Cardiovascular Disease:
How do the guidelines fit into an implementation scheme?
What the guidelines set out to accomplish
What didn’t it tackle?
Case Study:
How to achieve 75% fewer heart attacks after the first visit
Implementation in the community
How can any of these ideas improve your hypertension AIM?
Kaiser Permanente’s History and Mission

To provide high quality affordable health care and improve the health of our members and the communities we serve.

Health Plan Membership* by Region

**Colorado:** 618,802
**Georgia:** 259,450
**Hawaii:** 229,746
**Mid-Atlantic States:** 516,099 (VA, MD, DC)
**Northern California:** 3,579,580
**Northwest:** 499,011 (Oregon/Washington)
**Southern California:** 3,762,200

* as of June 31, 2014
Harriet Hypertensive

55 yo African American church Decons Assistant with
- “a touch of sugar” [A1Cs 6.6% & 6.7] &
- new repeated BP is 160/95,
- Last week her she had normal liver, kidney, potassium and cholesterol [165, LDL of 95]
- No doctor visit in over 2 yrs, (busy at work, no car, and copays are too high)
- She doesn’t worry about BP (she feels fine) but her older brother just had a stroke, and she is worried about having one herself.

What do the new HTN guidelines say to do? What is the best overall approach for Harriet?
1. Start a BP drug now?
2. Start 2 BP drugs now?
3. Given a normal cholesterol, should we advise a statin?
What’s With the New CVD Prevention Guidelines?

- Are they evidence based?
- What is the ultimate aim?
- Do they set BP targets?
- Do they tell you what drugs to use?
- What don’t they tackle that is important for implementation?

History of CVD Clinical Guidelines Went from Consensus

<table>
<thead>
<tr>
<th>NHLBI</th>
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<th>HHS: AHQR</th>
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<tbody>
<tr>
<td><strong>Joint National Committee on Prevention, Detection, Evaluation, &amp; Treatment of High Blood Pressure (JNC)</strong></td>
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<td>JNC 7: 2003</td>
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<td><strong>Detection, Evaluation, &amp; Treatment of High Blood Cholesterol in Adults (ATP, Adult Treatment Panel)</strong></td>
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<td>ATP I: 1988</td>
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<tr>
<td><strong>United States Preventative Services Task Force [USPSTF] Aspirin Guidelines</strong></td>
<td></td>
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<td>2009</td>
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<td>2004</td>
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To Being Strictly Evidence-Based

Focus only on randomized controlled trials assessing important health outcomes (no use of intermediate/surrogate measures)

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What’s the JNC8 Guideline OUTCOME [AIM]

1. Get patients BP of under 140/90?
2. Get patients BP of under 150/90?
3. Decrease cardiovascular and renal disease?
4. Provide a list of drugs that are proven to lower BP?
5. To provide controversial debate for years?
And JNC 8 Used Only “Hard Ultimate” Outcomes [AIMS]

90% of mortality is due to CVD in hypertensive people

- CVD-related mortality
- Myocardial infarction
- Heart failure
- Stroke
- End Stage Renal Disease

2014 HTN Evidence-Based Guideline

The focus is on the panel’s three highest ranked questions related to HTN management: In hypertensive adults, related to health outcomes:

1. does antihypertensive drug therapy at BP thresholds improve them?
2. does antihypertensive drug therapy to a BP goal improve them?
3. do antihypertensive drugs differ in benefits and harms?
They Set BP Targets and Allow for Medication Combinations

Possible Initial Combinations of Medications

- **Diuretics**
- **ACE inhibitors or ARBs**
- **Calcium antagonists**

1. **Set blood pressure goal and initiate blood pressure lowering medication based on age, diabetes, and chronic kidney disease (CKD).**

2. **General population (no diabetes or CKD):**
   - Age ≥60 years
   - Blood pressure goal: SBP < 130 mm Hg, DBP < 80 mm Hg

3. **Diabetes or CKD present:**
   - Age ≥60 years
   - Blood pressure goal: SBP < 130 mm Hg, DBP < 80 mm Hg

4. **All ages, diabetes present, no CKD:**
   - Blood pressure goal: SBP < 130 mm Hg, DBP < 80 mm Hg

5. **All ages, CKD present with or without diabetes:**
   - Blood pressure goal: SBP < 140 mm Hg, DBP < 90 mm Hg

Select a drug treatment titration strategy:

A. Maintain first medication before adding second or:
B. Add second medication before reaching maximum dose of first medication or:
C. Start with 2 medications taken separately or at fixed-dose combinations.

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What The Guidelines Don’t Do
Overcome Barriers to Implementation Such As:

Medical Care System Barriers:
- A system for practitioners
to treat to target BP
- To consider other than BP meds to achieve the aim
- Making it easy for a patient
to get a BP
to take the drugs

Personal Barriers:
- Inconvenience & cost
  - “I’m overwhelmed with stuff. I don’t have time for visits, tests”, etc.
  - “I can’t take off work, get transportation, copays, and costs of medications”
- Remembering to take many pills at different times and get refills at a pharmacy

So where Do Guidelines Fit in Implementation?
Factors of a Kaiser successful hypertension program used
- evidence-based guidelines
- hypertension registry
- sharing of performance metrics
- medical assistant visits for blood pressure measurement
- single-pill combination pharmacotherapy
How Much does A Single Combination Pill Improve Adherence?

>¾ of the time is good, <1/4 of the time is poor

<table>
<thead>
<tr>
<th>Good</th>
<th>poor</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>0%</td>
</tr>
<tr>
<td>2.</td>
<td>5%</td>
</tr>
<tr>
<td>3.</td>
<td>10%</td>
</tr>
</tbody>
</table>
Why Combine 2 BP medications in a single pill?

To improve adherence & overcome Therapeutic inertia

- (<85 mm Hg, diastolic) UKPDS
- (92 mm Hg, MAP) MDRD
- (<80 mm Hg, diastolic) HOT
- (<92 mm Hg, MAP) AASK
- (<140/90 mm Hg) RENAIL
- (≤135/85 mm Hg) IDNT

Number of agents required to achieve blood pressure (BP) goal in high-risk patients with hypertension with diabetes or impaired renal function.

Simplicity: Single Pill Fixed Dose Combination Based

SIMPLICITY = achieving your aim

- Fewer steps
- Fewer pills
- Faster control
- Fewer visits/ improved access
What is the Ultimate AIM?

- Bring High Blood Pressure to normal? **NO!**
- **PREVENT HEART ATTACKS & STROKES** in people with hypertension

  - So how does BP fit into the way a heart attack or stroke is formed?
  - What else would help?
What's the Most Effective Number of Drugs that Can Be Started at the First Visit to prevent CVD in a Person with Hypertension?

1
2
3
4

After 8 years the committee couldn't get to that, [need more FF miles to answer]

Back to Basics:
What Causes a Heart Attack in HTN or DM or CVD Patients

[Diagram showing PLAQUE with fibrous cap, Cap ruptures “cracks”, Blood clot forms around the rupture, blocking the artery]
So Would a STATIN Help? YES If “high ASCVD risk”

AHA/ACC Lipid guidelines: Treat ANY high CVD risk patient regardless of BP or LDL

Estimate 10-y ASCVD Risk with Pooled Cohort Equations

≥7.5% estimated 10-y ASCVD risk and age 40-75 y

Moderate-to-high intensity statin

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Harriet’s ACC/AHA CV risk score

ASCVD Risk Estimator*

10-Year ASCVD Risk

20.1% estimated 10 yr ASCVD risk

1.8% risk with no ASCVD risk factors

Lifetime ASCVD Risk

50% calculated risk

8% risk with major risk factors

Recommendation Based On Calculation

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<table>
<thead>
<tr>
<th>Male</th>
<th>Female</th>
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</thead>
<tbody>
<tr>
<td>HDL - Cholesterol (mg/dL)</td>
<td>35</td>
</tr>
<tr>
<td>Total Cholesterol (mg/dL)</td>
<td>170</td>
</tr>
<tr>
<td>Diabetes</td>
<td>Yes</td>
</tr>
<tr>
<td>Treatment for Hypertension</td>
<td>Yes</td>
</tr>
<tr>
<td>Systolic Blood Pressure</td>
<td>160</td>
</tr>
<tr>
<td>Smoker</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*Intended for use if there is no ASCVD and the LDL-cholesterol is >190 mg/dL.
**Optimal risk factors include: Total cholesterol of 170 mg/dL, HDL-cholesterol of 50 mg/dL, Systolic BP of 110 mm Hg. Not taking medications for hypertension. Not a diabetic. Not a smoker
While ACE/Thiazide Drops CVD a lot, Add Over 40% Reduction with just an Aspirin and statin in all high risk states

Statins Add Significantly to A HTN Pt’s CVD Prevention
And are more powerful that an ACE/Thiazide combination:
What About Aspirin?
It’s Also Recommended in High CVD Risk Patients

The USPSTF recommends the use of aspirin for men age 45 to 79 years [and women 55-79] when the potential benefit … outweighs the potential harm*

Grade: A recommendation.

* for most people it’s the same 7.5% CVD risk level for starting a statin

You Can Decrease Heart Attacks, Strokes or Death from them [MACE]* ~75% with just 4 pills/d

* Population: SBP >140 & age>55yo Major Adverse Coronary Events
What’s the Most Important Factor When Implementing 4 drugs?

Simplicity!

“The better path is to make the target behavior easier to do.” - Six Principles of Simplicity, BJ Fogg

How Can We Do It Simply? Bundle Up!

First visit “BUNDLE” if High CVD risk
Summary: For 75% decrease in MI’s & strokes, on the First Visit, *simply* think:

**“TALL”**

- Thiazide-ACE
- Lipid Lowering statin
- Aspirin

---

**Harriet Hypertensive**

55 yo housekeeper with
- “a touch of sugar” [A1Cs 6.6% & 6.7] &
- new repeated BP is 160/95,
- Last week she had normal liver, kidney, potassium and LDL cholesterol [95 mg%] tests
- No doctor visit in over 2 yrs, can’t get off work, no car, and copays are too high.
- She doesn’t worry about BP but her older brother just had a stroke, and she is worried about having one herself.

What do the new HTN guidelines say to do? What is the best overall approach for Harriet?

1. Start a BP drug now?
2. Start 2 BP drugs now?

1. Given a normal cholesterol, should we advise a statin?
5 Yrs later, looking GREAT!

It’s All About Implementation

It has to work in the real world!
Implementing TALL in the Community

Simplified Treatment Algorithm
+ Culture Change
+ Patient Engagement

= San Diego

Provider Communities: Creating a Culture of Quality Improvement & Accountability

- Annual Quality Goal Targets
- Un-blinded Medical Center Performance Reports
- Central Hypertension Management Team identified Best Practices
- Medical Center Cardiovascular Risk Reduction Teams to Support Physicians
- Best Practices Disseminated through Regional Peer Meetings
- Clinic-level feedback to facilitate operational and system-level change
Engaging Patients & Their Families Where they Live, Work, Play and Pray

I’ve had high blood pressure since my 40s. I used to stop at pharmacies and stick my arm in the machines, but I just don’t see how they can be accurate. Having my pressure measured on a regular basis at Wally’s keeps the information steady and has made me think more seriously about it.

Public Policy Implications
Workshop:
Take 15 min at your table to design into your routine BP care scheme any of the above ideas that you wish and report out:

- How much will YOUR NEW AIM reduce heart attacks & strokes?
- Will it be simpler, the same, or more complex than your present system?
- What is one next step you will take to make that happen?