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## Dark Chocolate- Lowering Hypertension and Costs

Marissa Tuccy

*College of Saint Benedict/Saint John's University, METUCCY@CSBSJU.EDU*

Hannah Glynn

*College of Saint Benedict/Saint John's University, HMGLYNN@CSBSJU.EDU*

Madison Stace

*College of Saint Benedict/Saint John's University, MPSTACE@CSBSJU.EDU*

Amanda Graff

*College of Saint Benedict/Saint John's University, AKGRAFF@CSBSJU.EDU*

Stephanie; Brenk

*College of Saint Benedict/Saint John's University, SSBRENK@CSBSJU.EDU*

*See next page for additional authors*

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**Authors**

Marissa Tuccy, Hannah Glynn, Madison Stace, Amanda Graff, Stephanie Brenk, and Marin Jaszewski

# Dark Chocolate- Lowering Hypertension and Costs



By: Marissa Tuccy, Hannah Glynn, Madison Stace, Amanda Graff,  
Stephanie Brenk, and Marin Jaszewski

# Focus

Decreasing costs at a long-term care facility by implementing the administration of dark chocolate daily at lunchtime to help reduce the levels of hypertension

# Focus → Rationale

Our particular facility already has many interventions in place:

- Pharmacological measures (1-4 medications/patient)
- Physical therapy
- Adjusted diets
- Stress reduction techniques

68% (13/19) patients with primary hypertension still fall into the uncontrolled category even after implementing all these measures

These interventions increase the acuity of the resident → more nursing care/time and more money

Goal= low-cost, non-pharmacological way to shift BPs into the controlled category

# Focus → Facility Impact

Insurance companies cover any necessary medications related to hypertension for residents in this specific facility

Ways management of a hypertension diagnosis can impact the facility include:

- Frequent hospitalizations
- Readmissions within 30 days
- Emergency room visits
  - At risk for heart attacks, strokes, CHF, CKD, etc.

# Analysis → Literature Synthesis

- Positive relationship was found between hypertension and medical costs. Hypertension is the 8th most expensive medical condition in the USA (MEPS)
- Prevalence of hypertension has significantly increased from 2000 to 2013- for people 65 and older, rates jumped from 56.3% of people diagnosed with hypertension to 71.3% (Zhang, 2017).
- Out of 216 million US residents studied, 17.9% of people had a diagnosis of hypertension, diabetes, or both. Their medical expenses cost over \$180 billion annually (MEPS-CH).

# Analysis → Data Collection

- 19/38 Pines residents have primary hypertension
- 13/19 with primary hypertension are uncontrolled HTN
- On average, the 19 residents are 1.47 anti-hypertensive medications (range 0-4)
- 11/19 are on regular diets
- 8/19 are on special programs
  - ie: weight loss, consistent carbohydrate, low sodium diets
- 13/19 have received physical therapy



# Analysis → Root Cause

Specifically looking at the root cause of increased costs related to hypertension:

# Root Cause = Pharmacology

- Inconsistent medication administration times
- Insufficient medications
  - Lack of insurance coverage + no ability to pay out of pocket
- Lack of follow-up if patient remains in uncontrolled hypertension category

# Root Cause= Exercise + Immobility

- Advanced age
  - Require more time and assistance when transferring due to antihypertensives
- Referral required for PT
  - Lack of insurance coverage
  - PT is limited by time (cannot serve every client)
- Low motivation
  - Clients are not interested in individual exercise
  - Group therapy may not be physically challenging
  - Group exercise classes that do challenge the clients take time and money
- No solid understanding
  - Clients do not fully understand how vital exercise is to their overall health

# Root Cause= Nutrition

- Unregulated diets
  - No fat or sodium limits
- Lack of understanding
  - Ineffective education related to dietary needs and healthy decision making
- Unwillingness to change
  - Comfortable with current dietary habits

# Root Cause= Obesity

33% (3/9) of residents in our project have a BMI of 30+

89% (8/9) of our participating residents are overweight with a BMI of 25+

- Unregulated diets
- Lack of understanding related to diet and exercise needs
- Lack of motivation to lose weight
- Increased cost associated with obesity
  - Bariatric beds
  - More staff to assist with transfers and personal cares

# Root Cause= Comorbidities

- More diagnoses= more care required
  - Nursing time/attention
  - Medications
  - Therapy
  - Cost

# Root Cause= Stress

- Mental Health Concerns
  - Depression
  - Anxiety
- Retired Generativity Crisis
  - Clients of this age may no longer be contributing to the productivity of things like they used to
  - Feelings of being a burden to caregivers and family
- Dissatisfaction with LTC facility
  - Not enough attention from staff
  - Wanting to be independent
  - Unhappy with circumstances (food, room, other residents, etc.)

# Develop → Creativity

- Reassess residents within 60 minutes of med administration
- Add passive or active ROM into daily cares
- Implement group activities involving physical exertion
  - workout videos, daily walks
- Resident walking program- buddy up for a lap around facility
  - promotes accountability
- Continue cardiac, weight loss, low sodium diets for specific residents
- Facility wide weight-loss program
  - staff and residents collectively work to accomplish a goal weight loss
- Involve facilities daycare in more group activities
  - tossing a ball, doing puzzles, etc
- Decorate resident rooms with children's art, or art they have created together
- Implement visitor days
  - movie nights with family, picnics, talent shows, etc



# Develop → Selection

Administration of 6 grams of 72% cacao dark chocolate daily at lunch time for 3 weeks.

Mechanisms behind dark chocolate's antihypertensive effects:

- Contains flavonoids (antioxidants)
- Contains more flavonoids than other plant based foods
- Flavonoids improve the ability to vasodilate arteries and veins
- Flavonoids increase the amount of nitrous oxide (NO) in one's body
  - Decreases risk of atherosclerosis
- Decreasing the risk of atherosclerosis

## Develop → Planning

Administer one, 6g piece of 72% cacao dark chocolate to selected residents once a day at lunchtime for a total of three weeks

- Consent forms obtained from each participating resident
- Funding for the chocolate and to assure there would be enough for each participating resident
- Dietary aides sign form after each resident has consumed their piece of chocolate to ensure consistency

# Execute → Commitment

It is vital for this particular long-term care facility to consider different methods of managing hypertension:

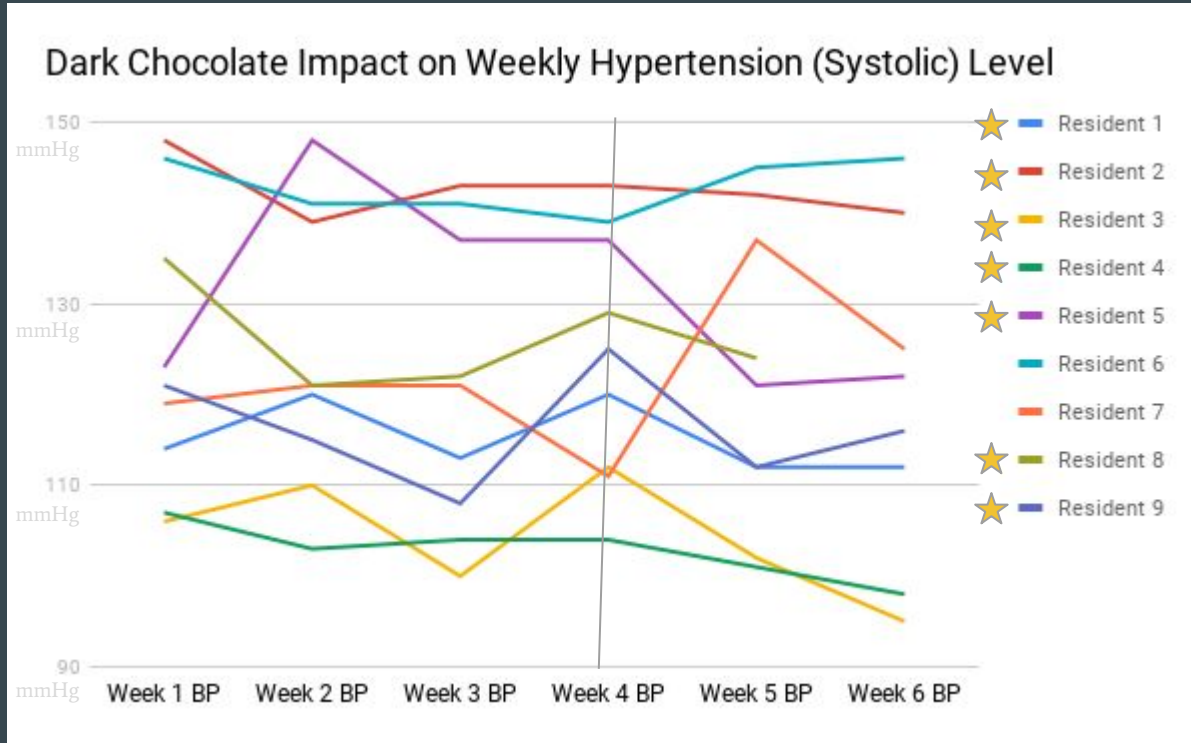
- Hypertension alone cost \$50 billion in the USA in 2014 and this cost continues to rise
- Management of hypertension could lower costs and comorbidities including:
  - Decreasing injuries from falls
  - Minimizing ER visits
  - Decrease staffing needs due to higher acuity residents

# Execute → Implementation

1. A group of potential residents were selected.
2. 3 students went to the resident's room to obtain consent and went over the form to make sure they understood to potential risks and benefits of this project.
3. When residents signed their consent, education about hypertension, cost, and positive effects of daily dark chocolate consumption was discussed.
4. Residents who gave consent were informed they would be receiving a piece of dark chocolate at lunch time for 3 weeks.
5. The students communicated with the dietary supervisor and aids to make sure this project was feasible and then the students educated the staff about the project and wrote out instructions of what to do at lunch.
6. The students checked in with dietary staff weekly while also collecting blood pressure data of the participating residents.

# Execute → Evaluate

## Weekly Average Hypertension Level



★ Average Systolic BP Levels Lower at the 6th Week than 4th Week

Please take our survey at this time.

Questions?

**Thank You!**