Hypertension Guidelines and Adherence

Emil Thattassery MD MPH
Division of Cardiology
Chief of Medical Specialties, Baltimore
Mid-Atlantic Permanente
March 21st, 2013
Disclosures

- I have no financial disclosures.

- No personal financial interests, stock, ownership interests, or industry relationships
Overview

- Background
- Definitions
- Treatment Guidelines (JNC 7)
  - Non-pharmacologic
  - Pharmacologic
  - Resistant Hypertension
- Recent Clinical Data and Recommendations
- Optimizing Adherence to Therapy
- Case Study – Kaiser Permanente (Mid-Atlantic)
Importance

- High blood pressure is ubiquitous
  - 1 out of 3 US adults (68 million adults) have high blood pressure
    - 36 million adults still have uncontrolled BP
    - 30% of people with hypertension in US are unaware of it
  - Lifetime risk of HTN is approximately 85-90% (by age 80-85)
    - 75% of adults older than 75yrs have HTN

- High blood pressure is deadly
  - Lowering SBP by 12mmHg over 10yrs in patient with CV risk factors – can prevent 1 death for every 11 patients

- High blood pressure is costly
  - Costs the nation almost $131 billion annually in direct medical expenses, and $25 billion in lost productivity

CDC 2011, NHANES
Figure 12. Ten-year risk for coronary heart disease by systolic blood pressure and presence of other risk factors

<table>
<thead>
<tr>
<th>Cholesterol</th>
<th>180</th>
<th>240</th>
<th>240</th>
<th>240</th>
<th>240</th>
<th>240</th>
<th>240</th>
</tr>
</thead>
<tbody>
<tr>
<td>HDL</td>
<td>50</td>
<td>50</td>
<td>35</td>
<td>35</td>
<td>35</td>
<td>35</td>
<td>35</td>
</tr>
<tr>
<td>Smoking</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Diabetes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>LVH</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

CHD, coronary heart disease; HDL, high-density lipoprotein; LVH, left ventricular hypertrophy; SBP, systolic blood pressure

Blood Pressure: Definitions

**Definition**
- Average of two or more properly measured, seated, BP readings on each of two or more office visits

**Goals of Therapy (JNC7)**
- BP goal <140/90
- For patients with diabetes / renal disease: goal <130/80

**JNC8 still to be released**
- JNC7 was released 2003, now 10 years old
- JNC8 will be based on rigorous clinical evidence review
- Guidelines to be released on HTN, Hyperlipidemia, Obesity
### Table 3. Classification of blood pressure for adults

<table>
<thead>
<tr>
<th>Blood Pressure Classification</th>
<th>SBP mmHg</th>
<th>DBP mmHg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>&lt;120</td>
<td>and &lt;80</td>
</tr>
<tr>
<td>Prehypertension</td>
<td>120–139</td>
<td>or 80–89</td>
</tr>
<tr>
<td>Stage 1 Hypertension</td>
<td>140–159</td>
<td>or 90–99</td>
</tr>
<tr>
<td>Stage 2 Hypertension</td>
<td>≥160</td>
<td>or ≥100</td>
</tr>
</tbody>
</table>

*SBP, systolic blood pressure; DBP, diastolic blood pressure*
Overview

- Background
- Definitions
- Treatment Guidelines (JNC 7)
  - Non-pharmacologic
  - Pharmacologic
  - Resistant Hypertension
- Recent Clinical Data and Recommendations
- Optimizing Adherence to Therapy
- Case Study – Kaiser Permanente (Mid-Atlantic)
<table>
<thead>
<tr>
<th>Modification</th>
<th>Recommendation</th>
<th>Approximate SBP Reduction (Range)†</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight reduction</td>
<td>Maintain normal body weight (body mass index 18.5–24.9 kg/m²)</td>
<td>5–20 mmHg/10 kg²</td>
</tr>
<tr>
<td>Adopt DASH eating plan</td>
<td>Consume a diet rich in fruits, vegetables, and lowfat dairy products with a reduced content of saturated and total fat.</td>
<td>8–14 mmHg²</td>
</tr>
<tr>
<td>Dietary sodium reduction</td>
<td>Reduce dietary sodium intake to no more than 100 mmol per day (2.4 g sodium or 6 g sodium chloride).</td>
<td>2–8 mmHg²</td>
</tr>
<tr>
<td>Physical activity</td>
<td>Engage in regular aerobic physical activity such as brisk walking (at least 30 min per day, most days of the week).</td>
<td>4–9 mmHg²</td>
</tr>
<tr>
<td>Moderation of alcohol consumption</td>
<td>Limit consumption to no more than 2 drinks (e.g., 24 oz beer, 10 oz wine, or 3 oz 80-proof whiskey) per day in most men, and to no more than 1 drink per day in women and lighter weight persons.</td>
<td>2–4 mmHg²</td>
</tr>
</tbody>
</table>

* DASH, Dietary Approaches to Stop Hypertension; SBP, systolic blood pressure
Pharmacologic recommendations from JNC 7

- First-line – diuretic therapy preferred
  - HCTZ (25-50mg) or Chlorthalidone (12.5-25mg)
- Combination therapy
  - >2/3 of patients cannot be controlled on one drug
Figure 16. Algorithm for treatment of hypertension

**Lifestyle Modifications**

Not at Goal Blood Pressure (<140/90 mmHg)  
(<130/80 mmHg for those with diabetes or chronic kidney disease)

**Initial Drug Choices**

Without Compelling Indications

- Stage 1 Hypertension (SBP 140–159 or DBP 90–99 mmHg)  
  Thiazide-type diuretics for most. May consider ACEI, ARB, BB, CCB, or combination

With Compelling Indications

- Stage 2 Hypertension (SBP ≥160 or DBP ≥100 mmHg)  
  Two-drug combination for most (usually thiazide-type diuretic and ACEI, or ARB, or BB, or CCB)

**Not at Goal Blood Pressure**

- Drug(s) for the compelling indications (see table 12)  
  Other antihypertensive drugs (diuretics, ACEI, ARB, BB, CCB) as needed

- Optimize dosages or add additional drugs until goal blood pressure is achieved. Consider consultation with hypertension specialist.

**ACEI, angiotensin converting enzyme inhibitor; ARB, angiotensin receptor blocker; BB, beta blocker; CCB, calcium channel blocker; DBP, diastolic blood pressure; SBP, systolic blood pressure**
Table 12. Clinical trial and guideline basis for compelling indications for individual drug classes

<table>
<thead>
<tr>
<th>Compelling Indication*</th>
<th>Recommended Drugs</th>
<th>Clinical Trial Basis†</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DIURETIC</td>
<td>BB</td>
</tr>
<tr>
<td>Heart failure</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Postmyocardial infarction</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High coronary disease risk</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diabetes</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chronic kidney disease</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recurrent stroke prevention</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Resistant Hypertension

Resistant HTN

- Defined as adherence to 3 drug regimen (including diuretic)
- Causes
  - Improper BP measurement
  - White Coat Hypertension
  - Heavily calcified brachial arteries
  - Inadequate diuretic dose (CKD, CHF)
  - NSAIDS, OTC cold products (pseudoephedrine)
Causes of Resistant Hypertension

Primary cause of resistant hypertension
Overview

- Background
- Definitions
- Treatment Guidelines (JNC 7)
  - Non-pharmacologic
  - Pharmacologic
  - Resistant Hypertension
- Recent Clinical Data and Recommendations
- Optimizing Adherence to Therapy
- Case Study – Kaiser Permanente (Mid-Atlantic)
Recent Clinical Evidence

**ACCORD-BP (NEJM 2010)**
- 4733 pts DM2 x 4.7yrs – goal BP<120 vs. <140
  - Mean BP attained 119.3 vs. 133.5 (vs. 139/76 baseline)
- No diff MI/CVA/death (1.87% vs 2.09%)
- No difference in all cause mortality (1.28% vs 1.19%)
  - Reduction in stroke (0.32% vs 0.53%)
  - Side effects (ie. syncope/dizziness) (3.3% vs 1.3%)

**HYVET (NEJM ‘08)**
- 3800pt x 1.8yrs, >80yrs, goal SBP<150 with diuretic+/- ACE
- Decreased CVA (30%), CHF (64%), all cause mortality (21%)
Recent Statements

**Diabetics: Blood Pressure Treatment Goals**

- ADA (2013) – BP <140/80
- NICE (2011) – BP<140/90 (DM,CKD,CVD)

**Elderly: Blood Pressure Treatment Goals**

- ACCF/AHA (2011) >80 yrs – SBP <150
- NICE (2011) – >80 yrs - BP<150/90
Speculations for JNC 8

- Changes in BP goals (DM, CKD, elderly)
- Expanding first line preferred agents
  - Thiazide diuretic is currently the preferred agent, may expand to CCB/ACE/ARB in future
- Ambulatory BPs vs. In-office readings
- Combination therapy
  - Two drugs are better than doubling dose
- Chlorthalidone vs. HCTZ
  - Differences between agents may be dose related (HCTZ 50 is similar efficacy to Chlorthalidone 25)
- Aldactone as add-on agent for resistant HTN
- Sodium dietary targets
Overview

- Background
- Definitions
- Treatment Guidelines (JNC 7)
  - Non-pharmacologic
  - Pharmacologic
  - Resistant Hypertension
- Recent Clinical Data and Recommendations
- Optimizing Adherence to Therapy
- Case Study – Kaiser Permanente (Mid-Atlantic)
Challenges to Adherence

- **Obesity**
  - 68% of US adults are overweight or obese (35% obese)
  - 32% of US children are overweight or obese (17% obese)

- **Diet:**
  - Less than 1% of US adults meet the definition of “Ideal Healthy Diet”
  - Essentially no children meet the goal.

- **Exercise:**
  - 32% of adults report no aerobic activity at all
  - Only 21% of adults meet guidelines for physical activity

- **Medications:**
  - Studies indicate up to 50% of patients do not take their medications as prescribed
Improving Adherence

■ Patient factors
  ● Patient education / developing insight into condition
    – Patients usually feel well
    – Perceived side effects to medications
  ● Depression
  ● Family members / social support

■ Physician factors
  ● Truly believing in importance of goals
    – Nonadherence is 19% higher in patients whose physician communicates poorly
  ● Conveying empathy / concern
  ● Correctly identifying patient barriers
  ● Including patient into decision making
  ● Acknowledging patient successes / adherence
Improving Adherence

- **Simplifying Medical Regimen**
  - Low cost medications
  - Once daily meds
    - 8% greater adherence with once a day dosing*
  - Recognize Nonadherence

- **Follow-up**
  - Make next appointment before patient leaves office
  - Use appointment reminders
  - Follow-up on patients who miss appointments
  - Collaboration with dieticians, nurses, NPs, PAs, pharmacists

* Clin Ther 2002; 24:302
Overview

- Background
- Definitions
- Treatment Guidelines (JNC 7)
  - Non-pharmacologic
  - Pharmacologic
  - Resistant Hypertension
- Recent Clinical Data and Recommendations
- Optimizing Adherence to Therapy
- Case Study – Kaiser Permanente (Mid-Atlantic)
The Kaiser Experience
Implementing Blood Pressure Control
In 2001, Kaiser Permanente ranked below the 25\textsuperscript{th} percentile for HEDIS BP measures by NCQA

- <50\% of KP members had BP under control

Blood Pressure control became a top priority by KP Leadership

- Implementation assisted by subsequent adoption of electronic medical records system (Epic, implemented in 2005)
Blood Pressure – Implementation

- **Benchmarking**
  - Sharing and comparing performance other Kaiser regions and other organizations across the US

- **Transparency**
  - Sharing performance monthly to region, center, provider
  - 2010 – Electronic panel management tool
    - Providers can search and directly link to patients with uncontrolled BP
    - All MDs can view data, not password protected
### By Center / Individual Physicians

**Performance Reporting**

<table>
<thead>
<tr>
<th>REGION</th>
<th>AREA</th>
<th>MOB</th>
<th>DEPARTMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>MA</td>
<td>BALTIMORE</td>
<td>ANnapolis</td>
<td>Family Practice</td>
</tr>
<tr>
<td>PHYSICIAN</td>
<td>SYKORA, WILLIAM S (M.D.)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hypertension: Blood Pressure Control</th>
<th>Jan-10</th>
<th>Feb-10</th>
<th>Mar-10</th>
<th>CURRENT</th>
<th>Regional Rank</th>
<th>Local Rank</th>
<th>Target</th>
<th>Total pts not at target</th>
<th># of pts to get to target</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>49.3%</td>
<td>53.4%</td>
<td>58.0%</td>
<td>58.5%</td>
<td>139 of 228</td>
<td>2 of 2</td>
<td>78%</td>
<td><strong>66</strong></td>
<td>31</td>
</tr>
<tr>
<td>Current # of eligible HTN patients</td>
<td>159</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dept Avg</td>
<td>60.6%</td>
<td>60.3%</td>
<td>60.0%</td>
<td>60.8%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### By Area

**Performance Reporting**

<table>
<thead>
<tr>
<th>REGION</th>
<th>AREA</th>
</tr>
</thead>
<tbody>
<tr>
<td>MA</td>
<td>DC-SM</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hypertension: Blood Pressure Control</th>
<th>Jan-10</th>
<th>Feb-10</th>
<th>Mar-10</th>
<th>CURRENT</th>
<th>Regional Rank</th>
<th>Target</th>
<th>Total pts not at target</th>
<th># of pts to get to target</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>55.8%</td>
<td>55.7%</td>
<td>56.9%</td>
<td>57.6%</td>
<td>2 of 5</td>
<td>78%</td>
<td>25027</td>
<td>12041</td>
</tr>
<tr>
<td>Current # of eligible HTN patients</td>
<td>59028</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Blood Pressure – Implementation

**Education**
- Training staff annually for BP measurement competency
- Quarterly Webinars, Quality Newsletters
- Member education – pamphlets, classes, online education
- Sharing best practices from local, regional, and national high performers
  - Disseminating best practices across Kaiser regions throughout country

**Reliability** – creating effective and simple workflows
- Standardized Treatment Algorithm
- Non-MD BP clinic
- Pharmacy / RN support
Effective workflows

Standardized treatment algorithm

- **Simple**
  - one BP target for all patients (<140/90) – DM/CKD/etc
- **Fewer steps** – easier for providers and patients
  - (1) ACE/HCTZ, (2) CCB, (3) Aldactone or BB
- **Faster control** → patient satisfaction
- **Fewer pills** → improved patient compliance
- **Fewer visits to providers** → improved access for patients

- Available on KP website from any Kaiser computer
ACE-Inhibitor² / 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-Inhibitors²

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

If not in control

Thiazide Diuretic
Chlorthalidone 12.5 mg → 25 mg OR HCTZ 25 mg → 50 mg
Management of Adult Hypertension

1. If ACEI intolerant or pregnancy potential:
   - Calcium Channel Blocker Add amlodipine 5 mg X ½ daily → 5 mg X 1 daily → 10 mg daily
   - Beta-Blocker OR Spironolactone Add a tenolol 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

If not in control:

ACE-Inhibitor\(^2\) / Thiazide Diuretic

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

Pregnancy Potential: Avoid ACE-Inhibitors\(^2\)

If not in control

Begin with Lisinopril/HCTZ
SBP Reduction: Monotherapy ACEI Vs Combination therapy with HCTZ

Adapted from VA study Br J Clin Pharmac 1982; 14:975 - 1015
1/4 of ACEI Rx’s dispensed as Single Pill Combination Therapy

Marc Jaffe, MD • The Permanente Medical Group, Inc. • 3/25/2013
Lisinopril/HCTZ and Hypertension Performance

Lisinopril/HCTZ Rate vs HTN Performance

Lisinopril/HCTZ Ratio

PRINZIDE RATIO

CSG

POINT

2005 2006 2007 2008 2009 2010 2011
Calcium Channel Blocker

Add amlodipine 5 mg X ½ daily → 5 mg X 1 daily → 10 mg daily

If not in control
Spironolactone Preferred Fourth Drug

Spironolactone or Beta-Blocker

IF on thiazide AND eGFR ≥ 60 ml/min AND K < 4.5
Add spironolactone 12.5 mg daily → 25 mg daily
OR
Add atenolol 25 mg daily → 50 mg daily (Keep heart rate > 55)

If not in control
## Non-MD Blood Pressure Check

<table>
<thead>
<tr>
<th>Year</th>
<th>2001*</th>
<th>2003</th>
<th>2005</th>
<th>2007</th>
<th>2009</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong></td>
<td>TD or BB</td>
<td>TD</td>
<td>TD or TD + ACEI SPC OK 1st</td>
<td>TD or TD + ACEI</td>
<td>TD or TD + ACEI</td>
</tr>
<tr>
<td><strong>Step 2</strong></td>
<td>TD + BB</td>
<td>TD + ACEI or TD + BB ACEI or BB 2nd</td>
<td>TD + ACEI ACEI 2nd</td>
<td>TD + ACEI</td>
<td>TD + ACEI</td>
</tr>
<tr>
<td><strong>Step 3</strong></td>
<td>TD + BB + ACEI</td>
<td>TD + BB + ACEI</td>
<td>TD + ACEI + BB BB 3rd</td>
<td>TD + ACEI + BB DCCB 3rd</td>
<td>TD + ACEI + DCCB + BB or Spir</td>
</tr>
<tr>
<td><strong>Step 4</strong></td>
<td>TD + BB + ACEI + DCCB</td>
<td>TD + BB + ACEI + DCCB</td>
<td>TD + BB + ACEI + DCCB</td>
<td>TD + BB + ACEI + DCCB</td>
<td>BB OK 4th</td>
</tr>
</tbody>
</table>

BD=Thiazide Diuretic, BB=Beta Blocker, ACEI=Angiotensin Converting Enzyme Inhibitor, DCCB=Dihydropyridine Calcium Channel Blocker, Spir=Spironolactone.

Blood Pressure Clinic

- ANY BP measured in ANY primary care or specialty setting is captured and an appointment is made in BP clinic.
  - BP measurement is rechecked manually after 5 minutes on any elevated reading.
  - Captures patients in Optometry, OB-GYN, Podiatry, Derm
    Many of these patients may not see PCP regularly

- Non-physician based clinic (BP check with medical assistant)
  - Patient seen same-day in center if BP > 139/89
  - PCP adjusts therapy before patient leaves
  - Repeat appointment every 2 weeks until BP controlled
  - No charge, Walk-ins welcome, removed all barriers for patients
**Recommended Care**

- History of uncontrolled HTN: Verify diagnosis and treat to goal < 140/90 or < 130/80 if diabetes or CKD.

<table>
<thead>
<tr>
<th>Diseases / Risks</th>
<th>Cr, K, Microalb, A1c, ALT, Theophy (Last 2 in 12 mo)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HTN</td>
<td>Date</td>
</tr>
<tr>
<td>STG 1</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>All Meds (Last 20 dispenses in 12 mo)</th>
<th>Date</th>
<th>Drug</th>
<th>Qty</th>
<th>RF</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>04/01/10</td>
<td>LISINOPRIL-HYDROCHLOROTHIAZIDE 20-25 MG TABS</td>
<td>90</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>03/17/10</td>
<td>DESMOPRESSIN ACETATE SPR 0.01%</td>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>01/07/10</td>
<td>ACETAMINOPHEN/CODEINE #3 TAB 300-30MG</td>
<td>30</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>12/31/09</td>
<td>PREDNISONE TAB 50MG</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>12/31/09</td>
<td>CYCLOBENZAPRINE HCL TAB 10MG</td>
<td>30</td>
<td>1</td>
</tr>
</tbody>
</table>
Non-MD Blood Pressure Check

BP at goal

Doctor clinic visit

BP check

BP over goal

Advantages

- No charge for visit
- Shorter visit for patient
- Scheduling flexibility
- Improves access to MD

Treatment intensification

Follow up non-MD visit

Marc Jaffe, MD • The Permanente Medical Group, Inc. • 3/25/2013
Hypertension Control Rates 2001-2009
KP Northern California

Commercial Rate as reported to HEDIS

Marc Jaffe, MD • The Permanente Medical Group, Inc. • 3/25/2013
Hypertension Control Rates 2006-2011
KP Mid-Atlantic States

Percentage vs. Measurement Year

- 2006: 65%
- 2007: 65%
- 2008: 65%
- 2009: 70%
- 2010: 80%
- 2011: 83%

CA BP clinic
Controlling High Blood Pressure, by Race/Ethnicity
Mid-Atlantic States Region

Only 2.8% difference in BP control between white and black patients
Kaiser Northern California
- 3.3 million members, 5,000 physicians, 17 medical centers
- 2001 to 2009: HTN control nearly doubled from 44% to 80%
  - 359,000 more people had controlled HTN

Kaiser Mid-Atlantic States
- 500,000 members, over 900 physicians
- 2010 – HTN was made a top priority
## HEDIS 2012:
### Top Ten Performance - MEDICARE

<table>
<thead>
<tr>
<th>Plan</th>
<th>State</th>
<th>Contract</th>
<th>Plan Type</th>
<th>Rate</th>
<th>State Rank</th>
<th>National Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kaiser Foundation Health Plan of Ohio</td>
<td>OH</td>
<td>H6360</td>
<td>HMO</td>
<td>88.81%</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Kaiser Foundation Health Plan of Colorado</td>
<td>CO</td>
<td>H0630</td>
<td>HMO</td>
<td>88.33%</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Kaiser Foundation Health Plan Inc. - Southern California</td>
<td>CA</td>
<td>H0524</td>
<td>HMO</td>
<td>88.32%</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Kaiser Foundation Health Plan, Inc. - Hawaii</td>
<td>HI</td>
<td>H1230</td>
<td>HMO</td>
<td>87.83%</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Kaiser Foundation Health Plan of the Mid-Atlantic States, Inc.</td>
<td>DC,MD,VA</td>
<td>H2150</td>
<td>HMO</td>
<td>85.97%</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Gundersen Lutheran Health Plan, Inc.</td>
<td>WI</td>
<td>H5262</td>
<td>HMO</td>
<td>85.16%</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Kaiser Foundation Health Plan, Inc. - Northern California</td>
<td>CA</td>
<td>H0524</td>
<td>HMO</td>
<td>84.02%</td>
<td>2*</td>
<td>7</td>
</tr>
<tr>
<td>Group Health Plan, Inc.</td>
<td>MN</td>
<td>H2462</td>
<td>HMO</td>
<td>83.08%</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Kaiser Foundation Health Plan, Inc. - Northern California</td>
<td>CA</td>
<td>H6052+</td>
<td>HMO</td>
<td>82.97%</td>
<td>3*</td>
<td>9</td>
</tr>
<tr>
<td>Chinese Community Health Plan</td>
<td>CA</td>
<td>H0571</td>
<td>HMO</td>
<td>82.47%</td>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>
## HEDIS 2012: Top Ten Performance - COMMERCIAL

<table>
<thead>
<tr>
<th>Plan</th>
<th>State</th>
<th>Plan Type</th>
<th>Rate</th>
<th>State Rank</th>
<th>National Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coventry Health Care of Illinois, Inc.</td>
<td>IL</td>
<td>HMO/POS</td>
<td>88.85</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Cigna HealthCare Mid-Atlantic, Inc.</td>
<td>DC, MD, VA</td>
<td>HMO/POS</td>
<td>87.50</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Kaiser Foundation Health Plan, Inc. - Northern California</td>
<td>CA</td>
<td>HMO</td>
<td>87.08</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Kaiser Foundation Health Plan Inc. - Southern California</td>
<td>CA</td>
<td>HMO</td>
<td>85.64</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Kaiser Foundation Health Plan, Inc. - Hawaii</td>
<td>HI</td>
<td>HMO</td>
<td>84.43</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Kaiser Foundation Health Plan of the Mid-Atlantic States, Inc.</td>
<td>DC, MD, VA</td>
<td>HMO</td>
<td>83.04</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>Kaiser Foundation Health Plan of Ohio</td>
<td>OH</td>
<td>HMO</td>
<td>82.73</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>HealthPartners, Inc.</td>
<td>MN</td>
<td>HMO/POS/PPO</td>
<td>80.07</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Gundersen Lutheran Health Plan, Inc.</td>
<td>WI</td>
<td>HMO</td>
<td>79.08</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>Wellmark Health Plan of Iowa, Inc.</td>
<td>IA</td>
<td>HMO/POS</td>
<td>79.08</td>
<td>9</td>
<td>9</td>
</tr>
</tbody>
</table>

Total Number of Reporting Plans (excluding PPOs): 183
Take Home Points

- BP checks (and mgmt) at every patient care encounter
  - Including optometry, OB-GYN, etc
- BP clinic (Non-MD clinic)
  - Free and frequent visits, walk ins welcome
  - Removing all barriers for patients
- Simple algorithm – easy for providers and patients
  - One BP goal (<140/90) for all patients
  - Emphasis on combination pills (lisinopril / HCTZ)
  - Emphasis on getting to target BP control quickly
- Feedback on Performance / Transparency
  - Panel management electronic tools
Acknowledgements

- Bernadette Loftus, MD
- Robbie Pearl, MD
- Michael Dias, MD
- Doug Vanzoeren, MD
- Joel Handler, MD KPNC
- Mark Jaffe, MD KPNC
- Karin Dodge, MD
- Joe Territo, MD
- Judy Dejarnette, MD
- John Golden, MD
- Carol Cardinale, MD
- Loan Nguyen, MD

- Kathryn Brown
- Carol Foster, MD
- Susan Fiorella, MD
- Joyce Jones
- Jerry Penso, MD
- Stacey Shapiro
AMGA Best Practices in Hypertension:

Controlling Blood Pressure, Kaiser Mid-Atlantic 2006
- [http://www.amga.org/research/research/Hypertension/Compendiums/kaiser.pdf](http://www.amga.org/research/research/Hypertension/Compendiums/kaiser.pdf)

Hypertension Best Practices, Kaiser Mid-Atlantic 2010
- [http://www.amga.org/research/research/Hypertension/Symposium/kaiser.pdf](http://www.amga.org/research/research/Hypertension/Symposium/kaiser.pdf)

CDC:
- [http://www.cdc.gov/bloodpressure/](http://www.cdc.gov/bloodpressure/)
- [http://www.cdc.gov/dhdsp/data_statistics/fact_sheets/fs_bloodpressure.htm](http://www.cdc.gov/dhdsp/data_statistics/fact_sheets/fs_bloodpressure.htm)

NHLBI

AHA
- [http://www.heart.org/HEARTORG/](http://www.heart.org/HEARTORG/)
- [http://www.heart.org/HEARTORG/General/Heart-and-Stroke-Association-Statistics_UCM_319064_SubHomePage.jsp](http://www.heart.org/HEARTORG/General/Heart-and-Stroke-Association-Statistics_UCM_319064_SubHomePage.jsp)
Clinical References

NICE guidelines: National Institute of Clinical Excellence (Britain)
- http://www.nice.org.uk/guidance/CG127

ACCF/AHA Guidelines
- http://circ.ahajournals.org/content/123/21/2434.long

ADA 2013 Guidelines

European Society of Hypertension

European Society of Cardiology (ESC)

Detailed list of international guidelines
