195-2207
Relative Risk Reduction in CVD Proportional to Statin Intensity

Heart Protection Study analysis: CVD effect is proportional to statin intensity, independent of baseline LDL-C or reduction

Effect Independent of Baseline LDL-C

Effect Independent of LDL-C Reduction


Why the Major Change?

New Paradigm

- ASCVD risk & statin-intensity centric
  - RCTs gave fixed dose statins, based on ASCVD risk
  - No confidence in determining optimal LDL-C target
    - Perverse behavior with LDL-C targets
  - No incremental benefit of adding non-statins to high-dose statins
  - This could be upended by new evidence
    - Ezetimibe, CETP inhibitors, PCSK9 inhibitors, ??
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- Calculating Risk

KPNW Implementation Strategy

The New Cholesterol Guidelines
- Dyslipidemia treatment recommendations
- Rationale for statin treatment recommendations
- 10-year ASCVD risk
  - Differences between risk equations
    - Framingham CAD
    - NHLBI/AHA/ACC ASCVD
Highlights: New Cholesterol Guidelines

2014 NHLBI/AHA/ACC Risk Assessment and Dyslipidemia Guidelines

- Statin therapy and its intensity based on direct evidence of benefit and ASCVD risk
  - No longer based on baseline LDL-C (except LDL-C ≥190 mg/dL)
- Targets for LDL-C and non-HDL-C removed
- New model for 10-year risk of ASCVD
  - Fatal and non-fatal MI, fatal and non-fatal Stroke
  - Ages 40-79
    - People with DM
    - Race: non-Hispanic Whites & African American

Statin Benefit Groups

1. Adults ≤75 years of age who have clinical ASCVD
   High-intensity statin (Strong recommendation)
   Moderate-intensity statin if age ≥76 years (Weak recommendation)

2. Adults 40 to 75 years of age with diabetes mellitus and LDL-C 70-189 mg/dL
   Moderate-to-high-intensity statin (Strong recommendation)
   Moderate-intensity statin if age ≥76 years (Weak recommendation)

3. Adults ≥21 years of age with primary LDL–C ≥190 mg/dL
   High-intensity statin (Strong recommendation)

4. Adults 40 to 75 years of age with LDL–C 70 to 189 mg/dL, without clinical ASCVD or diabetes at elevated ASCVD risk
   High-intensity statin if ASCVD risk ≥15% (KP strong recommendation)
   Moderate-intensity statin if ASCVD risk 7.5-14.9% (KP weak recommendation)
Estimating Net Benefit

- Use absolute risk and relative risk reduction to estimate NNT (Number Needed to Treat) to prevent one CVD event
- Use absolute risk (and relative risk increase) to estimate NNH (Number Needed to Harm) to cause 1 excess adverse event
- Benefits increasingly outweigh harms as NNH increasingly exceeds NNT (ie, NNH >> NNT)
- Clinical application:
  - Identification of candidates for primary prevention with statin therapy
  - Using data from Cholesterol Treatment Trialists’ Collaboration 2012 meta-analysis

Statin Adverse Events

- **Excess risk of myopathy**
  - 0.5 per 1000 statin-treated persons over 5 years
    - Higher with simvastatin 80 mg (lower doses in Asians)
    - 5-year NNH = 2,000

- **Excess risk of hemorrhagic stroke**
  - 0.1 per 1000 statin-treated persons over 5 years
    - Might be higher in populations at risk hemorrhagic stroke (eg, Asian)
    - 5-year NNH = 10,000

CTTC. Lancet 2012;380:581-590
Statin Adverse Events

- **Excess risk of new diabetes**
  - 5 per 1000 statin-treated persons over 5 years
    - Meta-analysis of mostly moderate-intensity statin therapy
    - 5-year NNH = 200
  - 15 per 1000 statin-treated persons over 5 years
    - 54 per 8901 statin-treated persons over 2 years with Rosuvastatin 20 mg
    - All cases occurred in those with baseline risk factors (PreDM, BMI ≥30, metabolic syndrome)
    - 5-year NNH = 66


Conservative Approach to Estimating Adverse Effects of Statin Therapy

- **Low to Moderate intensity statin**
  - 5-5.6 excess cases of adverse effects per 1000 statin-treated persons over 5 years
    - NNH = 179-200
    - **10-Year NNH = 89-100**

- **High intensity statin**
  - 15-15.6 excess cases of adverse effects per 1000 statin-treated persons over 5 years
    - NNH = 64-66
    - **10-Year NNH = 32-33**
Primary Prevention – Net Benefit
ASCVD Event Reduction vs Adverse Effects

**MODERATE INTENSITY STATIN TREATMENT**
Assumes a 35% relative risk reduction in ASCVD from moderate intensity statin treatment; NNT to prevent 1 ASCVD event varies by baseline estimated 10-year ASCVD risk; NNH based on 3 excess cases of incident diabetes per 100 individuals* treated with statins for 10 years.

**HIGH INTENSITY STATIN TREATMENT**
Assumes a 45% relative risk reduction in ASCVD from high intensity statin treatment; NNT to prevent 1 ASCVD event varies by baseline estimated 10-year ASCVD risk; NNH based on 3 excess cases of incident diabetes* per 100 individuals treated with statins for 10 years.

*A conservative estimate of adverse events includes excess cases of incident diabetes, myopathy, and hemorrhagic stroke. The NNH is dominated by excess cases of diabetes, with minimal contribution by myopathy (approximately 0.1 excess case per 100) and hemorrhagic stroke (approximately 0.02 excess case per 100 for hemorrhagic stroke).

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Calculating Risk

- If your patient is in first three categories, you can start treatment simply based on group
  - Direct, hard-outcomes evidence of benefit
- For fourth group, calculate ASCVD risk
- ASCVD risk based on new NHLBI/AHA/ACC Pooled Cohort Risk Equations
- How good are these equations?

Audience Response System

What percentage of the population is at or above 5% 10-year risk of ASCVD:
Men 50-54 years old?

A. 5%
B. 20%
C. 50%
D. 80%
E. 100%
### Distribution of ASCVD Risk
Population Without ASCVD or DM Aged 40-79

<table>
<thead>
<tr>
<th>% of Gender/Age Group by ASCVD Risk Threshold</th>
<th>ASCVD Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;5%</td>
<td>&gt;5%</td>
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<tr>
<td>&gt;7.5%</td>
<td>&gt;10%</td>
</tr>
<tr>
<td>&gt;15%</td>
<td>&gt;20%</td>
</tr>
<tr>
<td>40-44</td>
<td>89.22%</td>
</tr>
<tr>
<td>45-49</td>
<td>72.28%</td>
</tr>
<tr>
<td>50-54</td>
<td>45.53%</td>
</tr>
<tr>
<td>55-59</td>
<td>12.26%</td>
</tr>
<tr>
<td>60-64</td>
<td>0.94%</td>
</tr>
<tr>
<td>65-69</td>
<td>1.33%</td>
</tr>
<tr>
<td>70-74</td>
<td>0.00%</td>
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<tr>
<td>75-79</td>
<td>0.00%</td>
</tr>
<tr>
<td>Men:</td>
<td></td>
</tr>
<tr>
<td>CAD</td>
<td>ASCVD</td>
</tr>
<tr>
<td>Men</td>
<td>11.89%</td>
</tr>
<tr>
<td>Women</td>
<td>94.57%</td>
</tr>
<tr>
<td>Total</td>
<td>84.97%</td>
</tr>
<tr>
<td>Women</td>
<td>25.44%</td>
</tr>
<tr>
<td>CAD</td>
<td>ASCVD</td>
</tr>
<tr>
<td>Women</td>
<td>94.57%</td>
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<tr>
<td>Total</td>
<td>84.97%</td>
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### Framingham CAD Risk vs. ASCVD Risk
Population Without ASCVD or DM Aged 40-75

<table>
<thead>
<tr>
<th>At ≥20% 10-Year Risk</th>
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<tbody>
<tr>
<td>CAD</td>
</tr>
<tr>
<td>Men</td>
</tr>
<tr>
<td>Women</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>At ≥10% 10-Year Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAD</td>
</tr>
<tr>
<td>Men</td>
</tr>
<tr>
<td>Women</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

Based on Analysis of NHANES 2007-2010 Data
Relative changes ≥10% are highlighted in color
Validation of ASCVD Pooled Cohort Risk Equations

US Cohort
N=10,997
Recruited 2003-2007
Follow-up = 5 years
Mean age = 62.7

- Calibration: Slight OVERestimation of risk
- Discrimination: Moderate to good

Dutch Cohort
N=3,433
Recruited 1997-2001
Follow-up = 10 years
Mean age = 65.5

- Calibration: OVERestimation of risk
- Discrimination: Moderate to good
Validation of Framingham Equations

**MEN**

<table>
<thead>
<tr>
<th>10-y Predicted Risk, %</th>
</tr>
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<tbody>
<tr>
<td>Observed risk</td>
</tr>
<tr>
<td>&lt;50</td>
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**WOMEN**

<table>
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<tr>
<th>10-y Predicted Risk, %</th>
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</thead>
<tbody>
<tr>
<td>Observed risk</td>
</tr>
<tr>
<td>&lt;50</td>
</tr>
</tbody>
</table>

**Dutch Cohort**

- N=3,407
- Recruited 1997-2001
- Follow-up = 10 years
- Mean age = 65.5


- **Calibration:** Worse OVERestimation of risk compared to ASCVD equations
- **Discrimination:** Moderate to good

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- **KPNW Implementation Strategy**
Impact of Guideline Changes in KP

- **Drug Therapy** .......................................................... **Major**
  Increased emphasis on statin therapy
  - Removal of LDL-C thresholds and targets for therapy
  - Statins and their intensity based on ASCVD risk
  - Target is adherence to recommended statin intensity

- **Criteria for people with ASCVD Therapy** ......................... **None**

- **Criteria for people with DM** ........................................ **Minimal**
  Statins recommended if baseline LDL-C ≥ 70 mg/dL

- **Criteria for people without ASCVD or DM** ...................... **Major**
  - Increased emphasis on LDL-C ≥ 190 mg/dL
  - Increased emphasis on ASCVD risk ≥ 15%
  - New 10-year ASCVD Risk Equations
    - Expanded population eligible for statin therapy: ≥ 7.5% 10-year risk
    - No “firm” recommendation for statins in people < 40 years old
      - Except if ASCVD or LDL-C ≥ 190 mg/dL

KPNW Implementation Plans

- **High-Priority Quality Metrics** *(New elements in red)*
  - Statins in people with ASCVD, age 18-80
  - Statins in people with DM and LDL-C 70-189 mg/dL, age 40-80
  - Statins in people without ASCVD or DM, with LDL-C 70-189 mg/dL and 10-year ASCVD risk ≥ 20%, age 40-80
  - Statins in people with LDL-C ≥ 190 mg/dL, age 21-80

- **Annual LDL-C Monitoring**
  - PST Care Gaps to remain in place until medication adherence metrics are fully operational

- **HEDIS Metrics**
  - LDL-C screening and control metrics for ASCVD and DM retired, beginning in 2015 measurement period (based on 2014 data)
### Case Scenario

- **53 year old white man**
  - Total cholesterol 200, HDL-C 40, LDL-C 130
  - SBP 150, on no antihypertensives
  - No DM
  - Non-smoker
- **What is his 10-year risk for ASCVD?**
- **To reduce ASCVD risk, you would recommend:**
  - No treatment
  - Antihypertensives
  - Aspirin
  - Statin
    - If so, what intensity?
To Treat or Not to Treat: Statins
7.5% 10-Year ASCVD Risk

- At 7.5% 10-year ASCVD risk, for every 1000 people taking moderate-intensity statins for 10 years:
  - 26 would avoid an MI or Stroke (NNT = 38 vs NNH = 100)
  - 49 would have an MI or Stroke despite statins
  - 925 wouldn’t have an MI or Stroke with or without statins

To Treat or Not to Treat: Lower BP by 10/5 mm Hg
7.5% 10-Year ASCVD Risk

- At 7.5% 10-year ASCVD risk, for every 1000 people taking antihypertensives for 10 years:
  - 21 would avoid an MI or Stroke (NNT = 48 vs NNH = ??)
  - 54 would have an MI or Stroke despite antihypertensives
  - 925 wouldn’t have an MI or Stroke with or without antihypertensives

Derived from Law, BMJ 2009;338:b1665
To Treat or Not to Treat: Lower SBP by 5 mm Hg
7.5% 10-Year ASCVD Risk

At 7.5% 10-year ASCVD risk, for every 1000 people taking antihypertensives for 10 years:
- 11 would avoid an MI or Stroke (NNT = 89 vs NNH = ??)
- 64 would have an MI or Stroke despite antihypertensives
- 925 wouldn’t have an MI or Stroke with or without antihypertensives

BPTTC. Lancet 2014;348(9043):591-98

To Treat or Not to Treat: Aspirin
7.5% 10-Year ASCVD Risk

At 7.5% 10-year ASCVD risk, for every 1000 people taking aspirin for 10 years:
- 9 would avoid an MI or Stroke (NNT = 111 vs NNH = 125)
- 66 would have an MI or Stroke despite aspirin
- 925 wouldn’t have an MI or Stroke with or without aspirin

Derived from ATTC. Lancet 2009
USPSTF. Ann IM 2009
Case Scenario

- 72 year old white woman
  - Total cholesterol 180, HDL-C 60, LDL-C 100
  - SBP 150, on no antihypertensives
  - No DM
  - Non-smoker
- What is her 10-year risk for ASCVD?
- To reduce ASCVD risk, you would recommend:
  - No treatment
  - Antihypertensives
  - Aspirin
  - Statin
    - If so, what intensity?

To Treat or Not to Treat: Statins

15% 10-Year ASCVD Risk

- At 15% 10-year ASCVD risk, for every 1000 people taking moderate-intensity statins for 10 years:
  - 52 would avoid an MI or Stroke (NNT = 19 vs NNH = 100)
  - 98 would have an MI or Stroke despite statins
  - 850 wouldn't have an MI or Stroke with or without statins
To Treat or Not to Treat: Statins
15% 10-Year ASCVD Risk

At 15% 10-year ASCVD risk, for every 1000 people taking HIGH-intensity statins for 10 years:
- 67 would avoid an MI or Stroke (NNT = 12 vs NNH = 33)
- 83 would have an MI or Stroke despite statins
- 850 wouldn't have an MI or Stroke with or without statins

Case Scenario

- 56 year old black woman
  - Total cholesterol 200, HDL-C 60, LDL-C 100
  - SBP 140, on antihypertensives
  - HbA1c 6.5%
  - Non-smoker
- What is her 10-year risk for ASCVD?
- To reduce ASCVD risk, you would recommend:
  - No treatment
  - Intensify Antihypertensives
  - Aspirin
  - Statin
  - Metformin
Case Scenario

- 41 year old black man
  - Total cholesterol 170, HDL-C 40, LDL-C 100
  - SBP 120, on no antihypertensives
  - No DM
  - Smoker

- What is his 10-year risk for ASCVD?

To reduce ASCVD risk, you would recommend:
- No treatment
- Antihypertensives
- Aspirin
- Statin
- Smoking Cessation

To Treat or Not to Treat: Statins

5% 10-Year ASCVD Risk

> At 5% 10-year ASCVD risk, for every 1000 people taking moderate-intensity statins for 10 years:
  > 17 would avoid an MI or Stroke (NNT = 57 vs NNH = 100)
  > 33 would have an MI or Stroke despite statins
  > 950 wouldn't have an MI or Stroke with or without statins
ASCVD Risk and Statin Therapy
What Do You Need to Do?

- Start high-intensity statins in people with clinical ASCVD
  - Age 18-75 (Consider moderate-intensity at age 76-80)
- Start high-intensity statins in people with LDL-C ≥190
  - Age 21-75 (Consider moderate-intensity at age 76-80)
- Start moderate-intensity statins in people with DM
  - Age 40-75 and LDL-C 70-189 (Consider at age 76-80)

Review ASCVD Risk

- Use PST, web posting or download the app
- Start high-intensity statins at ASCVD Risk ≥15%
  - Including those with DM
  - Age 40-75 and LDL-C 70-189 (Consider moderate-intensity at age 76-80)
- Consider moderate-intensity statins at ASCVD Risk 7.5-14.9%
  - Age 40-75 and LDL-C 70-189

Check ALT before initiating statins

Q & A
The New Cholesterol Guidelines
Should I Be on a Statin?