

Self-Blood Pressure Monitoring to Improve Hypertension Control in New York City

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The Challenge

Heart disease is NYC's leading cause of death

Heart Disease 39%, Cancer 24%, Influenza/Pneumonia 5%, Stroke 3%, Diabetes 3%, All Other Causes 16%

Data Source: NYCDOHMH Bureau of Vital Statistics, 2006

Hypertension in NYC

One in four NYC adults have HTN (NYC Community Health Survey, 2005)

Even for those diagnosed and in treatment, levels of control are poor (Angell et al, In publication, 2008)

In the US, HTN is the leading cause of black white disparities in the number of life years lost (Wong et. al, 2002)

Identifying the target population: Who should we reach and how?

Who:

Determine communities at greatest risk

Map CVD mortality and hypertension prevalence

How:

Explore DOHMH resources within these areas

District Public Health Offices (DPHOs)

DOHMH Public Health Detailing Program

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.

High Blood Pressure Prevalence

13-26+ Percent High Blood Pressure

Source: New York City Community Health Survey 2006.

Identify intervention appropriate for target population

Identify factors related to uncontrolled HTN

Review the evidence for evaluated interventions affecting key contributing factors

Factors Related to Uncontrolled Hypertension

Patient-related

Lack of access to care (Ahluwalia 1997)

Medication cost (Ahluwalia 1997)

Lifestyle/environment (Hill 1999)

Medication Non-adherence (Borzecki 2005)

Provider-related

Medication Non-adherence (Borzecki 2005)

Clinical Inertia (O'Connor 2005)

Self-Blood Pressure Monitoring (SBPM)

Patient out-of-clinic use of a portable blood pressure measuring unit to take and record blood pressure

Also called 'Home Blood Pressure Monitoring' (HBPM)

SBPM and HTN Control: Evidence

Lower SBP, DBP and mean BP, improving blood pressure control (Cappuccio 2004)

Equal or better predictor of CV events or (Bobrie 2004, Ohkubo 1998) and target organ damage (Mule 2002) than office readings

Screen for white coat hypertension (Stergio 1998, Chobanian 2003) and masked hypertension (Stergio 2007)

May increase patient involvement in their own care⁶ and may improve treatment adherence (Taylor 2007)

Home Blood Pressure Monitoring Call to Action

Joint scientific statement by AHA, American Society of HTN, and Preventive Cardiovascular Nurses Association.

Recommendations:

HBPM should be part of routine management of HTN patients

Patients should be reimbursed for BP monitors

Providers should be reimbursed for services related to HBPM (i.e. patient training)

(Pickering et. al, 2008)

Barriers to SBPM Use for Targeted Population

Limited provider SBPM use in routine HTN care

Evidence-base is recently established, so providers are yet to routinely use SBPM in management of HTN

Cost

Insurance coverage for monitor not universal
e.g. Medicaid, Medicare
Out-of-Pocket Cost of Blood Pressure Monitor Prohibitive
Limits patient purchase and therefore use
Lack of supporting clinical systems in place
Limited best practice models to facilitate easy integration

Intervention Design: Key Elements

Increase adoption of SBPM into routine HTN care
Change the culture of clinical practice
Involve patients in management of their HTN to reinforce provider practice
Address cost
Conduct evaluation to determine if changes in Medicaid coverage justified
If so, advocate for change
Identify best practices
Assess and disseminate best related practice organization models

Program Objectives

To demonstrate:
Self-blood pressure monitoring improves blood pressure control
Systems that effectively and efficiently integrate SBPM into disease management

General Intervention Design

Providers
Identify eligible patients from clinic population
Offer participation in SBPM program (free monitor)
Clinic Support Staff
Enrolls patient into program (fills out log book)
Reviews patient education materials
Trains patient on monitor use
Home readings used in HTN management

Inclusion Criteria

Greater than age 18 years, and
Have had a HTN diagnosis for at least 6 months, and
Have an elevated blood pressure on their current and last clinic visit
HTN defined as:
SBP \geq 140 or DBP \geq 90 for most patients or
SBP \geq 130 or DBP \geq 80 for patients with diabetes or kidney disease

Exclusion Criteria

Physically or mentally unable to use a monitor or record measurements

Arm size too large or small for blood pressure monitor cuffs

Already using SBPM

Materials Provided: For Providers

Free Clinical Decision Support Materials

Free Patient Management and Clinical Tools

City Health Information; Patient Self-Monitoring of Blood Pressure: A Provider's Guide; Hypertension Pocket Guide; Prescription for Physical Activity

Materials Provided: For Patients

Free monitor

Free supporting educational materials

Free bag

How to Take Your Blood Pressure at Home; Learn to Read Food Labels; Health Bulletin; Keep Your Heart Healthy

Program Preparation

Evaluation Developed

Data from clinic log (identifiers removed) and voluntary survey from participants

DOHMH IRB approved

CVD Program Staff Resources

1 Project Manager

2 Support staff (1 Intern, 1 Admin staff)

Funding

NYC tax levy dollars

Monitor Selection

Validated, automatic, digital, upper arm model

Program Collaborators

Maximized internal DOHMH programming synergies

Diabetes Program

Primary Care Information Project (PCIP)

Public Health Detailing Program

Practice Site Collaborators

Public Health Detailing Targeted Clinics

NYC Health and Hospitals Corporation (HHC) Network

PCIP Clinic Partners

Diabetes A1C registry clinics

Methods

Site selection
Characteristics
Start up process
Program phases
Patient selection and training
Integrating home readings into care
Data Collection/Evaluation Plan

Site Selection: Characteristics

Participating sites included:
Outpatient, ambulatory, primary care clinics
Located within DPHO neighborhoods
Served urban, largely low-income and minority populations
Clinic size varied
Small practices (1-2 Full Time Providers (FTP))
Mid-sized clinics (3-10 FTPs)
Large hospital centers (> 10 FTPs)
Site Monitor Allocation
1-2 FTPs: ~ 25 monitors
2-5 FTPs: ~ 50 monitors
5-10 FTPs: ~75 monitors
> 10 FTPs: ~ 100 and above (based on site resources)

Site Selection: Start-up Process

Outreach
Contacted site and offered participation in program
Letter of Agreement
Signed by site to confirm interest in participation
Site Training (for providers and clinic support staff)
Conducted at the site (~ 1.5 hrs long)
Included: overview of SBPM, review of program phases, materials, and data collection procedures
Taught clinic staff how to train patients on monitor use
Material Receipt (i.e., monitors, education materials)

Project Phases

Phase I:
Monitor distribution & Patient training
Phase II (9-12 months):
Integrating SBPM
Midpoint clinic process evaluation
Phase III:
Data collection and evaluation

Program Feedback from Sites

Provider Feedback

Overall, Enthusiastic and Positive

Able to offer patients a free & valuable tool

Patient education tools valuable

20/23 facilities approached interested in participating (86%)

SBPM useful in engaging & motivating patients

Good buy-in from patients

Effect on Clinic Flow

Varied depending on systems created

Current Program Status

In 2006 (Preliminary Pilot Sites)

Distributed ~2,000 monitors

19 NYC Clinic Sites

Data analysis currently underway

In 2008 (Continuing scale-up)

Lessons Learned SO FAR

Identify Designated Clinic Project Leader (DCPL) / Key Champion

Leads to successful integration of SBPM into clinical practice (i.e. health educator, residents)

Develop effective patient tracking system

Easy prompt to remind providers to ask SBPM patients for home readings (e.g. EHR flagging, SBPM stickers)

Conduct frequent site visits / site contact

To ensure eligible patients are enrolled

Provide support to clinic staff in addressing any logistical concerns early on

Next Steps

Continue spread and evaluation of preliminary pilot sites

Complete full evaluation

Support development and continued spread of best practices

Advocate for full reimbursement for appropriate monitors and provider care as per professional guidelines

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All Participating Clinic Sites