

“Women of Bureau County: Health Prevention and Obesity.”



Objective

- To ascertain whether or not a difference exists between obese and non-obese women in terms of mammograms and pap smear screening.

Expected Outcome

- Obese women, those with a Body Mass Index of 30 or greater, are less likely to seek preventative screening for pap smears and mammograms than women who are not obese, those with a Body Mass Index of < 30 .

Setting

- IPLAN Data states that 20% of Bureau County is overweight and 33% have a sedentary lifestyle.
- Illinois has an average of 19% of the population being overweight and 27% with a sedentary lifestyle.
- According to the National Institutes of Health, obesity is a risk factor for breast cancer. Average risk of breast cancer to any woman in the United States is approximately 1 in 8.
- Increased dietary fat intake, body weight, and decreased exercise have been associated with increased breast-cancer risk in preclinical and observational studies.
- Death due to breast cancer was among the top ten causes of death in Bureau County while breast cancer did not make the list in the rest of the state.
- Only 9.8% of breast cancer cases are detected at an early stage in Bureau County while 16.8% are detected at early stages in the rest of the state.

Setting

- No data was available for Bureau County for the incidence of cervical cancer – however Illinois has an incidence of 11.4 and the US as a whole has only 8.7/100,000.
- The routine use of screening mammography in women 50 years old or older reduces mortality from breast cancer by approximately one third. There is still considerable debate among women between 40 to 49 years of age but the health benefits still outweigh the economic costs for this age group.
- In one analysis of women 40 to 49 years of age, an abnormal mammogram was more than three times as likely to be associated with cancer in a woman with a family history of cancer as in a woman without a family history of cancer.
- This project attempts to identify current processes in detection of breast and cervical cancer, and assess whether or not weight appears to be a factor in screening tests.

Methods

- 300 charts of women who have received annual well woman exams since 2000 at the Princeton Family Physicians office were sampled.
- Data will be collected from this sampling including: height, weight, age, timing of pap smears and mammography, abnormal results of each, family history of breast cancer, history of smoking and STDs.
- 100 obese women and 100 non-obese women were selected at random from the 300 women initially sampled.
- Obesity is defined by the National Institutes of Health Guidelines for Body Mass Index.

Body Mass Index

- Body Mass Index can be calculated using pounds and inches with this equation

$$\text{BMI} = (\text{Weight in Pounds} / (\text{Height in inches}) \times (\text{Height in inches})) \times 703$$

Underweight	< 18.5
Normal Weight	18.5 – 24.9
Overweight	25.0 – 29.9
Obesity	30 and Above

Breast Cancer Screening

- Mammography should begin with a baseline screen at 40 years of age.
- Screening should begin earlier than 40 years of age with a positive family history.
- Annual mammograms should occur for as long as a woman is in good health.

Cervical Cancer Screening

- Begins 3 years after the onset of vaginal intercourse or by 21 years of age, whichever is earlier.
- Screening should take place annually if conventional cytology is used and every two years if liquid cytology is used until the age of 30.
- After the age of 30, women with three consecutive normal or negative cytology results may receive a pap smear every 2-3 years.
- Women age 70 or older may stop receiving screening if they have a 10 year history of negative or normal screens and their three prior pap smears have been negative or normal.
- Women who have had a hysterectomy including the cervix for benign reasons may discontinue screening. Women who have had a hysterectomy due to abnormal cytology must have 3 consecutive negative screens before discontinuing screening.
- Annual pelvic exams should continue in all women at all ages.
- Princeton Family Physicians uses a conventional cytology approach and an annual guideline will be used to interpret the data collected.

Mammography Results

- Of the 100 women with a BMI under 30
 - 61 of these women were eligible to meet screening guidelines either due to an age over 40 or a positive family history.
 - 3% of the patients had referrals for mammograms consistent with the guidelines but did not follow through with the mammogram.
 - 13% of women met the guidelines for mammography.
 - 1 woman was only 1 visit short of meeting the guidelines.
 - 9 women had 4 of 6 exams to comply with the guidelines.
 - 50 women or 82% of those eligible had a minimum of 1 mammogram from 2000-2005.

Mammography Results

- BMI < 30
 - 10% of the 100 women had a family history of breast cancer
 - Only 1 of the 10 women with a positive family history met the screening guidelines.
 - 10 women of the 61 women screened had an abnormal finding requiring follow up and 2 of those women were diagnosed with breast cancer.

Mammography Results

- Of the 100 women with a BMI > 30
 - 74 women were eligible for screening either due to an age over 40 or a positive family history of breast cancer.
 - 7% of the women who did not meet the recommendations were given referrals that were consistent with guidelines, but did not get the test done.
 - 23% of these women followed the recommended screening procedures.
 - 3 women were only one mammogram less than the guidelines suggest.
 - 84% of these women had a minimum of one mammogram between 2000 and 2005.

Mammography Results

- BMI > 30
 - 12% of the 100 women had a family history of breast cancer
 - Only 2 of the 12 women with a positive family history met the screening guidelines.
 - 3 of the 12 would have met screening guidelines if they had followed through with the referral to be screened.
 - 10 women of the 74 women screened had an abnormal finding requiring follow up and 3 of those women were diagnosed with breast cancer.

Cervical Cancer Screening

- Of the women with a BMI < 30
- 64 of the 100 women met the previously identified criteria for pap smear screening.
- 5 of the 100 women had a TAH and only 2 for documented abnormal cytology.
- 6 of the 100 women had an abnormal pap smear that required additional evaluation.
- 3 women required colposcopy and 1 was diagnosed with CIN
- 3 women had a positive history for Gonorrhea or Chlamydia. None of these women had an abnormal pap smear.
- 8 women currently smoke and 1 is a former smoker. Only 1 of the smokers had an abnormal pap smear.

Cervical Cancer Screening

- Of the women with a BMI >30
- 53 of the 100 women met the previously identified criteria for pap smear screening.
- 2 of the 100 women had a TAH and only 1 for documented abnormal cytology.
- 7 of the 100 women had an abnormal pap smear that required additional evaluation.
- 1 women required colposcopy and none were diagnosed with CIN in this group.
- 3 women had a positive history for Gonorrhea or Chlamydia. None of these women had an abnormal pap smear.
- 4 women currently smoke and 11 is a former smoker. None of the smokers had an abnormal pap smear.

Discussion

- Women who may alternate primary care with regard to mammograms and pap smears with OB/GYNs may be lost to follow up.
- Women who are below 18 years of age are not included in the study and may alter the final data, particularly if they are sexually active.
- Women who have been sexually active and have not been evaluated for a well woman exam are not included in the sampling which could falsely elevate the positive cervical cancer screening data.

Conclusions

- 64% of non-obese women and 53% of obese women met the recommendations for cervical cancer screening. The cervical cancer screening results agree with the expected outcome of obese women being less likely to receive the recommended preventative screening - although there was not a great deal of variation in the number of women requiring additional evaluation.
- 13% of non-obese women and 23% of obese women met the guidelines for mammography. This is the opposite of the expected outcome.
- 82% of non-obese and 84% obese women had received a minimum of one mammogram in the last 5 years.

Resources

- Armstrong K., Eisen A., Weber B. "Primary Care: Assessing the Risk of Breast Cancer." *N Engl J Med* 2000; 342:564-571, Feb 24, 2000.
- "Cervical Cancer Screening: Testing Can Start Later and Occur Less Often Under New ACOG Recommendations." 2003 Jul 31. ACOG. 2006.
- Chlebowski R. T. "Primary Care: Reducing the Risk of Breast Cancer." *N Engl J Med* 2000; 343:191-198, Jul 20, 2000.
- Department of Health and Human Services, National Institutes of Health. "Aim for a Healthy Weight." http://www.nhlbi.nih.gov/health/public/heart/obesity/lose_wt/risk.htm
- Sawaya G. F., McConnell K. J., et. Al. "Risk of Cervical Cancer Associated with Extending the Interval between Cervical-Cancer Screenings." *N Engl J Med* 2003; 349:1501-1509, Oct 16, 2003.
- Smith RA, Saslow D, Sawyer KA, et al. American Cancer Society Guidelines for Breast Cancer Screening: Update 2003. *CA Cancer J Clin.* 2003;53:141-169.
- Smith, Robert A., PhD, Vilma Cokkinides, PhD and Harmon J. Eyre, MD. "American Cancer Society Guidelines for the Early Detection of Cancer, 2004." *CA Cancer J Clin* 2004; 54:41-52
- Weight Control Information Network. National Institutes of Health. <http://www.win.niddk.nih.gov/statistics/index.htm>