

Treating Hypertension in the Indian Health System

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Disclosure

The presenters have no financial relationship to this program.

Objectives

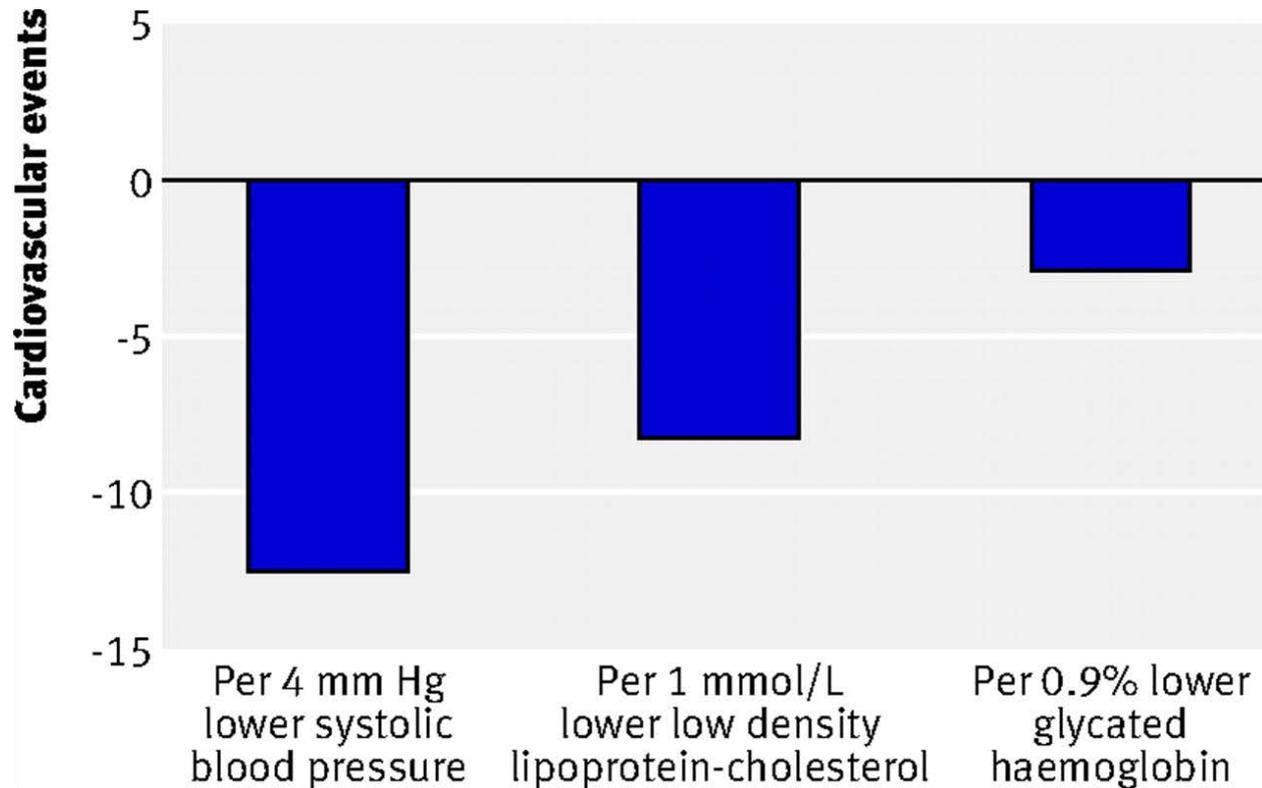
At the end of this presentation, participants will be able to:

1. Describe the importance of integrating protocol-based management of hypertension into clinical care processes.
2. Recognize the importance of assessing medication adherence when treating hypertension.
3. Integrate the Hypertension Treatment protocol into clinical care.

Hypertension

- Hypertension is one of the most important modifiable risk factors for cardiovascular disease (CVD) and chronic kidney disease (CKD)
- It is essential to obtain good blood pressure (BP) data on which to base diagnostic and treatment decisions
- Treatment guidelines, targets, and clinical tools

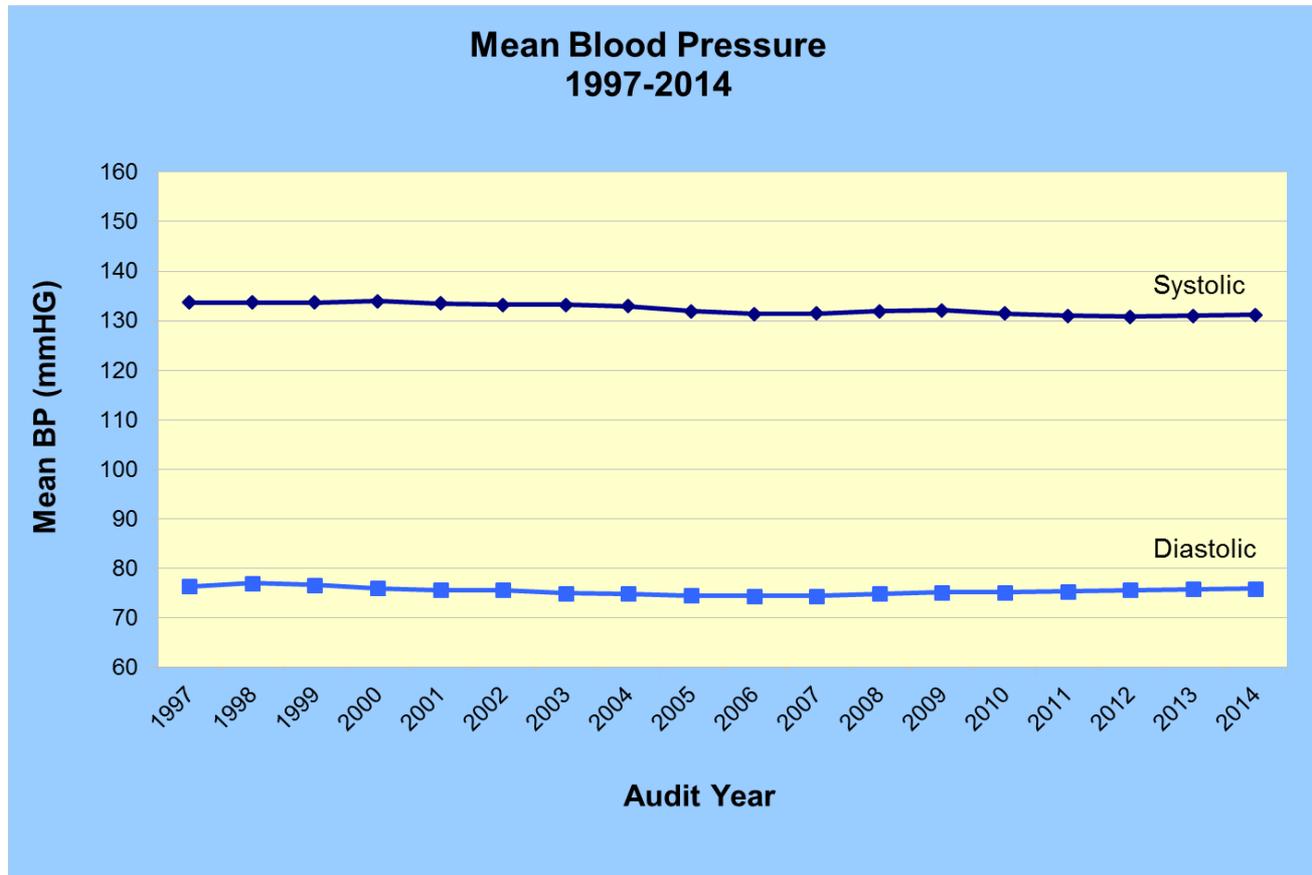
Absolute number of events prevented by different interventions per 1000 patient years of treatment (data taken from Cholesterol Treatment Trialists' Collaboration and Blood Pressure Lowering Treatment Trialists' Collaboration).



Preiss D , Ray K K BMJ 2011;343:bmj.d4243

BMJ

Mean Blood Pressure 1997 - 2014

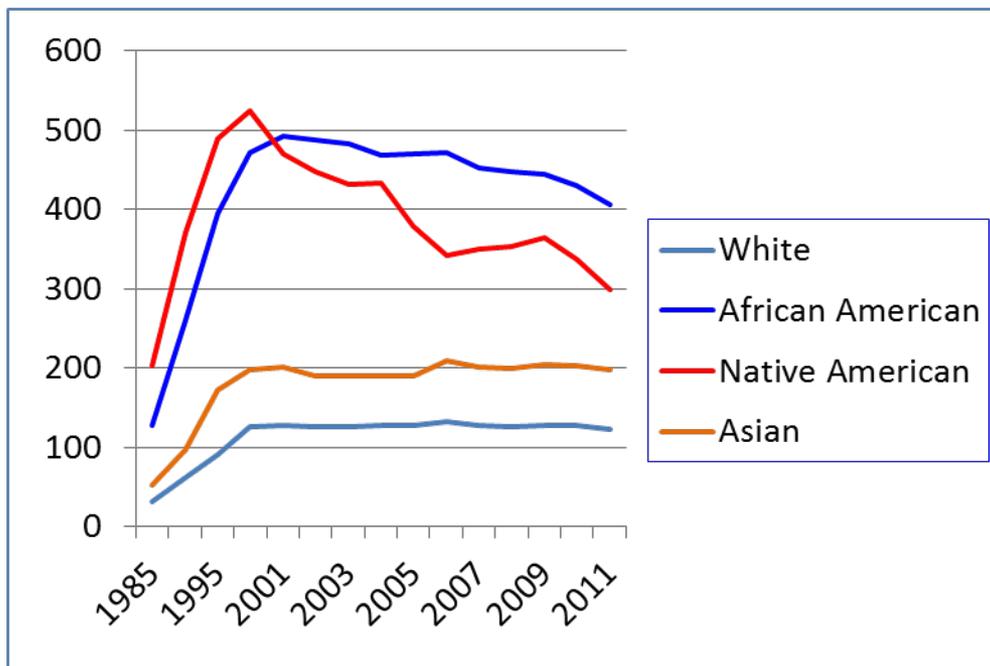


Source: IHS Diabetes Care and Outcomes Audit

ESRD in AI/AN People with Diabetes

- Reduction in ESRD incidence is the result of improvements in a number of risk factors
 - As in CVD, blood pressure control is very important in reducing ESRD rates.

Incident Rates ESRD due to Diabetes



According to the United States Renal Data System (USRDS ADR 2013), between 2000 and 2011, the *incidence rate of ESRD in AI/AN people with diabetes fell by 43%*. ESRD incidence in AI/AN people with diabetes rose rapidly until 1995, followed by a significant decline beginning in 2000. This is a greater decline than for any other racial or ethnic group.

Blood Pressure Measurement

So easy to do (incorrectly)!

BP Measurement

- Measure BP frequently
 - Recheck BPs that are higher/lower than target range
- Measuring BP in clinic:
 - Patient has rested for 5 minutes, is seated with feet on floor, arm supported at heart level
 - Cuff size should be appropriate for upper arm
 - Confirm elevated values on a different day

ADA 2015 Clinical Practice Recommendations

- Differences in BP Devices
 - Mercury, aneroid, electronic
 - Accuracy of electronic devices

Common Sources of BP Measurement Errors

- Incorrect cuff size
 - Use correct size for *mid* upper arm
 - Have all sizes of adult cuffs available where BPs measured
 - Small adult, Adult, Large adult, Adult thigh (for very large upper arms)
- Terminal digit bias
 - Significant tendency toward recording zeros
- Inadequate staff training and equipment maintenance
- Talking or listening to patient/colleague while taking BP
- BP cuff placed over clothing
- Smoking or caffeinated beverages within 30 min of BP
- Patient's back and/or arm unsupported
- Feet crossed or dangling

“Blood Pressure Measurement Toolkit: Improving Accuracy, Enhancing Care”

- Excellent booklet by the Wisconsin Heart Disease and Stroke Prevention Program, Wisconsin Dept. of Health Services
- Trains clinicians on proper BP measurement and even provides a PDSA framework for improving clinic processes
- <https://www.dhs.wisconsin.gov/publications/p0/p00623.pdf>

BP Beyond the Exam Room

- Monitor: measure BP outside the clinic, more often
 - Home and ambulatory BP measurement
 - +/- telemonitoring, BPs transmitted to clinic
 - Utilize PHNs, Home Health nurses where appropriate
- Treat:
 - Lifestyle interventions
 - Dieticians, physical activity specialists, health educators
 - Titrate BP meds
 - Team approach: Pharmacists, nurses, and other health professionals monitor, adjust medications

Blood Pressure Management

Guidelines, targets, and
measures - oh my!

Blood Pressure Treatment Targets Continue to Evolve...

JNC 7 2003

- BP <140/90 mmHg
 - General population
- BP <130/80 mmHg
 - Patients with diabetes or renal disease

JNC 8 Panel 2014

- BP <140/90
 - General population <60 y/o
 - Patients with diabetes or renal disease ≥ 18 y/o
- BP <150/90
 - Patients ≥ 60 y/o

JNC 8

- 2014 Evidence-Based Guideline for the Management of High Blood Pressure in Adults
 - Report From the Panel Members Appointed to the Eighth Joint National Committee (JNC 8) JAMA 2014;311(5):507-520
- Very rigorous guideline development process
- Targets for:
 - Adults ≥ 60 y/o: $<150/90$
 - Adults ≥ 18 y/o with diabetes or CKD: $<140/90$
- Recommended medications:
 - Thiazide diuretic, ACEI/ARB, Calcium Channel Blocker
 - If CKD: start with ACEI or ARB
 - Beta blockers no longer recommended for initial treatment of hypertension

Recommendations:

Hypertension/Blood Pressure Control

Goals

- People with diabetes and hypertension should be treated to a systolic blood pressure goal of <140 mmHg **A**
- Low systolic targets, such as <130 mmHg, may be appropriate for certain individuals, such as younger patients, if it can be achieved without undue treatment burden **C**
- Patients with diabetes should be treated to a diastolic blood pressure <90 mmHg **A**
- Lower diastolic targets, such as <80 mmHg, may be appropriate for certain individuals, such as younger patients, if it can be achieved without undue treatment burden **B**

ADA. 8. Cardiovascular Disease and Risk Management. Diabetes Care 2015;38(suppl 1):S49

BP Targets in Adult Patients

- <140/90: target for (most) patients
 - Good BP control definitely reduces CVD, CKD risks
 - Balance need for good BP control with risk of problems
 - Hypotension, fatigue, polypharmacy issues are common
 - Use caution in patients who have symptoms at <140/90 and/or with meds needed to achieve it
 - Higher risk: Older, comorbidities, longer duration of DM, on lots of meds, autonomic neuropathy
 - Antihypertensive meds associated with falls/injuries in elderly
JAMA Intern Med 2014;doi:10.1001/jamainternmed.2013.14764

IHS Hypertension Management Algorithm

- Available on the IHS Division of Diabetes website: www.diabetes.ihs.gov, specific page:
 - <http://www.ihs.gov/MedicalPrograms/Diabetes/index.cfm?module=toolsDTTreatmentAlgorithm>
 - Also available on mobile devices
- Includes hypertension treatment approach based on JNC 8 Panel recommendations
 - Medications, dosing reference
 - IHS National Core Formulary meds and a few others commonly prescribed

Hypertension Management

Hypertension Management

Therapeutic Lifestyle Changes

First-Line Medication Classes*

***ACE Inhibitor:** Lisinopril or, if ACE Inhibitor not tolerated, consider **ARB:** Losartan

Diuretic
HCTZ, Chlorthalidone

Calcium Channel Blocker
Diltiazem, Amlodipine, Nifedipine

*consider ACE Inhibitor or ARB as initial medication for patients with Chronic Kidney Disease
Do not use an ACE Inhibitor and ARB together in the same patient.

If BP not at goal in one month, consider titrating dose up and/or adding medication from a different class above. Utilize these 3 classes before considering additional medication classes.

Consider Additional Medication Classes

If BP not at goal or unable to tolerate the first-line medication classes above, consider adding medications from additional drug classes. Base selection on individual patient indications.

Beta Blocker
Metoprolol, Atenolol

Alpha Blocker
Prazosin, Doxazosin

Treat BP to targets as tolerated:

Systolic BP target < 140**

Diastolic BP target < 90

** Individualize BP targets and medication therapy. Patients who are older and/or have significant comorbid conditions and cannot tolerate BP < 140/90, may require higher BP targets to prevent adverse effects (e.g. hypotension, fatigue, dizziness). For example, consider systolic BP target < 150 in patients ≥ 60 years.

Hypertension Management

ACE Inhibitors (ACEI)/Angiotensin Receptor Blocker (ARBs)	
First-line medication choice for patients with Chronic Kidney Disease	
Can cause ↑ K ⁺ , ↑ creatinine; cough (with ACEI); rarely angioedema. Do not use an ACEI and an ARB at the same time.	
Lisinopril (Prinivil®, Zestril®)	Start 2.5-5mg daily; usually 20-40mg daily; max 80mg daily
Losartan (Cozaar®)	Start 25-50mg daily; max 100mg daily. Consider if unable to tolerate ACEI
Diuretics	
HCTZ	Start 12.5mg daily; usually 25-50mg daily; Can ↓ K ⁺ Higher doses may be used for other indications (e.g. edema)
Chlorthalidone	Start 12.5mg daily; usually 25-50mg daily; Can ↓ K ⁺ Higher doses may be used for other indications (e.g. edema)
Calcium Channel Blockers	
Amlodipine (Norvasc®)	Start 2.5-5mg daily; usually 5-10mg daily. Consider in patients with angina or CHF
Diltiazem (Cardizem®)	Note: multiple formulations exist: Immediate Release (TID-QID), SR/Sustained Release (BID), CDI/Controlled Delivery (daily), and LAL/Long Acting (daily) Consult your local formulary to assure appropriate selection and dosing For diltiazem CD start 180-240mg daily; usually 240-360mg daily; max 480mg daily
Nifedipine XL (Adalat®/Procardia®)	Start 30mg daily; usually 30-90mg daily; max dose 120mg daily Caution edema, CHF, and MI
Beta Blockers	
Don't use if bradycardia or 2nd/3rd degree block. Caution in severe CHF, asthma, or renal dysfunction.	
Atenolol (Tenormin®)	Start 25-50mg daily in 1-2 divided doses; usually 50-100mg/day Eliminated renally (caution Renal Failure)
Metoprolol (Lopressor®)	Start 50-100mg daily in 1-2 divided doses; usually 100-200mg/day. Max 450mg daily <i>XR formulation dosed once daily</i> . Eliminated hepatically (caution in Liver Failure)
Propranolol (Inderal®)	Start Long Acting 80mg daily or Immediate release 40mg BID; usually 120-240mg daily; max 640mg daily
Carvedilol (Coreg®) (Immediate Release Dosing)	Start 6.25mg BID; usually 12.5-25mg BID. <i>CR formulation dosed once daily</i> Also indicated for heart failure (start at 3.125mg BID)
Alpha Blockers	
Doxazosin (Cardura®)	Start 1mg immediate release at bedtime; Max dose 16mg daily Titrate up slowly; Can cause dizziness, drowsiness, and weakness
Prazosin (Minipress®)	Start 1mg PO BID-TID (first dose at bedtime); Max dose 15mg daily Titrate up slowly; Can cause dizziness, drowsiness, and weakness
Central Acting	
Clonidine (Captopres®)	Start 0.1mg BID (first dose at bedtime); usually 0.1-0.3mg BID; max 1.2mg BID Titrate up slowly; Can cause sedation/dizziness/weakness; Do not stop abruptly

Drugs in *italics* are not on the IHS National Core Formulary

Note: This is not a complete prescribing reference. This algorithm is not intended for treatment selection in children or in women who are or could become pregnant; some antihypertensive medications can cause fetal damage.

Ref: JNC 8 Panel; <http://ama.jamanetwork.com/article.aspx?articleid=1791497>
ADA 2015 Clinical Practice Recommendations; http://care.diabetesjournals.org/content/38/Supplement_1.

Smart Phone Instructions

- Access internet address on your iPhone Safari tab and go to diabetes.ihs.gov
- Click on **Provider Mobile Site**
- Disclaimer screen - Click **Continue**
- Provider resources page – click arrow to **Treatment Algorithms**
- Click on **Hypertension**
- **Hypertension treatment guidelines (algorithm) page appears**
- Roll to the bottom of this screen and click on the **Icon to Add to Home Screen** (tap the box with an upward arrow)
- Click on the **“Add to Home Screen”** .

Android Device Instructions

- Access the Browser and type in www.diabetes.ihs.gov
- In Orange side bar, click **Clinical Resources**
- Under the red bar **Clinical Tools**, Click on **Diabetes Treatment Algorithms**
- In upper right corner, click on **the smartphone image** (Access Mobile Versions)
- Click on **Hypertension bar**
- Roll down and Click on lower right **3 bullet points**
- Click on **“Add to Home Screen”**

BP Performance Measures: IHS

- Target BP in IHS GPRA, Million Hearts Initiative measure, and Diabetes Audit: <140/90
 - Performance measures look at care provided to groups of patients and are not clinical practice guidelines for the care of individual patients
 - Performance measures should reflect current guidelines, cover most patients and minimize overtreatment/harm
 - Need to do what's right for each patient in consultation with them
 - <140/90 is too stringent for some of our older patients and those with multiple comorbidities
 - JNC 8: "...these recommendations are not a substitute for clinical judgment, and decisions about care must carefully consider and incorporate the clinical characteristics and circumstances of each individual patient."
JAMA 2014;311:507-520 (pg. 507)

2015 National Dashboard (IHS/Tribal) – 3rd Qtr. GPRA Results

2015 National Dashboard (IHS/Tribal) – 3rd Qtr. GPRA Results

Diabetes

	Target 2014	Final 2014	Target 2015	Q3 2015	Q3 Results, 2015
Controlled BP < 140/90	64.6 %	63.8%	63.8%	56.4%	Not on track
LDL Assessed	73.9 %	73.4%	71.8%	62.3%	Not on track

2015 National Dashboard (IHS/Tribal) – 3rd Qtr. GPRA Results (cont.)

2015 National Dashboard (IHS/Tribal) – 3rd Qtr. GPRA
Results

Prevention

	Target 2014	Final 2014	Target 2015	Q3 2015	Q3 Results, 2015
Tobacco Cessation	45.7%	48.2%	46.3%	44.9%	Within range
CVC- Comprehensive Assessment	51.0%	52.3%	47.3%	39.4%	Within range
Controlling High Blood Pressure (MH)	Baselines	59.5%	59.5%	55.6%	Not on track

IPC Million Hearts Intensive



The ABCS to Prevent Heart Attack and Strokes

Aspirin	People who have had a heart attack and stroke who are taking aspirin
BP Screen	Every Person gets a blood pressure 18 years and older
Blood Pressure	People with hypertension who have adequately controlled blood pressure
Cholesterol	People with high Cholesterol who are effectively managed
Smoking	People trying to quit smoking who get help

IPC INTENSIVE:

- 16 weeks long
- Starts September 1, 2015
- Ends December 15, 2015
- Tuesdays from 12:30 pm to 1:30 pm ET
- Adobe Connect Sessions
- Contact: CAPT Cheryl Peterson
cheryl.peterson@ihs.gov

So... to sum up the important things

- Measure blood pressure correctly and often
 - Regular staff trainings, equipment maintenance/calibration
- Make treatment decisions based on several BPs
- Select treatment targets based on guidelines as well as individual patient needs and preferences
 - Goal is to neither under-treat nor over-treat
- Utilize the whole health care team
- IHS Hypertension Protocol and IPC Million Hearts Intensive are tools in these efforts
- Medication adherence is a huge issue