

**HELP YOUR PATIENTS HAVE A HEALTHY PREGNANCY.
The importance of pre-conception health.**

Presented by:

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- **Not only does prenatal care directly influence the health of the baby, but many studies show a direct benefit from pre-conception or pre-pregnancy care. Ideally health care providers should begin speaking to patients about pregnancy 6 months before conception**

- **Having a child is one of the most rewarding and challenging experiences in life. Having a healthy child is what parents most often wish for. You as a health care provider can help your patients ensure that probability.**

- **A pre-conception health assessment around 6 months before pregnancy is an ideal time to address many issues that may complicate pregnancy. It is also a great time to discuss lifestyle changes for your patient to improve her odds of a successful pregnancy.**

- **Making lifestyle changes such as not smoking, avoiding alcohol and recreational drugs are changes that moms-to-be can sometimes make on their own.**
- **Many moms may require assistance in making these changes and we need to let them know that it's OK to ask for help.**

- **In the United States, and in other industrialized countries, 11 to 18 percent of women smoke. In Wyoming over 20 percent of pregnant women smoke.**
- **Statistics from the United States Public Health Service are compelling.**

- **If all pregnant women in this country stopped smoking, there would be an estimated:**
 - **11 percent reduction in stillbirths**
 - **5 percent reduction in newborn deaths**

JAMA. 2006

- **Women thinking of starting a family have likely heard that smoking may increase their risks of infertility, ectopic pregnancy, and spontaneous abortion.**

- **Now they have another reason to steer clear of cigarettes.**
- **In the largest study of its kind, plastic surgeons found that smoking during pregnancy increases the risk of having a child with excess, webbed, or missing fingers and toes.**

- **The study, appearing in the January issue of *Plastic and Reconstructive Surgery*, revealed that smoking a half of a pack per day or less significantly increases the risk of having a child born with such digit defects (Man LX and Chang B. *Plastic Reconstr Surg.* 2006;117:301-308).**

- **In addition to causing birth defects, smoking is also associated with poor growth of the baby (IUGR or Intra-uterine Growth Restriction), LBW (Low Birth Weight) and problems with the placenta, such as placenta previa in which may lead to catastrophic blood loss and pre-term delivery.**

- **SEPT. 12, 2002 | Jeffrey R. Kaiser, M.D., M.A., and a group of scientists at the University of Arkansas for Medical Sciences (UAMS) are studying how to determine whether very low birth weight infants are in danger of brain injuries in the first days of life.**

- **Scientists know that some very low birth weight babies have difficulty maintaining a constant flow of blood to the brain, which can lead to brain damage that causes long-term learning and behavioral problems or cerebral palsy.**
- **This problem is called impaired cerebral auto regulation.**

- **Despite significant improvements in survival for very low birth weight babies, they are still at high risk of long-term health problems because of impaired cerebral blood flow regulation.**

FETAL ALCOHOL SPECTRUM DISORDERS

- **Fetal alcohol spectrum disorders (FASD) are caused by the effects of maternal alcohol consumption**

during pregnancy. Despite warning to pregnant women, such disorders still exist.

- **Fetal alcohol syndrome (FAS) is the most clinically recognizable form of FASD and is characterized by a pattern of minor facial anomalies, prenatal and postnatal growth retardation, and functional or structural central nervous system (CNS) abnormalities.**

- **Babies born with FAS tend to weigh less and be shorter than normal.**
- **These children usually suffer from: smaller heads, altered facial features, abnormal joints and limbs, poor coordination, problems with learning, and problems with short term memories, and problems controlling anger**

- **The consequences are lifelong, and the behavioral and learning difficulties are often greater than the degree of neuro-cognitive impairment.**
- **Alcohol-related neuro-developmental disorder also is a clinically recognizable diagnosis in the continuum of FASD.**

- **Although FASD is more strongly associated with higher levels of alcohol consumption compared with lower levels, animal studies have suggested that even a single episode of consuming the equivalent of two alcoholic drinks during pregnancy may lead to loss of fetal brain cells.**

- **Despite widespread knowledge of alcohol's deleterious effects, a study of women between 18 and 44 years of age showed that 10 percent used alcohol during pregnancy**
- **and that 2 percent engaged in "binge drinking" (i.e., five or more drinks on one occasion).**

- **Maternal factors that increase the risk of FASD include:**
 - **being older than 30 years,**
 - **a history of binge drinking,**
 - **and low socioeconomic status.**

- Can your patient still enjoy the party? Of course! We need to encourage them to be the classy mom and celebrate with milk or fruit juice instead of alcohol.
- **PRE-CONCEPTION:** Help patients to concentrate on controlling or eliminating alcohol and cigarette consumption. Once again, encourage them that its OK to ask for help.

Another Wyoming problem impacting pregnancy: Methamphetamine use

- Young adults aged 18 to 25 were the most likely to use methamphetamines in the 2006.
- For adults aged 18 to 25, the 2006 rates for methamphetamine use was *highest in Wyoming (4.6%),* Arkansas (4.4%), Minnesota (3.8%) and Nevada (3.8%).
- Methamphetamine causes increased maternal blood pressure and heart rate, which can result in premature delivery or spontaneous abortion.
- The drug also constricts blood vessels in the placenta that feed the fetus which results in reduced blood flow to the fetus and ultimately reduced oxygen and nutrient supply and may lead to stillbirth.

- **The full effect of maternal use of Methamphetamine on the newborn infant is not completely known and there is currently a multi-center study underway to better describe this issue.**
- **It is, however, known that the infant may suffer intrauterine growth delay and may be smaller than the norm at birth.**

- **Some of these infants have withdrawal symptoms and a recent study showed that about 4% of Methamphetamine exposed infants needed treatment for withdrawal.**
- **These infants are jittery, sleep poorly and most likely experience pain during withdrawal.**

We need to make sure that our patients are aware of the dangers of methamphetamine use, not only for their babies, but themselves as well.

Weighty issues, nutrition before and during pregnancy

- **Moms-to-be are at increased risk for problems during pregnancy if they are both underweight or overweight.**

- **If patients are overweight when they become pregnant, they have a greater risk of diabetes, hypertension, blood clots, and other significant health problems during the pregnancy, including giving birth to a very large baby.**
- **This can result in a cesarean section or problems delivering the baby's shoulders.**

- **Because dieting during pregnancy to lose weight is not recommended, it is best to work towards and ideal weight before conception, at least 3-6 months before.**
- **As a health care provider, you can give information and a referral to a nutritional specialist, to not only help attain a healthy weight, but to learn healthy eating habits for the pregnancy.**

- **Some patients are underweight when they begin pregnancy. In this situation, the baby is at increased risk to be low birth weight.**
- **Such mothers may lack important nutritional stores that a baby can draw upon for its growth and development.**

- **Before pregnancy is a great time to encourage patients to pay close attention to healthy eating and a healthy lifestyle. These**

good habits will help to ensure that the pregnancy gets off to a great start.

- **Encourage patients to remember washing produce well to remove pesticides and other types of contamination.**

- **A healthy diet also includes lean proteins such as meats, dairy, fish and eggs. Vegetarians need to make sure that they are getting at least 60 mg of protein daily.**
- **Low protein intake is related to smaller-than-average weight babies who may have health problems.**

- **Fish and shellfish are an important part of a healthy diet. Fish and shellfish contain high-quality protein and other essential nutrients**
- **However, nearly all fish and shellfish contain traces of mercury. For most people, the risk from mercury by eating fish and shellfish is not a health concern. However, some fish and shellfish contain higher levels of mercury that may harm an unborn baby.**

- **Encourage patients not eat Shark, Swordfish, King Mackerel, or Tilefish because they contain high levels of mercury.**
- **Eating up to 12 ounces (2 average meals) a week of a variety of fish and shellfish that are lower in mercury is ok.**

- **The most commonly eaten fish that are low in mercury are shrimp, canned light tuna, salmon, pollock, catfish, oysters, lobster, clams, crab, sardines, tilapia, flounder, squid and herring**
 - **Another commonly eaten fish, albacore ("white") tuna has more mercury than canned light tuna. Patients may eat up to 6 ounces (one average meal) of albacore tuna per week.**
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- **Avoid any raw fish or meats as they may increase the risk of contamination with coliform bacteria, toxoplasmosis, and salmonella.**
 - **Deli meats and soft cheeses have been known to be contaminated with Listeria, which can cause miscarriage.**
 - **Refrigerated, smoked seafood often labeled as lox, kippered, or jerky should be avoided because it could also be contaminated with Listeria. Most commercial products are safe, but it doesn't hurt to cook them.**
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- **February 21, 2007 — Intake of 340 g per week of seafood by pregnant women is beneficial to the child's neurodevelopment, according to the results of an observational cohort study reported in the February 17 issue of *The Lancet*.**

- **A seafood intake of less than 340 g per week was associated with an increased risk of the child being in the lowest quartile for verbal IQ.**
- **Low maternal seafood intake during pregnancy was also linked to increased risk for sub-optimum outcomes for social behavior, fine motor, communication, and social development scores.**

- **"Maternal seafood consumption of less than 340 g per week in pregnancy did not protect children from adverse outcomes; rather, we recorded beneficial effects on child development with maternal seafood intakes of more than 340 g per week, suggesting that advice to limit seafood consumption could actually be detrimental."**

Fiber is your friend

- **Pregnant women should consume 30 grams of dietary fiber every day and eight 8 oz glasses of water each day.**
- **Dehydration may cause constipation, weakness, dizziness and pre-term labor.**

What about vitamins and minerals?

- **Iron deficiency is common in pregnant women.**
 - **It is practically impossible to get enough iron from food. Doctors usually recommend supplements. The dietary reference intake for iron is 27 milligrams per day for all pregnant women.**
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- **Low Zinc levels during pregnancy can cause long labor and small babies who may have health problems.**
 - **The dietary reference intake for zinc is 11 milligrams per day or 12 milligrams per day for pregnant women.**
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- **Calcium is needed by your baby for strong bones. If calcium is not supplied by the mother's diet, calcium is taken from the mother's bones for the baby.**
 - **The dietary reference intake for calcium is 1,000 milligrams per day or 1,300 milligrams per day for women under 18 years of age.**
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- **Folate is a vitamin that is required to build protein tissues. Low folate levels are linked to birth defects, such as spina bifida and recently heart defects.**
 - **Ideally a woman should begin folate, folic acid supplements, or a prenatal vitamin at least 3 months prior to conception. Prenatal vitamins usually contain enough folic acid, about 1,000 micrograms daily.**

- **These defects form early in pregnancy, often before women know they are pregnant.**

- **The neural tube begins to develop about 2 days after a woman misses her first period.**
- **If a woman waits until she is pregnant to think about folic acid, the damage may already have occurred.**

- **It is important to eat enough foods high in folate like broccoli, dark green vegetables, oranges, eggs, and meat both before and during pregnancy and supplement with folate prior to and during pregnancy.**
- **Incidentally, vitamin A is one vitamin that may be toxic if taken excessively (more than 5000 IU daily).**

What about over-the-counter supplements and medications?

- **In general most cold and cough preparations are safe, although there is one study relating DM (dextromethorphan) containing products to birth defects in chicken embryos. Also many of these products contain some alcohol.**

- Tylenol is generally considered safe, although overdose can cause severe liver damage.
 - Aspirin is sometimes used to help pregnancy, but may increase the risk for bleeding.
 - Ibuprofen products (Advil, Aleve, Motrin) should not be used during pregnancy, as after 32 weeks they may cause the premature closure of an important fetal blood vessel.
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- Most people incorrectly assume that herbal products are safe and “natural”.
 - Nothing could be further from the truth, of the herbal products available in the US approximately 40 may have harmful effects on pregnancy.
 - Encourage patients to review any non-prescription medications with you prior to conception.
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- Herbal products related to an increased risk of miscarriage are: Cohosh, Borage oil, Elder, Pennyroyal, Rue, Mugwort, Dong Qui, Yarrow, Shepard’s purse, Juniper, Lady’s mantle, and others.
 - A few such as Ginseng, Pokeroor, Sassafras, Crocus, and Artemisia may be associated with birth defects. The use of any of these products should be discouraged prior to becoming pregnant.

- **Some commonly used substances such as Nutmeg, Ginger, Basil, and Clove are safe in foods, but in concentrated oils may cause uterine contractions and bleeding or other problems.**
 - **Excessive Caffeine consumption (6-8 cups of coffee or tea daily) has been associated with a slightly higher miscarriage rate but not with birth defects, in humans although very high doses are weakly associated with birth defects in animals. .**
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- **Prescription medications should be reviewed by a health care provider prior to pregnancy.**
 - **The FDA categorizes the safety of drugs as A,B,C, D and X.**
 - **D and X preparations should be reviewed for safer alternatives.**
 - **The website: safefetus.com contains a generally reliable drug database for pregnancy.**
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- **Patients with health conditions requiring medication such as Hypertension, Diabetes, Seizure disorders, Thyroid problems, heart, liver or kidney problems should seek medical consultation prior to pregnancy.**
 - **Some medications for these conditions may be unsafe in pregnancy, but medications should not be stopped or changed without consultation, as to do so could result in serious health problems for the mother.**

- **As an example, many anti-seizure medications may be associated with birth defects including heart and neural tube problems.**
- **However, supplementation with larger doses of folic acid prior to pregnancy may decrease this risk.**
- **A low thyroid in pregnancy increases the risk for mental deficiency, its not a bad idea to screen patients prior to pregnancy.**

- **Uncontrolled diabetics have a 14% risk of having a child with life threatening birth defects.**
- **The elevated blood sugar levels in a diabetic woman literally can deform the developing embryo**
- **But with adequate blood sugar monitoring and control prior to conception, the risk drops to normal, about 2%**

- **Other health history may be important such as previous surgery.**
- **Any surgery to the reproductive tract, such as surgery to the cervix increase the risk of pre-term delivery.**
- **Surgery to the fallopian tubes or ovaries may increase the risk of an entopic pregnancy.**

What about infections?

- **Infections absolutely play a role in adverse pregnancy outcomes. We have previously discussed food related infections such as listeria, salmonella, coliform bacteria and Hepatitis A. Other types of infection may also be dangerous.**
- **Testing and treatment for any STD's is a good idea.**
- **Chlamydia and gonorrhea can both be tested for and treated prior to pregnancy.**
- **Herpes can be controlled by medications such as Valtrex**
- **HIV, Hepatitis B & C cannot be eliminated, but treatment strategies can decrease the risk of transmission to the baby and help maintain the health of the mother during pregnancy.**
- **The risk of congenital Rubella or German Measles can nearly be eliminated by vaccination prior to pregnancy. If a mom is infected during pregnancy a baby may have blindness, deafness and mental retardation. Immunity can be checked with a simple blood test and vaccine can be administered prior to pregnancy.**
- **Immunity to Chicken pox can also be tested and vaccine administered prior to pregnancy**
- **A DPT (Diphtheria, Pertussis, Tetanus) vaccine is also recommended prior to pregnancy if not administered previously.**
- **Hepatitis B, Meningococcal and Pneumococcal vaccines may be given during pregnancy if indicated.**
- **An influenza (flu) shot is recommended during pregnancy.**

Genetics and family risk factors

- **Along with eye color, hair color and that cute little dimple, babies may inherit other family and genetic characteristics.**
 - **Some of the risky inheritances may be tested for in the parents prior to pregnancy.**
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- **Some reasons to consider a preconception genetics consultation may include:**
 - **Previous child or family history of: mental retardation, neural tube defects, chromosome abnormality (i.e. Down syndrome, trisomy 18, Klinefelter syndrome, etc.)**
 - **cleft lip/palate, congenital heart defects, extreme short stature, history of any type of birth defect.**
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- **Fragile X syndrome is the most common form of inherited MR and caused by a nucleotide expansion within the gene FMR1.**
 - **Almost all males and about half of females with the full mutation will have some degree of mental deficiency.**
 - **Pre-mutation carriers have an increased risk of premature ovarian failure and fragile X associated tremor ataxia syndrome.**

- **Testing for fragile X syndrome carrier status is recommended in those who have a history or family history of:**
- **Fragile X syndrome**
- **Developmental disability or delay of unknown origin**
- **Autism spectrum diagnosis**
- **Women with fertility issues or high FSH levels prior to age 35**
- **Tremor or ataxia of unknown origins.**

- **Other reasons for genetic consultation include:**
- **Both parents carriers for an autosomal recessive disorder, diagnosed either by the birth of an affected child (i.e. cystic fibrosis) or by carrier screening (i.e. sickle cell anemia, Tay Sachs, etc.)**
- **Mother, known, or presumed carrier of an X-linked recessive disorder (i.e. hemophilia, Duchenne muscular dystrophy).**
- **Either parent a known carrier of a balanced chromosome abnormality.**

- **Additional risk factors are:**
- **hearing or visual impairments, learning disabilities,**
- **psychiatric disorders, childhood cancers, multiple pregnancy losses (miscarriages or stillbirths).**
- **Advanced maternal age of greater than 35 and paternal age greater than 50.**

- **Cystic fibrosis is the most common population based mutation in the Caucasian population. The frequency of the gene carrier is about 1 in 25 with a disease incidence of 1 in 2,300. Ashkenazi Jews have a rate of 1:24 carrier, Hispanics 1: 58, African Americans 1:61 and Asian Americans 1:94**
 - **Testing is available with a carrier detection rate of 94%**
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- **Individuals of European Jewish (Ashkenazi) descent are more likely to carry the genes for Tay-Sachs (TS). The risk in this group is about 1 in 30 versus a risk of 1 in 300 in the general population.**
 - **Testing is available by DNA analysis by the Hex A enzyme activity.**
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- **Individuals of Ashkenazi Jewish descent are also more likely to carry the genes for cystic fibrosis (1 in 24) Canavan Disease (1 in 40) and Familial Dysautonomia (1 in 36) as well as other disorders such as mucopolysaccharidosis IV, Neimann-Pick, Fanconi anemia, Bloom syndrome and Gaucher disease.**
 - **A genetic consultation is reasonable for persons who fall into this ethnic background to make sure that the discussion is complete.**
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- **Another group of disorders to discuss testing include the hemoglobinopathies.**
 - **A complete CBC and hemoglobin electrophoresis should be offered to those of African, Southeast Asian, and Mediterranean**

ancestry or anyone with a family history of these disorders or unexplained anemia.

- **There are over 6000 disorders that may be inherited.**
 - **It is beyond the scope of this discussion to cover all of them, or even a significant portion.**
 - **In my office we use a 3 page screening questioner to help identify those couples who may be at risk.**
 - **While couples may decline counseling or testing, they should hopefully have an opportunity if they desire this option.**
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- **Couples who are at increased risk, now have newer options including non invasive testing in pregnancy.**
 - **We at Cheyenne Ob-Gyn offer first trimester genetic screening in pregnancy to all pregnant women, which is more accurate than the older second trimester testing. This testing involves as ultrasound at 12 weeks and a drop of the mothers blood only.**

Emotional health and readiness to parent.

- **Being emotionally healthy is important to deal with the psychological and physical demands of pregnancy.**
- **Many common anti-depressant medications are now linked with pulmonary hypertension and heart defects.**

- **Antidepressant or other medications may need to be stopped, tapered or changed prior to pregnancy.**
 - **Counseling may help with symptoms, and to find alternative ways to deal with emotional and psychological issues.**
 - **Sometimes it is necessary to continue medications, but they may be stopped during the critical first trimester and restarted later if absolutely necessary.**
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- **It is important encourage patients to honest with you about their psychological and emotional health.**
 - **Remind patients that baby will not fix a relationship, cure depression, or give attention.**
 - **A baby requires patience, self sacrifice and emotional maturity.**
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- **One study found the when moms were significantly depressed, children had slower psychosocial development**
 - **Also depression prior to pregnancy increases the risk of postpartum depression and postpartum psychosis.**
 - **These conditions may be treated by medications, but can still be quite serious with serious consequences.**

- **Pregnancy also affects the other members of the family.**
 - **In an ideal situation the partner is committed and involved and excited about the pregnancy.**
 - **Many partners while excited and happy, have concerns about how a baby will affect the relationship and lifestyle.**
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- **It is usually a mistake to think that a baby will improve a rocky relationship.**
 - **It is really unfair to the baby to hope that it will “fix the parents”**
 - **While many single moms are successful in raising healthy and well-adjusted children, most will say that it wasn’t easy.**
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- **Any abusive or threatening relationship should be resolved or ended before considering a pregnancy.**
 - **Help is available from safe houses, law enforcement, we as health care providers and usually from family members.**
 - **Patients may not realize that they don’t deserve this treatment. They may need a lot of reassurance that getting away from this situation is best for them and their baby.**
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- **Help patients to consider the needs of other children in the family when planning a pregnancy.**
 - **Most children will look forward to a new brother or sister, but it is important to consider their needs for care in an effective fashion.**

- **Several studies show that an interval of at least two years between pregnancies improves perinatal outcome.**
 - **This allows time for the mothers body to recover as pregnancy uses resources that must be replenished for an optimum subsequent pregnancy.**
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- **Pre-conceptual health involves not just the first pregnancy, but any pregnancy.**
 - **We need to encourage our patients that all children deserve a healthy start in life.**
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- **As health care providers, we need to become partners in a healthy pregnancy for our patients.**
 - **We need to be informative, encouraging and most of all available.**
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- **I have enjoyed presenting this information for you and hope that you find it useful in your care of patients. Thank-you for your attention.**