Preventing and Controlling Hypertension: A City Health Department Perspective

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Outline

• Context
  – New York City (NYC) Demographics
  – Epidemiology

• Establishing Priorities
  – Value of quality local data

• Taking Action
  – Targeting Health Care System
  – Targeting Community
  – City-Wide

• Conclusion
Are New Yorkers So Different?
Not So Different: Leading Cause of Death CVD

Data Source: NYCDOHMH Bureau of Vital Statistics, 2006
Premature CVD in New York City by Race/Ethnicity

Age Adjusted Death Rates Per 100,000 Population for CVD by Ethnicity: 64 and Younger
NYC 1994 to 2006

From 1994 to 1999 population counts use Census estimates, from 2000 on population counts use Census estimates as of August 2008. All population counts centered on July 1st.

Hypertension as a Local Priority
Where’s the data?!

• Agency Priority Setting
• Community Priority Setting
• Program
  – Design
  – Evaluation
  – Monitoring
• Indicators

• Sources
  – NYC HANES
  – CHS
  – Vital Statistics
  – SPARKS

• Presentation
  – GIS
  – ‘Epiquery’
More than 750,000 New Yorkers are at increased risk of heart attack or stroke due to dangerously high blood pressure. High blood pressure is a leading cause of heart disease and stroke, which together take the lives of more than 24,000 New Yorkers every year.

PRESS RELEASE # 064-08
Examining Disparities: Hypertension Prevalence by Race and Sex in NYC


* p<0.05 compared to whites
Examining Awareness, Treatment and Control among Adults with Hypertension

Data are age-adjusted to the 2000 US Standard Population

Examining Treatment Success: Odds of Control Among Treated:

<table>
<thead>
<tr>
<th></th>
<th>Model 1:</th>
<th>Model 2:</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Control among</td>
<td>Control among ADULTS</td>
</tr>
<tr>
<td></td>
<td>ALL ADULTS</td>
<td>20-64 YEARS OF AGE</td>
</tr>
<tr>
<td>Race/ethnicity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NH White</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>NH Black</td>
<td>0.74 (0.33, 1.67)</td>
<td>0.24 (0.06, 0.92)</td>
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<tr>
<td>NH Asian</td>
<td>0.50 (0.16, 1.57)</td>
<td>0.56 (0.09, 3.45)</td>
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<tr>
<td>Hispanic</td>
<td>0.75 (0.34, 1.63)</td>
<td>0.46 (0.11, 2.00)</td>
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<tr>
<td>Insurance Coverage</td>
<td></td>
<td></td>
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<tr>
<td>Private</td>
<td>1.00</td>
<td>1.00</td>
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<tr>
<td>Medicare</td>
<td>0.92 (0.36, 2.33)</td>
<td>--</td>
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<tr>
<td>Other Govt</td>
<td>0.72 (0.30, 1.76)</td>
<td>0.52 (0.20, 1.32)</td>
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<tr>
<td>Uninsured</td>
<td>0.89 (0.30, 2.59)</td>
<td>0.93 (0.27, 3.27)</td>
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<tr>
<td>Have a Routine</td>
<td></td>
<td></td>
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<tr>
<td>Yes</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Place Of Care</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>0.21 (0.07, 0.66)</td>
<td>0.37 (0.11, 1.28)</td>
</tr>
</tbody>
</table>

* Adjusted for covariates in table plus age, sex, country of birth, education, income

Geographic Distribution of Disease: Self-Reported High Blood Pressure

Source: New York City Community Health Survey 2006
Examining Relationships

CVD Death Rate (per 100,000)
New Yorkers, Ages < 65

Death Rate
- Less than 45
- 45 - 70
- Greater than 70

Rates are age-adjusted
Source: Bureau of Vital Statistics,
NYC DOHMH, 2002
Establishing Targets

East and Central Harlem DPHO

Bronx DPHO

Brooklyn DPHO
Hypertension Data

• Summary Findings
  – Common
  – Disease burden is unevenly distributed
    • By socio-economic and geographic indicators
  – Disease is poorly controlled
  – Striking disparities in control exist

• Data Supported/Defined
  – Justification for local prioritization
  – Target populations and geographic regions
  – Potential for systems change
  – Baseline for evaluation
Targeting High Risk Populations through Health Care Systems Change
Health Care Systems Change

- Improve surveillance
  - Establish indicators
- Effective treatment
  - Algorithms
  - Standardize formularies
  - Standardize BP measurement
  - Use of registries for planned care
  - Provider tools and support
  - Patient tools and support
- Systematic accountability
  - Use of indicators for performance feedback
Dr. Bear wants to improve his score on BP control and queries the EHR to identify patients with poorly controlled hypertension.

Using the ENHANCED REGISTRY FUNCTION, Dr. Bear identifies five patients with high blood pressure who do not have an appointment scheduled and reaches out to each patient by generating follow-up visit letters. When these patients come in, they will receive BP control therapy and a full range of preventive services suggested by their CDSS alerts.
Health Care Network Approach: Collaboration with HHC

Largest municipal hospital and health care system in the United States

- Serves 1.3 million New Yorkers and nearly 400,000 who are uninsured
- Nearly 5 million outpatient visits annually
- Workforce of 39,000 physicians, nurses, and healthcare professionals
- Patients speak more than 100 different languages
## HHC Antihypertensive Medication Formulary Recommendation

<table>
<thead>
<tr>
<th>Category</th>
<th>Medications</th>
<th>Dosage</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Angiotensin Converting Enzyme Inhibitors (ACEI)</td>
<td>Lisinopril (Prinivil)</td>
<td>10 mg, 20 mg</td>
<td>Generic</td>
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<tr>
<td></td>
<td>Enalapril (Vasotec)</td>
<td>2.5 mg, 5 mg, 10 mg, 20 mg</td>
<td>Generic</td>
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<tr>
<td>2. Angiotensin Receptor Blockers (ARB)</td>
<td>Losartan (Cozaar)</td>
<td>25 mg, 50 mg, 100 mg</td>
<td>On Patent</td>
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<tr>
<td></td>
<td>Telmisartan (Micardis)</td>
<td>20 mg, 40 mg, 80 mg</td>
<td>On Patent</td>
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<tr>
<td>3. Calcium Channel Blockers</td>
<td>Amlodipine</td>
<td></td>
<td></td>
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<td></td>
<td>Dilizem ER</td>
<td></td>
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<tr>
<td>4. Beta Blockers</td>
<td>Metoprolol XL (Toprol)</td>
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<td></td>
<td>Carvedilol (Coreg)</td>
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<td>5. Thiazide Diuretics</td>
<td>Hydrochlorothiazide</td>
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<td></td>
<td>Chlorthalidone</td>
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<td>6. Potassium-sparing Diuretic</td>
<td>Diazide (HCTZ/ Triamterene)</td>
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<td>7. Loop Diuretics</td>
<td>Furosemide</td>
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<td></td>
<td>Torsemide</td>
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<td>8. Centrally-acting Alpha Agonist</td>
<td>Clonidine</td>
<td></td>
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<td>9. Vasodilators</td>
<td>Hydralazine</td>
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<td></td>
<td>Minoxidil</td>
<td></td>
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<tr>
<td>10. Aldosterone Antagonist</td>
<td>Spironolactone</td>
<td></td>
<td></td>
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<tr>
<td>11. Combination Drugs</td>
<td>Enalapril/HCTZ</td>
<td></td>
<td>Generic, Improved Compliance</td>
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<tr>
<td></td>
<td>Lisinopril/HCTZ</td>
<td></td>
<td>Generic, Improved Compliance</td>
</tr>
<tr>
<td></td>
<td>Losartan/HCTZ</td>
<td></td>
<td>Generic, Improved Compliance</td>
</tr>
<tr>
<td></td>
<td>Amlodipine/Benazepril</td>
<td></td>
<td>ACCORD, Improved Compliance</td>
</tr>
<tr>
<td>12. Pregnancy (and Stage 2 HTN)</td>
<td>Methylidopa</td>
<td>2.5 mg, 5 mg, 10 mg</td>
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<tr>
<td></td>
<td>Labetalol*</td>
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<tr>
<td></td>
<td>Hydralazine*</td>
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</table>
Supporting Practice Change: Self Blood Pressure Monitoring, Nutrition and Medication Adherence Training
Supporting Practice Change: Public Health Hypertension Detailing
Targeting High Risk Populations in Geographic Regions

- East and Central Harlem DPHO
- Bronx DPHO
- Brooklyn DPHO
Beyond the Clinic: Volunteer Run BP Monitoring

- Based upon DFTA model
- Spread to 40 FBO/CBOs
- Over 1,000 participants

- Key components
  - Volunteer trained on BP measurement
  - Site maintains records over time
  - Participant keeps record of measurements
  - Medication adherence reinforced
  - Health care provider made aware

- Evaluation ongoing
Beyond the Clinic: Pharmacies

- Community pharmacies collaboration
- All pharmacies within geographic with stationary automated blood pressure measurement kiosk
- Media and marketing campaign:
  - Encourages residents to use
  - Pharmacies advertised by:
    - Primary care provider
    - FBO and CBOs
    - Public housing developments
    - Local billboards
Targeted Pilot Program Areas

Prioritized:

- Pharmacy density and clustering
- Population density
Population Level Interventions: Changing the Food Environment
Influencing Individual Decisions
BP Reduction Through Decreasing Salt Intake Would Save Many Lives

U.S. adults, 20-74 years
Salt consumption (mg/day)

NHANES I 1971-74
NHANES II 1976-80
NHANES III 1988-94
NHANES IV 1999-00

2005 U.S. Dietary Guidelines recommendation for adults
Recommended limit for people with hypertension, blacks, middle-aged and older

150,000 lives saved w/ lifetime ↓ in intake

Most Salt Comes from Processed and Restaurant Foods…

Realistically, individuals can’t control how much salt is in the food they eat.

- Processed and restaurant foods: 77%
- Naturally occurring: 12%
- While eating: 6%
- Home cooking: 5%

Source: CSPI. Adapted from: http://www.cspinet.org/salt/saltreport.pdf
Action in US Has Been Limited

• Government - FDA
  – In 1983, FDA Commissioner called for voluntary reductions; little progress
  – Held hearings on salt in fall 2007
  – Cities and states testified and submitted comments that support FDA action

• Private - Keystone
  – Major manufacturers involved
  – Developed front-of-package labeling system for better-for-you products
  – Launched in winter 2008
  – Will only affect the portion of products that are labeled, not all products
In Contrast: UK Salt Campaign

- **Goal:** Reduce salt intake by 1/3, from 2005 to 2010
  - >50 commitments from all sectors of the food industry
  - Gradual reductions across product categories

- **Product salt reductions achieved**
  - Heinz: 28% to 33% ↓ in some canned products
  - Nestle: 25% ↓ in soup mixes and bouillons
  - Kellogg’s: 25% ↓ in cornflake cereals
  - Kraft: 30% ↓ in cheese and cheese snacks

- **Population salt intake reduction demonstrated:**
  9.5 g in 2000-2001 to 8.6 g in 2008 (3,800 mg to 3,440 mg)

- **Industry initially resistant, now proud of progress**

Salt Reduction Is Imperative: Strategic Opportunity

• Reducing population salt intake will decrease blood pressure and the risk for heart attack, stroke and death.

• Lowering food sodium content is key to meaningful reductions in population sodium intake.

• There is a benefit when many companies in the marketplace reduce salt at the same time.

• UK has demonstrated a successful model for collaboration.
Aligning City Government Action Nutrition Standards for all NYC Agencies: Over 225 Million Meals and Snacks served/year

• Covers all foods purchased and served in schools, daycares, correctional facilities, public hospitals, senior centers and others

• Requirements:
  – Sodium, fat, saturated fat, fiber and calorie limits for daily/meal intake
  – Sodium limits by food category
  – No artificial trans fat
In Conclusion
Key Components: Local Health Department Strategies to Prevent and Control Hypertension

• Locally relevant data

• Interventions
  – Evidence-based, scalable
  – Multi-level, multi-factorial design
  – Sustainable over time
    • Change the default, support with policy
    • Work within/through existing systems

• Measurable outcomes

• Funding and infrastructure

• Priority alignment at all levels, across institutions
Local Health Departments: Unique Position to Influence Change

- Local Health Department Characteristics
  - Stable, known to the community
  - Responsibility for all ages, all communities
  - Capacity to work at multiple levels simultaneously assuring consistency of messaging
  - Potential collaborators are diverse and shared

- Key partners in the development, testing innovative models for environmental, food and health systems change;

- Key partners in the dissemination of effective models which can radically reduce population risk for hypertension disease and increase the likelihood of control.
Preventing and Controlling Hypertension:
A City Health Department Perspective

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