

Selected Bibliography: Weisman et al. Preconception Care, Women's Health, and Findings from the Central Pennsylvania Women's Health Study (CePAWHS)

Chuang CH, Velott DL, Weisman CS. Exploring knowledge and attitudes related to pregnancy and preconception health in women with chronic medical conditions. *Matern Child Health J.* 2010 Sep;14(5):713-9.

Women with chronic medical conditions are at increased risk for pregnancy-related complications, yet little research has addressed how women with diabetes, hypertension, and obesity perceive their pregnancy-associated risks or make reproductive health decisions. Focus groups were conducted with 72 non-pregnant women stratified by chronic condition (diabetes, hypertension, obesity) and by previous live birth. Participants discussed their intention for future pregnancy, preconception health optimization, perceived risk of adverse pregnancy outcomes, and contraceptive beliefs. Four major themes were identified, with some variation across medical conditions and parity: (1) Knowledge about pregnancy risks related to chronic medical conditions was limited; (2) Pregnancy intentions were affected by diabetes and hypertension, (3) Knowledge about optimizing preconception health was limited; and (4) Lack of control over ability to avoid unintended pregnancy, including limited knowledge about how medical conditions might affect contraceptive choices. Women with diabetes and hypertension, but not obesity, were generally aware of increased risk for pregnancy complications, and often expressed less intention for future pregnancy as a result. However, diabetic and hypertensive women had little knowledge about the specific complications they were at risk for, even among those who had previously experienced pregnancy complications. Neither chronic condition nor perceived risk ensured intent to engage in preconception health promotion. We observed knowledge deficits about pregnancy-related risks in women with diabetes, hypertension, and obesity, as well as lack of intent to engage in preconception health promotion and pregnancy planning. These findings have important implications for the development of preconception care for women with chronic medical conditions.

Chuang CH, Weisman CS, Hillemeier MM, Schwarz EB, Camacho FT, Dyer AM. Pregnancy intention and health behaviors: results from the Central Pennsylvania Women's Health Study cohort. *Matern Child Health J.* 2010 Jul;14(4):501-10. Epub 2009 Feb 12.

OBJECTIVE: Our objective was to determine whether intention for future pregnancy affects selected preconception health behaviors that may impact pregnancy outcomes. **METHODS:** Analyses are based on data from a population-based cohort study of women ages 18-45 residing in Central Pennsylvania. A subsample of 847 non-pregnant women with reproductive capacity comprise the analytic sample. We determined the associations between intention for future pregnancy and the pattern in the following health behaviors over a 2-year period: nutrition (fruit and vegetable consumption), folic acid supplementation, physical activity, binge drinking, smoking, and vaginal douching. Multivariable analyses controlled for pregnancy-related variables, health status, health care utilization, and sociodemographic variables.

RESULTS: At baseline, 9% of women were considering pregnancy in the next year, 37% of women were considering pregnancy some other time in the future, and 53% of women were not considering future pregnancy. In multivariable analyses, there were no associations between intention for future pregnancy and maintaining healthy behavior or improving behavior for any of the seven longitudinal health behaviors studied. **CONCLUSIONS:** The importance of nutrition, folic acid supplementation, physical activity, avoiding binge drinking, not smoking, and avoiding vaginal douching in the preconception period needs to be emphasized by health care providers and policy makers.

Weisman CS, Chuang CH, Scholle SH. Still piecing it together: women's primary care. *Womens Health Issues*. 2010 Jul-Aug;20(4):228-30.

Weisman CS, Hillemeier MM, Downs DS, Chuang CH, Dyer AM. Preconception predictors of weight gain during pregnancy: prospective findings from the Central Pennsylvania Women's Health Study. *Womens Health Issues*. 2010 Mar-Apr;20(2):126-32. Epub 2010 Feb 4.

OBJECTIVES: We examined preconception (prepregnancy) predictors of pregnancy weight gain and weight gain that exceeds the 2009 Institute of Medicine (IOM) recommendations based on pre-pregnancy body mass index (BMI), in a prospective study. **METHODS:** Data are from a population-based cohort study of 1,420 women who were interviewed at baseline and 2 years later. The analytic sample includes 103 women who were not pregnant at baseline and gave birth to full-term singletons during the follow-up period. Preconception maternal weight category as well as health behaviors, psychosocial stress, parity, and age were examined as predictors of pregnancy weight gain and of weight gain in excess of the IOM recommendations using multiple linear and logistic regression analysis. **RESULTS:** Pregnancy weight gain averaged 33.01 pounds, with 51% of women gaining weight in excess of the 2009 IOM recommendations for their preconception weight category. Preconception overweight (BMI = 25-29.9) increased the odds of excessive pregnancy weight gain nearly threefold, whereas preconception physical activity levels meeting activity guidelines reduced the odds of excessive weight gain but was marginally statistically significant. **CONCLUSION:** Although future research examining the role of physical activity in relation to pregnancy weight gain is needed, preconception overweight and physical activity levels are prime targets for interventions to avoid excessive pregnancy weight gain.

Evans L, Weisman CS. Folic acid supplementation in younger and older nonpregnant women of reproductive age: findings from the Central Pennsylvania Women's Health Study (CePAWHS). *Womens Health Issues*. 2010 Jan-Feb;20(1):50-7.

INTRODUCTION AND BACKGROUND: This study explores variables associated with daily folic acid supplementation among nonpregnant women ages 18-24, in comparison with women ages 25-45. Health-related behaviors, reproductive status, health care access, and sociodemographic variables are included. **METHODS:** Data are from a cross-sectional population-based survey of 2,002 women ages 18-45 in the Central Pennsylvania Women's Health Study. The analytic sample included 246 women ages 18-24 and

1,636 women ages 25-45 who were not pregnant at the time of survey. RESULTS: Seventeen percent of women ages 18-24 and 27% of women ages 24-45 used daily folic acid supplements. In multiple logistic regression analysis, folic acid use was significantly associated with only two variables among younger women: fruit consumption at least daily and regular physical activity levels meeting recommended guidelines. Among older women, folic acid use was associated with these same two health-related behaviors in addition to not smoking, seeing an obstetrician-gynecologist, receiving diet/nutrition counseling, being married or living with a partner, and no prior pregnancy. Folic acid use was not associated with pregnancy intention in either age group. CONCLUSIONS AND DISCUSSION: Women ages 18-24 have significantly lower rates of folic acid supplementation compared with older women of reproductive age, but fewer variables are associated with folic acid use among younger women. Missed opportunities to educate younger women about the benefits of folic acid supplementation are identified.

Weisman CS, Misra DP, Hillemeier MM, Downs DS, Chuang CH, Camacho FT, Dyer AM. Preconception Predictors of Birth Outcomes: Prospective Findings from the Central Pennsylvania Women's Health Study. *Matern Child Health J.* 2009 May 27. [Epub ahead of print]

OBJECTIVE: To examine maternal pre-pregnancy (preconception) predictors of birthweight and fetal growth for singleton live births occurring over a 2-year period in a prospective study. METHODS: Data are from a population-based cohort study of 1,420 women who were interviewed at baseline and 2-years later; self-report data and birth records were obtained for incident live births during the followup period. The analytic sample includes 116 singleton births. Baseline preconception maternal health status and health-related behaviors were examined as predictors of birthweight and fetal growth, controlling for prenatal and sociodemographic variables, using multiple regression analysis. RESULTS: Preconception BMI (overweight or obese) and vegetable consumption (at least one serving per day) had statistically significant independent and positive effects on birthweight and fetal growth. Maternal weight gain during pregnancy, a prenatal variable, was an additional independent predictor of birthweight and fetal growth. Sociodemographic variables were not significant predictors after controlling for preconception and prenatal maternal characteristics. CONCLUSIONS: Findings confirm that preconception maternal health status and health-related behaviors can affect birthweight and fetal growth independent of prenatal and socioeconomic variables. Implications for preconception care are discussed.

Chuang CH, Weisman CS, Hillemeier MM, Camacho FT, Dyer AM. Predicting pregnancy from pregnancy intentions: prospective findings from the Central Pennsylvania Women's Health Study (CePAWHS). *Womens Health Issues.* 2009 May-Jun;19(3):159-66.

OBJECTIVE: We examined whether adult women's intention for future pregnancy predicted actual pregnancies occurring in a 2-year follow-up study. METHODS: Data are from the Central Pennsylvania Women's Health Study population-based longitudinal survey of women ages 18-45 (n = 1,420). The analytic sample consists of 889 nonpregnant women who had reproductive capacity. Intention for future pregnancy was ascertained at baseline, and women were re-interviewed 2 years later to document interval

pregnancies. The impact of pregnancy intention on subsequent pregnancy was analyzed using multiple logistic regression adjusting for relevant covariates. RESULTS: At baseline, 46% of women were considering a future pregnancy. One hundred thirty-seven women became pregnant during the 2-year study; of these pregnancies, 83% were intended (occurring in women considering a future pregnancy at baseline) and 17% were unintended (occurring in women not considering a future pregnancy at baseline). Pregnancies occurred in 28% of women who at baseline were considering future pregnancy and 5% of women not considering pregnancy. In adjusted analysis, baseline pregnancy intention was predictive of with pregnancy occurrence in women ages 25-34 (adjusted odds ratio [OR], 4.19; 95% confidence interval [CI], 2.20-7.97) and ages 35-45 (adjusted OR, 26.89; 95% CI, 9.05-79.93), but not in women ages 18-24. CONCLUSIONS: In this prospective study, pregnancy intention was strongly associated with pregnancy incidence over a 2-year follow-up period among women ages 25 and older, suggesting that pregnancy intentions could be used to identify women at greater risk of pregnancy. Future investigation is needed to confirm these findings and to explore the reasons why pregnancy intentions were not predictive for women ages 18-24.

Downs DS, Feinberg M, Hillemeier MM, Weisman CS, Chase GA, Chuang CH, Parrott R, Francis LA. Design of the Central Pennsylvania Women's Health Study (CePAWHS) strong healthy women intervention: improving preconceptional health. *Matern Child Health J.* 2009 Jan;13(1):18-28. Epub 2008 Feb 13.

Considerable evidence suggests that modifiable risk factors for adverse pregnancy outcomes such as preterm birth and low birthweight include obesity, sedentary behavior, and infections. There is a growing consensus that the preconceptional and interconceptional periods may be an ideal time for preventive intervention targeting these risk factors; enhancing health before pregnancy would subsequently reduce the risk for poor pregnancy outcomes. This paper provides an overview of the development of a health behavior intervention, Strong Healthy Women, that aims to improve women's preconceptional and interconceptional health. We describe the rationale, delivery, and targeted outcomes of the program, as well as the design of an ongoing trial currently testing program efficacy. The content areas are also discussed and include pregnancy-conception, stress, physical activity, nutrition, infection, sources of smoke in the home, and substance use. This intervention protocol may offer researchers and healthcare professionals a framework for designing other programs aiming to improve women's preconceptional health.

Hillemeier MM, Downs DS, Feinberg ME, Weisman CS, Chuang CH, Parrott R, Velott D, Francis LA, Baker SA, Dyer AM, Chinchilli VM. Improving women's preconceptional health: findings from a randomized trial of the Strong Healthy Women intervention in the Central Pennsylvania women's health study. *Womens Health Issues.* 2008 Nov-Dec;18(6 Suppl):S87-96.

PURPOSE: Improving the health of women before pregnancy is an important strategy for reducing adverse pregnancy outcomes for mother and child. This paper reports the first pretest-posttest results from a randomized trial of a unique, multidimensional, small group format intervention, Strong Healthy

Women, designed to improve the health behaviors and health status of preconceptional and interconceptional women. **METHODS:** Nonpregnant pre- and interconceptional women ages 18-35 were recruited in 15 low-income rural communities in Central Pennsylvania (n = 692). Women were randomized in a ratio of 2-to-1 to intervention and control groups; participants received a baseline and follow-up health risk assessment at 14 weeks and completed questionnaires to assess behavioral variables. The analytic sample for this report consists of 362 women who completed both risk assessments. Outcomes include measures of attitudinal and health-related behavior change. **MAIN FINDINGS:** Women in the intervention group were significantly more likely than controls to report higher self-efficacy for eating healthy food and to perceive higher preconceptional control of birth outcomes; greater intent to eat healthy foods and be more physically active; and greater frequency of reading food labels, physical activity consistent with recommended levels, and daily use of a multivitamin with folic acid. Significant dose effects were found: Each additional intervention session attended was associated with higher perceived internal preconceptional control of birth outcomes, reading food labels, engaging in relaxation exercise or meditation for stress management, and daily use of a multivitamin with folic acid. **CONCLUSIONS:** The attitudinal and behavior changes attributable to the intervention were related primarily to nutrition and physical activity. These results show that these topics can be successfully addressed with pre- and interconceptional women outside the clinical setting in community-based interventions.

Chuang CH, Green MJ, Chase GA, Dyer AM, Ural SH, Weisman CS. Perceived risk of preterm and low-birthweight birth in the Central Pennsylvania Women's Health Study. *Womens Health Issues*. 2008 Nov-Dec;18(6 Suppl):S87-96.

OBJECTIVE: Engaging women in preconception prevention may be challenging if at-risk women do not perceive increased risk. This study examined predictors of perceiving increased risk for preterm/low birthweight birth. **STUDY DESIGN:** Using the Central Pennsylvania Women's Health Study, a population-based sample of reproductive-age women, we analyzed whether sociodemographics, health and pregnancy history, health behaviors, attitudes, or health care utilization predicted risk perception of preterm/low-birthweight birth. **RESULTS:** Of the 645 women analyzed, 157 (24%) estimated their risk of preterm/low-birthweight birth to be very or somewhat likely. Higher perceived risk was associated with being underweight, previous preterm/low-birthweight birth, having a mother with previous preterm/low-birthweight birth, lower perceived severity of preterm/low birthweight, and smoking. **CONCLUSIONS:** Several factors known to predict preterm/low birthweight did influence risk perception in this study, whereas others did not. Further research on how these factors have an impact on participation in preconception care programs is warranted.

Velott DL, Baker SA, Hillemeier MM, Weisman CS. Participant recruitment to a randomized trial of a community-based behavioral intervention for pre- and interconceptional women findings from the Central Pennsylvania Women's Health Study. *Womens Health Issues*. 2008 May-Jun;18(3):217-24.

BACKGROUND: Community-based health studies rely on the ability of researchers to successfully recruit and retain participants from target populations, rather than from clinical settings. Many prior women's health studies have recruited in urban and suburban areas, but rural populations pose specific challenges. We describe the recruitment strategies employed in the Central Pennsylvania Women's Health Study to recruit 692 women in 15 low-income rural communities to a randomized trial of a behavioral intervention for pre- and interconceptional women. **METHODS:** The organization of the project is described. Qualitative (e.g., focus groups of local project facilitators) and quantitative methods (e.g., surveys of participants) were used to assess the effectiveness of various recruitment techniques and the characteristics of the final enrolled sample. **RESULTS:** A triangular recruitment approach was used in 15 communities, which included partnering with local community organizations and use of both active and passive recruitment techniques. The most effective recruitment methods were (1) actively recruiting women in social service and childcare settings, (2) use of a toll-free project telephone number printed on all passive recruitment material, and (3) the combination of passive and active recruitment in educational settings. Together, these methods successfully achieved the recruitment goals: enrolling participants who were more likely to be rural, poor or near poor, non-white, and to have less access to health care than their counterparts residing in the target communities. **CONCLUSIONS:** Successful recruitment of typically hard-to-reach women, such as low-income rural women, is possible through implementation of a triangular recruitment approach in local communities.

Hillemeier MM, Weisman CS, Chase GA, Dyer AM, Shaffer ML. Women's preconceptional health and use of health services: implications for preconception care. *Health Serv Res.* 2008 Feb;43(1 Pt 1):54-75

OBJECTIVE: To improve understanding of women's use of health care before pregnancy, by analyzing how the health status and health risks of pre- and interconceptional women are associated with health services use. **DATA SOURCE:** Data are from a cross-sectional random-digit dial telephone survey of a representative sample of 2002 women ages 18-45 years from the Central Pennsylvania Women's Health Study (CePAWHS). A subsample of 1,325 respondents with current reproductive capacity, classified by reproductive life stage (preconceptional or interconceptional), was analyzed. **STUDY DESIGN:** Bivariate and multiple logistic regression analyses were conducted to determine how health needs (including indices of health status and health risks related to adverse pregnancy outcomes) are associated with five indicators of health services use (receipt of a regular physical exam, obstetrician-gynecologist [ob/gyn] visit, receipt of a set of recommended screening services, receipt of health counseling services on general health topics, and receipt of pregnancy-related counseling), controlling for predisposing and enabling variables. **PRINCIPAL FINDINGS:** Only half of women at risk of pregnancy report receiving counseling about pregnancy planning in the past year. One-third of women surveyed did not receive routine physical examinations and screening services, and over half received little or no health counseling. Multivariate analyses showed that all the measures of health needs except for negative health behavior were related to some type of health services use. Psychosocial stress was associated with having a recent ob/gyn visit, with receiving general health counseling, and with receiving pregnancy planning counseling. Cardiovascular risk was positively associated with receiving general health counseling and a regular physical exam, but negatively associated with seeing an ob/gyn. Positive health behaviors were associated with receiving screening services and with receiving general health counseling.

Preconceptional reproductive life stage was positively associated with receiving a regular physical exam and negatively associated with having an ob/gyn visit. CONCLUSIONS: Pre- and interconceptional women with specific health care needs may not receive appropriate health care before pregnancy. Improving pregnancy experiences and outcomes requires more comprehensive preconception health care and more preventive care before the first pregnancy.

Weisman CS, Hillemeier MM, Chase GA, Misra DP, Chuang CH, Parrott R, Dyer AM. Women's perceived control of their birth outcomes in the Central Pennsylvania Women's Health Study: implications for the use of preconception care. *Womens Health Issues*. 2008 Jan-Feb;18(1):17-25. Epub 2007 Oct 22.

PURPOSE: This study examines nonpregnant women's beliefs about whether or not they can influence their future birth outcomes with respect to the baby's health and factors associated with internal locus of control for birth outcomes. Perceived internal control of birth outcomes could be a predisposing factor for use of preconception care, which is recommended for all women of childbearing age by the Centers for Disease Control and Prevention. The overall hypothesis is that internal control of birth outcomes is a function of prior pregnancy experiences, current health status and stress levels, access to health care, and sociodemographics. METHODS: Data are from the Central Pennsylvania Women's Health Study random digit dial telephone survey of 2,002 women ages 18-45; the analytic sample is 614 nonpregnant women with current reproductive capacity who reported that they are considering a future pregnancy. Internal control of birth outcomes is measured using 1) a 4-item Internal Control of Birth Outcomes Scale, 2) a single-item measure of Preconceptional Control, and 3) a score reflecting high internal control on both of these measures. FINDINGS: In multiple logistic regression analyses, internal control of birth outcomes is positively associated with older age (35-45 vs. 18-34 years), higher education (some college or more), marital status (currently married or living with a partner), and higher self-rated physical health status on the SF-12v2 (but not mental health status or psychosocial stress). Previous adverse pregnancy outcomes and current access to health care have no association with internal control for birth outcomes. CONCLUSION: Variables associated with internal control of birth outcomes among women contemplating a future pregnancy are primarily sociodemographic and physical health related. Educational and social marketing efforts to increase women's use of preconception care may be particularly important for women who are likely to have lower internal control, including younger, less educated, unmarried, and less healthy women.

Miller K, Yost B, Flaherty S, Hillemeier MM, Chase GA, Weisman CS, Dyer AM. Health status, health conditions, and health behaviors among Amish women. Results from the Central Pennsylvania Women's Health Study (CePAWHS). *Womens Health Issues*. 2007 May-Jun;17(3):162-71. Epub 2007 Apr 24.

We performed one of the first systematic, population-based surveys of women in Amish culture. We used these data to examine health status and health risks in a representative sample of 288 Amish women ages 18-45 living in Lancaster County, Pennsylvania, in particular for risks associated with preterm and low

birthweight infants, compared with a general population sample of 2,002 women in Central Pennsylvania. Compared with women in the general population, Amish women rated their physical health approximately at the same level, but reported less stress, fewer symptoms of depression, and had higher aggregate scores for mental health. Amish women reported low levels of intimate partner violence, high levels of social support, and they perceived low levels of unfair treatment owing to gender compared with the general population. Amish women also reported higher fertility, fewer low birthweight babies, but the same number of preterm births as the general population. The findings suggest that these outcomes may be due to higher levels of social support and better preconceptional behavior among Amish women.

Anderson RT, Weisman CS, Camacho F, Scholle SH, Henderson JT, Farmer DF. Women's satisfaction with their on-going primary health care services: a consideration of visit-specific and period assessments. *Health Serv Res.* 2007 Apr;42(2):663-81.

OBJECTIVE: To compare and contrast patient ratings of satisfaction with primary care on the day of visit versus over the last 12 months. **Data SOURCES/STUDY SETTING:** Survey data were collected from female participants at primary care centers affiliated with the University of Michigan, University of Pittsburgh, and Wake Forest University. **STUDY DESIGN:** One thousand and twenty-one patients attending a primary care visit with at least one prior visit to the study site were consented on site, enrolled in the study, and surveyed at two time points: pre- and immediately postvisit. **DATA COLLECTION:** The previsit survey included demographics, self-rated health, visit history (site continuity), and expectations for health care; the postvisit survey focused on patient experiences during the visit, assessment of health care quality using the Primary Care Satisfaction Survey for Women instrument, and global satisfaction with visit and health care over the past 12 months. Expectation discrepancy scores were constructed from the linked expectation-experience ratings. Path analysis and indices of model fit were used to investigate the strength of theoretical links among the variables in an analytic model considering both day-of-visit and past-year ratings with global measures of patient satisfaction as the dependent variables. **PRINCIPAL FINDINGS:** General health, site continuity and fulfillment of patient expectations for care were linked to global ratings of satisfaction through effects on communication, care coordination, and office staff and administration. Importantly, past-year ratings were mediated largely by care coordination and continuity; day-of-visit ratings were mediated by communication. **CONCLUSION:** Ratings of health care quality for a specific visit appear to be conceptually distinct from ratings of care over the past 12 months, and thus are not interchangeable.

Hillemeier MM, Weisman CS, Chase GA, Dyer AM. Individual and community predictors of preterm birth and low birthweight along the rural-urban continuum in central Pennsylvania. *J Rural Health.* 2007 Winter;23(1):42-8.

CONTEXT: Preterm birth and low birthweight remain high priority public health problems and are associated with increased risk of infant mortality as well as long-term health impairments. Although 20% of all births nationally are to rural women, relatively little attention has been paid to pregnancy outcomes in rural areas relative to more urbanized areas. **PURPOSE:** This study examines the relationship of individual- and community-level socioeconomic, health care, and health status-related characteristics to

preterm birth and low birthweight outcomes among women living in urban and various types of rural communities. **METHODS:** Vital record data on singleton first births to residents of a 28-county region in central Pennsylvania in 2002 (N = 11,546) were merged with zip code-level information from the census and residence in a primary care health professional shortage area. Rural-urban commuting area codes were also appended. Multiple logistic regression analyses were performed to model risks of preterm birth and low birthweight using generalized estimating equations to account for clustering within zip code. **FINDINGS:** Women residing in large rural city-focused areas had lower adjusted odds of both preterm birth and low birthweight as compared to urban women, controlling for individual risk factors including maternal demographic characteristics, health conditions, and prenatal care use. In contrast, risks of these adverse birth outcomes were not significantly lower among women living in more rural areas relative to those in urban communities. **CONCLUSIONS:** Reduced risks of preterm birth and low birthweight risk are associated with some, but not all types of rural as compared to urban communities.

Weisman CS, Hillemeier MM, Chase GA, Dyer AM, Baker SA, Feinberg M, Symons Downs D, Parrott RL, Cecil HK, Botti JJ, MacNeill C, Chuang CH, Yost B. Preconceptional health: risks of adverse pregnancy outcomes by reproductive life stage in the Central Pennsylvania Women's Health Study (CePAWHS). *Womens Health Issues*. 2006 Jul-Aug;16(4):216-24.

This study used population-based data to examine how health status and risks vary by reproductive life stage, with particular focus on the proximal risks for preterm birth and low birthweight (LBW) infants in preconceptional and interconceptional women. Data are from the Central Pennsylvania Women's Health Study (CePAWHS), which included a telephone survey of a representative sample of 2,002 women ages 18-45 years residing in largely rural central Pennsylvania. Women were classified according to reproductive stage--preconceptional, interconceptional, and postconceptional--on the basis of pregnancy history and reproductive capacity. Multiple indicators of health status and health risks were examined by reproductive stage, stratified by age group (ages 18-34 and ages 35-45). Results show that many risk factors varied significantly by reproductive stage and by age group within reproductive stage. Preconceptional and interconceptional women exhibited several unhealthy behaviors (e.g., binge drinking, nutritional deficits, physical inactivity). Younger pre- and interconceptional women (ages 18-34) had more gynecologic infections, some less favorable health behaviors, and more psychosocial stress than older women (ages 35-45) in the same reproductive stages. Older preconceptional women were more likely to have chronic conditions (hypertension, high cholesterol) than younger preconceptional women. Results suggest how interventions could be tailored to women's reproductive stages.

Henderson JT, Weisman CS. Women's patterns of provider use across the lifespan and satisfaction with primary care coordination and comprehensiveness. *Med Care*. 2005 Aug;43(8):826-33.

BACKGROUND: Women have different patterns of provider use across the lifespan, but few studies have investigated women's evaluations of their primary care providers at different ages. **OBJECTIVE:** We sought to investigate the relationship between patterns of regular provider use and women's satisfaction

with primary care across the lifespan. **RESEARCH DESIGN:** A sample of 1197 women ages 18 to 87 making primary health care visits was surveyed. Satisfaction with primary care in the past year was measured with a subscale the Care Coordination and Comprehensiveness subscale of the Primary Care Satisfaction Survey for Women (PCSSW). Bivariate comparisons and age stratified multivariate ordinal logistic regression models were estimated. **RESULTS:** Women in their early reproductive years (ages 18 to 34) are more satisfied with care coordination and comprehensiveness when their regular provider is a reproductive health specialist, primarily obstetrician gynecologist (ob/gyn) physicians. The odds of higher satisfaction are reduced with a generalist regular provider (OR = 0.38, $P < 0.01$), a generalist regular provider plus an ob/gyn (OR = 0.47, $P < 0.05$), or no regular provider (OR = 0.52, $P < 0.05$). The pattern of regular provider use is not significantly associated with satisfaction for women in other age categories. **CONCLUSIONS:** Most adult women see generalists for their primary health care, either alone or in combination with ob/gyns. Among younger women satisfaction is higher when an ob/gyn is the regular provider. Further research must consider women's perspectives on their provider use patterns and the appropriate role of ob/gyns in women's primary care across the lifespan.