Guidelines for Preconception and Interconception Care

Indiana Perinatal Quality Improvement Collaborative

Endorsed by IPQIC Governing Council
August 19, 2015
I. Executive Summary
In light of the role maternal health plays in fetal and infant mortality the IPQIC Systems Implementation Committee formed a subcommittee to make recommendations regarding the care of women before and between pregnancies. The subcommittee was charged to recommend guidelines for medical practitioners, identify promising and best practices for providing preconception and interconception care, and suggest indicators, benchmarks and outcome measures for program evaluation. The subcommittee's process was to look first at models and resources developed in other states and then to identify Indiana programs and resources that could be applied successful to improve preconception and interconception care.

Guidelines for care and web-based resources to assist practitioners have been developed in several other states in collaboration with March of Dimes, ACOG and federally funded initiatives. The subcommittee consolidated these resources into a proposed list of guidelines for care and also identified the best resources from other states that could be adapted for use in Indiana.

- The subcommittee recommends creation of an ISDH-sponsored webpage through which clinicians can access web-based resources from other states. Some states (e.g., California) allow free access to their resources, while others (e.g., Wisconsin) charge a nominal cost. Because the out-of-state resources may include information on local health care programs, ISDH would also need to develop a list of Indiana-specific resources. The Guidelines webpage should be maintained and periodically updated on a regular basis to assure it provides clinicians the most up-to-date resources and links.

Promising programs from other states have been highlighted in national summaries promoting preconception and interconception care. After reviewing a range of programs the subcommittee identified three which were scrutinized in detail. Unfortunately these programs were not readily applicable to Indiana due to limitations in their scope, impact, or sustainability. The subcommittee then turned its attention to Indiana programs that could be expanded or adapted to support improvements in preconception and interconception care. These were prioritized using a web-based survey and group discussion, yielding several recommendations felt to be high in both impact and feasibility:

- Improve community awareness through (a) media campaigns, and (b) outreach to provider organizations
- Pilot innovative models of care including (a) shared (group) medical visits similar to those which have been implemented for prenatal care, and (b) expansion of the Nurse-Family Partnership model
- Expand access to care by (a) extending Medicaid postpartum benefits to enable interconception care visits, and (b) streamlining presumptive eligibility to enable early prenatal care
• Expand access to post-partum long-acting reversible contraception (LARC) by developing tools for health care providers (clinicians, hospitals) to facilitate reimbursement
• To increase use of LARC methods, barriers such as lack of health care provider knowledge or skills and low patient awareness should be addressed. Other practices to consider include expanded access to mental health services and immunizations, creation of a meaningful use measure of how often women’s pregnancy plans are documented, facilitating provider reimbursement for pregnancy tests even if they are negative, and development of electronic health record provider note templates including recommended elements of the preconception/interconception visit.

Indicators and benchmarks for preconception and interconception care are vital for understanding the state’s baseline performance and gauging the impact of initiatives to improve care. The subcommittee tried to coordinate its recommendations with the state’s ongoing efforts to monitor chronic diseases such as smoking, obesity, diabetes, and hypertension which are also risk factors for poor pregnancy outcomes. Additional indicators more specific to preconception and interconception care include the mean number of months between pregnancies, the proportion of women with any interval care between pregnancies the proportion screened for mood disorders, and the proportion of women with a prior preterm birth or pregnancy loss with early entry into care for the next pregnancy. Some of the recommended indicators are already assessed as part of the Title V MCH National Performance Measures or ISDH MCH quality indicators and most can be measured using PRAMS, BRFSS or vital records databases.

II. Importance of Preconception & Interconception Care

Indiana continues to rank among the states with the highest infant mortality. The exact etiology of this status is not entirely clear. However, a Perinatal Periods of Risk (PPOR) analysis was completed in 2015 using data from 2011. The PPOR analysis concluded that excess deaths occurred in two primary periods of risks: Maternal Health/Prematurity and Infant Health. Therefore, prevention efforts to reduce fetal and infant mortality as well as infant morbidity across Indiana would best be geared towards evidence-based strategies to reduce the number of very low birth weight births and sudden unexpected infant deaths.

Maternal health includes preconception health and health behaviors among women of childbearing age. According to the 2014 Women’s Health Report Card, which relies upon national data from the CDC, Kaiser Family Foundation and March of Dimes, Indiana ranks 43rd: 37th in health coverage for women, 44th in access to care for women, and 38th for
health outcomes in women. Poor maternal health in Indiana is likely to contribute to Indiana’s excess rates of preterm birth and infant mortality.

The Indiana Perinatal Quality Improvement Collaborative (IPQIC) was formed by the Indiana State Department of Health and tasked with researching and identifying ways to reduce infant mortality and morbidity in Indiana. IPQIC formed several subcommittees to create best practices that can help combat the high rate of infant mortality in Indiana. Recognizing that improving the health of women before, during, and after conception is vital to improving perinatal outcomes IPQIC initiated the Prenatal and Interconception Care Subcommittee of the Systems Implementation Committee.

According to a 2005 ACOG Committee Opinion, “because reproductive capacity spans almost four decades, for most women, optimizing women’s health before and between pregnancies is an ongoing process that requires access to and the full participation of all segments of the health care system.” Although some adverse outcomes of pregnancy cannot be prevented, optimizing a woman’s health before pregnancy and between pregnancies can eliminate or reduce the risk. (ACOG, 2005) For example, adequate glucose control in a woman with diabetes before conception and during pregnancy can decrease maternal morbidity, spontaneous abortion, fetal malformation, fetal macrosomia, intrauterine fetal death and neonatal morbidity. (ACOG, Practice Bulletin #60)

Preconception care should be an essential part of primary and preventive care, rather than an isolated visit. Whereas a prepregnancy planning visit in the months before conception has been recommended, improving preconception health will require changes in the process of care, including the types of screening and risk-reduction interventions offered to women of childbearing age. Guidelines for Perinatal Care, jointly issued by AAP and ACOG, has recommended that all health encounters during a woman’s reproductive years, particularly those that are a part of preconception care, should include counseling on appropriate medical care and behavior to optimize pregnancy outcomes (American Academy of Pediatrics). Several national organizations have recommended the routine delivery of preconception care. For example, the March of Dimes has recommended that the key physician/primary care provider and the obstetrician/gynecologist take advantage of every health encounter to provide preconception care and risk reduction before and between conceptions, the time when health encounters can improve health status (March of Dimes).
III. Subcommittee Charge, Membership and Process

The Preconception and Interconception Care subcommittee was charged with recommending:

- Guidelines for medical practitioners
- Promising and best practices for providing preconception and interconception Care
- Indicators, benchmarks, and outcome measures that could be used to evaluate preconception and interconception care in Indiana

Work of the Subcommittee

This subcommittee evaluated promising and best practices as well as guidelines and protocols for medical practitioners from many different states that have better infant mortality statistics to learn about and adopt better practices to improve infant mortality and morbidity in Indiana. In addition members reviewed preconception and interconception indicators from federal and state resources to monitor if outcomes would improve.

The Preconception & Interconception Care subcommittee began by defining preconception care using the definition supplied by the CDC/ATSDR Preconception Care Workgroup in 2006. The Select Panel defined preconception care as “a set of interventions that aim to identify and modify biomedical, behavioral, and social risks to a woman's health or pregnancy outcome through prevention and management.” Members began researching what other states had used or done to combat infant mortality including clinical practice guidelines, intervention pilots, policy statements and programmatic indicators and benchmarks. One theme repeatedly emerged from states with the lowest infant mortality rates “simply start pregnancies with healthier mothers!” Thus the subcommittee wanted to include a broad life course view which includes primary and preventive health care as well as chronic disease management in the preconception and interconception period. The vision developed that in order to have healthier infants there must be healthier mothers in Indiana! This care needs to start prior to any planned or unplanned pregnancy. The subcommittee aim was to identify proven methods that would guide the care for reproductive aged women prior to pregnancy. These guidelines need to include patients with specific risk factors for preterm birth including diabetes, hypertension, obesity, smoking, heavy alcohol use, substance abuse, and depression.

The subcommittee began its task by researching and identifying catalogued evidence-based interventions that can be delivered before a woman becomes pregnant or early in her pregnancy to improve her health and pregnancy outcomes. Members agreed with the Institute of Medicine and the CDC that preconception care be a component of the clinical
preventive services delivered to women during well-woman visits. The following recommendations have been developed from extensive research and collaborative meetings in order to improve the health of mothers in Indiana during the preconception and interconception period.

**Subcommittee Participants**

The following individuals were involved in the development of the recommendations:

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IV. Guidelines for Medical Practitioners

The subcommittee reviewed clinical tools developed for pre/interconception care in Wisconsin, Colorado, California and North Carolina to inform recommendations for Indiana. We found the most useful care planning guide at the Wisconsin Association for Perinatal Care website:


For the purpose of this document we define a pre/interconception care visit as any primary and preventive care visit of a woman of childbearing age, unless she plans no additional children and is using a long-acting method of contraception.

The following should be addressed at each visit and prioritized subsequently based on need for improvement:

- Daily use of a multivitamin with 400mcg of folic acid
- Level of physical activity
- Weight and BMI
- Daily nutrient and water consumption
- Tobacco smoking, exposure to second-hand smoke
- Use of illicit drugs and/or alcohol
- Presence of any acute or chronic health problems
- Identification of barriers to regular mental, dental and overall health care
- Safety of living and working environments
- Social connection or isolation
- Stress, anxiety and depression
- Intimate partner violence
- Desire to become pregnant now

For patients desiring pregnancy now, additional care should include including the following list, with referral, consultation or co-management as appropriate.

- Medical history
- Review of medications and determination of risk in pregnancy
- Family history, including genetic conditions
- Offer screening for varicella, rubella, HIV, syphilis, Hepatitis B, hemoglobinopathies
- Review previous pregnancy outcomes
- Discuss interventions to prevent recurrence of adverse outcomes in next pregnancy
- Optimize status of diabetes, hypertension, obesity and other medical conditions present
- Discuss importance of healthy child spacing
• Discuss partner involvement

For patients not desiring pregnancy now, discuss:

• Current birth control method and safe sex practices
• Importance of pregnancy planning and healthy child spacing
• Immunization status
• Pre-pregnancy visit when pregnancy is desired
• Resources to help with pregnancy planning

Screening checklists are important but not sufficient. Additional resources (toolkits, care algorithms) are needed to determine next steps for patients who screen positive for risk factors. We found a robust set of resources developed by California’ Preconception Health Council in collaboration with California ACOG District and the March of Dimes: http://www.everywomancalifornia.org/content_display.cfm?categoriesID=120&contentID=359

Every Woman California’s resources include care algorithms for clinicians as well as downloadable English and Spanish-language handouts for the following conditions:

Anemia Postpartum Depression
Thyroid Disorder Domestic Violence Screening
Chronic Hypertension Substance Abuse
Migraines Tobacco Use
Seizure Alcohol Use
Thrombocytopenia HIV
Overweight and Obesity Hepatitis
Gestational Diabetes Syphilis
Preeclampsia Gonorrhea & Chlamydia
Prior Cesarean Section Immunizations
Premature Birth

The handouts from Every Woman California can be found here: http://www.everywomancalifornia.org/content_display.cfm?categoriesID=120&contentID=359

Additional handouts are available on these topics:

Pregnancy and Nutrition
Folic Acid Supplementation (English and Spanish-language)
V. Promising/Emerging Practices

Pilot Programs in Other States

Promising pilot programs implemented in other states have been highlighted in national summaries promoting preconception and interconception care. After reviewing a range of programs for their potential adaptability the subcommittee identified three which were scrutinized in detail. Unfortunately these programs were not readily applicable to Indiana due to limitations in their scope, impact, or sustainability. They are summarized here briefly.

Internatal Care Program (ICP) (Phoenix 2007-2010)
http://www.amchp.org/programsandtopics/BestPractices/InnovationStation/ISDocs/ICP.pdf

The ICP program served underserved/uninsured women of child bearing age who previously experienced an adverse birth outcome such as a pregnancy loss or preterm birth. The goals of the program were to improve the health of women prior to pregnancy or before pregnancy is recognized and to improve their birth outcomes. Program components included initial and ongoing education, coordination of services both prenatal and postnatal, and ongoing health promotion prior to a subsequent pregnancy. There was no explicit attention to optimizing long-term health or chronic disease management. ICP was only available in the metropolitan area and focused heavily on the Spanish speaking population.

Applicability to Indiana was limited by the urban focus of the program and by its reliance on multilingual and multicultural providers which are currently lacking in Indiana. Sustainability was also uncertain.
Baby Blossoms Collaborative (Omaha 2005-2008)

The Baby Blossoms Collaborative (BBC) Preconception Health Program - Now and Beyond was developed to examine root causes of neonatal deaths and enhance existing health efforts. The BBC’s overall goal was to improve the health of women and infants by eliminating disparities and reducing fetal/infant mortality in the Douglas County, Nebraska. The program trained professionals to implement the Now and Beyond Toolkit which educated women about the importance of a healthy lifestyle and the value of pregnancy planning. Participants set goals and were followed at 1, 3, 6 and 9 month intervals. The BBC program did not focus on primary health or chronic disease management.

To use BBC in Indiana would require county-specific strategies and would be difficult to scale up to improve statewide outcomes. Variation in local resources would be challenge. The BBC program is not currently funded or operational.

Power Your Life Preconception Campaign (Utah 2010-11)

This statewide social marketing campaign targeted young, minority, and low-income women. Messaging focused on nutrition and exercise; vitamins and folic acid supplementation; knowledge of family history; keeping up to date on vaccinations; avoidance of tobacco, alcohol, and other substances; and prevention of sexually transmitted infections. Very little attention was given to chronic disease management and or obstetrical risk factors that have poor pregnancy outcomes. Evaluation demonstrated improved folic acid use and improved knowledge in target populations.

Social marketing builds on substantial formative work with target populations so that interventions reflect local language, customs, and topics. This limits usefulness of this program for unmodified implementation in Indiana. Substantial adaptations would be needed, although the existing program could be used as a template. The campaign would require full localization, with adaptation of all materials to local uses.

Promising Indiana Initiatives
The subcommittee explored initiatives and opportunities available in Indiana which could be adapted to improve preconception and interconception care and outcomes. The opportunities listed below were subsequently prioritized to identify those with the potential for highest impact and sustainability.
Improve community awareness
  o Media campaigns
  o Provider organizations

Pilot innovative models of care
  o Shared (group) medical visits
  o Nurse-Family Partnership model

Expand access to care
  o General healthcare: extending Medicaid postpartum benefits to enable interconception care visits, streamlining presumptive eligibility to enable early prenatal care
  o Specific services: immunizations, mental health services, postpartum long-acting reversible contraception

Improve electronic health records
  o Meaningful use measure tracking how often reproductive-age women’s pregnancy plans are documented
  o Provider note templates including recommend elements of the preconception / interconception visit

**Improve Community Awareness**

Raising awareness of preconception in the community can be done in partnership with ISDH initiatives (e.g. decreasing obesity and smoking) through interventions such as public service announcements, bus advertisements and other social media campaigns. Baby and Me-Tobacco Free is a smoking cessation program for pregnant and postpartum women currently promoted by ISDH. This program is a novel individual-level treatment approach designed to improve smoking cessation effectiveness because it includes evidence based components, provides continuity and counseling long-term, appeals to low income women and is feasible in real world settings. A 2009 evaluation study showed the prenatal quit rate to be 60% while postpartum quit rate varied by model from 34 to 62% at six months. (Gadomski et al)

Raising awareness in the medical community can be done by defining every primary care visit for reproductive age women as a potential preconception care visit. Integration of preconception components into primary care can better serve women across their lifespan and at various levels of risk. Primary care integrates various health promotion, prevention, and acute care services and also can include screening for and ongoing management of chronic conditions in a primary care setting. Elements of preconception care can be integrated into every primary care visit. This can be accomplished through professional organizations as well as incentivizing providers by insurers to make preconception
counseling a quality indicator. Medical Practitioners can use the tools described in the preceding section on Clinical Guidelines for Medical Practitioners. (ACOG) (Lu)

**Pilot Innovative Models of Care**

Currently, there is great awareness that obesity and smoking are strongly correlated to negative health outcomes and pregnancy complications. Less clear is how to help women, especially of lower economic resources with evidence based programs to can lead to behavioral change. Some promising models involve group care facilitated by health care providers where group support and problem solving can lead to positive change.


**Shared (group) Appointments.** A shared medical appointment, also known as a group visit, occurs when multiple patients are seen as a group for follow-up care or management of chronic conditions. These visits provide a secure but interactive setting in which patients have improved access to their physicians, the benefit of counseling with additional members of a health care team (for example a behaviorist, nutritionist, or health educator), and can share experiences and advice with one another. The American Academy of Family Physicians (AAFP) believes that group visits are a proven, effective method for enhancing a patient’s self-care of chronic conditions, increasing patient satisfaction, and improving outcomes. ([http://www.aafp.org/about/policies/all/shared-medical.html](http://www.aafp.org/about/policies/all/shared-medical.html))

A critical review of research articles that were published between 1998 and 2009 and involved participants of individual and group prenatal care was conducted. Among the 17 research studies that met inclusion criteria for this critical review, five examined gestational age and birth weight with researchers reporting longer gestations and higher birth weights in infants born to mothers participating in group prenatal care, especially in the preterm birth population. Current evidence demonstrates that nurse educators and leaders should promote group prenatal care as a potential method of improving perinatal outcomes within the pregnant population. (Thielen)

The Centering Healthcare Institute offers two group care models, one for pregnant woman (known as CenteringPregnancy®) and one for new mothers and babies (known as CenteringParenting®), that integrate health care, interactive learning, and community building into a unified program. Groups meet in 9 or 10 2-hour sessions in which participants receive health assessments, learn care skills, participate in facilitated discussions, and develop a support network. A study of CenteringPregnancy® found that group care participants received better prenatal care, had fewer preterm births, were more
likely to initiate breastfeeding, and had better prenatal knowledge than those receiving usual care. Sites using the model also report an enhanced capacity to serve nonpregnant patients, as the group sessions free up resources previously used to provide one-on-one care. Another randomized control trial found that the program reduced sexually transmitted infections, which are associated with increased risk of preterm delivery. Sites using the model also report an enhanced capacity to serve nonpregnant patients and to meet payer documentation requirements. (https://innovations.ahrq.gov/profiles/group-visits-focused-prenatal-care-and-parenting-improve-birth-outcomes-and-provider)

Nurse-Family Partnership (NFP) Model. The NFP follows first time mothers in the first or second trimester through birth and for the first 5 years of life. This program has had improved smoking quit rates, improved breastfeeding rates, improved childhood immunizations, improved educational attainment of mothers and increased income and benefits. Expanding coverage of this evidence based program to vulnerable populations would improve the health of families in the state. Healthy Families outcomes demonstrate reduced child maltreatment, increased healthy child development, encouraged school readiness, promoted family self-sufficiency and demonstrated positive parenting skills. For detailed findings on the three randomized, controlled trials of the Nurse-Family Partnership model, please refer to: http://www.nursefamilypartnership.org/proven-results/published-research

Expand Access to Care

Streamline Presumptive Eligibility. Indiana is fortunate to have a presumptive eligibility (PE) process for pregnant women. This committee encourages the state to work on a streamlined application process where the application process only needs to be completed once and a primary care provider can be easily selected based on the woman’s choice or convenient location. Currently, the PE process is separate from the Medicaid application and financial screeners or the woman herself must complete two applications for insurance.

Increase length of Medicaid coverage after delivery. For women who have qualified for Medicaid during their pregnancy, often insurance coverage has ended at 6-8 weeks after the birth of the baby. The committee recommends providing ongoing woman care for the first year following birth of child, especially if overweight or obese, and has any co-morbid conditions. In this important first year, providers can work with women on reducing risk factors by encouraging weight loss, healthy eating, exercise and effective birth control methods.

Long Acting Reversible Contraception (LARC). The IPQIC Finance Committee strongly recommended providing Long-Acting Reversible Contraception to all women who desire it.
Providing LARCs while in the immediate postpartum period is cost effective and convenient for patients. ([http://www.choiceproject.wustl.edu/](http://www.choiceproject.wustl.edu/)) Effective June 1, 2015, the Indiana Health Coverage Programs (IHCP) will allow separate reimbursement for long-acting reversible contraception devices implanted during an inpatient hospital or birthing center stay for a delivery. (IHCP, IHCP Banner Page, BR201517, April 28, 2015) Observational studies suggest no effect on breastfeeding initiation or continuation or on infant growth and development. LARC can be used by nulliparous women and adolescents. (ACOG Practice Bulletin #121, July 2011) To increase use of LARC methods, barriers such as lack of health care provider knowledge or skills and low patient awareness should be addressed.

**Immunizations.** Immunizations are essential to good health. Indiana could improve the health of all citizens by expanding the provision of vaccinations to all women of reproductive age. Tdap can help prevent life threatening pertussis in the new born. Providing free or low cost Tdap to all pregnant women at $42 per dose is far less expensive than a NICU hospitalization for a sick child and avoids additional stress and burden on parents.

**Mental Health Services.** Women who are depressed can have impaired parenting and self-care. Decreasing barriers to mental health support through home counseling programs or expanded services in underserved communities can improve mother-child bonding and the home environment. Often patients in need of behavioral health are on waiting lists for 3-4 months. Quicker access is provided by some psychiatric providers who accept cash only which is beyond the means of many of our patients. One innovative model is through expanding state health care coverage through Federally Qualified Health Centers in each community. More information and examples can be found at: [www.mdwise.org/MediaLibraries/MDwise/Files/For%20Providers/Announcements/2011/provider-Nov2011IntegratedCareSlides.pdf](http://www.mdwise.org/MediaLibraries/MDwise/Files/For%20Providers/Announcements/2011/provider-Nov2011IntegratedCareSlides.pdf)

**Improve Electronic Health Records (EHRs)**
Financial incentives to follow best practices are becoming more common and more rigorous, as exemplified in the CMS “meaningful use” program which was developed to assure EHRs are used to improve quality, safety, efficiency, and equity in health care. The State of Indiana could establish a meaningful use measure such as, was the patient asked if pregnancy is desired and when? This response can be measured and then financial rewards can be issued to those practices meeting established benchmarks.

Most electronic health records include provider note templates tailored to different specialties and visit times. To facilitate implementation of the preconception and
interconception care guidelines, ISHD could work with the major health systems and EHR vendors to create provide templates listing the recommended visit components.

Additional EHR capabilities include provider reminders triggered by specific orders, test results, or patient characteristics. For example, if a patient presents for a nurse visit for a pregnancy test, the EHR could issue a reminder regarding the need to start a multivitamin with folic acid and to arrange follow-up for a preconception or interconception care visit.

VI. Indicators and benchmarks for monitoring and evaluation
Subcommittee members discussed what measures would help Indiana know if it is improving. They considered the following important:
• Chronic disease management
• Smoking status among reproductive age women
• Obesity
• Diabetes - HgbA1C – level of control, post partum screen of gestational diabetic
• Hypertension
• Identification of screening for mood disorders
• Birth spacing
• Outcomes of a prior pregnancy
• Well woman visit – any visit to any provider between postpartum visit and next pregnancy
• Prior preterm – early entry into prenatal care for subsequent pregnancy

The Indiana Title V Maternal Child Health (ISDH,MCH) program has performance measures it is responsible for. Each state has to choose 8 National Performance Measures (NPMs) for FY 16.

In regard to Women’s/Maternal Health, Indiana chose Low-risk Cesarean Deliveries (Definition: % cesarean among term, singleton, vertex, first births.) In addition, they will examine Breastfeeding using the definition of percentage of infants ever breastfed. The ISDH MCH program will also be monitoring the Percentage of Women who Smoke during Pregnancy and % children in households where someone smokes.

In addition to NPMs, the ISDH MCH Program chose to look at Prenatal Care for a state performance measure with the objective to increase early and adequate prenatal care. The metric will be the percentage of pregnant women that receive prenatal care in the first trimester. As a metric for preconception/interconception care, the ISDH MCH program will follow Unplanned Pregnancy using the definition the percentage of women aged 14-44 who had an unintended pregnancy.

Committee members reviewed resources including:
Recommendations to Improve Preconception Health and Health Care --- United States: A Report of the CDC/ATSDR Preconception Care Work Group and the Select Panel on Preconception Care. It can be retrieved at:
http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5506a1.htm

The 2006 national recommendations to improve preconception health included monitoring improvements in preconception health by maximizing public health surveillance Core State Preconception Health Indicators — Pregnancy Risk Assessment Monitoring System and Behavioral Risk Factor Surveillance System, 2009. This reference is available at: http://www.cdc.gov/mmwr/preview/mmwrhtml/ss6303a1.htm?s_cid=ss6303a1_e


Providing Quality Family Planning Services: Recommendations of CDC and the U.S. Office of Population. This report contains a section on Quality Improvement and how to determine which measure are important which was very helpful. It can be reviewed at: http://www.cdc.gov/mmwr/preview/mmwrhtml/rr6304a1.htm?s_cid=rr6304a1_w

The main sources for preconception and interconception indicators appear to be: The Pregnancy Risk Assessment Monitoring System (PRAMS) which is an ongoing state- and population-based surveillance system designed to monitor selected self-reported maternal behaviors, conditions, and experiences that occur shortly before, during, and after pregnancy among women who deliver live-born infants; and

The Behavioral Risk Factor Surveillance System (BRFSS) which is an ongoing state-based telephone survey of noninstitutionalized adults aged ≥18 years in the United States that collects state-level data on health-related risk behaviors, chronic conditions, and preventive health services. For pre and interconception health, researchers look at data from nonpregnant women of reproductive age (aged 18–44 years).

The Indiana Birth Certificate and Vital Records information is also a source of data.

Considering available data resources, committee members reviewed suggested indicators focusing on importance of the topic (e.g., does it address a priority aspect of health care, and is there opportunity for improvement?); what is the level of evidence for the measure (e.g., that a change in the measure is likely to represent a true change in health outcomes?); does the measure produce consistent (reliable) and credible (valid) results about the
quality of care?; are the results meaningful and understandable and useful for informing quality improvement; and is the measure feasible (i.e., can it be implemented without undue burden?)? (CDC, Providing Quality Family Planning Services).

Results of evaluating each measure are documented in Appendix A.

Items most immediately available to monitor women's health in Indiana would be any variables from the birth certificate. However, there are data elements that are stronger than others as far as birth certificate data. The strongest at this time appear to be birth spacing/interpregnancy interval, prenatal care (early and adequate), and history of a previous preterm birth.

Smoking and body mass index are self-reported on the birth certificate so are not as accurate as the previous indicators. However, they are important and could also be obtained for the general population of women of childbearing age on the BRFSS. Obtaining data from the BRFSS would require a special study looking at several years data for women of childbearing age. This could be a good project for an MPH Epidemiology graduate student. Obtaining data from PRAMS would require the ISDH to obtain a cooperative agreement with CDC and start the PRAMS program statewide. Or another possibility is to use priority questions that have been validated for the PRAMS program and implement surveys in selected hospitals or geographic areas of the state for limited time periods. This approach is usually called a “mini-PRAMS.”

VII. Subcommittee Recommendations

Guidelines for Medical Practitioners
The subcommittee recommends creation of an ISDH-sponsored webpage through which clinicians can access web-based resources from other states. Some states (e.g., California) allow free access to their resources, while others (e.g., Wisconsin) charge a nominal cost. Because the out-of-state resources may include information on local health care programs, ISDH would also need to develop a list of Indiana-specific resources. The Guidelines webpage should be maintained and periodically updated on a regular basis to assure it provides clinicians the most up-to-date resources and links.

The subcommittee also considered the value of creating new Indiana-specific resources to support clinicians’ efforts in screening, diagnosis, treatment and patient education. In light of the expansive resources available from other states, we felt this would unnecessary duplication of the effort and would create a delay in getting needed to tools to preconception and interconception care providers.
Promising and best practices for providing preconception and interconception care

The subcommittee recommends several feasible, high impact initiatives:

- Improve community awareness through (a) media campaigns, and (b) outreach to provider organizations
- Pilot innovative models of care including (a) shared (group) medical visits similar to those which have been implemented for prenatal care, and (b) expansion of the Nurse-Family Partnership model.
- Expand access to care by (a) extended Medicaid postpartum benefits to enable interconception care visits and (b) streamlining presumptive eligibility to enable early prenatal care
- Expand access to post-partum long-acting reversible contraception (LARC) by developing tools for health care providers to facilitate billing and coding
- To increase use of LARC methods, barriers such as lack of health care provider knowledge or skills and low patient awareness should be addressed

Other practices to consider include expanded access to immunizations and mental health service, creation and tracking of a meaningful use measure of how often women’s pregnancy plans are documented, and development of provider note templates in electronic health records including recommended elements of the preconception/interconception visit.

Currently, some patients must pay for negative pregnancy tests out of pocket, creating a barrier to early pregnancy identification. Facilitating provider reimbursement for pregnancy tests would promote early enrollment in prenatal care if the test is positive or a timely well woman visit during the preconception or interconception period if the test is negative.

Indicators, benchmarks, and outcome measures that could be used to evaluate preconception and interconception care in Indiana

The subcommittee recommends that ISDH develop an ongoing monitoring and surveillance system for women’s health containing at a minimum:
(1) Yearly summary of indicators by race and region that are available from Vital Records information including:
  o Birth spacing - defined as the length of interval between pregnancies (<18 month interval, >18 month interval])
  o Month of gestation entered prenatal care
  o Incidence of previous preterm birth
  o Incidence Smoking before and during pregnancy
BMI before pregnancy indicating percentage overweight and percentage obese
Hypertension before and during pregnancy
Diabetes before and during pregnancy

(2) A 5 year study of BRFSS data on women of childbearing age (18-44 years old) that would look at the following indicators:
- Current smoking
- Incidence of overweight and obesity
- Incidence of diabetes
- Incidence of hypertension
- Percentage of women receiving a well woman visit – any visit to any provider between post partum and next pregnancy
- Percentage of women with current health-care coverage defined as having some type of health-care coverage at the time of the BRFSS survey, including health insurance, prepaid plans, or government plans.
- Percentage of women receiving a routine checkup during the preceding year

(3) A mini-PRAMS survey in regions or geographic areas that are at high risk for poor perinatal outcomes. Women’s health indicators that could be determined with a “mini-PRAMS” include:
- Smoking before pregnancy
- Percentage overweight and obese
- Percentage of prepregnancy hypertension
- Percentage of postpartum depressive symptoms
- Percentage with an unintended pregnancy
- Percentage who received preconception counseling

VIII. Conclusion

Improving the health of women before and between pregnancies will pay dividends in improved maternal-neonatal-child outcomes and have a multigenerational impact. A comprehensive strategy to optimize preconception and interconception care includes implementation of practice guidelines as well as improved access to care after pregnancy, immunizations, mental health services and long-acting reversible contraception. Piloting expansions in successful care models in Indiana (such as group care visits and the Nurse-Family Partnership) may have a greater impact on women’s health behaviors than traditional care models. Indiana’s baseline performance and improvements in preconception and interconception can be monitored using a variety of available data sources.
We appreciate this opportunity to provide guidance to IPQIC regarding an important strategy for reducing infant mortality in Indiana. Improvements in preconception and interconception care quality and access will benefit women and families throughout their reproductive years and beyond. We realize that much work will be needed to put our recommendations into motion. Several members of the subcommittee have expressed an interest in continuing to guide IPQIC and ISDH as these initiatives are considered further and ultimately implemented.
REFERENCES (in addition to those embedded in the narrative above):


Center for Disease Control and Prevention (CDC). Recommendations to improve preconception health and health care—United States: a report of the CDC/ATSDR Preconception Care Work Group and the Select Panel on Preconception Care. MMWR 2006;55[No. RR-6]).


http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3489125/
The indicators recommended by the subcommittee and used by other entities evaluating and monitoring women’s health care were researched for feasibility and lack of undue burden in Indiana. Results are summarized below.

**Chronic disease management** does not appear to be available on BRFSS or PRAMS

**Current smoking** is defined in BRFSS as smoking ≥100 cigarettes in a lifetime and currently smoking cigarettes every day or some days at the time of the interview. Therefore, smoking status among reproductive age women can be determined.

- **Smoking before pregnancy** is defined in PRAMS as smoking ≥100 cigarettes in the preceding 2 years and smoking any number of cigarettes, including less than one cigarette, on an average day during the 3 months before pregnancy.
- **Smoking before and during pregnancy** is also available via Vital Records

**Overweight** body mass index (BMI) can be obtained on BRFSS and PRAMS and is calculated as weight (kg)/height [m^2]. Overweight (but not obese) was defined as having a BMI of 25.0–29.9 kg/m^2. Obesity (BRFSS)

- **Being obese** can also be determined by BRFSS and PRAMS and is defined as having a BMI of ≥30.0.
- **Prepregnancy weight and height** are asked on the Indiana Birth Certificate

**Diabetes** - The incidence of Diabetes can be determined on the BRFSS. Women with diabetes are those who reported ever being told by a health-care provider that they had diabetes, not including gestational diabetes.

- The Indiana Birth Certificate asks about prepregnancy and gestational diabetes.
- Level of control does not seem to be available in the usual resources.

**Hypertension** - The incidence of hypertension can be determined on the BRFSS. Women with hypertension were those who reported ever being told by a health-care provider that they had hypertension, not including hypertension during pregnancy.

- **Hypertension during the 3 Months before pregnancy** can be found on PRAMS.
  - Women with prepregnancy hypertension are those who reported having high blood pressure during the 3 months before their most recent pregnancy.
- On the Indiana Birth Certificate there are questions for prepregnancy and gestational hypertension as well as eclampsia

**Birth spacing** - defined as the length of interval between pregnancies (<18 month interval, >18 month interval by race, region) can be determined using Vital Records.
Previous preterm birth among multiparous women is defined in PRAMS as a live birth (before the respondent’s most recent live birth) having been delivered >3 weeks before the due date; women whose most recent live birth was their first birth were excluded.
- Prior preterm is also identified on the BRFSS
- Prior preterm can be obtained from Vital Records

Well woman visit – any visit to any provider between post partum and next pregnancy (BRFSS)
- Current health-care coverage was defined as having some type of health-care coverage at the time of the BRFSS survey, including health insurance, prepaid plans, or government plans.
- Routine checkup during the preceding year in the BRFSS is defined as having visited a doctor for a routine checkup within the preceding year.
- Receiving preconception counseling was defined in PRAMS as talking with a doctor, nurse, or other health-care worker about five or more of 11 possible lifestyle behaviors and prevention strategies before the pregnancy of her most recent live-born infant.

Unintended pregnancy is a question on PRAMS defined as a pregnancy among women who, just before their most recent pregnancy, wanted to be pregnant later or did not want to be pregnant then or at any time in the future.

Postpartum Depressive Symptoms can be determined on PRAMS. Experiencing postpartum depressive symptoms was defined as feeling down, depressed, or sad; hopeless; or slowed down by a substantial degree since the infant’s birth. Whether a medical practitioner inquired about Postpartum Depressive Symptoms is not asked.

Early prenatal care enrollment can be determined by Vital Records.