

Background

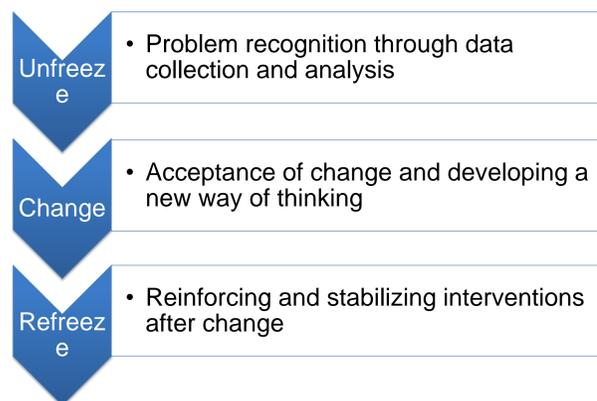
- Hypertension (HTN) is a leading cause of death in the U.S.
 - Between 2000 and 2013, HTN-related deaths increased by 23%
- HTN is also a risk factor for other leading causes of death that include cardiovascular disease and stroke
 - Approximately 70% of individuals who have their first stroke or heart attack are coincidentally found to have HTN
- HTN management is expensive, costing nearly \$49 billion annually in the U.S.
- HTN is defined as having an average blood pressure greater than or equal to 130/80
 - Untreated HTN is particularly prevalent in adults 18-44 years of age, surpassing the prevalence of untreated HTN in adults greater than 45 years of age by nearly 17%
- An outpatient clinic affiliated with a large Midwestern academic medical center identified the need for a lifestyle modification program to address untreated HTN in its young adult population

Purpose

This quality improvement project was a pilot test of a 3-month, nurse-led HTN lifestyle education program for adults 18 to 44 years of age with untreated HTN to improve blood pressure and cardiovascular health

Framework

Lewin's Change Model



ACKNOWLEDGEMENTS: Brandon Haag; Lou Fogg, PhD; Hugh Vondracek, MSc, ΦBK

Methods

Design

- 3 month pretest posttest design

Setting

- Outpatient suburban primary care clinic (18 primary care providers and >1,000 patients) affiliated with a large Midwestern academic medical center

Sample

- Inclusion criteria: 18-44 years old, without a past medical history of coronary artery disease or diabetes, newly diagnosed with HTN, and not prescribed antihypertensive medication
- Recruitment: nurse met in-person with prospective participants after their clinic appointments to assess eligibility and participation interest

HTN lifestyle education program

- AHA Life's Simple 7* health guide videos: Accessible via YouTube; addresses the management of blood pressure, glucose, cholesterol, weight, physical activity, diet, and smoking to provide individuals with steps to achieve better cardiovascular health
- Home-blood pressure monitoring*: Education on, and distribution of, free home-blood pressure monitors
- Lifestyle motivational coaching*: done every 2 weeks for 3 months

Measures

- My Life Check Heart Health Score:** Accessible via the AHA website; based on 3 biomarker levels and 4 behavioral factors; indicates an individual's cardiovascular health (1-10 score, with 10 representing excellent lifestyle choices)

Biomarker levels:

- Blood pressure (measured by the project director with a standard monitor, per AHA blood pressure measurement guidelines)
- Glucose (non-fasting, per clinic chart)
- Cholesterol (non-fasting, per clinic chart)

Behavioral factors:

- Physical activity (per self-reported response to single item in the *My Life Check* tool)
- Diet (self-reported responses to 6 items in the *My Life Check* tool)
- Smoking status (self-reported response to 1 item in the *My Life Check* tool)
- Weight (measured by the project director using a standard clinic scale)

- Blood pressure monitoring confidence** (measured by a 4-point Likert scale [Strongly Disagree to Strongly Agree])

Blood pressure (BP)

All measures were taken at baseline appointment and 3 month follow-up appointment

Process: Lewin's Change Model

Unfreeze

- Chart audits, project pitch to clinic staff, meeting with Omron representative (received 30 free blood pressure monitors for participant use)

Change

- HTN lifestyle education program: delivered by a nurse in the clinic setting
 - AHA Life's Simple 7* health guide videos
 - Home-blood pressure monitoring*

Refreeze

- HTN lifestyle education program:
 - Lifestyle motivational coaching* delivered by a nurse over the phone

Results

- 43 individuals referred and eligible
 - 30 (70%) agreed to participate and were consented and enrolled
 - 28 (93%) completed the program (attrition due to personal circumstances and a lack of interest)

Demographics (n=28)

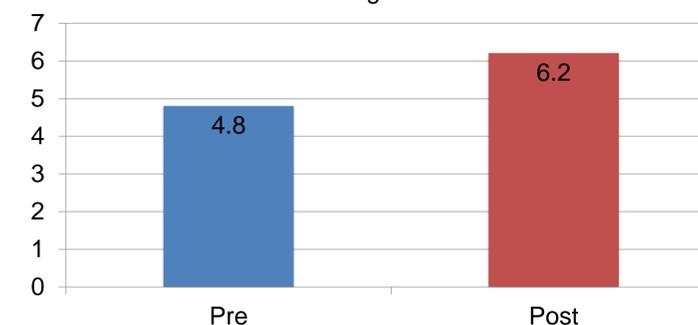
Age (years), M (SD)	38 ± 3.2
Gender, n (%)	
Male	19 (68)
Female	9 (32)
Ethnicity, n (%)	
African American	14 (50)
White, non-Hispanic	7 (25)
Hispanic	7 (25)
Other	0 (0)

Health Metrics (n=28)

	Pre M (SD)	Post M (SD)	Percent Change
Systolic BP	133 (5.3)	127 (6.6)	-4.5 *
Diastolic BP	82 (4.5)	77 (4.9)	-6.0 *
<i>My Life Check</i> score	4.8 (1.8)	6.2 (1.7)	+29.0 *

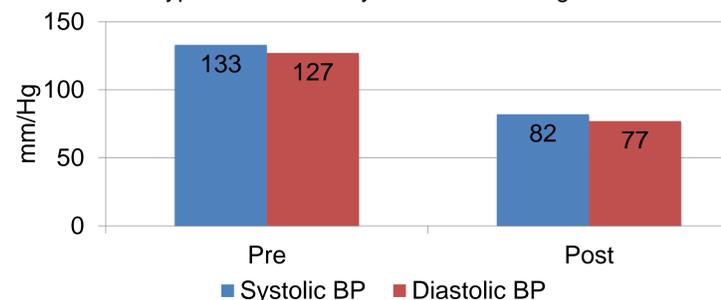
* significant at $p < 0.05$

My Life Check Heart Health Score of Adults Enrolled in a Hypertension Lifestyle Education Program



- 80% of participants had an improved heart health score
- 28% increase in participants' mean heart health scores
- 100% of participants reported confidence in self-blood pressure monitoring by the end of the HTN lifestyle education program

Changes in Blood Pressure for Adults Enrolled in a Hypertension Lifestyle Education Program



- 4% mean decrease in systolic blood pressure
- 6% mean decrease in diastolic blood pressure

Recommendations

- Integrating a nurse-led HTN lifestyle education program combining evidence-based tools from the AHA and self-blood pressure monitoring can lead to improved blood pressure and cardiovascular health
- Future Research:
 - Conduct a 6-month follow up in order to evaluate for sustained improvement in heart health
 - Repeat the project with larger, more diverse samples in order to allow for generalization of findings
- Addressing untreated HTN in younger adults is important due to the long-term, life-threatening effects