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Associate Professor, VCU School of Pharmacy
Board Chair, Center for Healthy Hearts
Center for High Blood Pressure

• 1983 – Established to address hypertension in the urban African American population
• 2008 – Mission revised to include diabetes and chronic disease
Primary Care Provider (PCP) Shortage 2013-2025


PCPs 2013

PCPs 2025

Supply

Demand

Axis Title

8,000 PCP Shortage

20,000 PCP Shortage
Patient without Health Insurance Presents to Clinic

Patient Consent Verify Uninsured Status Proof of Income for PAP (Staff)

Verify and Establish Diagnoses (MD/NP)

Comprehensive Medication Management
- Medication Access
- Therapeutic Interchange
- Frequent Follow-up with Evaluation (Pharm.D.)

Shared Medical Record

Center Patient Care Model

Rationale
1. Not enough PCPs
2. Better outcomes w/ team-based care
## Center Patient Characteristics

### Characteristics (n=172)*

*Patients with >2 pharmacist visits during 2009*

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age mean ± SD, years</td>
<td>51.3 ± 9.9 (32-81)</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>106 (61.63)</td>
</tr>
<tr>
<td>Male</td>
<td>66 (38.37)</td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
</tr>
<tr>
<td>African American</td>
<td>131 (76.16)</td>
</tr>
<tr>
<td>White</td>
<td>31 (18.02)</td>
</tr>
<tr>
<td>Asian</td>
<td>4 (2.33)</td>
</tr>
<tr>
<td>Hispanic</td>
<td>3 (1.74)</td>
</tr>
<tr>
<td>Other</td>
<td>3 (1.74)</td>
</tr>
<tr>
<td>Past Medical History</td>
<td></td>
</tr>
<tr>
<td>Hypertension</td>
<td>172 (100.00)</td>
</tr>
<tr>
<td>Hyperlipidemia</td>
<td>56 (32.56)</td>
</tr>
<tr>
<td>Diabetes</td>
<td>32 (18.60)</td>
</tr>
<tr>
<td>CVA/TIA</td>
<td>7 (4.07)</td>
</tr>
<tr>
<td>Coronary Artery Disease</td>
<td>6 (3.49)</td>
</tr>
<tr>
<td>Smoker</td>
<td>67 (38.9)</td>
</tr>
<tr>
<td>Body Mass Index (BMI) mean, kg/m²</td>
<td>33.5 ± 8.2</td>
</tr>
</tbody>
</table>
Mean Blood Pressure
Baseline through 2013 (n=172)
Comparison of Center BP Control Rates with National Benchmarks

<table>
<thead>
<tr>
<th></th>
<th>Center for High Blood Pressure</th>
<th>General Population</th>
<th>Non-Hispanic blacks</th>
<th>Uninsured Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of patients with BP &lt;140/90</td>
<td>68.2%</td>
<td>54.1%</td>
<td>47.1%</td>
<td>29.8%</td>
</tr>
</tbody>
</table>

1 Heart Disease and Stroke Statistics – 2015 Update. Circulation. 2015;131:e29-e322

Mean Number of Visits between 2010 and 2013

<table>
<thead>
<tr>
<th></th>
<th>Patients with Stage 2 Hypertension (n=81)</th>
<th>All Other Patients (n=91)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PharmD (Range)</td>
<td>7.48 (1-20)</td>
<td>6.89 (0-19)</td>
</tr>
<tr>
<td>Physician (Range)</td>
<td>1.15 (0-5)</td>
<td>1.03 (0-3)</td>
</tr>
</tbody>
</table>
Secrets of Center Success

- Optimization of distinct interprofessional roles
  - Diagnoses established by **physicians**
  - Medication management by **pharmacists**
  - Urgent care by **nurse practitioners**
  - Case management by **nurses**
  - Education and coaching by **student lay health workers**
  - Nutrition education by **dietitians**
- Access to a common medical record
- Frequent follow-up with evaluation
- Collaborative practice agreement with sufficient scope of practice to implement medication changes at the time of the visit
- Specialized services – focus on chronic disease challenges
  - Certified Diabetes Educators
  - Cardiology, Nephrology
  - Clinical pharmacy specialists

Secrets
1. High touch – right provider skill mix
2. High intensity – right visit frequency
Everybody has problems...

Center
- Lack of funding diversification
- Inconsistent annual cash flow

ED
- Uninsured patients access ED for non-urgent issues
- No formalized referral mechanism

PCMH
- Long wait time until first appointment
- Inadequate resources to rapidly meet patient needs

Patients
- Combination of medical and social issues
- Poor health literacy impedes navigation
Center for Health Hearts
a specialty medical home and free clinic for uninsured patients with chronic disease

Our Services
- Appointments within 72 hours
- Medication Management and Access
- Pharmacy, Cardiology, and Nephrology Specialists

Patients We Serve
- Diabetes
- High BP
- High Chol
Conclusions

• The shortage of primary care providers may pass 20,000 by year 2025.

• An asynchronous team-based care module improved hypertension control in an uninsured, primarily African-American, urban population.

• Successful chronic disease management of this challenging population suggests that more widespread adoption of similar collaborative care models should be considered across all payers.
Special Thanks

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- Norman V. Carroll, Ph.D.