Evaluating the Effectiveness of the Blood Pressure Plus Program at Thomas Jefferson University

Adam C. Winters, MSII
Faculty Mentors: Dr. James Plumb MD, MPH and Dr. Rickie Brawer PhD, MPH
Department of Family and Community Medicine
Center for Urban Health
August 9th 2012

Still and all, why bother? Here's my answer. Many people need desperately to receive this message: I feel and think much as you do, care about many of the things you care about, although most people do not care about them. You are not alone.

-Kurt Vonnegut
I. Introduction
   - Million Hearts Campaign
   - Background Statistics and Graphics

II. Blood Pressure Plus Program
   - Demographics
   - Population Screened
   - Results
     - New Cases
     - Results by Site

III. Conclusion/Further Questions

IV. References
The Million Hearts Campaign (HHS)

*Mission:* Prevent One Million Heart Attacks and Strokes Over the Next Five Years (2012-2017)

The ABCS:

A spirin

B blood Pressure

C holosterol

S moking

49.7% of U.S. Adults ≥ 20yrs Had At Least One Risk Factors
21.3% Had Two of Three
2.4% Had all Three
Deficiencies in ABCS in the United States
Targeted Areas for Improvement in the Delivery of Preventative CV Care
The Million Hearts Initiative

Percentage Breakdown of ABCS

- Percentage of People At-Risk CVD Prescribed
  - Aspirin: 47%
  - Adequately Controlled: 46%
  - Controlled: 33%
  - Receiving Help: 23%

- Percentage of Diagnosed HTN
- Percentage of Diagnosed High Cholesterol

CVD Cause of Death per Year

Where \( \text{\#} = 100,000 \)

Infographic by Adam C. Winters
Data from the Lancet (see Reference One)
NHANES$^2$ (National Health and Nutrition Examination Survey):
- 24,693 persons* aged ≥ 20 yrs Interviewed
- Final sample of 9,101 adults

*exc. pregnant women and institutionalized citizens
Introduction (cont’d): Hypertension at a Glance

- Incidence: 33%
- Prevalence: 65 million hypertensive (BP > 140s or 90d)
  
  59 million pre-hypertensive (BP 121-139s or 81-89d)

Percentage of controlled HTN:

1988: 29%
2008: ~50%
2020: 61.2%? HP2020 Target Figure
Blood Pressure Plus
BP+ Overview

- **What:** A Needs Assessment based program targeting monthly blood pressure screening in at-risk, underserved surrounding neighborhoods.

- **Who:** Adults aged ≥18 years living in designated zip codes

- **Where:** Point Breeze and Grays Ferry

- **How:** “The program identifies individuals at-risk for HTN, [supports those] with HTN in areas of adhering to prescribed medications, improving their diet and encouraging physical activity in their lifestyle."

- **Why:** BP measurements are a non-invasive screening tool most patients don’t mind or, even, enjoy having done. Also serves as an effective entrance point into the community.
BP+

Plus: More than just screening!

- Educational handouts
- Help with diet, implementing physical activity into lifestyle
- Smoking cessation information
- PCP referrals/Assist with Access to Care
- Classes on BP and other chronic conditions/concerns (i.e. diabetes, cholesterol, physical activity, etc.)
- Q+A with health professional
- Biannual review of medication
- Venues include churches, barbershops, senior and community centers, YMCA.
Demographics: Why Grays Ferry and Point Breeze?
**Demographics: Why GF and PB? Cont’d**

*Statistics based on PHMC Household Health Survey 2010 Adult Respondents*

<table>
<thead>
<tr>
<th></th>
<th>Philadelphia</th>
<th>Grays Ferry + Point Breeze</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Dr. Ever Told High BP?”</td>
<td>35.9%</td>
<td>53.3%</td>
</tr>
<tr>
<td>Insured?</td>
<td>83.9%</td>
<td>76.5%</td>
</tr>
<tr>
<td>How Often Smoke?</td>
<td>25.2%</td>
<td>30.8%</td>
</tr>
<tr>
<td>(Every day + Some days)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exercise 3 or More Days/Week</td>
<td>58.2%</td>
<td>54.2%</td>
</tr>
<tr>
<td></td>
<td>Philadelphia</td>
<td>Grays Ferry</td>
</tr>
<tr>
<td>---------------</td>
<td>--------------</td>
<td>-------------</td>
</tr>
<tr>
<td>HTN:</td>
<td>35.7%</td>
<td>45.3%</td>
</tr>
<tr>
<td>Elev. Chol:</td>
<td>25.3%</td>
<td>24.9%</td>
</tr>
</tbody>
</table>

*Statistics based on 2008 PHMC Household survey*
BP+ Demographics Cont’d

Cause of Death (Age-Adjusted Rate per 100K)

Stroke
- 33.8
- 60.9
- 81.1
- 58.7

Heart Disease
- 100.8
- 229.2
- 230.7
- 194.7

- HP2020 Target
- Grays Ferry
- Point Breeze
- Philadelphia
Our Population
BP+: Who Was Screened?

TOTAL NUMBER SCREENED: 521

Average Age: 53.3 y/o

Gender Breakdown:
- Male: 40.4% (n=210)
- Female: 59.6% (n=312)

Racial Breakdown:
- Black: 82.7%
- White: 8.4%
- Asian: 2.3%
- Hispanic: 1.9%

PCP?
- Yes: 81.7%
- No: 18.3%

Insurance?
- Yes: 80.4%
- No: 19.6%
## Average Age and BP by Site

<table>
<thead>
<tr>
<th>Site</th>
<th>Age</th>
<th>Average Systolic Blood Pressure at 1st Screening</th>
<th>Have PCP? (Of those who answered)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dixon House</td>
<td>33.88</td>
<td>114.17</td>
<td>53%</td>
</tr>
<tr>
<td>Freddie Barbershop</td>
<td>51.14</td>
<td>120.80</td>
<td>100%</td>
</tr>
<tr>
<td>Greater St. Matthew Church</td>
<td>52.13</td>
<td>122.96</td>
<td>83%</td>
</tr>
<tr>
<td>Point Breeze Market</td>
<td>56.69</td>
<td>124.87</td>
<td>92%</td>
</tr>
<tr>
<td>St. Charles Senior Center</td>
<td>74.33</td>
<td>127.94</td>
<td>94%</td>
</tr>
<tr>
<td>St. Simon</td>
<td>60.52</td>
<td>125.55</td>
<td>76.5%</td>
</tr>
<tr>
<td>Wilson Park Apts.</td>
<td>40.48</td>
<td>118.40</td>
<td>82%</td>
</tr>
<tr>
<td>Y Christian St</td>
<td>46.02</td>
<td>118.00</td>
<td>83%</td>
</tr>
<tr>
<td>Zion AME</td>
<td>62.59</td>
<td>125.91</td>
<td>96%</td>
</tr>
</tbody>
</table>
Told You Had HTN?

No: 311
Yes: 210
Have Insurance?

- Yes: 397
- No: 97
Results: Who Came Back?
35% of those screened followed-up at least once.

Women were more likely (37.5% of initially screened women) to follow-up at least once than men (30%).

Range of follow-up rates per site was 20% (Wilson Park Apts)--59% (St. Charles Senior Center).
Results: Identifying HTN
Of those without a previous HTN diagnosis (n=311), 14% (n=43) were found to be hypertensive upon first screening. 9% (n=28) were found to be pre-hypertensive.

63.6% with initial screen suggesting HTN (without previous diagnosis) did not have a PCP at time of screening.

38% (n=16) did not have insurance at initial screen.

Of those with an initial screen suggesting HTN and without a previous HTN diagnosis, 29.5% followed up at least once (n=13)
### “New” HTN Cases Cont’d

<table>
<thead>
<tr>
<th>Age</th>
<th># of HTN Diagnoses</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-35</td>
<td>12</td>
</tr>
<tr>
<td>36-50</td>
<td>10</td>
</tr>
<tr>
<td>50-65</td>
<td>11</td>
</tr>
<tr>
<td>65+</td>
<td>8</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Gender</th>
<th># of HTN Diagnoses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>19</td>
</tr>
<tr>
<td>Female</td>
<td>24</td>
</tr>
</tbody>
</table>
“New” HTN Cases Cont’d

- Of those who eventually followed up at least once, average BP at first screen was 145/80.7
- On first follow up, average BP was 136.3/77.7
- On second follow up, average BP was 132/78.18
- Of the initial 43 patients without a previous HTN diagnosis who screened hypertensive:
  - 14 followed up at least once
  - 9 followed up at least three times
  - 4 followed up at least five times

- Is this good, bad?
  - How many sought treatment/PCP?
  - Obtained insurance?
  - Started medication?
Conclusion
Is BP+ Worthwhile?

- Hypertension attributable cost, in general, is $1,598 per person with hypertension per year\(^4\) as of a 2007 study.

- Another study found that roughly 51% of all HTN-related costs are attributable to non-medication related expenses (ER visits, outpatient and inpatient care etc.)\(^5\)

- The ability to screen 500+ at-risk individuals, with a nearly 40% follow up rate, is a unique ability to attempt to cut down further costs and promote health.

- The cost of screening programs, (BP+ estimate: $5,000) is relatively small.

- Additionally, screening programs offer the additional benefit of fostering trust and building relationships in at-risk communities.

- Though the sample is small, those without previous diagnosis tended to benefit from the program (average decline of 13s and 2d over two screenings).
In order to effectively evaluate the program further, we must find a way to track patients after they are screened and do not follow up.

More women than men attending screenings and consistently followed up. How can we attract more men?

Phone tracking has been relatively ineffective. Update form with information regarding access to computer/e-mail address.

Incentivize individuals to answer post-screening inquiries (i.e. gift cards).

The data indicates a decline in blood pressure after attending one screening event amongst those without a diagnosis. Did these individual’s seek care? What role did we play?

What about those “lost” to follow-up screenings? Is it good that we aren’t seeing them?
Questions/Comments/Suggestions

Adam.Winters@jefferson.edu

Special thank you to Dr. Plumb and Dr. Brawer for their advice, assistance and patience.

Thank you to David Madison for opening the door to these communities and allowing me access to the screenings.