



Undiagnosed Hypertension



NATIONAL ASSOCIATION OF
CHRONIC DISEASE DIRECTORS

Promoting Health. Preventing Disease.



The National Association of Chronic Disease Directors (NACDD) supports state public health departments implementing activities in the 1305 and 1422 grants funded by the Centers for Disease Control and Prevention’s Division for Heart Disease and Stroke Prevention (<http://www.nacdd1305.org/>). Through Million Hearts®, a national initiative with a goal to prevent one million heart attacks and strokes by 2017 (<http://millionhearts.hhs.gov/>), NACDD’s cardiovascular health (CVH) initiative supports state public health departments to improve identification and control of hypertension by providing resources and training such as Million Hearts® Stakeholder workshops (<https://c.ymcdn.com/sites/chronicdisease.site-ym.com/resource/resmgr/CVH/>



[Million_Hearts_Stakeholders_.pdf](#)).

To support the Million Hearts® focus of identifying people with undiagnosed – and therefore untreated – hypertension, NACDD and the CDC’s Division for Heart Disease and Stroke Prevention launched a new series of interactive events in February 2016. These events included the Fireside Chat on Identifying Undiagnosed Hypertension (http://www.chronicdisease.org/general/custom.asp?page=Webinar_Firesidechat) and two virtual roundtables which provided the opportunity for participants to discuss the topic in greater detail. NACDD has also developed success stories featuring strategies state health departments have implemented to help identify undiagnosed hypertension. This issue brief highlights lessons learned and case studies from these events.

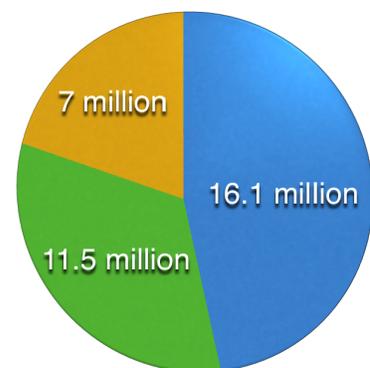
Background

Hypertension, or high blood pressure, is a major risk factor for heart disease and stroke, two of the leading causes of death in our nation with more than 1.5 million heart attacks and strokes and more than \$300 billion in health care costs and lost productivity annually. Heart disease and stroke are also the greatest contributor to racial disparities in life expectancy.

An estimated 75 million people (one of three US adults) have high blood pressure and almost half (46 percent) of those individuals do not have their blood pressure under control. Additionally, more than a third of people with uncontrolled hypertension don’t know their blood pressure is too high and are not receiving treatment to control it, placing them at increased risk for heart attack or stroke.

To achieve the Million Hearts® goal of preventing one million heart attacks and strokes, it is estimated that an additional 10 million people will need to have their blood pressure under control. Finding individuals with undiagnosed hypertension is key to meeting this goal. NACDD has supported state health departments in their efforts to improve detection of undiagnosed hypertension. These efforts include identifying successful strategies in success stories and bringing together key partners to interact with state health departments.

- Aware and treated
- Aware and untreated
- Unaware



Health Systems Strategies

A common assumption is that individuals with undiagnosed hypertension do not receive regular health care. However, data suggest that health care professionals are seeing potentially millions of people with uncontrolled high blood pressure each year. These patients are often “hiding in plain sight” within clinical settings. Many health care organizations have worked with their patients to improve hypertension detection and control through innovations in health information technology, patient communication, and team-based care.

Using health information technology, practices can generate reports and set up automated alerts to identify patients with potentially undiagnosed hypertension. Employing the four steps below for finding patients “hiding in plain sight,” practices have developed systematic processes for addressing undiagnosed hypertension.

- Establish clinical criteria for potentially undiagnosed hypertension.
- Search electronic health record (EHR) data for patients who meet the established clinical criteria.
- Implement a plan to diagnose these patients, and to treat those with hypertension.
- Calculate your health practice’s or system’s hypertension prevalence and compare your data against local, state, or national data.

Once clinical criteria for identifying patients with potentially undiagnosed hypertension have been established, practices can begin to generate registries using data available in the EHR. Many practices use the JNC 7 criteria of two or more properly measured BP readings > 140/90 mmHg on two or more office visits. This may initially identify a large number of patients with potentially undiagnosed hypertension. To make this more manageable, it may be useful to start by identifying a subset of those patients at higher risk (i.e. those with one BP reading > 180/100). Then, as resources allow, the next cohort can be identified by searching for patients with one BP reading > 160/100 and so on. An example of this stepped approach is provided.

It has also been recommended that patients who are re-evaluated and found not to have hypertension be assigned the ICD-10-CM diagnosis code R03.0 (formerly ICD-9 796.2) “elevated blood pressure reading, without diagnosis of hypertension” to avoid counting them again.

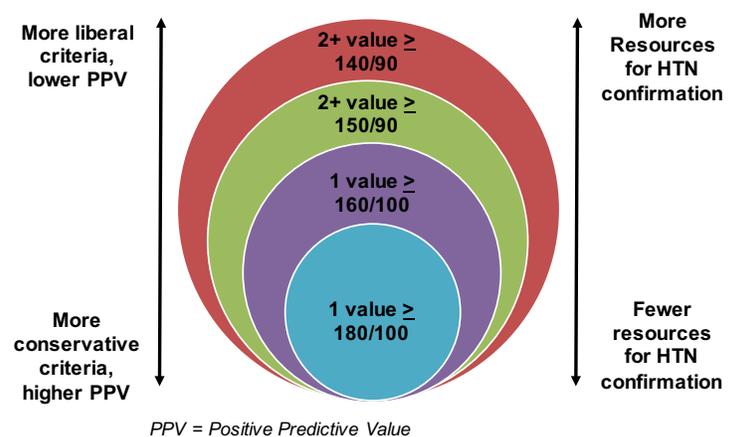
Million Hearts® hypertension prevalence estimator tool

One tool to calculate HTN prevalence in a clinical system is the Million Hearts® Hypertension Prevalence Estimator Tool. After calculating the prevalence of hypertension in the practice or health system, the tool can be used to generate an expected hypertension prevalence based on the specific patient population. If the tool estimates an expected hypertension prevalence larger than the calculated prevalence, quality improvement activities can be implemented to understand why the discrepancy exists and identify potential strategies to detect and treat the undiagnosed patients within the health system.

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Clinical Criteria – Stepped Approach



Million Hearts® Stepped Approach graph (“Hiding in Plain Sight: Finding Patients with Undiagnosed Hypertension”).

Public Health Strategies: Case studies

To illustrate how public health departments are working with healthcare partners to identify undiagnosed hypertension, NACDD has developed success stories to share with other states. The case studies that follow are extracted from the What's Working in Chronic Disease Prevention and Control database. Links to the full success story and other resources are provided.

New York State Department of Health

Developing Capacity to Measure Undiagnosed Hypertension in New York success story:

<http://newscribemedia.net/apps/NACDD/WWCDPC/display.php?id=522>

The New York State Department of Health (DOH) is using available surveillance systems to identify a gap between estimated and actual prevalence of undiagnosed hypertension (HTN). Physicians requested information on the rate of undiagnosed hypertension to support a collaborative project with the Albany County Health Department. This request led the DOH to identify data sources to better understand the scope of the public health problem of undiagnosed hypertension in New York and to support primary care providers in identifying patients with hypertension.

New York funds a network of Regional Health Information Organizations (RHIOs) which are multi-stakeholder collaborations that enable secure exchange of health information to support health care quality improvement. With DOH leadership support, primary care clinic de-identified data from Hixny, a RHIO serving a 19-county region, was analyzed and evaluated for completeness utilizing CDC's "Guidelines for Evaluating Data Systems." An initial pilot analysis used a sample of data extracted from the RHIO system for Albany County; applying the JNC 7 criteria to identify patients with potentially undiagnosed hypertension and technical specifications from the National Quality Forum (NQF). A second pilot analyzed data from the entire 19 county regions covered by Hixny and adjusted measure criteria based on the initial pilot to allow data from more practices to be reflected in the measures of undiagnosed hypertension.

IMPACT

- The pilot identified over 8,000 adults meeting the definition of hypertension who had not yet been diagnosed.
- The DOH demonstrated the ability to collaborate with a health information exchange (HIE) to measure the actual rate of undiagnosed hypertension. Hixny data gave the DOH the means to describe the clinical picture of a 19-county area representing 2.7 million residents including the potential undiagnosed hypertension rate.

Montana Department of Public Health and Human Services

Identifying Clinic Patients with Undiagnosed Hypertension success story:

<http://newscribemedia.net/apps/NACDD/WWCDPC/display.php?id=520>

The Montana Department of Public Health and Human Services (MDPHHS) initiated a project to help patient-centered medical home (PCMH) clinics in the state identify undiagnosed hypertensive patients within their patient populations. In the first year of the grant, MDPHHS funded a pilot with a single PCMH, which demonstrated the feasibility of the project. In the second year, seven PCMHs were funded at \$5,000 each for

Public Health Strategies: Case studies (cont'd)

the first year and in the third year, another five were funded. The funding application process focused on PCMHs with a low prevalence of patients with diagnosed hypertension (< 20 percent) relative to the national estimate of 29 percent of adult PCMH patients with a diagnosis of hypertension. This focus on prevalence helps identify clinics that were likely to have a larger pool of unidentified hypertensive patients.

With partners including Health Technology Services, MDPHHS provided technical assistance on how to apply a hypertension algorithm within the electronic health record (EHR) to identify patients with potentially undiagnosed hypertension. Each clinic constructed a hypertension algorithm specific to their EHR that identified patients using the same definition: patients who had 2 blood pressure (BP) readings >140/90 mmHg without a hypertension diagnosis. Clinics followed up with the identified patients via mail, email, patient portal, direct phone outreach, and other methods patients identified as “preferred” contact, to set up a recheck of their BP. One site used a student nurse to conduct outreach and also trained providers to place information in the correct place in the EHR.

MDPHHS provides patient education material and home BP measurement cuffs (funded by the Master Settlement Agreement) that clinics can lend to patients for measuring their blood pressure at home, along with guidance on setting up a protocols for the home BP loaner programs.

Florida Department of Health

Identifying Community Health Center Patients with Undiagnosed Hypertension success story:
<http://newscribemedial.net/apps/NACDD/WWCDPC/display.php?id=521>

The Division of Community Health Promotion, Bureau of Chronic Disease Prevention within the Florida Department of Health partnered with Community Health Centers Alliance, Inc. (CHCA), a health center controlled network, on a project to identify patients with undiagnosed high blood pressure within federally-qualified health centers (FQHCs) or designated “look-alike” centers. FQHCs gathered baseline data to create a report using a screening algorithm developed by the health center. Patients identified with three elevated BPs, defined as $\geq 140/90$, in the past year who did not already have a diagnosis of hypertension (ICD-9 401.x) or of elevated BP reading without diagnosis of hypertension (ICD-9 796.2) were contacted by clinic care managers and asked to return for follow-up blood pressure check. The center’s EHR vendor also provided clinics with a

IMPACT

- In the second year, 100 out of 294 patients who returned for a blood pressure re-check were newly diagnosed with hypertension based on their re-checked BP reading.
- In the third year, nearly 1,000 patients were identified by EHR algorithms and clinics are currently working on setting up return visits for re-evaluation for these patients.

IMPACT

- As of April 2016, the project has identified 2,984 patients with potentially undiagnosed hypertension.
- The Florida Department of Health provided valuable evaluation support for this initiative, as well as expertise in data quality.

Public Health Strategies: Case studies (cont'd)

monthly report flagging new patients ages 18 through 84 having a reading at the most recent encounter of systolic BP \geq 180 mmHg or diastolic BP \geq 100 mmHg. Additionally, care teams developed a reporting mechanism to allow identification of potentially undiagnosed hypertension patients at any clinic visit, not just primary care appointments. The Florida Department of Health provided valuable assistance to this initiative by developing a common template for evaluation and making clinic site visits to support staff quality improvement activities. Additionally, all direct care staff received training on accuracy of BP measurement including addressing concerns about “white coat syndrome,” a condition where blood pressure rises when measured in a medical setting.

Roles for state public health departments in finding the diagnosis

- Identify priority areas using available surveillance systems
- Assist with development of protocols for clinical decision support
- Provide evaluation support
- Provide patient educational material
- Support training in accuracy of BP measurement
- Raise awareness of the phenomenon of potentially undiagnosed hypertension
- Assist with identifying disparities

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If you require this document in an alternative format, such as large print or a colored background, please contact Miriam Patanian at patanian@chronicdisease.org.

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