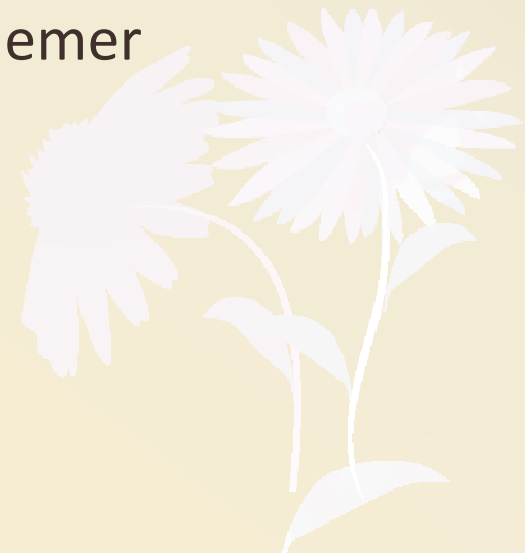


Spring into Action: A Preventative Focus to Fight Heart Disease in Middle Aged Women

Rene Ames, Lisa Drust, Emily Forward,

Nadezhda Linton, & Patricia Kraemer

Ferris State University



Heart disease is the #1 killer for women

Statistics show that one in four women in the United States die from heart disease. This equals out to 23% of women who will die from having a heart attack.

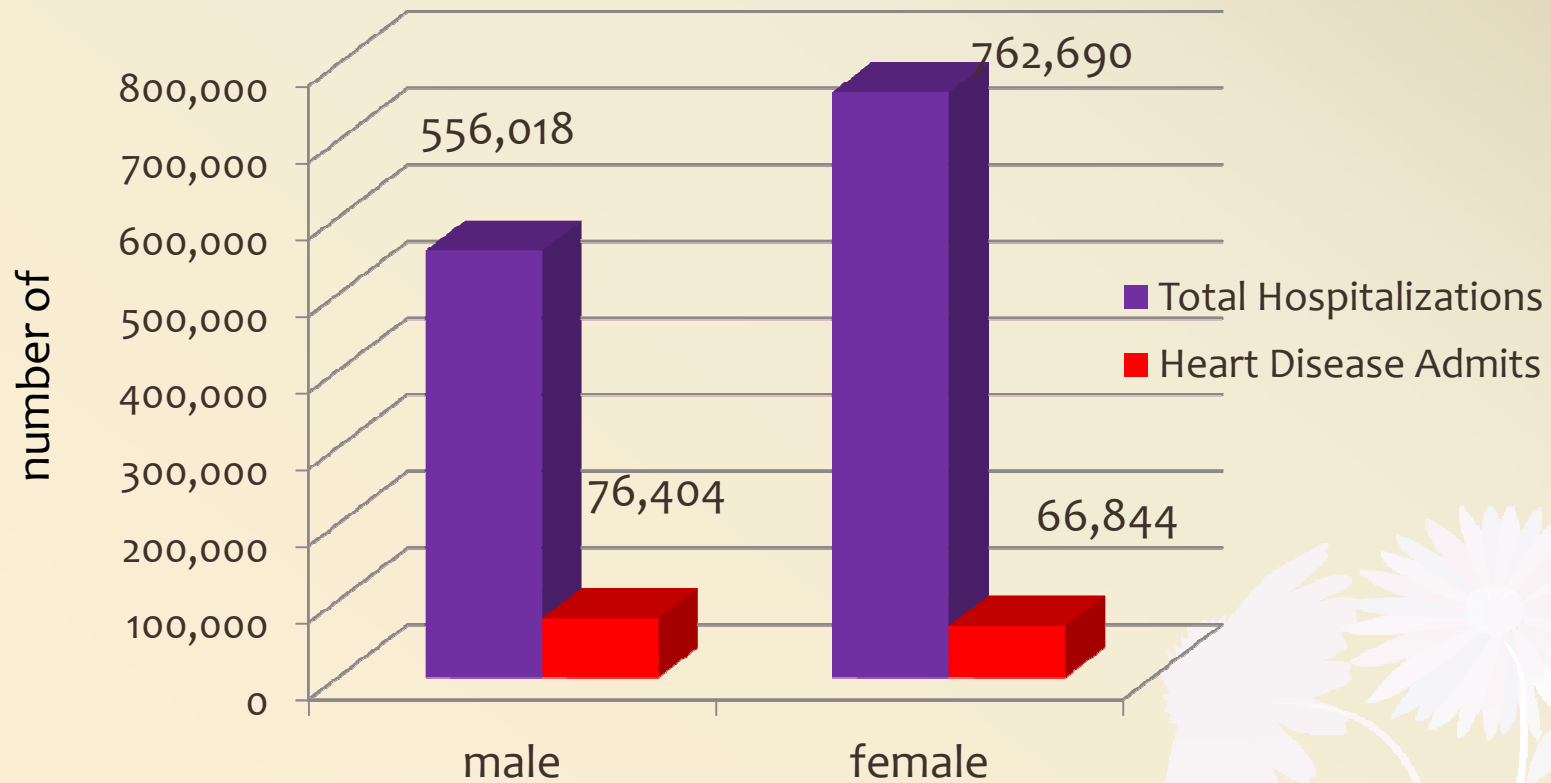
Approximately 46% of women become disabled with heart failure after having a heart attack.

Only third of women who had a heart attack will actually have a full recovery.

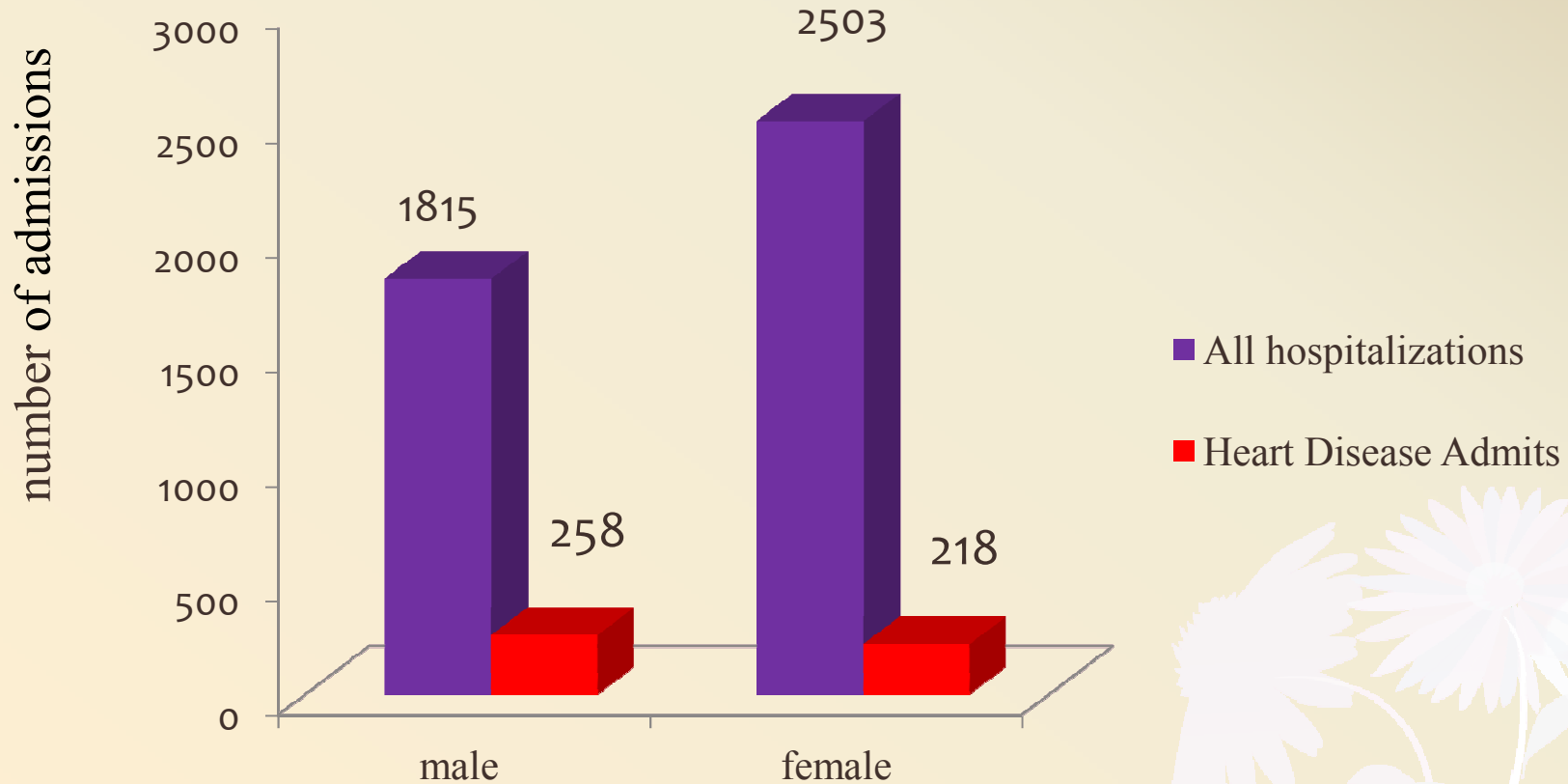


(Thomassian, 2011)

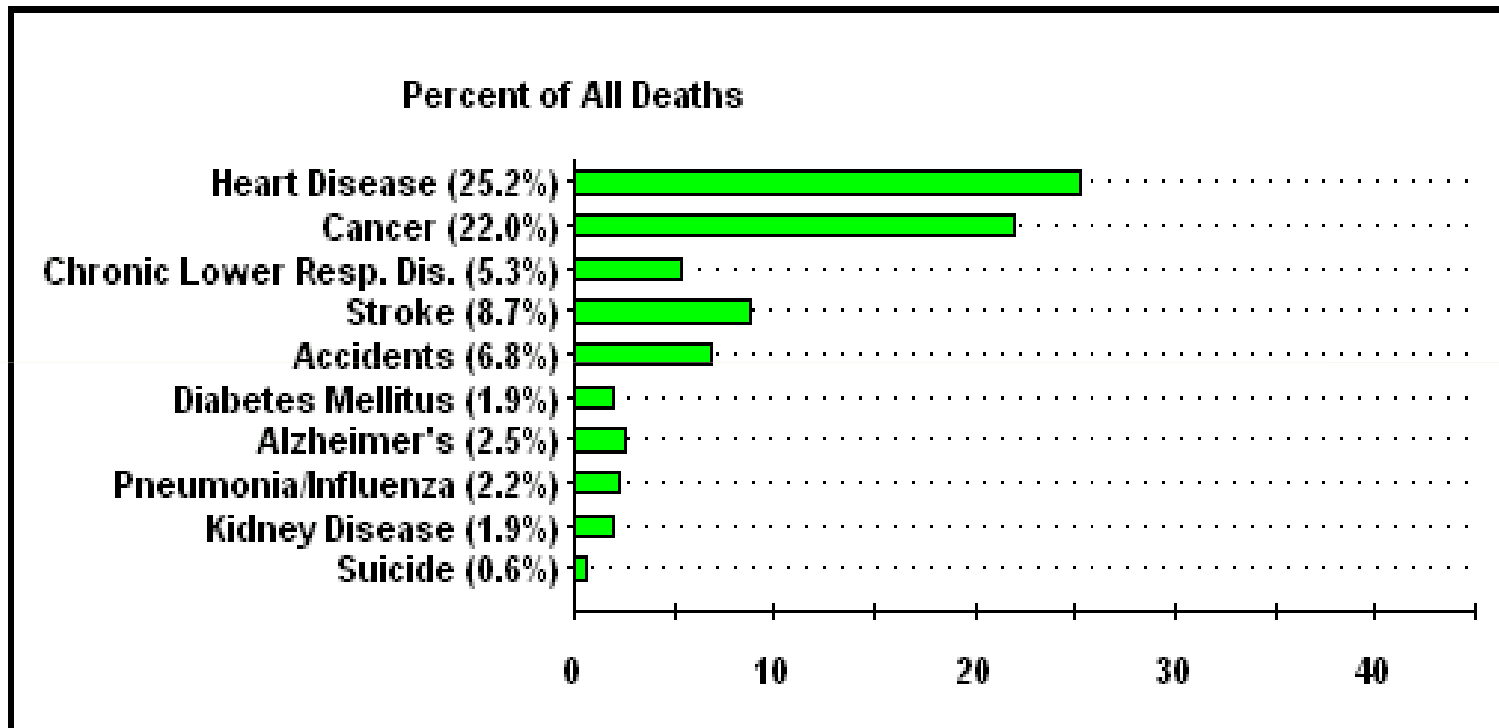
Hospital admissions for Heart Disease based on Gender, Michigan 2009



Hospital admissions for Heart Disease based on Gender for Mecosta County, 2009

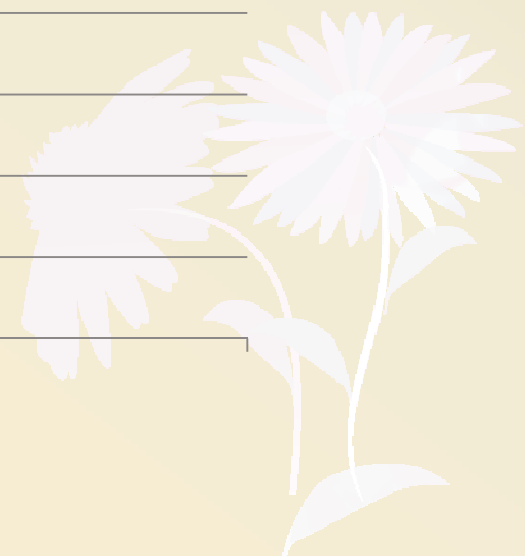
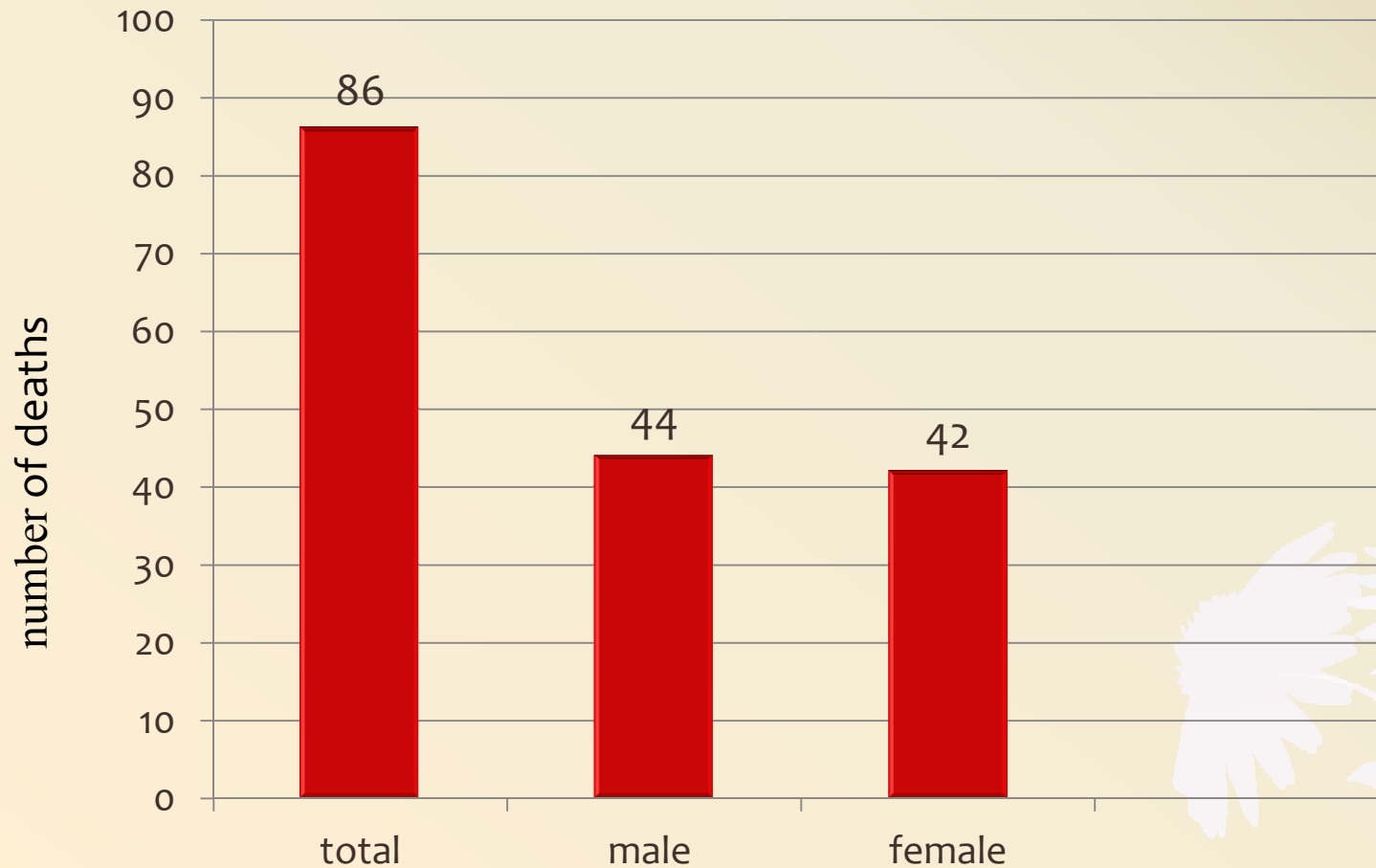


Leading Causes of Death, 2008 Mecosta County Residents



Source: 2008 Michigan Resident Death File,
Vital Records & Health Data Development Section
Michigan Department of Community Health.

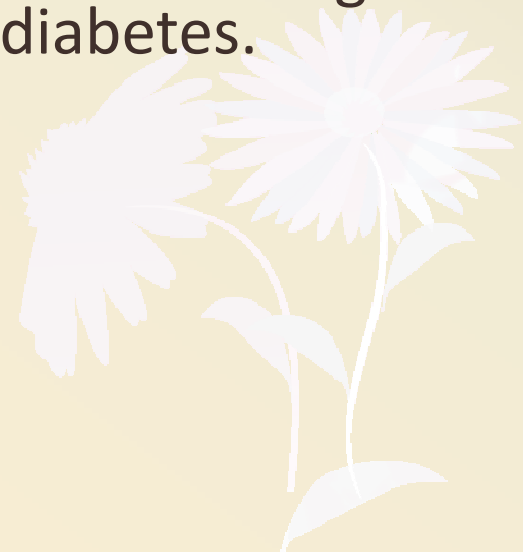
Number of Deaths from Heart Disease per Gender in Mecosta County, 2009



Risk Factors for heart disease which women can not control

- ✿ Family history
- ✿ Aging process—**over age 55 (middle age!)**
- ✿ Post-menopausal and hormone changes in estrogen
- ✿ Pregnancies in earlier stages of life which were high risk for hypertension and gestational diabetes.

(Fogoros, 2011)



Risk Factors for heart disease which women can control

- ✿ **Weight gain or obesity**
- ✿ **Sedentary lifestyle (little or no exercise).**
- ✿ Smoking and tobacco use
- ✿ High blood pressure.
- ✿ High cholesterol
- ✿ Diabetes
- ✿ Metabolic syndrome—excessive weight around waist (apple shape)
- ✿ Use of birth control pills
- ✿ Stress and depression
- ✿ Daily fruit and vegetable intake
- ✿ Alcohol intake

(Fogoros, 2011; Ashen, 2010)



Typical heart attack signs and symptoms

- ✿ Pressure, fullness or a squeezing pain in the center of the chest, neck, shoulder, or jaw.
- ✿ Chest discomfort with lightheadedness, fainting, sweating, nausea or shortness of breath.

(Kam, 2011)



The Grey Area



- ✿ Researchers have found that 43% of women do not display typical signs of chest pain during a heart attack.
- ✿ Chest pain is usually the classic sign for men having a heart attack.

(Kam, 2011).

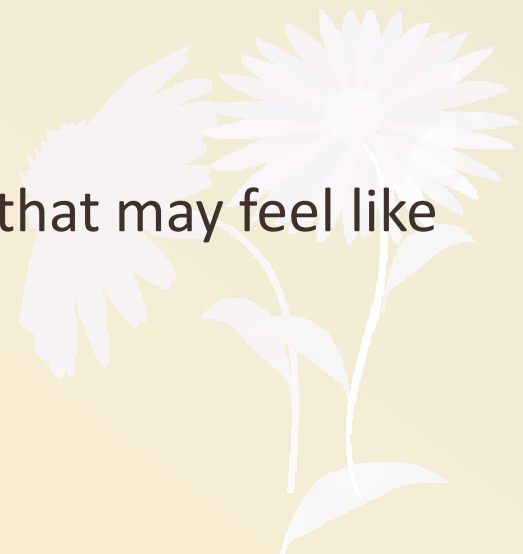


So how do we know when a women is having a heart attack?

Women will display these signs and symptoms:

- ☀ shortness of breath (57.9%)
- ☀ weakness (54.8%)
- ☀ unusual fatigue (42.9%)
- ☀ Shoulder blade pain or back pain
- ☀ Nausea
- ☀ Dizziness
- ☀ Lower chest discomfort
- ☀ Upper abdominal pressure or discomfort that may feel like indigestion

(Kam, 2011)



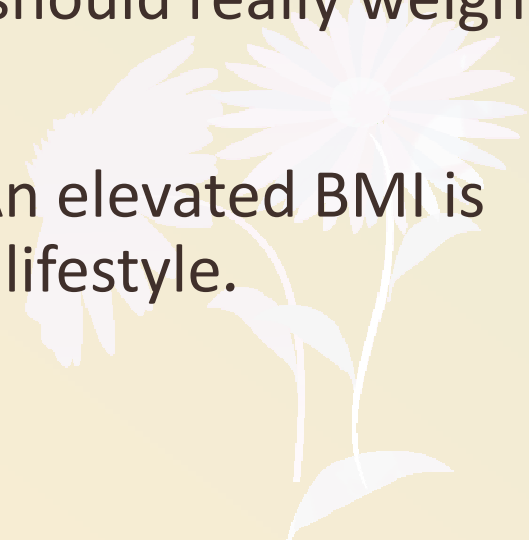
Focusing on Obesity and Heart Disease

Being overweight or even obese increases ones risk for acquiring health issues such as: high blood pressure, , diabetes, stroke, and **heart disease** (CDC, 2004).

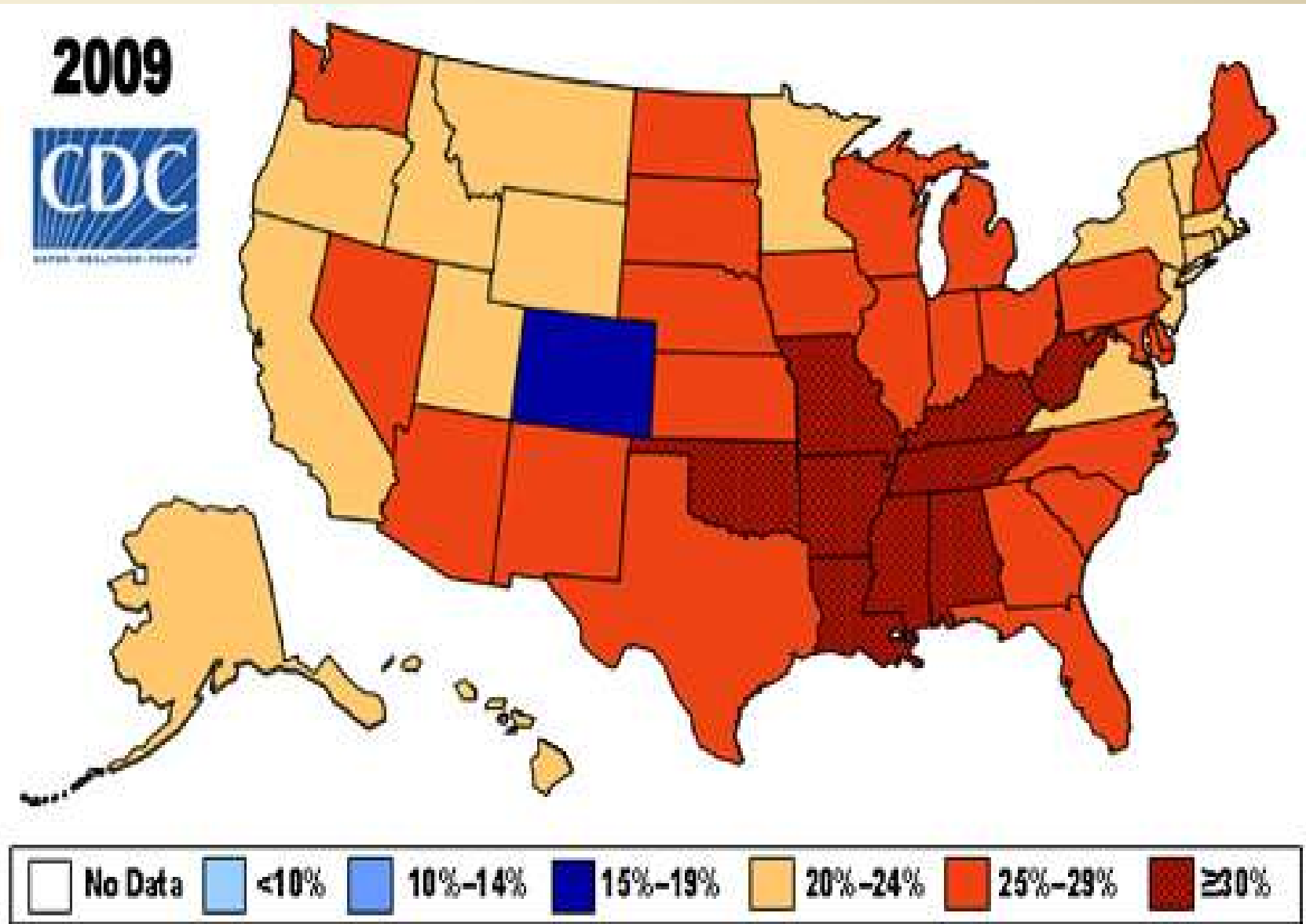
Obesity is measured by calculating a person's Body Mass Index (BMI). BMI calculations are based on height and weight. (example: A woman who is 63 inches and weighs 165 lbs has a BMI of 29. This woman should really weigh 140 lbs and have a BMI of 20-25).

BMI is easily adjusted by losing weight. An elevated BMI is an indicator of preventable unhealthy lifestyle.

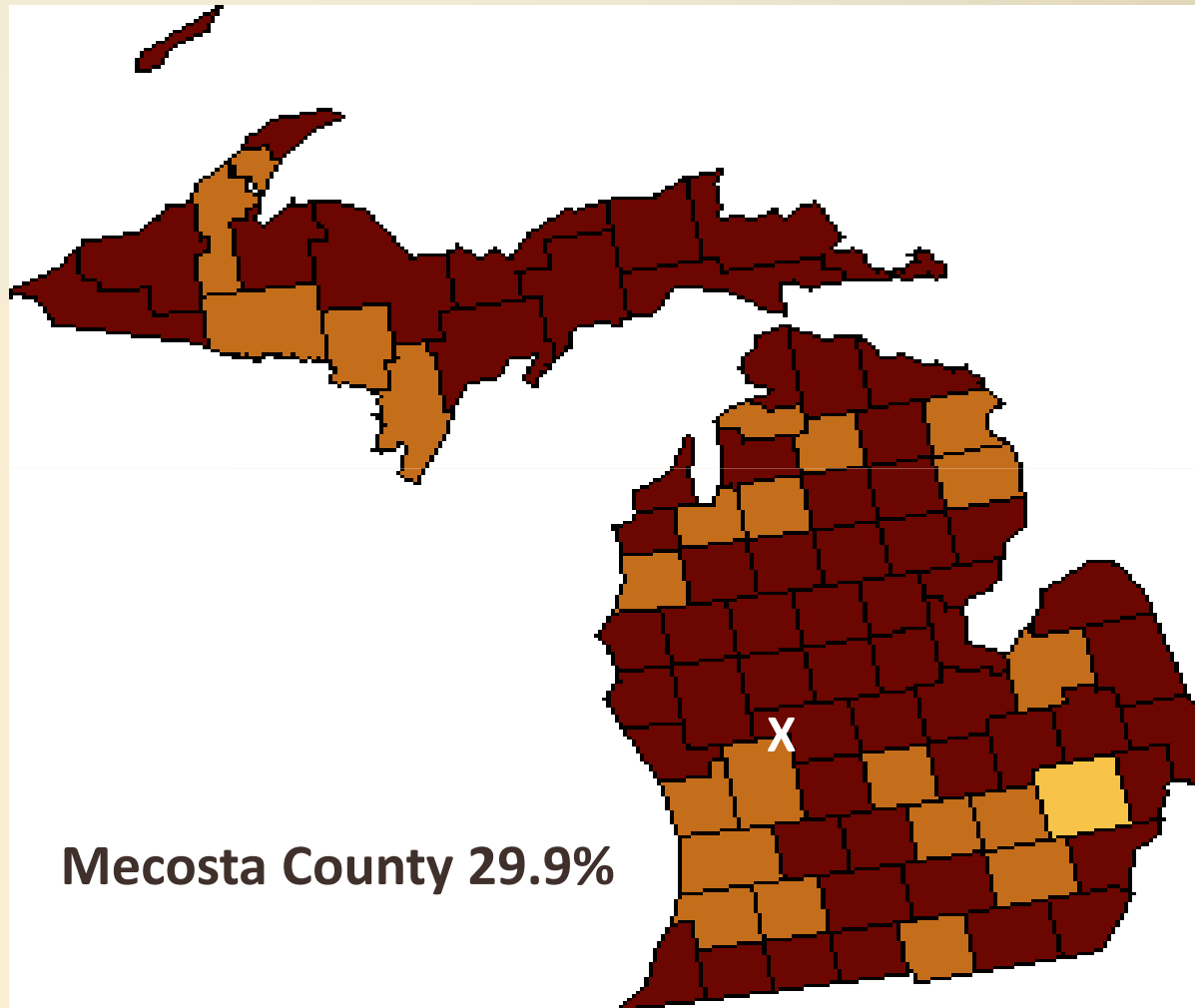
(CDC, 2004)



State Obesity Rates for 2009



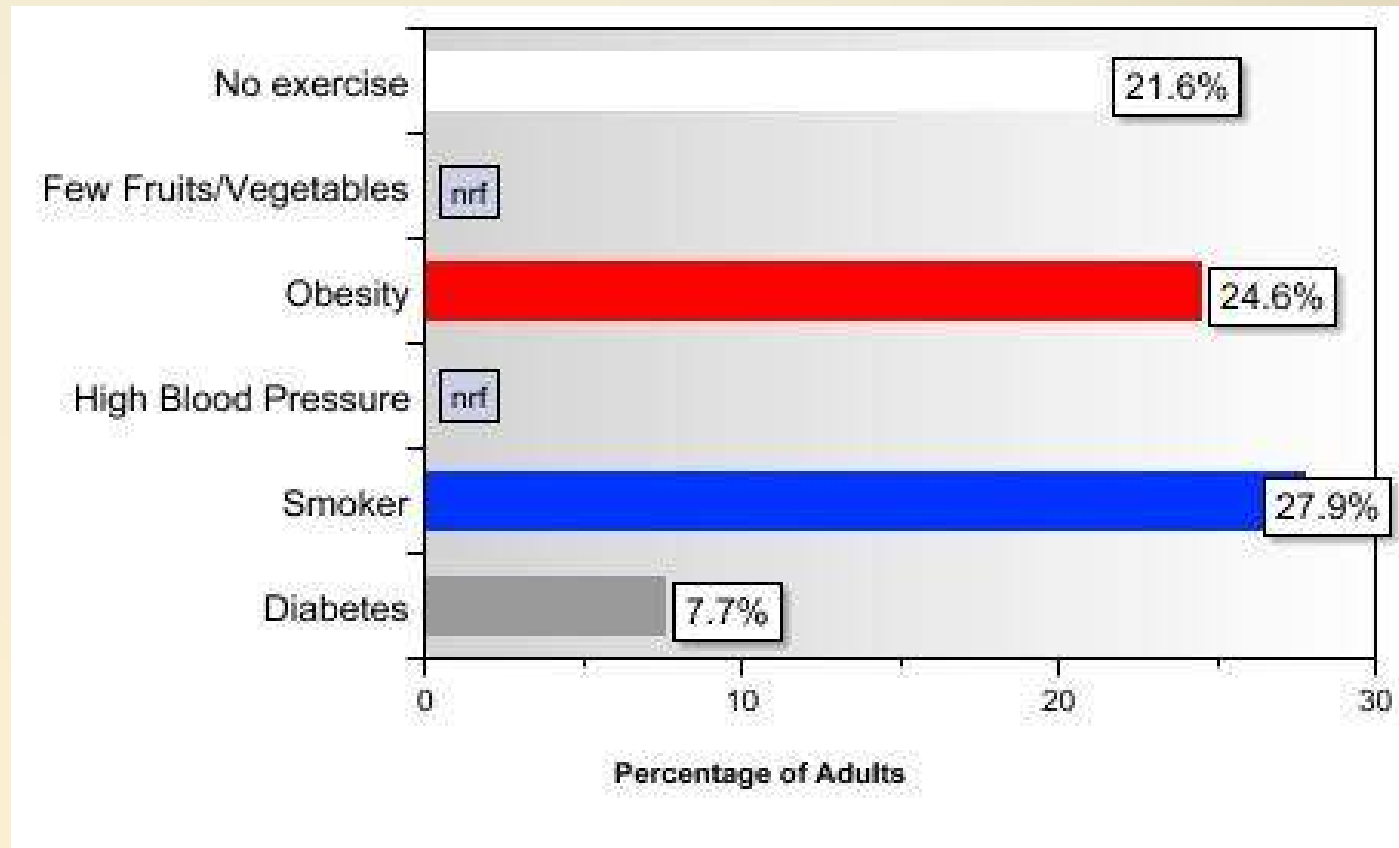
Mecosta County Level of Obesity



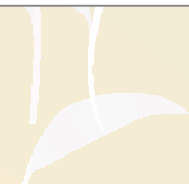
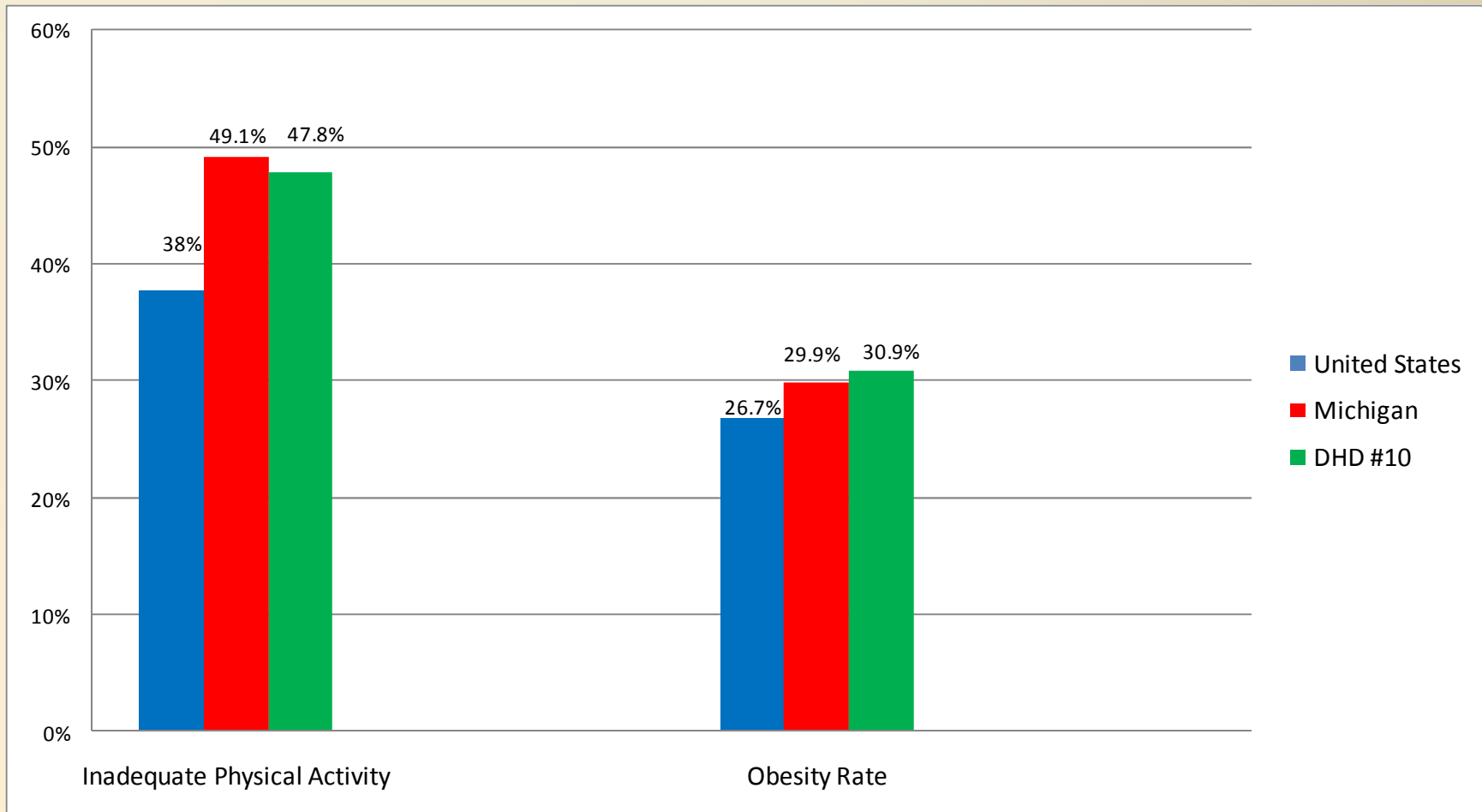
Mecosta County 29.9%



Risk Factors for Premature Death: Mecosta County, MI



Health Statistics for US, Michigan and Mecosta County




What causes Obesity?

- ✿ **Imbalance of too many calories and not enough energy exerted**
- ✿ **Inactive lifestyles**
- ✿ **Environment that lacks in supporting healthy lifestyles**
- ✿ Genetics
- ✿ Work schedules
- ✿ Too large of food portions, poor calorie intake
- ✿ Health Conditions such as: underactive thyroid, ovarian disorders, sleep apnea, stroke, disabling heart disease, diabetes
- ✿ Medications
- ✿ Emotional factors such as stress
- ✿ Smoking
- ✿ Age
- ✿ Pregnancy
- ✿ Lack of sleep
- ✿ Hormone changes

(National Institute of Health, n.d.)



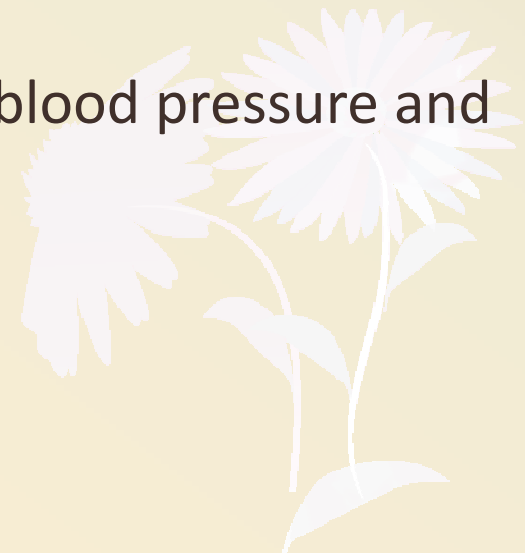
Why are women obese in Mecosta County?

- ❁ 33% of women have sedentary work lives such as: waitress, school teachers, secretaries or office administrators, cashiers, supervisors, sale reps (Onboard Informatics, 2010).
 - ❁ Unemployment rate in Mecosta County is 11.8% (US Bureau of Statistics, 2011). Lack of employment leads to lack of insurance and lack of preventative measures to stay healthy.
 - ❁ The environment is lacking in supporting healthy lifestyles. Only 4 exercise facilities are available in Mecosta County which are located in Big Rapids. A rural population of 71% does not have access to exercise facilities or safe walking trails (Onboard Informatics, 2010).
- 

Resources Available in Mecosta County available for heart prevention

- ☀ Cardiac classes offered at Mecosta County Medical Center (MCMC) focus on the preventative measure of smoking cessation. Freedom from Smoking is a free, internet based program offered by the American Lung Association and can be accessed through MCMC's website
http://www.mcmcbr.com/nb_c_auto.asp?id=11&type2=class_solo_10
- ☀ Health department focuses primarily on blood pressure and diabetes education.

(Mecosta County Medical Center, 2011).



Resources (cont.)

- ✿ The Diabetes Self-Management Education Program (DSMEP) is overseen by an RN, Dietician, and Physician. Although not free, most insurance companies will cover the cost of the program. Info is also found on MCMC's website

(http://www.mcmcbr.com/nb_c_auto.asp?id=11&type2=classes_solo_10)

- ✿ MCMC also offers a Diabetes Support Group on the 1st Thursday of every month at no charge and is located on the 3rd floor of the hospital.
(http://www.mcmcbr.com/nb_c_auto.asp?type=support)

- ✿ Four work out centers in Mecosta County (Big Rapids), but is this really enough for a rural population of 71%? (MCA, 2011).

Nursing Diagnosis

Knowledge deficit of the necessity of physical activity to reduce the risk factors of heart disease among middle-aged women in Mecosta County related to an identified increased level of obesity compared to the national average and lack of adequate opportunities for physical activity within the county.



Target Population

Plan to target middle age women with primary prevention efforts before declining estrogen levels add additional risk of developing heart disease.



(Lai, Tu, Huang & Jeng, 2011)

Primary Prevention Regular Exercise Program

- ✿ Increases myocardial efficiency
- ✿ Promotes weight loss
- ✿ Reduces cholesterol level
- ✿ Decreases blood pressure
- ✿ Increases insulin sensitivity
- ✿ Slows development of diabetes

(Ashen, 2010)



Why focus on Primary Prevention?

Modest vigorous exercise can reduce the risk of heart attack by 35%



(Ashen, 2010)

Secondary Prevention

With existing heart disease present
exercise can reduce mortality by
28%.

(Ashen, 2010)



Changing a Lifestyle

The evidence supports the value of regular exercise in the battle against heart disease.

According to the Transtheoretical model, changes in health related behavior progress through certain stages.

Transtheoretical Model

5 Stages of behavior change

- 1. Pre-contemplation** - not exercising/ no intention
- 2. Contemplation** – not exercising/ planning to start in next 6 months
- 3. Preparation** - not exercising/ plan to start in next 30 days
- 4. Action** – regular exercise during last 6 months
- 5. Maintenance** – exercises regularly > 6 months

(Smith, Griffin & Fitzpatrick, 2009)



Behavior Change (cont.)

A study by Smith, Griffin and Fitzpatrick (2009) suggests that to move people past stages 2 and 3, the perceived advantages of change need to outweigh the disadvantages. In their study only 12.4 % were identified in stage 1. By eliminating perceived barriers and focusing on rewards, people were able to change behavior.

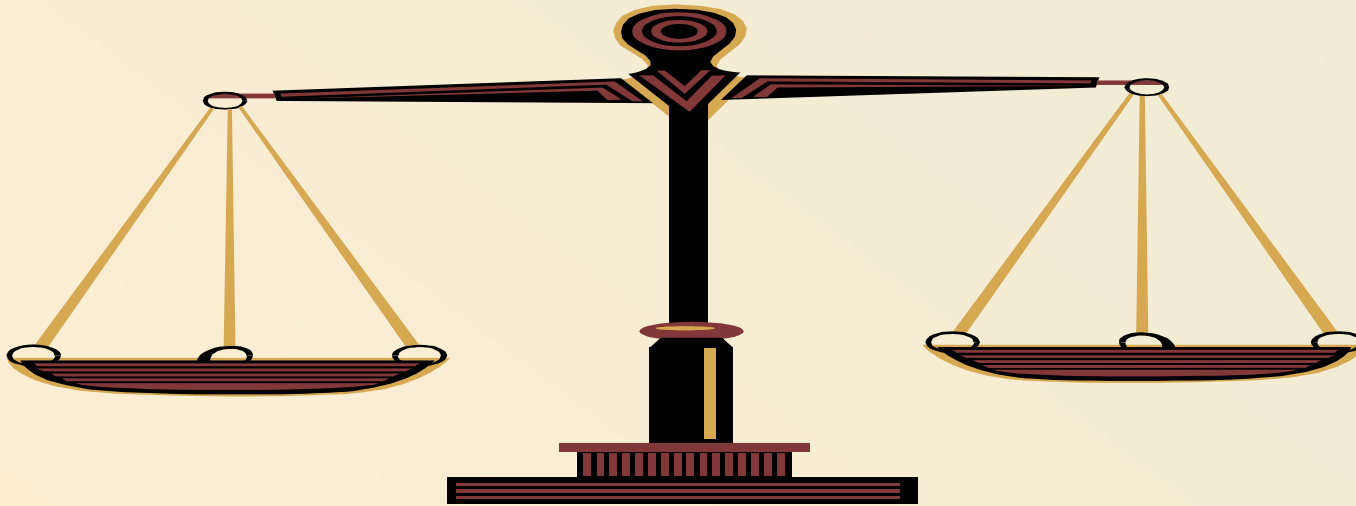
(Smith, Griffin & Fitzpatrick, 2009)



Behavior Change (cont.)

The theory suggests that women who are willing to attend a program on reduction of heart disease would already progressed past Stage 1 pre-contemplation.

The program can focus on benefits of exercises and ways to reduce barriers.



Research

The following qualitative study was done focusing on rural women and their involvement in a twelve week walking program. The goal of the study was to determine barriers to exercise and if involvement in a group helped to overcome those barriers.

- ✿ 23 women were randomly chosen to be in the Heart to Heart (HTH) group.
- ✿ 23 women were randomly chosen for the comparison group.

(Perry, Rosenfeld & Kendall, 2007)

Heart To Heart (HTH) Group

- ✿ Based on the Transtheoretical model
- ✿ Individual 30 minute exercise counseling session
- ✿ 5-10 minute over the phone booster sessions using motivational interviewing techniques
- ✿ Women were encouraged to set realistic goals
- ✿ Given heart rate monitors and log books to monitor progress
- ✿ Women met weekly at a centrally located and agreed upon walking track
- ✿ A 10 minute discussion was led by the group organizer before each walk to discuss challenges and progress
- ✿ Group cohesion was developed by having a group name and group t-shirts

(Perry, Rosenfeld & Kendall, 2007)

Comparison Group

- ✿ Brief 10 minute individual counseling sessions giving advice on how to fit exercise into their lives.
- ✿ Individualized and progressive exercise prescription for the 12 weeks.
- ✿ Exercise logbook to record walks and monitor progress.
- ✿ Brief 3 minute reinforcement calls each month.

(Perry, Rosenfeld & Kendall, 2007)

Study Results

Three main barriers to participation in the walking program:

- ✿ Balancing family and self (Family related concerns were the largest barrier for women)
- ✿ Chronic illness gets in the way of routine
- ✿ Illness or injury breaks routine

(Perry, Rosenfeld & Kendall, 2007)

Study Results Continued

Three main motivators to participation in the walking program:

- ✿ Being part of a group
- ✿ Group camaraderie
- ✿ Learning

(Perry, Rosenfeld & Kendall, 2007)

Study Results Continued

Overall women found that being a part of a walking group helped them to overcome their main barrier, which was balancing family and self.

Many women struggled with putting their needs before their family, however, being a part of a group was a similar situation. They didn't want to let down their group members by not showing up. "Being part of a group with a stable membership coincided with these rural women's value of attending to the needs of others."

(Perry, Rosenfeld & Kendall, 2007)

Study Results Continued

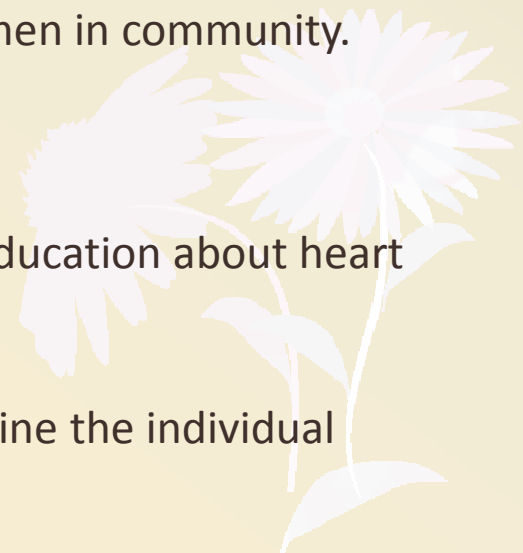
“Many described their commitment to the group walk as similar to their commitment to a volunteer organization, such as the Parent Teacher Association” (Perry et al., 2007).

“Many stated that they reasoned they were not selfishly doing something for themselves, but they were helping others” (Perry et al., 2007).

Thus being a part of a group helped them to overcome their greatest barrier of balancing family and self.

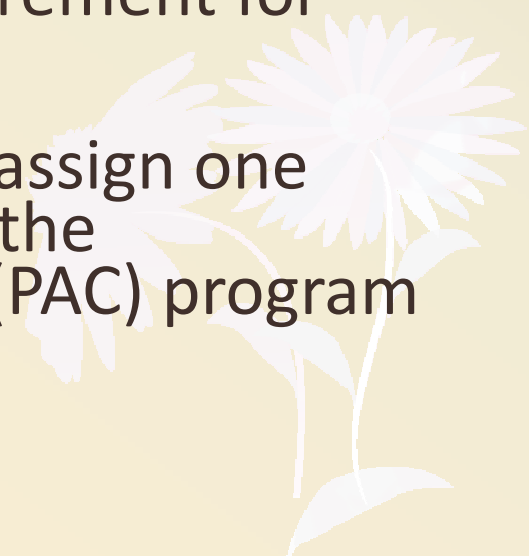
Intervention Plan

- ✿ Contact Nursing Department of the Ferris State University (FSU) to assist with volunteer nursing students to lead the walking groups in a local communities.
- ✿ Contact local Health department to provide a nurse to coordinate organizational and educational efforts.
- ✿ Contact local businesses, fitness centers and sport goods stores for donations of pedometers and other incentives for participating women.
- ✿ Contact local high schools and FSU for permission to walk in their facility.
- ✿ Provide information about local walking trails to women in community.
- ✿ Recruit women for walking.
- ✿ Recruit community members to provide additional education about heart disease.
- ✿ Distribute a questionnaire at the first walk to determine the individual needs and goals of the women.



Finding Walking Leaders

- ✿ Send a mass e-mail to Ferris State University nursing students to recruit students that would like to help organize and lead the walking groups.
- ✿ Speak with nursing instructors asking for their help in promoting students to participate.
- ✿ Ask Nursing Department to include this as a part of community service requirement for nursing program.
- ✿ Ask local Health Department to assign one community nurse as a leader of the Promoting Active Communities (PAC) program in Mecosta County.



Meet With Local Schools

- ✿ Contact the following local schools to meet with principal for permission to use the halls for walking in inclement weather.
- ✿ Big Rapids Middle School
- ✿ Chippewa Hills High School
- ✿ Morley Stanwood High School
- ✿ Ferris State University



Public Schools Report. (2007).

<http://schools.publicschoolsreport.com/county/MI/Mecosta.html>

Local Parks & Walking Trails

☀ Do a windshield survey of the following walking trails to find suitable outdoor walking venues.

☀ The Riverwalk

☀ The White Pine Trail

☀ Ferris State University Trail

☀ Hungerford Lake Recreation Area

Mecosta County Area Convention & Visitors Bureau. (2011). *Walk Big Rapids*.

Retrieved from

http://www.bigrapids.org/index.php?option=com_content&view=article&id=128&Itemid=118/

Pure Michigan.(n.d.).*Hungerford Lake Recreation Area*. Retrieved from

<http://www.michigan.org/Property/Detail.aspx?p=B4262>



Find the Women of Mecosta County

Hang invitation flyers up at the following businesses:

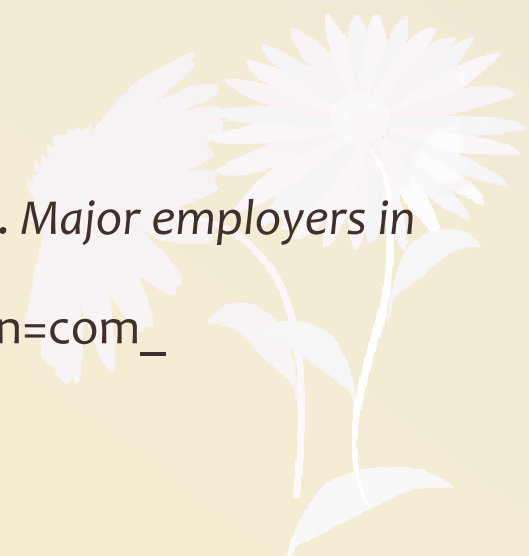
- ✿ Ferris State University
- ✿ Mecosta County Medical Center
- ✿ Fluid Routing Solutions
- ✿ Wal-Mart
- ✿ Big Rapids Components
- ✿ Meijer
- ✿ Wolverine World Wide



Finding Women Continued...

- ✿ Big Rapids Public Schools
- ✿ Chippewa Hills School District
- ✿ Ice Mountain
- ✿ County of Mecosta
- ✿ Mecosta Osceola ISD
- ✿ Leprino Foods

Mecosta County development Corporation. (2011). *Major employers in Mecosta County*. Retrieved from http://www.mecostaedc.com/index.php?option=com_content&view=article&id=139&Itemid=117



Advertise

Newspapers

- ✿ The Pioneer (The Pioneer Group, 2011)
- ✿ Ferris State Torch. This newspaper is printed by the Pioneer group. (Ferris State Torch, 2011).

Local Radio Public Service

- ✿ WBRN 100.9 fm + 1460 am News radio (WBRN-AM, 2011)
- ✿ WYBR 102.3 Today's Hit Music (WYBR – FM ,2011)
- ✿ WPHH 450 Ferris State University (Michigan Informational Radio Stations, 2011)

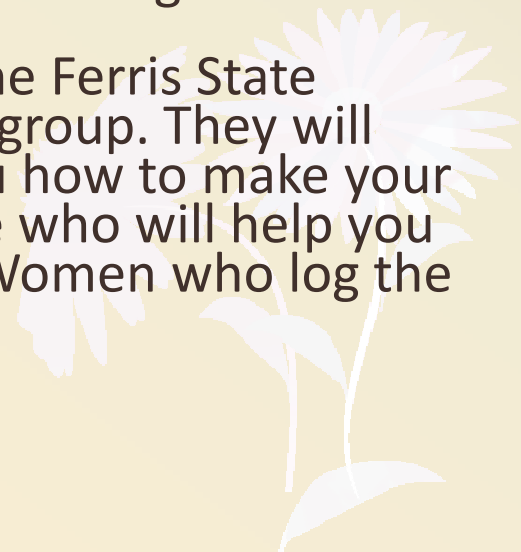
Invitation Flyer

Spring Into Action

Walk To Better Yourself Women of Mecosta County!

- ✿ Who: All women interested in getting their health better and heart stronger.
- ✿ When: Saturday, April 16 at 1:00 pm. After this, we will meet every Wednesday at 6:00 pm and Saturday at 1:00 pm.
- ✿ Where: First meeting at Chippewa Hills High School, Room 10. Locations will be different for other meetings.
- ✿ How long: We will meet for 6 months. The Ferris State University nursing students will lead the group. They will check your blood pressure and teach you how to make your heart healthy. There will be other people who will help you to learn about your heart and exercise. Women who log the most miles will get prizes.

Grab a friend to walk with us!



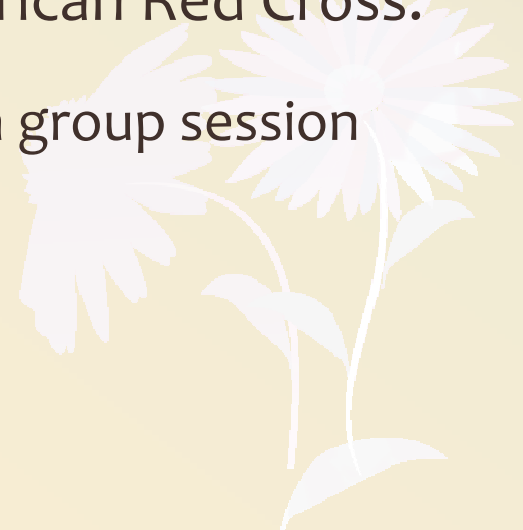
Plan for First Meeting

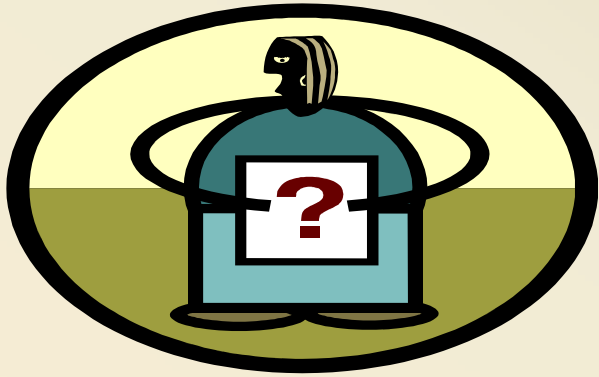
- ✿ Participants will answer questionnaire
- ✿ Brief presentation on the benefits of exercise
- ✿ Pass out log books and Pedometers
- ✿ Private weigh in and BMI measurement
- ✿ Assist in setting attainable personal goals
- ✿ Divide into teams
- ✿ Walk

Educational Opportunities

Local community experts will appear at various walks to provide additional education to walkers about heart disease.

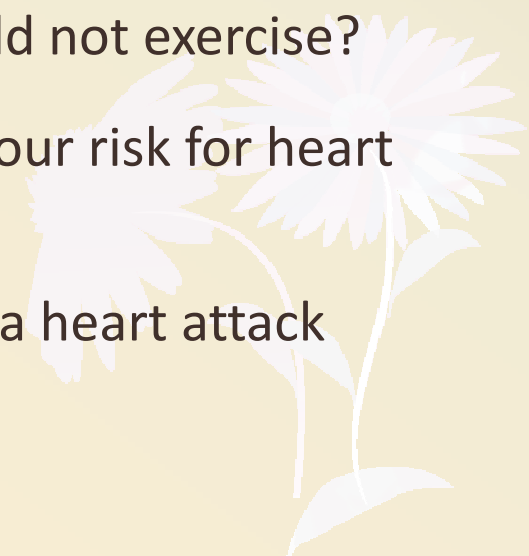
- ✿ Registered Dietician from District Health Department #10.
- ✿ Mecosta Osceola Chapter of the American Red Cross.
- ✿ Mecosta County Medical Center to host a group session on women and heart disease prevention





Questionnaire

- ✿ If you don't exercise on a regular weekly basis what is the biggest reason why?
- ✿ How often do you participate in regular weekly exercise?
- ✿ Do you find it helpful to exercise with a friend?
- ✿ Has a doctor ever told you that you should not exercise?
- ✿ Do you know ways that you can reduce your risk for heart disease?
- ✿ Do you know the signs and symptoms of a heart attack that are specific to women?



Donations

- ✿ Contact local gyms for complimentary trial gym pass to give out as prizes for women who log the most miles. (Curves, TNT, PT Plus, & FSU Fitness Center).
- ✿ MC Sports for donation of pedometers
- ✿ Donation of notebooks to keep track of individual progress

Curves. (2011). Retrieved from <http://www.curvesinformation.com/?campaign=GF&Referrer=GCT&Subreferrer=TextBrand>

PT Plus. (n.d.). *Welcome to Physical Therapy & Fitness Plus, Inc.* Retrieved from <http://www.myptplus.com/index.html>

Ferris State University. (2011). *Racquet & Fitness Center: Our facilities.* Retrieved from <http://www.ferrisracquetandfitness.com/pages/index.cfm?siteid=10605>



Barriers to Exercise

Actual

- ❁ Lack of exercise facilities outside of Big Rapids
- ❁ Cost of exercise facilities
- ❁ Lack of safe walking trails and outdoor recreation facilities in rural Mecosta County
- ❁ Lack of knowledge of importance and benefits of exercise
- ❁ Chronic illness or injury

Perceived

- ❁ Time constrains
- ❁ Conflict with family demands
- ❁ Only lengthy strenuous exercise will make a difference
- ❁ Motivation
- ❁ Outcomes of weight loss are slow to achieve
- ❁ Low self-efficacy



Motivation for Walking

- ✿ Being a part of a group
- ✿ Group camaraderie
- ✿ Feeling energized
- ✿ Self-discovery
- ✿ Personal improvement
- ✿ Competitiveness

Walking

- ☀️ It's the simplest way to start an exercise program
- ☀️ Its Free
- ☀️ It has the lowest dropout rate of any exercise program
- ☀️ Its easy and safe

(American Heart Association/Physical Activity, 2011)



Spring Into Action

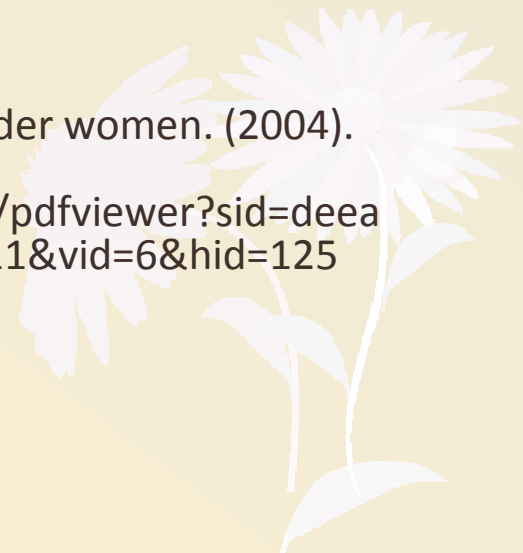
- ✿ Studies show that for every hour of walking, life expectancy may increase by two hours.
- ✿ Walking for as few as 30 minutes a day provides heart health benefits.
- ✿ Walking is the single most effective form of exercise to achieve heart health.

(American Heart Association, 2011)

Spring Into Action

- ✿ A study conducted by the Harvard School of Public Health shows that in addition to physical health benefits walking may also have added benefits of reduced cognitive decline as a woman ages.
- ✿ The study results show that women who walked at least 6 hours per week showed a 20% decrease in cognitive impairment and functioned more like someone three years younger than their current age.

Study: walking improves memory, learning, attention in older women. (2004).
FDA Consumer, 38(6), 7. Retrieved from <http://0-web.ebscohost.com.libcat.ferris.edu/ehost/pdfviewer/pdfviewer?sid=deeba77-c616-41b9-8f93-6eb5df4abf1a%40sessionmgr111&vid=6&hid=125>



Policy

The Michigan Center for Rural Health adopted a State Rural Health Plan in 2007 entitled

Michigan Strategic Opportunities for Rural Health Improvement

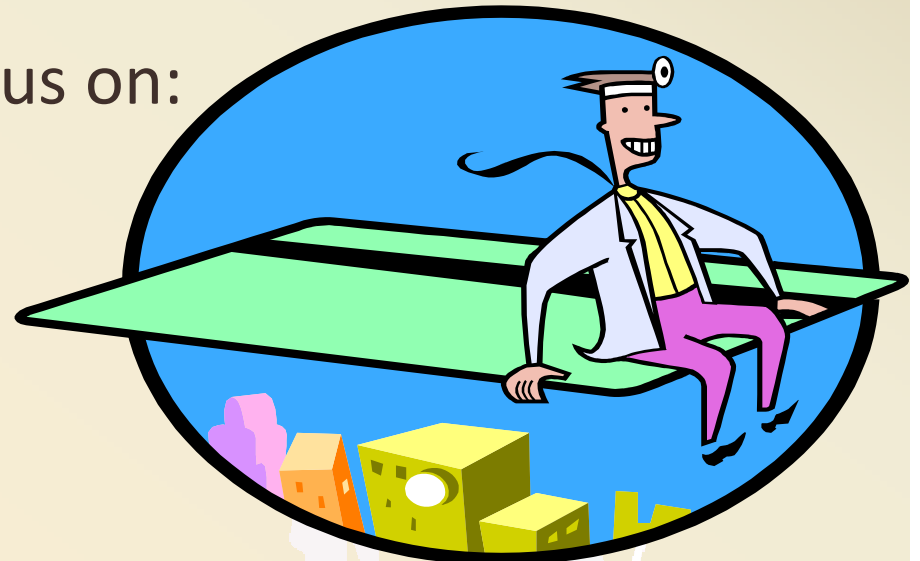
(Barnas, Barnett, Wightman, Emge & Johnson, 2008)



Rural Health Issues

3 top rural health issues were identified

1. Availability and Accessibility to Healthcare Services
2. Recruitment and Retention of Healthcare Providers
3. Health Lifestyle with focus on:
 - ✿ Nutrition
 - ✿ Obesity
 - ✿ Physical Activity

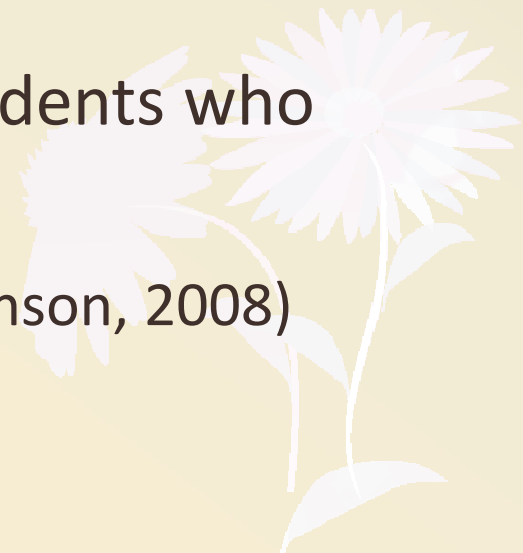


(Barnas, Barnett, Wightman, Emge & Johnson, 2008)

Goals Based on Rural Health Issue Healthy Lifestyle

- ✿ Reduce the rate of obese and overweight adults and children in rural Michigan.
- ✿ Increase the number of rural adults and children who engage in moderate physical activity at least 5 days a week for 30 minutes a day.
- ✿ Increase the number of rural residents who engage in healthy eating.

(Barnas, Barnett, Wightman, Emge & Johnson, 2008)



U.S. Federal Policy 2008

The Federal Government has issued its first-ever Physical Activity Guidelines for Americans. They describe the types and amounts of physical activity that offer substantial health benefits to Americans.

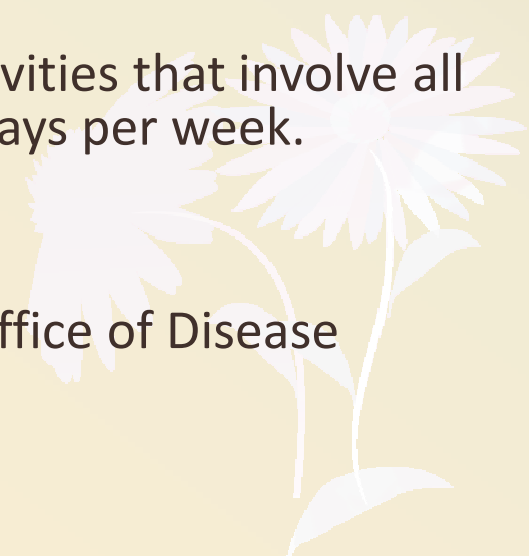
(U.S. Department of Health and Human Services,
Office of Disease Prevention & Health Promotion,
2009)



Federal Activity Guidelines for Adults (aged 18-64)

- ✿ Adults should do 2 hours and 30 minutes a week of moderate-intensity, or 1 hour and 15 minutes (75 minutes) a week of vigorous-intensity aerobic physical activity, or an equivalent combination of moderate- and vigorous-intensity aerobic physical activity. Aerobic activity should be performed in episodes of at least 10 minutes, preferably spread throughout the week.
- ✿ Additional health benefits are provided by increasing to 5 hours (300 minutes) a week of moderate-intensity aerobic physical activity, or 2 hours and 30 minutes a week of vigorous-intensity physical activity, or an equivalent combination of both.
- ✿ Adults should also do muscle-strengthening activities that involve all major muscle groups performed on 2 or more days per week.

(U.S. Department of Health and Human Services, Office of Disease Prevention & Health Promotion, 2008)



Support for Program Spring into Action

The previously mentioned state and federal policies on physical activity strongly support the planned program of Spring Into Action.

These policies will enable student nurses to provide additional support to local governments for the need to encourage physical activity in middle age women in the community.



Evaluation of Walking Program

Measure the following indicators before start of the program, 3 months into the program, at the end of the program and one year follow up at the end of the program:

- ✱ BMI

- ✱ Blood pressure

- ✱ Weight

- ✱ Physical endurance (number of miles able to walk)

Evaluation Questionnaire

- ✿ How far did you walk before you started this program? How far can you walk now?
- ✿ Will you continue to walk after the end of the program?
- ✿ Do you feel you have more energy during the day now than before you started the program?
- ✿ What did help you to continue with the program?
- ✿ What were your obstacles to continue with the program?

Why start a walking program in your community?

- ✿ Studies have shown walking programs are highly successful. Most women will increase their activity level by 25-30% and 50% of the women who led sedentary lives benefited the most.
- ✿ Walking programs with the most success indicated their walkers kept a goal in mind, kept activity journals, and had a walking partner (social support).

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