DIABETES PREVENTION PROGRAM (DPP): A PROGRAM OF THE CDC, TARGETING PRE-DIABETICS IN JOHNSON COUNTY

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OUTLINE

- Public Health Issue
- Applied Practice Experience
- Integrated Learning Experience
- Project Description
- Results
- Discussion
- Competencies

PUBLIC HEALTH ISSUE

TYPE 2 DIABETES PREVALENCE

- 30.3 million people in the United States (CDC, 2017)
  - 1 out of 10
- Diabetes develops due to high levels of glucose in the blood.
- Most common form- Type 2 diabetes
  - 90-95% of diagnosed cases (CDC, 2017)
- Prediabetes occurs when blood sugar is higher than normal levels
  - 1 in 3
- Risk factors

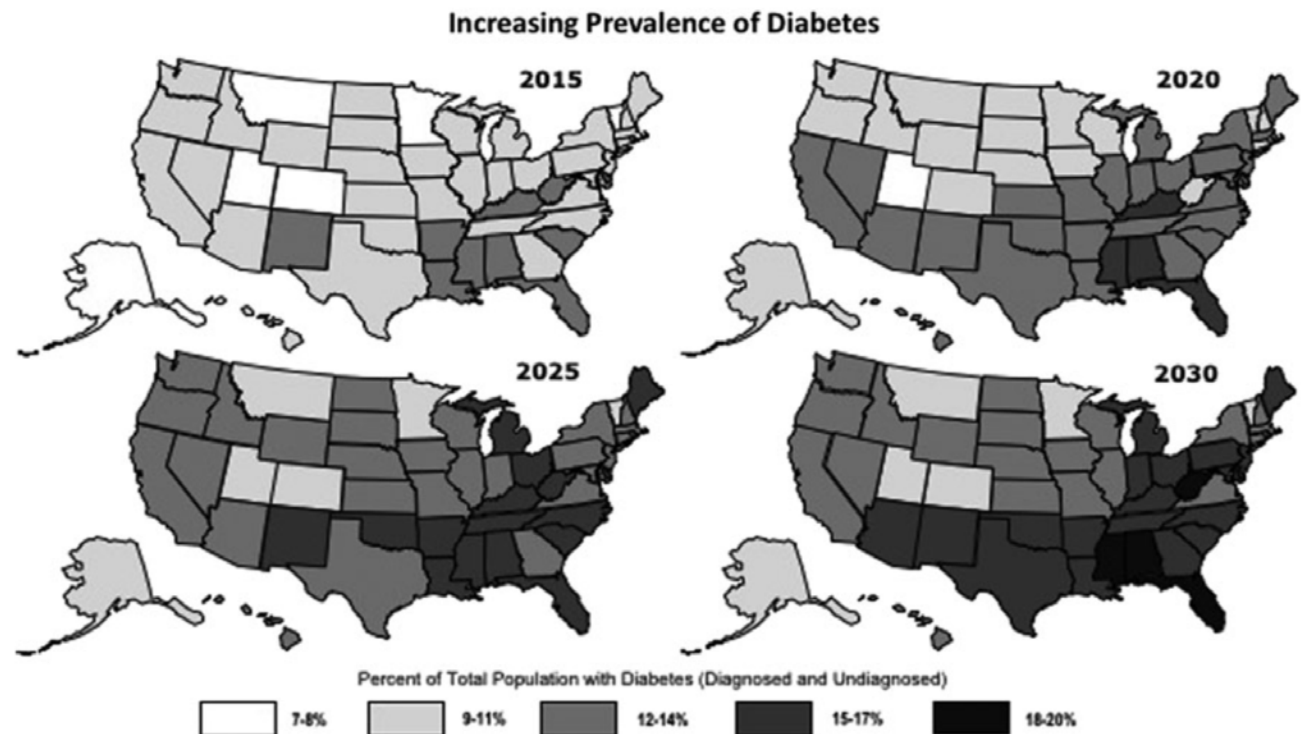# Incidence and Prevalence Trends (1980-2015)
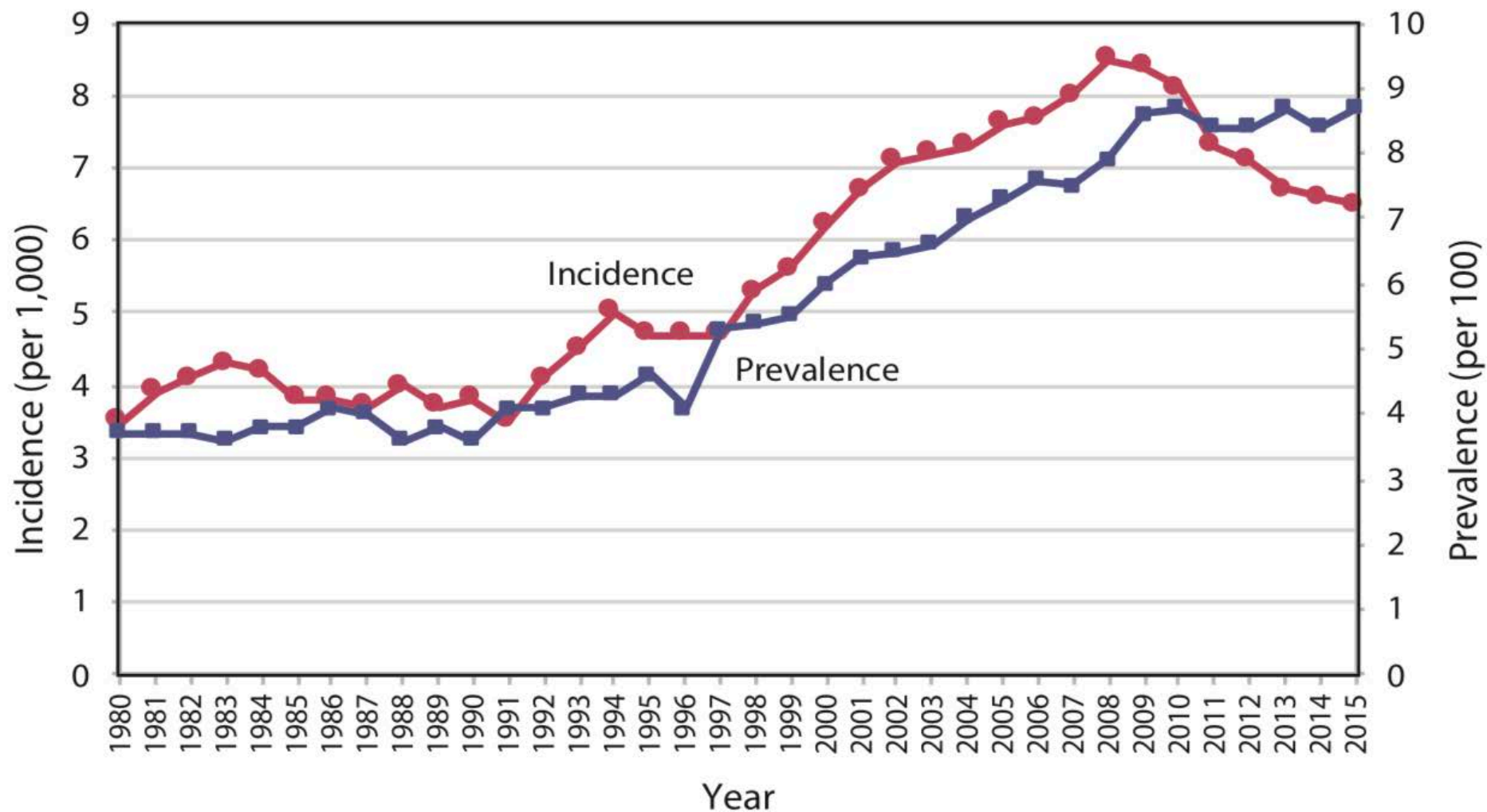
COST OF DIABETES

- Medical costs
  - $245 billion in 2017
  - More than twice as high
- Risk of co-morbidity
  - Vision loss
  - Kidney Failure
  - Heart Disease
  - Stroke
  - Peripheral Neuropathy
- Tertiary prevention is not the answer

FUTURE TRENDS (ROWLEY ET AL., 2017)

- Prevalence of diabetes will increase by 54%
  - 30.3 million ➔ 54.9 million
- Medical costs will increase by 53%
  - $245 billion ➔ $622 billion
- Emphasis placed on primary prevention
  - Cuts the risk in half
- Without prevention, 15-30% will develop type 2 diabetes within 5 years (CDC, 2017).

Increasing Prevalence of Diabetes

2015   2020
2025   2030

Percent of Total Population with Diabetes (Diagnosed and Undiagnosed)

7-8%   9-11%   12-14%   15-17%   18-20%

APPLIED PRACTICE EXPERIENCE

JOHNSON COUNTY DEPARTMENT OF HEALTH AND ENVIRONMENT (JCDHE)

- Accredited health department in Northeast Kansas

- Offers a variety of services
    - Child Care Licensing and Education
    - Disease Investigation
    - Emergency Planning
    - Solid Waste and Pool Inspections
    - Community Outreach
    - Walk-in Clinic

- Jan 2019- April 2019

PROJECTS

- Tobacco Education and Resources
- Diabetes Prevention Program (DPP)
- Blog Posts for Live Well JOCO

INTEGRATED LEARNING EXPERIENCE

Diabetes Prevention Program (DPP)

- Program of the Centers for Disease and Prevention (CDC)

- Year-long lifestyle change program

- Designed to prevent Type 2 diabetes in prediabetic adults

- Groups consist of 10-15 participants

- CDC-approved curriculum
  - 22 modules
  - Topics include dietary tracking, basic nutrition and common barriers

- Program goals
  1) Lose 5 to 7 percent of starting body weight
  2) Increase physical activity to 150 minutes per week

DPP Research Study

- Randomized clinical trial

- Included over 3,000 subjects
    - Overweight
    - Diagnosed with prediabetes
    - 45% from minority groups

- 27 clinical centers in the United States

- Treatments Groups
    1) Lifestyle Intervention
    2) Drug Therapy
    3) Placebo

DPP Study Results- 3 year Follow Up

- Lifestyle group reduced their risk by 58%
  - Regardless of race, sex, age or SES
  - Subjects 60+ showed 71% reduced risk
- Drug therapy group reduced risk by 31%
- Other findings of Lifestyle group
  - Average weight loss was 14.5 lbs.
    - 49.7% of subjects reached or surpassed the 7% weight loss goal
  - Average weekly activity was 224 minutes
    - 74.4% of subjects reached or surpassed the 150 minute goal

DPP Study Results- 10 year Follow Up

- Diabetes incidence
  - Lifestyle group- reduced by 34%
  - Drug therapy group- reduced by 18%
- Incidence rates were similar to the 3 year study
- Cumulative incidence of diabetes remained the lowest in the lifestyle group

PROJECT DESCRIPTION

DPP at JCDHE

- Two months of weekly meetings of two DPP groups
  - Retired group of adults aged 60+
  - Middle-aged working adults
- Participants were self referred
- I assisted with the course by preparing materials and with the facilitation of the course.

DPP Concepts

- Self-efficacy
- Facilitation style presentation
- Addressed barriers weekly
- Provided cooking and physical activity demonstrations
- Use of tools

RESULTS

Paired *t-test* Results

The TTEST Procedure

Difference: WTbefore - WTafter

N	Mean	Std Dev	Std Err	Minimum	Maximum
13	5.3538	6.5271	1.8103	-1.5000	24.1000

Mean	95% CL Mean		Std Dev	95% CL Std Dev	
5.3538	1.4096	9.2981	6.5271	4.6805	10.7745

DF	t Value	Pr > |t|
12	2.96	0.0120

DISCUSSION

Interpretation of Results

- The mean weight loss was found to be 5.3538 pounds (SD= 1.8103).
- Statistically significant?
  - *t-value* of 2.96
  - *p-value* of 0.0120
  - Test indicates significant results
  - 7 weeks of the DPP course did affect weight in the participants
  - Weight change achieved was 5.4 pounds (95%CI: 1.4—9.3 pounds)

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Application of the Social Ecological Framework

- Individual level
  - Targets the participants in the DPP program
  - Focus on individual needs, characteristics, SES, knowledge, attitudes and beliefs
  - Provided through one-on-one consultations
- Interpersonal level
  - Targets of change are the social influences
  - Family, work and social norms
  - Addressed factors in a group setting
  - Dietitian asked participants to make changes as a family

Institutional and Community

- Institutional level
  - Currently participants are self-referred
  - More emphasis on medical referrals
  - Crucial that hospitals and clinics focus on preventative measures and use risk factors to aid in referrals
  - Prevention first, treatment second
- Community level
  - Assess factors or barriers in the community
  - Demographic must be considered
  - Raise awareness of health risk

Policy Level

- FDA New food labels will make it easier for consumers to determine nutrient information of a food item

- Modifications to food labels can greatly impact lifestyle change

- DPP participants were taught how to read food labels and understand upcoming changes

Nutrition Facts

4 servings per container
Serving size 1 1/2 cup (208g)

Amount per serving
Calories 240

	% Daily Value*
Total Fat 4g	5%
Saturated Fat 1.5g	8%
Trans Fat 0g	
Cholesterol 5mg	2%
Sodium 430mg	19%
Total Carbohydrate 46g	17%
Dietary Fiber 7g	25%
Total Sugars 4g	
Includes 2g Added Sugars	4%
Protein 11g	
Vitamin D 2mcg	10%
Calcium 260mg	20%
Iron 6mg	35%
Potassium 240mg	6%

* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

FDA, 2018

Health Behavior Theories

- Social Cognitive Theory
- Theory of Planned Behavior
- Health Belief Model

Social Cognitive Theory

- Six Concepts
  1. Reciprocal determinism
  2. Behavioral capability
  3. Expectations
  4. Self-efficacy
  5. Observation Learning
  6. Reinforcements

Theory of Planned Behavior

- Behavioral attitude
- Subjective norms
- Perceived behavioral control

Health Belief Model

- Highlights the perceptions of behavior change
- Perceptions
  - Perceived susceptibility
  - Perceived severity
  - Perceived benefits and barriers
- Also considers the concepts of cues to action and self-efficacy

COMPETENCIES

Competency #6: *Discuss the means by which structural bias, social inequities and racism undermine health and create challenges to achieving health equity at organizational, community and societal levels.*

- Health Equity Council
  - External and Internal councils
- External Council issue
  - Affordable housing
- Internal Council issue
  - Equal access to health care

Competency #9: *Design a population-based policy, program, project or intervention.*

- Training PowerPoint and presentation on the health risks of teen vaping
- Major public health issue in Johnson County
- Material was presented at a workshop held in early April

Before You Vape

Bianca Garcia, MPH Intern

JCDHE

JOHNSON COUNTY
KANSAS

Competency #14: *Advocate for political, social or economic policies and programs that will improve health in diverse populations.*

_____

- Research to help develop policy change at institutions

- Aided in updating materials such as brochures and performing research on third-hand smoke

Competency #19: Communicate audience-appropriate public health content, both in writing and through oral presentation.

- Oral Presentation
  - Vape Presentation
  - Diabetes Prevention Program
    - Portion control lecture
- Written
  - Live Well JOCO blog posts
  - National Nutrition Month
  - Diabetes Alert Day 2019
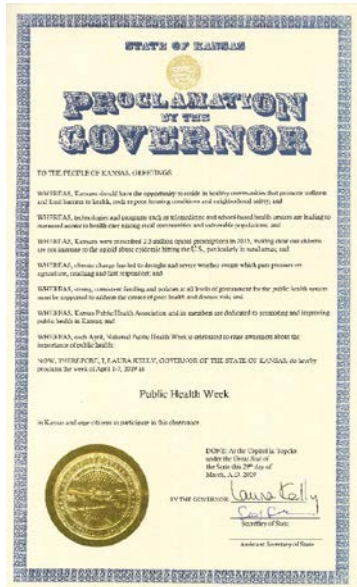
Competency #21: *Perform effectively on interprofessional teams.*

- Health Equity Council
- Train the Trainer workshop
- National Public Health Week

Questions?

Thank You

- **Graduate Committee:**
    - Dr. Richard Rosenkranz
    - Dr. Sara Rosenkranz
    - Dr. Mark Haub

- **APE & ILE Preceptor**
    - Megan Foreman

- **MPH Program**
    - Dr. Ellyn Mulcahy
    - Barta Stevenson