manager he came across in the league not to ___________ after
CONTROVERSIES

1. Should we treat hypertension in young adults?

2. Is Blood pressure variability important?

3. Ambulatory BP Monitoring for all!

4. Lower is better
Isolated Systolic Hypertension in the Young

- Prevalence, 8% in young adults
- Age 17 - 27 years
- Obesity, smoking, low socio-economic status

SBP > 140 and DBP < 90 mmHg

Question 1

26 year old medical student, presents to your clinic with no complaints other than a high BP of 158/78 mmHg. No other illness, non-smoker, occasional light ethanol use. Repeat BP in your office is 160/80 mmHg. Unremarkable examination. Labs including ECG, are all normal.
systolic/diastolic hypertension. On the basis of current evidence, these young individuals can only receive recommendations on lifestyle, but because available evidence is scanty and controversial they should be followed closely.

<table>
<thead>
<tr>
<th>Category</th>
<th>Systolic</th>
<th>Diastolic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>120–129</td>
<td>80–84</td>
</tr>
<tr>
<td>High normal</td>
<td>130–139</td>
<td>85–89</td>
</tr>
<tr>
<td>Grade I hypertension</td>
<td>140–159</td>
<td>90–99</td>
</tr>
</tbody>
</table>

But maybe we can prevent hypertension if we treat earlier, e.g. prehypertension or Grade I which is more common.
TROPHY
TRial Of Preventing HYpertension

- 809 patients with prehypertension <140/90 mmHg x 4 years
- Atacand 16mg + HCTZ 12.5mg x 2 years vs Placebo

<table>
<thead>
<tr>
<th></th>
<th>Candesartan</th>
<th>Placebo</th>
<th>RR</th>
<th>95% CI</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of pts developing hypertension</td>
<td>208</td>
<td>240</td>
<td>0.34</td>
<td>0.25-0.44</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Hypertension at 2 yrs (%)</td>
<td>13.6</td>
<td>40.4</td>
<td>0.34</td>
<td>0.25-0.44</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Hypertension at 4 yrs (%)</td>
<td>53.2</td>
<td>63.0</td>
<td>0.84</td>
<td>0.75-0.95</td>
<td>.0069</td>
</tr>
</tbody>
</table>
Recent guidelines have also underlined the **paucity of data** for treating grade 1 hypertension, recommending treatment only after confirming hypertension by ABPM and restricting treatment to grade 1 hypertensive patients with signs of **organ damage** or at **high total CV risk**.
Kenyan men on Saturday became the first same sex couple to...
CONTROVERSIES

1. Should we treat hypertension in young adults?

2. Is Blood pressure variability important?

3. Ambulatory BP Monitoring for all!

4. Lower is better
Morning blood pressure surge (MBPS) is associated with the all of the following, except:-

A. More silent cerebral infarcts in elderly HTN pos
B. Left Ventricular hypertrophy
C. All-cause and CV death during 10 year follow up
D. Decreased carotid-intimal media thickness
Different types of BP Variability

- **Diurnal**
  - morning BP surge
  - nocturnal BP surge
  - nondipper/riser
  - Extreme dipper
- **Orthostatic**
  - hypertension
  - hypotension
- **Beat-by-beat**
  - Short-term
- **Day-by-day**
  - SD
  - Peak
- **Visit-to-visit**
  - SD
  - Peak
- **Seasonal**
  - delta
  - winter BP surge
  - summer extreme dipper
  - thermosensitive hypertension
- **Yearly**
  - IT-based BP monitoring

Vascular disease
Morning blood pressure surge (MBPS) is associated with the all of the following, except:-

A. More silent cerebral infarcts in elderly HTN pos
B. Left Ventricular hypertrophy
C. All-cause and CV death during 10 year follow up
D. Decreased carotid-intimal media thickness
Why the focus on BPV?

1. Morning BP and BP variability are measured in the riskiest period of cardiovascular events.
2. BP variability is most exaggerated in the morning.
3. Morning potentiation of other risk factors augments the impact of morning BP surge.
4. Morning BP and surge are associated with organ damage and cardiovascular events, independent of clinic BP.
5. Morning BP is the blind spot for the current once-daily antihypertensive drugs.
Visit to visit BPV

- **FOSIDIAL** Trial
- French Hemodialysis patients with LVH
- Fosinopril vs Placebo
immigrants: 'They're bringing drugs,' crime and are 'ra
CONTROVERSIES

1. Should we treat hypertension in young adults?
2. Is Blood pressure variability important?
3. Ambulatory BP Monitoring for all!
4. Lower is better
A 56 year old male with a STEMI Dec 2015, presents for routine follow-up. He has been feeling fatigued, but no other complaints. Meds - Aspirin, Atorvastatin, Metoprolol and occasional Pantoprazole. BP 148/95 mmHg, Pulse 70 regular, respirations 16/min. Exam is unremarkable except for obesity.

What would you recommend next?

A. Repeat BP measurement
B. Start antihypertensive treatment
C. Office/ clinic BP reading
D. Home BP readings
1.2.2 If blood pressure measured in the clinic is 140/90 mmHg or higher:

- Take a second measurement during the consultation.
- If the second measurement is substantially different from the first, take a third measurement.

Record the lower of the last two measurements as the clinic blood pressure. [2011]

1.2.3 If the clinic blood pressure is 140/90 mmHg or higher, offer ambulatory blood pressure monitoring (ABPM) to confirm the diagnosis of hypertension. [2011]

1.2.4 If a person is unable to tolerate ABPM, home blood pressure monitoring (HBPM) is a suitable alternative to confirm the diagnosis of hypertension. [2011]

1.2.5 If the person has severe hypertension, consider starting antihypertensive drug treatment immediately, without waiting for the results of ABPM or HBPM. [2011]
Ambulatory BP Monitoring

Ambulatory blood pressure report

<table>
<thead>
<tr>
<th>Patient name:</th>
<th>Mr J Bond</th>
<th>ID:</th>
<th>007</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scan start date</td>
<td>29/08/2011</td>
<td>Clinic SBP/DBP</td>
<td>140/90</td>
</tr>
<tr>
<td>Scan start time</td>
<td>12:08</td>
<td>Total readings</td>
<td>56</td>
</tr>
<tr>
<td>Scan end date</td>
<td>30/08/2011</td>
<td>Successful readings</td>
<td>52</td>
</tr>
<tr>
<td>Scan end time</td>
<td>13:37</td>
<td>Percent successful</td>
<td>93</td>
</tr>
</tbody>
</table>

Grade 1 hypertension threshold

Blood pressure (mmHg)

- Night
- Asleep
- Awake

Time

1200 1500 1800 2100 0000 0300 0600 0900 1200
Benefits of ABPM

- LVH, carotid intima media thickness, target organ damage correlate more with ABPM
- Closer relationship to non-fatal events, stroke, MI plus fatal events
- Non-dippers have more CV events
- Cost-effective
- Diagnose accurately White coat hypertension
If the people have no bread, let them eat cake.

~ Marie Antoinette
Home BP Monitoring

- Self measurement of BP at upper arm
- Use arm with higher BP values
- Wrist device not recommended
- 7 consecutive days, twice daily x 2 readings 1 minute apart
- **Threshold hypertension > 135/85 mmHg**
Use the table below to record all of your blood pressure readings. The numbers you write down should be the same as those that appear on the monitor screen—do not round the numbers up or down. In the comments section, you should also write down anything that could have affected your reading, such as feeling unwell or changes in your medication. You do not need to record your pulse/heart rate. For information about taking your blood pressure, please read the ‘Home Blood Pressure’ app.

<table>
<thead>
<tr>
<th>Date e.g.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
</tr>
<tr>
<td>2.</td>
</tr>
<tr>
<td>3.</td>
</tr>
</tbody>
</table>
ight after becoming the first Kenyan to win gold (2:06.32) in the
CONTROVERSIES

1. Should we treat hypertension in young adults?

2. Is Blood pressure variability important?

3. Ambulatory BP Monitoring for all!

4. Lower is better
JNC 7 to JNC 8: What’s changed?

- JNC uses randomized trials, and is explicit when a recommendation reflects only expert opinion.
- JNC 8 raises the systolic threshold to 150 mmHg at age 60.
- JNC 8 uses 140/90 for patients with diabetes or chronic kidney disease.
- In JNC 8, the initial drug choice is broadened to four classes for nonblack patients and two classes for black patients. β-blockers are no longer recommended for initial therapy because of less stroke protection.
### Guideline comparison

<table>
<thead>
<tr>
<th>Blood Pressure (mm Hg)</th>
<th>NICE 2011</th>
<th>ESH/ESC 2013</th>
<th>AHA/ACC/CDC 2013</th>
<th>ASH/ISH 2014</th>
<th>JNC 8 2014</th>
<th>ACC/AHA/ASH IHD 2014</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Definition of hypertension</strong></td>
<td>≥140/90 and daytime ABPM or home BP ≥135/85</td>
<td>≥140/90</td>
<td>≥140/90</td>
<td>≥140/90</td>
<td>Not addressed</td>
<td>Not addressed</td>
</tr>
<tr>
<td><strong>Drug therapy</strong></td>
<td>≥160/100 or daytime ABPM ≥150/95</td>
<td>≥140/90</td>
<td>≥140/90</td>
<td>≥140/90</td>
<td>&lt;60 yr ≥140/90</td>
<td>≥140/90</td>
</tr>
<tr>
<td><strong>β-Blockers as first-line drug</strong></td>
<td>No (Step 4)</td>
<td>Yes (Step 3)</td>
<td>No (Step 4)</td>
<td>No</td>
<td>No</td>
<td>No (Step 4)</td>
</tr>
<tr>
<td><strong>Diuretic</strong></td>
<td>Chlorthalidone, Indapamide</td>
<td>Thiazides, Chlorthalidone, Indapamide</td>
<td>Thiazides</td>
<td>Thiazides, Chlorthalidone, Indapamide</td>
<td>Thiazides, Chlorthalidone, Indapamide</td>
<td></td>
</tr>
<tr>
<td><strong>Initiate therapy with two drugs</strong></td>
<td>Not mentioned</td>
<td>In patients with markedly elevated BP</td>
<td>≥160/100</td>
<td>≥160/100</td>
<td>≥160/100</td>
<td>≥160/100</td>
</tr>
<tr>
<td><strong>BP targets</strong></td>
<td>&lt;140/90 ≥80 yr &lt;150/90</td>
<td>&lt;140/90 elderly &lt;80 yr; SBP 140-150; SBP &lt;140 in fit patients; Elderly ≥80 yr; SBP 140-150</td>
<td>&lt;140/90 Lower targets may be appropriate in some patients, including the elderly</td>
<td>&lt;140/90 ≥80 yr &lt;150/90</td>
<td>&lt;60 yr &lt;140/90 ≥60 yr ≥150/90</td>
<td>&lt;140/90 if CAD, CAD risk equivalent, stroke, TIA, Framingham risk score ≥20%</td>
</tr>
<tr>
<td><strong>BP target in patients with diabetes mellitus</strong></td>
<td>Not addressed</td>
<td>&lt;140/85</td>
<td>&lt;140/90 Lower targets may be considered</td>
<td>&lt;140/90</td>
<td>&lt;140/90</td>
<td>&lt;140/90 Lower targets may be considered</td>
</tr>
</tbody>
</table>
Target SBP < 120 mmHg lower fatal and nonfatal CV events !!

Age > 50 yrs, SBP 130 - 180,
Increased CV risk (CVD, CKD, Framingham risk > 15%, Age > 75yrs)
CONTROVERSIES

1. Should we treat hypertension in young adults?
   - **No:** Unless CKD, DM, elevated CV risk

2. Is Blood pressure variability important?
   - **Yes:** MBPS, V2Visit, increased CV risk & TOD.

3. Ambulatory BP Monitoring for all!
   - **Useful, cost-effective, not widely available, HBPM**

4. Lower is better
   - **SPRINT suggests systolic 120 mmHg**
He was sentenced to 90 days in jail after pleading guilty to ___.