Heart Checks: Preventing cardiovascular disease in young adults
Presenters

Bernadette Mazurek Melnyk, PhD, RN, CPNP/PMHNP, FNAP, FAAN

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Laurel Van Dromme, MA
Symposium Objectives

1.) The learner will be able to describe the health and healthy lifestyle behaviors of young college-aged students.

2.) The learner will describe the components of a Heart Check and preliminary results (from the 2016-2017 academic year).

3.) The learner will describe the planning, execution and evaluation processes of a Heart Check.
Wellness

• The optimal state of living well, regardless of an individual’s spectrum of health
• Encompasses physical, intellectual, mental, emotional, social, occupational, financial, environmental and spiritual well-being
Behaviors are the number 1 killer of Americans, due to smoking, overeating, lack of physical activity, alcohol and drug use, non-adherence to medications and suicidal gestures.

Overweight and obesity will soon surpass tobacco as the number one cause of preventable death and disease in the United States; 42% of Americans will be obese by 2030 (CDC, 2012); 1 out of 3 Americans will have diabetes by 2050.

One out of 2 Americans have a chronic disease.

One out of 4 Americans have multiple chronic conditions.

Our children are now predicted to have a shorter life span than their parents.
Sitting: A Big Energy Zapper and Contributor to Chronic Disease!

SITTING IS THE NEW SMOKING

it's time to quit

KRISTENBENTSON.COM

BEWARE OF THE CHAIR
One out of 4 children, teens and adults have a mental health problem yet less than 25% get any help. Depression and stress are poor predictors of health and wellness outcomes.
Behaviors are the #1 killer of Americans
Every day, we make behavioral choices that influence our health and wellness outcomes.
Contributors to Premature Death from Cardiovascular Disease (CVD)

- Behavioral Patterns: 42%
- Genetic Predisposition: 32%
- Social Circumstances: 16%
- Healthcare: 10%
Based on Evidence, What Do We Know?

People who have the following behaviors have 66% less diabetes, 45% less heart disease; 45% less back pain, 93% less depression, and 74% less stress

• **Physical activity** - 30 minutes 5 days per week
• **Healthy eating** - 5 fruits and vegetables per day
• **No smoking**
• **Alcohol in moderation** - 1 drink per day for women, 2 drinks per day for men
Percent of adults who engage in the 5 leading health behaviors that can reduce the risk of chronic disease. Nearly 83% of health-care spending could be cut if more people employed:

- Not Smoking
- Exercising regularly
- Avoiding alcohol or drink in moderation
- Maintaining a healthy body weight
- Getting sufficient sleep

6.3

CDC, 2016
New Year's Resolutions for 2009

1. Lose weight again
2. Get fit next year
3. Give up alcohol
4. Stand up to boss
5. Be nicer to my wife
6. Sort out junk in shed
Healthy Behaviors = Healthy People
The Ohio State University
The Social-Ecological Framework and Life-Course Perspective Guide, Evidence-based Interventions to Achieve the Vision of Ohio State as the Healthiest University on the Globe

Workplace Ecosystem and Culture
Family and Social Networks
The Individual
Innate traits (e.g., age, sex, biological factors) Healthy Lifestyle Beliefs and Behaviors

Broad Social, Economic, Cultural, Health and Environmental Conditions as well as policies at the global, national, state and local levels

Individual Interventions
- PHA
- Biometric screening
- Health coaching
- Integrative Therapies
- Wellness on-boarding
- Health Athlete
- Buckeye Babies
- CC/DM

Community & State-wide Interventions
- Community-based Interventions
  - Education
  - Healthy lifestyle programs
- State-wide health & wellness policies
- Television/media
- Million Hearts initiatives

Family & Social Network Interventions
- Family programs
- Group classes /programs
- Wellness Challenges
  - Amazing Race
  - Hit the Road with the Buckeyes

Workplace Interventions
- Buckeye wellness
- Wellness innovators
- Leaders Program
- YP4H
- STAR Program
- Ergonomics assessments
- Wellness Wednesdays
- Policies (e.g. tobacco free)
- PR/Communications
- YouTube
- Evidence-based Health
- Massage

Outcomes

Individual Outcomes
Health & Wellness Outcomes
- BMI, PHA completion, BP, Lipids, HbA1c, stress, depression, injuries, missed work days, healthy lifestyle beliefs & behaviors resilience, chronic disease
- Quality of life

Family Outcomes
- PHA Completion, BMI, BP, Lipids, % engaged in wellness programs

Workplace Outcomes
- Healthcare utilization
- Healthcare costs
- Perceived Culture & Ecosystem, # of programs offered with % engagement

Broad Outcomes
- # of community and state-wide programs with engagement
- # of policies
- State health outcomes

Assessment, Monitoring, Evaluation and Dissemination

Adapted from: Model to Achieve Healthy People 2020 overarching goals
Source: Secretary’s Advisory Committee on Health Promotion and Disease Prevention Objectives for 2020 (2008, p. 7)

COLLEGE OF NURSING
Transforming health, Transforming lives
A Sustainable Culture of Wellness is a Must for Health

Remember, Culture Eats Strategy!
Health of College Students

- Cardiovascular disease is the fifth leading cause of death in those aged 15-34 (Centers for Disease Control and Prevention, 2015).
- Many risk factors surface in adolescence and track forward into adulthood.
- From the years 1988 to 2012, rates of obesity in youth aged 2-19 increased from 5.2% to 16.9% (National Health and Nutrition Examination Survey (NHANES), 2013).
- Heart disease risk increases by 2-4% for each year a young adult is obese.
Health of College Students

• 10-20% of young adults have advanced atherosclerotic lesions

• AHA’s 2020 Strategic Impact goals along with NHLBI 2012 Expert Panel’s Guidelines for cardiovascular risk reduction in children and adolescents emphasize primordial prevention

• Focus on preventing the development of risk factors themselves
Today, *Make Just 1 Change* for Your and Your Family’s Wellness

- Decide to take the stairs instead of the elevator
- Drink water instead of a sugared beverage
- Hold 50 minute meetings instead of 60 minutes, and use the 10 minutes for a recovery break
- Read 10 minutes in a positive book every morning
- Take 5 slow deep breaths when stressed
- Sit less, stand more
- Laugh more
Presenters

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Women die of heart disease.

1 in 3
Every 80 seconds, a woman dies from heart disease.
Heart disease and stroke drain $1 billion from the U.S. economy every day.
The Million Hearts® Initiative

Controlling these risk factors can reduce risk of heart attack and stroke by more than 80%¹....

Look at the opportunity that exists!

## CVD Risk Factors

<table>
<thead>
<tr>
<th>Risk Factors that CAN be changed</th>
<th>Risk Factors that cannot be changed</th>
</tr>
</thead>
<tbody>
<tr>
<td>• High blood pressure</td>
<td>• Race</td>
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<tr>
<td>• High cholesterol</td>
<td>• Older age (≥ 65)</td>
</tr>
<tr>
<td>• Tobacco</td>
<td>• Gender</td>
</tr>
<tr>
<td>• Overweight/Obesity</td>
<td>• Heredity</td>
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<tr>
<td>• Diabetes</td>
<td></td>
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<tr>
<td>• Physical inactivity</td>
<td></td>
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<tr>
<td>• Poor diet</td>
<td></td>
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<tr>
<td>• Depression</td>
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</tbody>
</table>
Partnerships

• Ohio State University became first academic partner of Million Hearts® in 2013

• Ohio State created an online, interprofessional educational module on CVD in 2013
Partnerships

• Women’s Heart Alliance selected Ohio State as its 2nd university partner in 2016

WOMEN’S HEART ALLIANCE

• Support from University President Michael Drake, MD, & Congresswoman Joyce Beatty (OH-3), stroke survivor
Heart Healthy, Buckeye Strong

1. Raise awareness: 4 key messages

2. Educate through screenings: Heart Checks

3. Study current knowledge, attitudes, behaviors of female students (18-40 years)
Raise awareness

4 key, simple messages
(repeat, repeat, repeat, repeat)

1. Be active
2. Eat healthy
3. Manage stress
4. Avoid tobacco
Raise awareness

Engage across campus

a) President’s Office  
b) Athletic Department  
c) Student Life  
d) Greek Life
Heart Healthy, Buckeye Strong

• Ohio State campaign launched Fall 2016 to educate female students about heart disease and stroke
Raise awareness

Marketing & Communications

a) Slogan: Heart Healthy, Buckeye Strong
b) Call to action: Get Heart Checked
c) Create student videos and share
d) Microsite: heartcheck.osu.edu
e) Social media: #getheartchecked
   • Facebook, Twitter, Snapchat filters
   • Instagram cutouts
   • Contests: Guess the # of Steps taken by Brutus Buckeye
Raise awareness

Marketing & Communications

f) Ads in campus newspaper, enewsletters, & on campus bus
e) Peer-to-peer networks e.g. Greek Life, & student wellness groups
e) Sidewalk chalk
f) Residence hall posters
Raise awareness

Find special events

a) Dedicated football game
b) Marching Band feature
c) Healthy Tailgate
d) Game Program
e) Jumbotron
f) Social Media
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Heart Check

What is it?

- A brief cardiovascular screening and healthy lifestyle education session
- Designed to be 20-25 minutes or less
- Goal is to increase awareness on personal heart health and educate on healthy lifestyle changes
Heart Check

Planning

1. Determine location (high traffic area)

2. Select date and time (mid-day)

3. Plan marketing campaign
Heart Check

Planning

4. Identify key personnel, such as:
   - Nursing faculty,
   - NP students,
   - BSN students.

5. Order equipment & supplies
Heart Check

Equipment & Supplies

- Blood pressure cuffs
- Stethoscopes
- Body Mass Index charts
- Scales
- Stadiometers
- Hand sanitizers

- Computers/iPads
- Cholesterol machines
- Cholesterol supplies
- Educational handouts
- Referral forms
- Miscellaneous eqpt
Heart Check

Planning

6. Determine who gets a cholesterol screen

Participants who screen positive for one or more of the following:

• Diabetes
• Obesity (BMI >30)
• Hypertension (high BP)
• tobacco user (i.e., smokes, vapes, or chews)
• family history of premature CVD
Heart Check

Planning

7. Determine triage protocol and referrals, & contact referral sites in advance

a) Emergent: BP ≥ 180/110 or w/o symptoms → ER immediately

b) Urgent: BP ≥ 160-179/100-109 & w/o symptoms → PCP/student health/urgent care w/in 24 hours

c) BP 140-159/90-99, elevated cholesterol, abnormal BMI (>30), current smoker with readiness to quit, reports elevated stress → PCP or student health
Heart Check

Planning

8. Consider and order give-aways
   (Buckeye Wellness pack: branded shirt, water bottles, reusable lunch kits, hot/cold compress, stress balls)

9. Make copies of referral forms, educational hand-outs, etc.
Heart Check

Planning

10. Determine logistics

• Designate roles and particular stations/ responsibilities

• Table set-up and flow
Heart Check

Student identified and registered

↓

Student Pre-screened → if positive for pre-screening, flagged for cholesterol station

↓

Student gives consent and starts Intake Survey w/ personnel ready to answer questions

↓

Student completes Heart Check (w/ or w/o cholesterol)

↓

Student is provided appropriate referrals, giveaways
Heart Check

Special considerations

• Good logistics/flow

• Use of technology to speed up screenings

• Survey questions
e.g. depression screen versus stress screen

• Conduct a trial run
Research Study Objectives

• Describe the health and healthy lifestyle behaviors of college-aged women (18-40 yrs)

• Analyze the healthy lifestyle beliefs, behaviors and the health of college-aged women

• Determine efficacy of individualized cardiovascular education and skills-building on the health and healthy lifestyle beliefs and behaviors of college-aged women
Research Study

• Design: longitudinal randomized controlled trial with survey and biometric screening

• Participants entered into a drawing to win one of ten Fitbits

• Randomly assigned code at registration for control vs. intervention
Research Study

• Survey: 53 questions
  a) Qs on demographics, personal health, family health, healthy lifestyle beliefs & healthy lifestyle behaviors
  b) Includes two valid, reliable scales: Perceived Stress Scale – 4 & Healthy Lifestyle Beliefs Scale
  c) 5 Qs on current knowledge of women and heart disease (used for pre/post test)
  d) Final 2 Qs ask:
     • About personal commitment to improving one healthy lifestyle behavior?
     • Are they willing to share what they learned with 5 other people?
  e) 8 questions completed by Heart Check personnel
Research Study

• At 3-months: email follow-up sent to participants to complete either:
  a) Student Life and web wellness resources or
  b) Heart Check Education Station (online module)

• At 6-months: repeat both the survey and Heart Check screening
Research Study

Online Student Wellness Resources for control group

**STUDENT LIFE WELLNESS RESOURCES**

As part of the research study, please spend 75 minutes learning about wellness by accessing the following websites:

- **9 Dimensions of Wellness**
  [go.osu.edu/9-dimensions](go.osu.edu/9-dimensions)

- **Wellness initiatives**
  [go.osu.edu/wellness-initiatives](go.osu.edu/wellness-initiatives)

- **Resources for Wellness**
  [go.osu.edu/wellness-resources](go.osu.edu/wellness-resources)

- **Presentations for wellness**
  [go.osu.edu/wellness-presentations](go.osu.edu/wellness-presentations)

Thank you for participating in the research study.
Heart Check Education Station for intervention arm with 4 short lectures on heart health.
Research Study
Heart Check Education Station

• Lecture Content
  1. Heart health overview
  2. Physical activity
  3. Nutrition
  4. Stress Management

• Peer-to-peer videos

• Asks participants to screen 5 friends and family members
Research Study

Current numbers

- 8 Heart Checks
- 1,026 students screened
- 834 college students enrolled in the study
- Minor changes were made for this 2017-2018
Research Study

Sample Demographics

- 18-22 years old (80.0%)
- Female (79.7%)
- Non-Hispanic whites (65.4%)
- Undergraduate students (83.5%)
- 95% reported having good to excellent health
Research Study

Sample characteristics

- Top three reported pre-existing conditions: anxiety (19.7%), depression (12.2%), and overweight/obesity (8.8%).
- 72% reported a family history of one or more listed health conditions, with the top three being high blood pressure (49.9%), diabetes (38.5%), and high cholesterol (34.9%).
Research Study

Health Behaviors

• 95.3% had <100 cigarettes in life
• 24.5% met the physical activity recommendations (150 minute or more per week) and 0.4% met the fruit/vegetable intake (5+ daily) recommendations
• Most had one or less servings of sweets per day (62.0%) or sugary beverages per day (84.4%)
• 26.4% reported high stress (PSS-4 score ≥9)
• 49.6% slept 6 hours or less per night
Research Study

Biometric Data

• 31.9% were overweight or obese
• 17.3% had pre-hypertension or hypertension

• Of all healthy lifestyle beliefs and behaviors, poor sleep was the only factor significantly associated with all 3 cardiovascular risks (P<0.001 for stress, P=0.026 for being overweight or obese, and P=0.023 for pre-hypertension and hypertension)
Research Study

Biometric Data

- Higher healthy lifestyle belief score was correlated with lower PSS-4 (r=-0.17), greater healthy lifestyle knowledge (r=0.14), greater physical activity (r=0.20), and greater intake of fruits/vegetables (r=0.18).

GREATER HEALTH SELF EFFICACY = HEALTHIER LIFESTYLE
Modifiable risk factors are present but their biometrics have not been greatly affected!
Evidence-based interventions targeted in these areas and focused on long term effects and sustained behavior change could prove beneficial to overall health and cardiovascular prevention for the college aged population.
Call to Action!

To educate your students, we are happy to share the survey, and/or have you join our research study as a new site.
Special Thanks

• Adam Warren; Donor Relations & Special Projects Coordinator
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