AN EDUCATIONAL MODULE FOR CLINCIANS ON CONTRACEPTIVE
METHODS APPROPRIATE FOR POSTPARTUM USE

by

Ana Grecu

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As members of the Master’s Project Committee, we certify that we have read the master’s project prepared by Ana Grecu entitled An Educational Module for Clinicians on Contraceptive Methods Appropriate for Postpartum Use and recommend that it be accepted as fulfilling the master’s project requirement for the Degree of Masters of Science in Nursing.

________________________________________________ Date: April 10, 2006

Judith Berg, PhD, RNC, WHNP, FAANP, FAAN
Chair

________________________________________________ Date: April 10, 2006

Donna B. McArthur, PhD, APRN, BC, FAANP

Final approval and acceptance of this master’s project is contingent upon the candidate’s submission of the final copies of the master’s project to the Graduate College. I hereby certify that I have read this master’s project prepared under my direction and recommend that it be accepted as fulfilling the master’s project requirement.

________________________________________________ Date: April 10, 2006

Chair: Judith Berg, PhD, RNC, WHNP, FAANP, FAAN
STATEMENT BY AUTHOR

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ABSTRACT

This module covers the following options for postpartum couples: lactation amenorrhea method, hormonal contraceptives, intrauterine devices, barrier methods, sterilization, natural family planning and fertility awareness-based methods, abstinence, and coitus interruptus. The efficacy, advantages, disadvantages, cost, and effects on infant and breast milk have also been covered.

The module will be evaluated in its effectiveness by administering a pre-test and post-test to the clinicians. An additional test will be administered 4 months after the module is completed in order to access retention of the information. If the module seems effective and promising, then it can be used as a means for clinicians to earn continuing education.

The Health Belief Model was used as the theoretical framework. The HBM has been used in 64% of studies regarding health behaviors.
CHAPTER 1

INTRODUCTION

Statement of the Problem

_The practice of contraception is one of the factors that distinguishes us from other animals: chimpanzees use tools, albeit simple ones, and can be taught a sign language, but, as an Islamic theologian observed long ago, we are the only animal that consciously controls our fertility._

(Senanayake & Potts, 1994)

Unintended pregnancy is still a major concern within the United States. Various studies recommend the importance of postpartum contraception education. Although this is started prenatally, some studies concluded this education may not be helpful during the antenatal period. Therefore, postpartum contraception can be incorporated during the postpartum period within a clinic setting. With such a wide range of contraception options available today, clinicians might not be completely familiar with the appropriate contraceptive options for women postpartum based on each female’s needs: breastfeeding (and how much), as well as other factors that can affect their decision.

Children born as a result of unintended pregnancy experience increased adverse outcomes including premature birth, low birth weight, and small-for-gestational age. Other factors that are associated with unintended pregnancy include adverse maternal behaviors, morbidity including depression, mortality, as well as physical/sexual abuse (Cubbin, Braveman, Marchi, Chavez, Santelli & Gilbert, 2002).
Background of the Project

Unintended pregnancy in the United States is a major public concern, as outlined by the CDC and Healthy People 2010. Unintended pregnancy is a term that includes pregnancies that a woman states were either mistimed or unwanted at the time of conception (Baksh, Davis, Davis, Bloebaum, Streeter, Golloway et al., 1999).

The CDC Advanced Data from Vital and Health Statistics in 2004 reported:

- 8.7% of women 15-44 years of age are pregnant or postpartum and therefore not using contraception
- 46% of women 15-44 who had zero births are using a method of contraception
- 59.9% of women 15-44 who had one birth are currently using a method of contraception
- 77.7% of women 15-44 who had two births are currently using a method of contraception
- 81.2% of women 15-44 who had three or more births are currently using a method of contraception
- The leading method of contraception in the United States in 2002 was the oral contraception pill; the second leading method was female sterilization. These have been the leading methods of contraception in the United States since 1982
- 56% of women 15-44 years of age received family planning or medical services from a private doctor, private group practice, or HMO (Health Maintenance Organization).
• 22% of women 15-44 years of age received their family planning or medical services from a public clinic

• 2% of women 15-44 years of age received their family planning or medical services from other sources including military health, foreign sources, others.

The CDC survey provided no data regarding repeat unintended pregnancy postpartum or usage of contraception postpartum.

Healthy People 2010 Objectives Family Planning States:

• In an era when technology enables couples to have considerable control over their fertility, half of all pregnancies in the United States are unintended. Although trends in recent years show a decline in the incidence of unintended pregnancies in the U.S., other industrialized nations report fewer unintended pregnancies, suggesting that process toward reducing the incidence of unintended pregnancy still further is a realistic, achievable goal. Family planning remains a keystone in attaining a national goal aimed at ensuring that every pregnancy is intended.

• As yet there are no perfect methods of contraception, nor is any one method likely to be consistently and continuously suitable for each woman, man or couple.

• Reducing the incidence of unintended pregnancy is possible and necessary.

Unintended pregnancy is the United States is serious and costly and occurring frequently. Socially, the costs can be measured in unintended births, reduced educational attainment and employment opportunity, increased welfare dependency, and increased potential for child abuse and neglect. Economically, there are increased health care costs; an unintended pregnancy, once it occurs, is
expensive no matter what its outcome. Medically, unintended pregnancies are serious in terms of the lost opportunity to prepare for an optimal pregnancy and the increased likelihood of infant and maternal morbidity and mortality. The consequences of unintended pregnancy are not confined to those occurring in teenagers or unmarried couples; in fact, unintended pregnancy can carry serious consequences at all ages and life stages, for children, women, men, and families.

- Unintended pregnancy is expensive. For medical care alone, national expenditures for unintended pregnancies total billions of dollars annually. It has been estimated that the pregnancy cost for each woman of typical fertility who does not intend to be pregnant, yet is sexually active and uses no contraception, is about $3,200 annually.

- Induced abortion is another consequence of unintended pregnancy. There is approximately one abortion for every three live births in the United States, a ratio two to four times higher than in many other Western democracies.

- Even though family planning has certainly demonstrated success, there are a number of issues that need to be dealt with if the goal of ensuring that every U.S. pregnancy is intended is to be attained. It is neither fair nor realistic to expert individuals to avoid unintended pregnancies if they are not assured adequate access to comprehensive family planning services. Gaps in service and coverage still exist and the role of private health insurance in covering family planning and contraceptive services is modest.
• Finally, public education and information about family planning needs to be expanded. Numerous studies and polls indicate a disturbing degree of misinformation about contraceptive methods. Moreover, the risk of unintended pregnancy in the absence of contraceptive use is underestimated and there is a substantial lack of accurate information on STDs and reproductive health in general.

• Repeat unintended births: to the extent that very closely spaced pregnancies are not planned (and clinicians have a strong impression that that is often the case), unintended pregnancy may increase the risk of low birth weight.

• Contraceptive Failure, females 15-44: The public health benefits of improved contraceptive practices are potentially enormous. Whether fertile men and women who are sexually active and do not want to get pregnant, experience an unintended pregnancy is a function of their choice of contraceptive methods and how effectively they are able to use them. Poor or nonexistent contraceptive use is one of the main causes of unintended pregnancy, with unintended pregnancy occurring principally among two groups: (1) women using reversible contraception because of contraceptive failure or improper use, and (2) women using no contraception.

(Healthy People 2010 Objectives: Draft of Public Comment 11. Family Planning)

A study done by Alan Guttmacher Institute showed that 49% of all pregnancies in the United States are unintended; 46% of those pregnancies resulted in live births and 54% in induced abortions (Johnson, Edelman & Jensen, 2003). Searches of Medline,
Academic Search Premier, PubMed and Ovid for statistics regarding repeated unintended pregnancy (search words: repeat pregnancy, postpartum pregnancy) failed to identify any statistics on the subject. The only data retrieved was on repeat teenage pregnancy. The American Academy on Pregnancy in Adolescents stated that 25% of adolescent births are not first births, and the risk for pregnancy increases after an adolescent has had one infant (Coughlin, 2005). Nationally, Child Trends Research reported a 22% repeat pregnancy rate for women 15-19 years of age. No statistics were found regarding United States repeat pregnancy rates.

Results of a survey carried out immediately postpartum found that among women with unintended pregnancies who attempted to avoid conception, only 61.6% were using contraceptive methods (Romero-Gutierrez, Garcia-Vazquez, Huerta-Vargas & Ponce-Ponce de Leon, 2003).

Background on Postpartum Contraception Recommendations

Several reasons have been identified for the continued rate of unintended pregnancy. These include lack of patient education, ineffective contraceptive methods, inconsistent use of contraception, unplanned sexual activity, and contraceptive failure (Johnson, et al., 2003). In the study, Johnson et al. did not give any statistics regarding repeated pregnancies. They stated improvement of contraceptive education has the potential to positively impact rates of contraceptive failure, inconsistent contraceptive use, and subsequently, rates of unintended pregnancy. An individual’s education and knowledge level of conception may influence the rate of unintended pregnancies within a population (Johnson et al.). The study concluded that a postpartum hospital unit may
not be the appropriate setting for contraceptive counseling, with many patients feeling 
that in fact these postpartum conversations are not adequate and that they may need 
additional time or information to make a decision. Readdressing the issue in the 
postpartum period may help reinforce a decision regarding birth control and improve 
patient satisfaction and continuation rates (Johnson et al.).

The provision of education on contraceptive use to postpartum mothers has come 
to be considered a standard component of postnatal care, up to 84% of women noting that 
a discussion on contraception took place (Hiller, Griffith & Jenner, 2006). Midwifery 
and obstetric texts routinely refer to the provision of such education as a responsibility of 
postpartum care; however, the effectiveness of this intervention is seldom questioned 
(Hiller et al.). In their Cochrane Database of Systematic Reviews, Hiller et al. concluded 
that the effectiveness of postpartum contraception education use has not yet been 
established in randomized controlled trials. They also concluded that this type of 
education may be effective in increasing the short-term use of contraception.

Factors Influencing Why Postpartum Women Do or Don’t Use Contraception

Many postpartum women want no more children or would like to delay pregnancy 
for at least two years. Unfortunately, too few women leave obstetrical delivery services 
having received counseling about family planning or contraceptive methods 
(PocketGuide for Family Planning Service Providers, 2006). If all births were spaced at 
least two years apart there would be 50,000 fewer maternal deaths and 500,000 fewer 
infant deaths each year (Network, 1990). Contraception after childbirth improves the 
health of mothers and babies by lengthening birth intervals. Women are more likely to
Clinicians and women’s main concern regarding postpartum contraception is the effects of hormonal contraception on breastfeeding, breast milk, infant growth and development and maternal health (Facility of Family Planning and Reproductive Health Care Clinical Effectiveness Unit, 2004). Contraception for women who are breastfeeding is a public health issue of global importance. Each year over 100 million women make decisions about beginning or resuming contraception after childbirth. These decisions include both the choice of contraceptive method and the time to begin postpartum. For women who are breastfeeding, the choice and timing of hormonal contraception may influence both lactation and infant growth (Truitt et al., 2003). Providers need to inform women regarding advantages and contraceptive values of breastfeeding, while educating women about the need to combine breastfeeding with modern methods as women return to fertility (Network, 1990).

A study conducted by the Reproductive Health Program, reported reasons for not using postpartum birth control among Utah women with live births in 1999 included: 35% reported they don’t want to use birth control; 25% stated they were not having sex; 15% reported their husband or partner doesn’t want them to use birth control; 10% said they want to get pregnant; 6% said they can’t pay for birth control; and 2.5% reported they were already pregnant (Baksh et al., 1999). The study concluded that Utah women who reported their health care provider discussed birth control methods to use during postpartum, were significantly more likely to use postpartum birth control. A study
regarding IUD use, identified that this kind of contraception was never mentioned by clinicians, but was suggested by friends or family members (Lister, 2005). This is an example of the need for more education by clinicians regarding contraception to patients.

Other barriers identified for lack of contraception usage include: health concerns, side-effects, failure of method and some demographic issues such as education, age, residential region, and number of living children (Romero-Gutierrez et al., 2003).

The postpartum period is an opportune time to encourage the use of an appropriate contraceptive method, considering the recent obstetric event (Romero-Gutierrez et al., 2003). Reasons given why women accepted contraceptive methods at postpartum are: definitive desire of no more children; child spacing; temporarily no children; satisfaction with prior contraceptives; counseling by the obstetrician; personal reasons; counseling by family; and husband’s recommendation (Romero-Gutierrez et al.).

Recommendations from Previous Studies

Recommendations from previous studies regarding postpartum contraception include:

- Health Education
  - Increase knowledge - many Americans lack basic knowledge of proper and consistent use of contraception.
  - Promote spacing between pregnancies for healthy outcomes. One attribute that women who have longer birth-to-conception intervals is that they have more decision-making autonomy as compared to other women (Upadhyay & Hindin, 2005). Providers need to discuss risks
of close spacing of pregnancies and promote awareness of postpartum contraceptive choices as well as educating them regarding decision making as related to contraception.

- Reproductive Health Services - providers should discuss postpartum contraception options along with availability, effectiveness, risks of use, and importance of family planning. They should also include based on the International Parenthood Federation recommendations the following guidelines for postpartum women:
  - Encourage full breastfeeding for all postpartum women.
  - Do not discontinue breastfeeding to begin use of a contraceptive method.
  - Contraceptive methods used by breastfeeding women should not adversely affect breast milk or the health of the infant.

*(PocketGuide for Family Planning Service Providers, 2006)*

Clinicians should also assess established by the Faculty of Family Planning and Reproductive Health Care Clinical Effectiveness Unit (FFPRHC) guidance, based on the WHO Medical Eligibility Criteria for Contraceptive Use:

- A woman’s own beliefs, attitudes, and personal preferences.
- Contraceptive needs: has sexual activity resumed? Any sexual problems? What degree of efficacy is required?
- Resumption of ovulation - often identified in retrospect by the occurrence of menstruation.
Pattern of infant feeding - exclusively breastfeeding, supplementary feeds or bottle feeding?

Pattern of breastfeeding: frequency, duration of suckling episodes, feeding on demand day and night?

Social factors

Medial problems - hypertension, venous thromboembolism, or previous throphoblastic disease.

(FFPRHC, 2004)

Timing - the amount of information given to new parents during the postpartum hospital stay can be overwhelming (Stover & Griffith, 1995). Contraceptive counseling delivered antenatally appeared to have no impact on the pregnancy rate during the first year after childbirth compared to controlled group (Smith, Van Der Spuy, Cheng, Elton & Glasier, 2002). Family clinicians can provide expertise guidance regarding the postpartum period.

Access to Health Care:

Improve insurance coverage for family planning services. Propose to reduce the medical requirements to acquire pills and injectables and making them available at low cost (Potter, Moore & Byrd, 2003).

Seek expansion of Medicaid contraceptive coverage for women up to two years postpartum (Baksh et al., 1999). Postpartum women who were uninsured before pregnancy had higher odds of unintended
pregnancy than those who were insured. Among women with
unintended pregnancy who were not using birth control (and didn’t
want to get pregnant), the uninsured were more likely to report they
couldn’t get an appointment for birth control and couldn’t afford to
pay for birth control or their insurance would not cover it (Cubbin et
al., 2002).

Purpose of the Project

Create an educational module for clinicians on contraceptive methods appropriate
for postpartum use based on previous studies and recommendations centered on
individual woman’s needs. The project will incorporate a pre-test and post-test in order
to evaluate the gained knowledge of this module to clinicians. Postpartum contraception
options incorporated within this project are: lactation amenorrhea method, hormonal
contraception (progesterone contraceptives, COC, emergency contraception), IUDs,
sterilization (tubal ligation), barrier methods, family planning method or fertility
awareness-based method, abstinence and coitus interruptus. For each method several
factors will be covered: affects on breast milk and infant growth, efficacy, side-effects,
counter-indications, time to introduce or start, advantages and disadvantages. It will also
cover any information from studies based on their use in postpartum.

Significance of the Project

The Goal of Healthy People 2010 is that every pregnancy in the United States
should be intended. Although statistics were not found for repeat pregnancies within the
United States other then for teens, there is a definite need for postpartum contraception
education, services and access. Many women are unaware of their choices, and therefore clinicians need to educate in order to meet the needs of these women.

Studies have shown that postpartum contraception education is needed not only in this country but also worldwide, this study will focus on postpartum contraception only within the United States. I was unable to find data in Medline, Academic Search Premier, PubMed, Ovid or Cochrane Library on importance of postpartum contraception education for clinicians or the need for it. I believe this need is assumed based on studies outlining the importance and significance of this information to postpartum women and couples.

Providers require the knowledge to help these women choose a contraception method right for them, as well as addressing the barriers that might be encountered. This module will arm clinicians with the basic knowledge of postpartum contraception and therefore help women and families attain their family planning goals. Couples need the help of clinicians in order to control their fertility and space their children, and therefore take steps to delay conception as needed. Efforts to delay conception are costly, but failure to limit the number of children within a household can lead to a substantial decrease in lifetime utility as a result of overshooting the optimal family size (Rous, 2001).

Definitions

Unintended pregnancy: pregnancies that a woman states were either mistimed or unwanted at the time of conception.
Contraception (birth control): the means of pregnancy prevention. Methods include permanent methods (male and female sterilization) and temporary methods (barrier, hormonal, IUDs) (Healthy People 2010).

Family Planning: the process of establishing the preferred number and spacing of one’s children and selecting the means by which this is best achieved and effectively using that means (Healthy People 2010).

Intended pregnancy: a pregnancy that a woman states was wanted at the time of conception, irrespective of whatever or not contraception was being used (Healthy People 2010).

Repeat Pregnancy: pregnancy less then 24 months postpartum.

Summary of Chapter 1

Unintended pregnancy is still a major concern within the United States. Although, no statistics where found regarding unintended repeat pregnancy, other then nationally there is a 22% rate for repeat pregnancies for women 15-19 years of age. There is concern that postpartum women require more contraception services, education and access. The major barriers to women not using contraception are lack of patient education, ineffective method, inconsistent use, unplanned sexual activity, and contraception failure (Johnson et al., 2003). There is data supporting the need for postpartum contraception education with considerations given to technical competence, tailoring to meet client’s needs, and priority given in discussing any issue the client might chose (International Planned Parenthood Federation, 1994).
Although, I was unable to find any data on the need for clinician education regarding postpartum contraception, there is data supporting the need of such knowledge to postpartum women, as shown by the high rate of unintended pregnancy within the U.S. With so many options available, clinicians require the knowledge to inform each postpartum woman on contraception options, benefits, risk factors, availability, as well as when the right time to start. This module will educate clinicians in order to help women choose the contraception option right for their unique situations, and with that, encourage family spacing, and decrease unintended pregnancies.

The module proposed will cover the following contraception options as they apply to postpartum: lactation amenorrhea method, hormonal contraception (progesterone contraceptives, COC, emergency contraception), IUDs, sterilization (tubal ligation), barrier methods, family planning method and fertility awareness-based method, abstinence and coitus interruptus.
CHAPTER 2
THEORETICAL FRAMEWORK:
THE HEALTH BELIEF MODEL

The Health Belief Model is a value expectancy theory, which states that an individual’s behavior can be predicted based upon certain issues that an individual may consider (i.e. perceived susceptibility, perceived severity) when making a decision about a particular behavior concerning their health.

(Glanz, Lewis, & Rimer, 1990)

Introduction

Postpartum women have the option of choosing a contraception method in order to prevent a repeat pregnancy, unless of course they would like another pregnancy. The Health Belief Model (HBM) is founded on allowing individuals to select a particular option in order to prevent a particular outcome. “Why do people fail to engage in positive behaviors which will promote their health and well-being?” (Clarke, Lovegrove, Williams & Machperson, 2000). The Health Belief Model looks at seven elements in order to evaluate postpartum contraception: perceived susceptibility, perceived severity, perceived benefits, perceived barriers, other variables or modifying factors, cues to action, and self-efficacy.

The Health Belief Model has been used in reference to mammograms; breast cancer screening; prostate cancer screening; HIV/AIDS; condom use; HPV; HRT and osteoporosis; and contraception and lactation amenorrhea.

The Theoretical Framework

The theoretical framework guiding this project is the Health Belief Model (HBM). The HBM is a psychological model that attempts to explain and predict health behaviors
based on the individual. The model was first introduced in the 1950s by Hochbaum, Rosenstock and Kegels working in the U.S. Public Health Services (University of Twente, 2006). The model was initiated due to the failure of the TB health screening program. It was initially developed in an attempt to explain an individual’s failure to accept disease preventives or screening tests for the early detection of an asymptomatic disease. This model predicts behavior based on the value of the outcome to an individual, and the outcome of action that will result (Orr & Langefeld, 1993).

The HBM seems promising as a framework for examining contraceptive behavior (Condelli, 1986). The theory states a person must feel that he or she is susceptible to a certain disease that can cause serious health effects in order to engage in certain health-protective behaviors (Ham, 2006). The theory also considers the motivation for health by an individual, access to health care, and the ability of medical care to promote health and reduce the burden of the disease (Sharps, El-Mohandes, El-Khorazaty, Kiely & Walker, 2003).

The HBM is founded on the understanding that a person will make a health relation action if that person feels that the negative health condition (i.e. pregnancy) can be avoided; has a negative expectation that can be avoided by the recommendation (i.e. use of contraception); and that she/he is able to successfully undertake a recommended action with confidence (University of Twente, 2006).

HBM is used as an approach to understand preventive health behavior. Preventive health behavior is central in health education. “Preventive health behavior is any activity performed by individuals to prevent or detect illness even though there are no
symptoms and believe themselves to be healthy” (McGinley, 2004). Postpartum contraception falls within the preventive health category for there are no symptoms of illness and its goal is to prevent unintended pregnancy. The Health Belief Model is guided by the assessment of health beliefs.

The model can be adapted to contraceptive behavior if one views pregnancy as a state to avoid. Women vary in strength of their desire to avoid conception and in their perception of costs and benefits of using a particular contraception (Codelli, 1986).

The HBM originally had four constructs representing perceived threat and net benefits. Later, three more components were added. The components are: perceived susceptibility, perceived severity, perceived benefits, perceived barriers, other variables or modifying factors, cues to action, and self-efficacy (Stout, 1997). See Table 2.1 for the seven HBM components, their definitions, and how they relate to postpartum contraception.

The first component of the HBM is susceptibility, the degree an individual feels personally susceptible to contracting the condition (Stout, 1997). For example, how susceptible does the postpartum woman feel she might get pregnant again? Applying this to postpartum contraception includes letting the woman know that pregnancy is a possibility, and she can get pregnant again, unless she uses contraception.

The second component is severity, or seriousness, or the degree the woman views the condition as serious (Stout, 1997). This could be implemented by allowing the woman to consider the consequences the condition of another pregnancy can have on her life (Rosenstock, 1974). Consequences include another trip to the delivery room, not
enough: money, time off work, resources, and commitment. Previous studies have documented the existence of unrealistic optimism in relation to health beliefs identified by the HBM (Clarke et al., 2000). The unrealistic optimism of escaping pregnancy without the use of contraception needs to be addressed. The woman needs to understand the consequences are real.

The third concept is perceived benefits, the degree to which an individual believes that taking a specific action to prevent a condition will be beneficial and effective (Rosenstock, 1990). Previous contraceptive method satisfaction, desire for no more children, child spacing, and temporarily no children are all benefits of using contraceptives postpartum (Romero-Gutierrez et al., 2003).

The fourth component of the HBM is perceived barriers, the degree to which the negative aspects of an action serve as barriers to action, causing avoidance (Rosenstock, 1974). Barriers women might encounter include spouse disapproval of using contraception, delay of contraceptive use after the end of postpartum period, indecision on method, poor experience with previous contraceptive used, and desire for another pregnancy (Romero-Gutierrez et al., 2003). Other identified barriers are fear of hormonal contraception affecting the breast milk, the baby, income, and religion.

The fifth and sixth components of the HBM are other variables (modifying factors) and cues to action. Other variables are demographic factors (age, income, education, and marital status), sociopsychological (beliefs, attitudes, culture) and structural variables that make up an individual’s perception of susceptibility, severity, benefits and barriers. The cues to action are merely triggers that prompt an individual to
The seventh component is self-efficacy. Self-efficacy is an individual’s confidence that he or she can perform a specific action (Rosenstock, 1990). Does the woman believe she can use the agreed contraceptive? Does the woman have the required education and skills in order to successfully follow directions for the contraceptive method? When using the HBM with postpartum contraception, the clinician needs to take into account self-efficacy and make sure all questions are answered and the woman is comfortable using the agreed contraceptive.

The HBM fits the focus of this project for it incorporates preventing health behaviors (including contraceptive practices), sick role behaviors (including compliance to recommendations), and clinic use (University of Twente, 2006). Postpartum contraception education needs to focus on identifying the problem, options available based on breastfeeding or not and how often, and the woman’s belief that postpartum contraception is needed. Compliance to the recommendation is required and therefore the woman needs to believe the benefits are important.

Review of Literature on the Health Belief Model

Most studies on contraceptive choices have lacked a theoretical framework and have relied on surveys of teenage or college student women (Condelli, 1986). The HBM has been useful for illness prevention or preventive health. It has been utilized in a number of studies including assisting women who are undertaking screening through mammography; in providing educational programs for clients with osteoporosis; children
with diabetes and families; as well as educational programs for promoting family exercise or family nutrition (Roden, 2004). The HBM has also been applied in decision-making behavior regarding health promotion.

Secginli and Nahcivan have used the HBM as their theoretical framework to examine variables related to BSE (breast self exams) and mammography. The model is useful in identifying factors that are associated with women’s breast cancer beliefs and screening behaviors (Secginli & Nahcivan, 2006). The study also identified several studies that related BSE to perceived susceptibility, benefits, barriers, confidence, health motivation, perceived benefits and perceived barriers related to mammography (Secginli et al.).

Clarke et al., 2000 used the HBM within the context of screening for cancer to explore unrealistic optimism in relation to one’s own health outcome (Clarke et al.). The study mentioned that out of four theories that can be used for health behaviors: HBM, the Theory of Reasoned Action, Protection Motivation Theory, and Subjective Utility Theory, the HBM has been employed in 64% of the studies, determining that the HBM is the most appropriate in relation to one’s health outcomes and health behavior.

The HBM has also been used in relation to HPV and cervical cancer (Ingledue, Cottrell & Bernard, 2004). Due to the increased HPV risk and low HPV knowledge levels, the purpose of the study was to assess knowledge using the HBM components regarding HPV infection and cervical cancer at a large Midwestern university (Ingledue et al.).
Orr & Langefled, 1993 used the HBM in relation to condom use by sexually active male adolescents at risk for STDs. Within the study, the model was used to predict behavior based on value of the outcomes specifically for STD avoidance behaviors, which are influenced by the threat of STD, the benefits of altering behavior to prevent STD, and barriers to these behaviors. These factors are in turn influenced by the subject’s attitudes and beliefs specific to STD (Orr & Langefled).

The HBM has also been used in reference to hormone replacement therapy. McGinley, 2004 used the HBM to evaluate women’s use of HRT in order to lower their risk for osteoporosis (McGinley). The study determined that HBM variables of perceived barriers and confidence provide insight into women’s intentions concerning health related issues and factors that affect their decision making processes. This in turn can also apply to postpartum contraception.

The Health Belief Model was also used with HIV/AIDS patients who had excellent adherence to Highly Active Antiretroviral Therapy (HAART) (Malcolm, Ng, Rosen & Stone, 2003). The study’s results suggested that patients with excellent adherence to HAART differ from their non-adherent counterparts in terms of modifiable variables (Malcolm et al.). The authors pointed out that several studies have demonstrated that adherence rates can be improved when modifiable adherence barriers are addressed (Malcolm et al.).

Stout, 1997 used the HBM as a theoretical basis for prenatal care for low-income women (Stout). Ham, 2006 used the model for mammogram behavior for Korean women (Ham). These are several studies that have utilized the HBM in conjunction to
health promotion and behavior. I was unable to find any studies that incorporated the HBM with postpartum contraception. Nevertheless, this model is quite relevant to postpartum contraception, and the seven constructs of the HBM pertain to this subject as shown in Table 2.1.

Janet Roden stated that nurses are able to understand client’s health motivation and needs of improvement in health orientation based on the HBM (Roden, 2004). By modifying the HBM, nurses can provide guidance for families through the revised HBM for young families. Because nurses and health care workers have an important role in health promotion which involves strategies for improving health by engaging people to nourish their own health, the HBM is useful for illness prevention or preventive health (Roden, 2004).

Finally, the HBM was associated with increased health behavior and to determine if health knowledge mediated health behavior. The study examined the impact of health promoting television program series on health knowledge, and the key factors of the HBM can led people to engage in healthy behavior (exercising, losing weight, changing eating habits, not smoking/quit smoking). The study determined there is an advantage of receiving health information due to basic disease fears in one hand, and interest in good health in the other, in order to take steps in becoming healthier. The conclusion was that health-promoting television can increase health knowledge and enhance health beliefs, which contributes to healthy behavior (Chew, Palmer, Slonska & Sibbiah, 2002).
How the Theoretical Framework Pertains to Project Problem

The problem stated in Chapter 1, is that clinicians may not be completely familiar with appropriate contraceptive options for women postpartum. This project will create an educational module for clinicians on contraceptive methods appropriate for postpartum use. The Health Belief Model has been identified as the theoretical framework for this project based on its wide application in health beliefs, health promotion and women research. The HBM uses seven components in order for clinicians to help postpartum women: perceived susceptibility, perceived severity, perceived benefits, perceived barriers, other variables or modifying factors, cues to action and self-efficacy. These are relevant in identifying what keeps women from using postpartum contraception and help clinicians work through these issues.

Summary of Chapter 2

The Health Belief Model has been identified as the framework for this project. Although it hasn’t been used in regards to postpartum contraception, its background is in preventive health. It has been used to identify health beliefs regarding different health problems ranging from HIV/AIDS, to prenatal care. The Health Belief Model has been used in 64% of studies concerning health behaviors, making it the most widely used theory in conjunction to health behaviors. The seven components of the HBM and their application to postpartum contraception are shown in the Table 2.1.
CHAPTER 3
POSTPARTUM CONTRACEPTION: A MODULE FOR CLINICIANS

Introduction

This chapter will cover the many kinds of contraception options available to women or couples postpartum. Contraception postpartum is not a disease but a topic that needs to be covered by the clinician. Working collaboratively with the woman and her partner, the provider can help them choose the method that fits. Close interaction is needed for good contraception and prevention of unplanned pregnancy (Rosenfeld, 2001).

The following postpartum contraception options will be addressed:

1. Lactation Amenorrhea Method
2. Hormonal Contraceptives
3. Intrauterine Devices (IUDs)
4. Barrier Methods
5. Sterilization
6. Natural Family Planning and Fertility Awareness-Based Methods
7. Abstinence
8. Coitus Interruptus

For each option the following will be addressed: (1) efficacy or failure rate (2) advantages (3) disadvantages (4) time to introduce or start (5) affects on breast milk and infant growth and (6) side-effects if any. Please refer to Table 3.1 for an overview of the postpartum contraception options covered within this module. This module assumes the
Postpartum female is breastfeeding, if she is not, then she can utilize any type of birth control she chooses, without fear of the birth control affecting her breast milk or the baby.

Postpartum contraception has been examined in nonrandomized clinical trials, although the majority of them have been conducted in developing countries (Levitt, Shaw, Wong, Kaczorowski, Springate, Sellors, et al., 2004). Clinicians need to utilize evidenced-based recommendations in order for women to make informed decisions regarding contraception while breastfeeding (Truitt et al., 2003).

Resumption of Intercourse

After giving birth, couples would like to get back to how things were in the bedroom, but they might not be ready for the delivery room (Van den Broek, 2003). The following are several factors that might play a role in the woman’s decision not to resume the same birth control used before: might forget to take the pill due to days and nights turned around, breastfeeding, or the prior method has failed in the past (Van Den Broek).

Resumption of intercourse after childbirth depends on the woman and her situation. Couples are usually advised that they can safely resume intercourse after bright-red bleeding has stopped and the perineum is comfortable. Women with perineal incisions or lacerations should wait at least three weeks after delivery (Stover & Griffith, 1995).

Several factors delay a woman’s return to sexual intercourse and enjoyment. She might be tired, feeding her baby through the night, sexual intercourse might be painful especially if she had an episiotomy or perineal tear, and depressive mood (Glasier &
Gebbie, 2000). On average, resumption of intercourse after childbirth is about four to eight weeks (Kennedy & Visness, 1992). Factors that predict resumption of intercourse: husband present, not breastfeeding, resumption of menstruation, young age, some education, children younger then seven years old, un-crowded home, nuclear family, urban residence and trained health worker present in delivery baby. The mean coital frequency is once per week to three times per week (Kennedy & Visness). About two-thirds of couples resume sexual relations within the first postpartum month and 90% within the second month.

Postpartum Sexuality

Studies have shown women report significant reduction in sexuality during pregnancy and postpartum. Generally, studies and clinical impressions in postpartum women continue to report decline in sexual interest, desire and libido, leading to less sexual activity. Enjoyment of sexual intercourse tends to return gradually postpartum (De Judicibus & McCabe, 2002). Another study found at six months postpartum, women continue to report significant decreased sexual desire, frequency of intercourse and sexual satisfaction as compared to levels prior to conception (Fischman, Rankin, Soeken & Lenz, 1986). Another problem interfering with sexual intercourse is vaginal dryness which causes discomfort with intercourse (De Judicibus & McCabe, 2002). These reasons can influence what kind of contraception method might be selected.

World Health Organization Guidance to Family Planning

The World Health Organization’s (WHO) Department of Reproductive Health and Research (RHR), in collaboration with numerous international partners, is creating a
global guidance for family planning that is science based and consensus driven. By the end of 2006, the WHO’s Four Cornerstones of Evidence-Based Guidance for Family Planning will be completed. The cornerstones are:

1. Medical Eligibility Criteria for Contraceptive Use: provides who can use contraceptive methods safely, including recommendations on temporary and permanent contraceptive methods for women as well as assigning categories one to four for recommendations: category one indicating that method is unrestricted; category two indicating that advantages to use outweigh the risks; category three indicating that risks of use usually outweigh the benefits; and category four indicating the method is unacceptable and has health risks.

2. Selected Practice Recommendations for Contraceptive Use: who and how to safely use contraceptive methods as well as providing guidance through responses to thirty-three questions selected by WHO and answers questions based on recommendations by experts.

3. Decision-Making Tool for Family Planning Clients and Providers

4. Handbook for Family Planning Providers

Both numbers three and four above are based on current best available scientific evidence (Peterson & Curtis, 2005).

With this great global interest in family planning, as clinicians we need to optimize our knowledge and be able to enlighten our postpartum patients regarding their contraception options.
Education

Clinicians need to consider the following when educating and counseling on the use of postpartum contraception: (1) technical competence of client; (2) client’s needs and allowing for personal concerns (International Planned Parenthood Federation, 1994); (3) spacing; (4) advantages of breast feeding as well as combining modern methods of contraception with breastfeeding (Network, 1990); (5) cost; (6) use contraceptive methods that do not adversely affect breastfeeding or health of the infant (PocketGuide for Family Planning Service Providers, 2006); and (7) resumption of intercourse and frequency should be used to guide them in advising postpartum women.

Advantages of Breastfeeding to the Infant

Clinicians can encourage mothers to breastfeed their infants. Breastfeeding has the following advantages:

- nutritional and anti-infective for the infant
- Contains mixture of protein, fat, carbohydrate and trace elements that evolve with the infant’s needs month to month
- May help psychological bond between mother and infant
- Infant ingests host-resistant, humoral, and allergy prophylaxis factors
- Lower risk for respiratory, GI illnesses, sudden infant death syndrome
- Less likely to develop allergies, (eczema, cows milk allergy, and allergic rhinitis)
- Asthma less common
- Decreased incidence of otitis media, dental malocclusion and caries
- Preterm infants who are breastfed have higher IQ scores
Benefits to Consider for Breastfeeding Mothers

- Breastfeeding has major protective effects against cancers of the ovaries, endometrium, and breasts.
- Breast milk has zero price and it's always the right temperature.
- Provides bonding with infant.
- Provides rapid return of uterine tone, oxytocin is released when the nipple is stimulated by suckling and therefore contracting the uterus.
- Require extra calories, protein, calcium and iron through diet. Supplements are not recommended.

(Hatcher et al., 2004)

- Delays return of ovulation.
- Women should be advised that awaiting the onset of menstruation before starting contraception is not advised, for it might put them at risk of unintended pregnancy if not fully breastfeeding or if using a breast pump.

(National Guideline Clearinghouse, 2006)

Lactation Amenorrhea Method

Introduction

Lactation Amenorrhea Method (LAM) uses breastfeeding as a temporary form of contraception. Breastfeeding delays resumption of fertility after childbirth and can be used as a natural method of contraception. Infertility as related to LAM is associated
with amenorrhea and suppression of ovulation (Glasier & Gebbie, 2000). Pregnancy is rare among breastfeeding women with lactation amenorrhea (Kennedy, 1992).

How LAM Affects Fertility

After childbirth, circulating concentrations of estrogen, progesterone and prolactin (PRL) associated with pregnancy, fall. If there is no breastfeeding involved then gonadotrophin levels increase rapidly, PRL returns to normal within four weeks and ovulation will occur soon after. In breastfeeding women, PRL concentrations remain elevated as long as the infant is suckling. FSH concentrations return to normal within weeks, and circulating LH remains suppressed throughout lactation. LH release is disturbed throughout breastfeeding period and this is the underlying cause of ovarian function suppression (Glasier & Gebbie, 2000). LAM needs to be initiated immediately postpartum (FFPRHC, 2004).

Lactation Amenorrhea Method

This method is used in many cultures to space pregnancies and can be very effective if used without supplements. It can be 98% effective during the first six months postpartum (Youngkin & Davis, 2004). Criteria for LAM are: no menses (no vaginal discharge after the 56th day after birth); no supplementing regularly nor going longer then four hours between feedings during the day, or longer then six hours at night; and the baby is younger than six months of age (Youngkin & Davis, 2004). Pumping is not an effective substitute for sucking or milk expression for it doesn’t have fertility inhibiting effects. The mother needs to be exclusively (no other liquids or solids given), or almost
exclusive (vitamins, water or juice given infrequently in addition to breastfeeds for this method to be effective (FFPRHC, 2004).

Studies within the United States are limited regarding LAM. The average duration of breastfeeding in developed countries is short, with few women breastfeeding beyond four months. In developing countries, women breastfeed for much longer and the use of LAM is much greater especially in countries where few contraceptive methods are available, expensive or services for these services are poor (Glasier & Gebbie, 2000). Most studies have been done in developing countries. As of now, only half of new mothers within the United States are breastfeeding (Hatcher et al., 2004). LAM needs to be associated with good breastfeeding practices and support from friends, family, employers, and the healthcare system. If the mother decides to use this form of contraception then she needs good nutrition, maternity leave, and assistance with breastfeeding (Senanayake & Potts, 1995).

Kennedy & Visness, 1992 conducted a study on LAM efficacy in Mexico, Thailand, Pakistan, Philippines, Canada, Australia and England. The results revealed that LAM seems to provide protection from ovulation and pregnancy. The protection was generally greater for women who where fully breastfeeding. This natural, temporary contraceptive method was found to have a three to six percent cumulative probability of pregnancy. It was determined to be as affective to similar typical modern contraceptive methods in the United States (Kennedy & Visness). Counseling about good breastfeeding practices remains important to cover as well as weaning. Women should
start another method of contraception immediately after menstruation resumes (Kennedy & Visness). See Figure 3.1 and Figure 3.2 for LAM guidelines.

Another contraceptive method should be initiated if supplemental feedings are given, if there is any decreased frequency of feeds, or when the baby reaches six months of age (Rosenfeld, 2001). Even greater efficacy could be achieved by both breastfeeding and an additional method of contraception (Hatcher et al., 2004). Studies have shown that the first menses is anovulatory and unplanned pregnancy rates rise among breastfeeding women after the onset of the first menses (Lawrence & Lawrence, 1999).

Hormonal Contraceptives

Hormonal Contraceptives covered in the module:

- Progesterone Only Contraceptives
- Combined Contraceptives
- Emergency Contraception (Plan B)

Progesterone Only Contraceptives

Progesterone only contraceptives include the minipill or progesterone only pill, and Depo-Provera. Progesterone only contraceptives are safe to use by breastfeeding women for they don’t interfere with milk production and may even increase milk production (Youngkin & Davis, 2004). They also do not have any effect on infant growth or health and they do not increase the risk of VTE (Glasier & Gebbie, 2000). Women using progesterone only contraceptives have a longer period of lactational amenorrhea (four to five months), than IUD users or women on the LAM (FFPRHC, 2004).
Recommended time to start progesterone only contraceptives for breastfeeding women is six weeks after delivery (Pocket Guide for Family Planning Service Providers, 2006). Some studies of Depo-Provera and POP (progesterone only pills) have found no overall deleterious effects of progestin on milk volume when begun as early as the first week postpartum, suggesting that early exposure to progesterone is not always bad for lactogenesis (Hatcher et al., 2004). Breastfeeding women should be advised to return at any time to discuss side effects or other problems, or if they want to change their contraceptive method (National Guidelines Clearinghouse, 2006).

**Progesterone Only Pill (Minipill)**

Generally, the progesterone only pill or the Minipill should be started four weeks after delivery. Lactation should be well established by that time, since some women may notice changes in milk volume in the early weeks. Can cause postpartum bleeding if given before three weeks, and it isn’t necessary to wait the return of menstruation to begin (Glasier & Gabbie, 2000). Progesterone only pills should be taken at the same time every day. The best time is between four to ten hours before intercourse, when the effect on the cervix mucus is maximal. This is the most effective and well-studied yet underused contraception method (Glasier & Gabbie). It is recommended that the lowest, effective dose of progesterone-only contraceptives is to be used during lactation (Senanayake & Potts, 1995).

Breastfeeding women who are started on progesterone only pills should be advised of the following:
Using in the first six weeks postpartum does not appear to have an adverse effect on breast milk volume, can be started on this method prior to that time if other contraceptive methods are unacceptable.

Has 99% efficacy.

The problematic bleeding associated with this method appears to be more acceptable then that experienced by women who are not breastfeeding.

May start at anytime postpartum. If started up to day 21 postpartum, no additional contraceptive protection is required. If started after day 21, then additional contraception protection is required for two days.

(FFPRHC, 2004)

Side Effects of Progesterone Only Pills

1. Menstrual irregularities which typically include unpredictable short or long cycles with variable duration bleeding and/or spotting.

2. Amenorrhea occasionally occurs. Menstrual disturbances with progesterone only pills tend to be less than with most long-acting, progesterone only methods.

3. Persistent ovarian follicles and follicular cysts.

4. Rare exacerbation of pre-existing medical diseases such as severe hypertension, obstetric cholestasis, cirrhosis or hydatidiform mole.

(Glasier & Gebbie, 2000)

5. Discourage its use prior to six weeks postpartum. Little research has been conducted on their immediate postpartum use. This is based on the early neonatal
exposure to exogenous steroids, which have passed from the contraceptive into the milk, this should be avoided if possible (Hatcher et al., 2004).

**Depo-Provera**

Depo-Provera provides effective contraception for 12 weeks, and is injected into the gluteal or deltoid muscles. Since the precipitous withdrawal of natural progesterone two to three days postpartum is the physiological trigger for lactogenesis, receipt of a high dose of exogenous progestin (like Depo-Provera before the withdrawal), may interfere with the stimulus of milk synthesis (Hatcher et al., 2004). For this reason, Depo-Provera should be administered six weeks postpartum or the time of discharge if not breastfeeding (Youngkin & Davis, 2004). Other studies have agreed to avoid using DMPA (Depo-Provera) prior to six weeks postpartum in breastfeeding women. This is due to concerns related to the theoretical risks of sex steroids to an infant with an immature central nervous system, liver and other organs. (*FFPRHC*, 2004).

An eight-year follow up study of infants whose mothers used DMPA while breastfeeding have not shown any detrimental effect on growth or development of the child (*FFPRHC*, 2004). Depo-Provera has also been found to induce amenorrhea postpartum. Women who initiate the use of injectables while still amenorrheic, may remain amenorrheic for longer than if they had not used injectables (Curtis, 1996).

This method is not a good choice for women who would like another child soon. Fertility usually returns in four to nine months after cessation, but it can take as long as 18 months (Rosenfeld, 2001). The National Guidelines Clearinghouse recommends administration of Depo-Provera injection six weeks postpartum if reasonably certain the
woman is not pregnant with additional contraceptive protection for seven days. May be considered at less than six weeks if the risk of subsequent pregnancy is high and other contraceptive methods are unacceptable (National Guidelines Clearinghouse, 2006).

Side effects from this product are:

1. Menstrual disturbances
2. Amenorrhea
3. Weigh gain, average is 2kg (5lbs) during the first year and 5+kg or (11+lbs) in the second year.
4. Has lower efficacy rate in overweight or obese women.
5. Bloating, decreased libido, dizziness, mood changes, acne, palpitations, depression, breast tenderness and headaches.
6. Can increase LDL and decrease HDL.
7. Can reduce bone mineral density, especially women who use this method longer than 5 years are at particular risk.
8. Has a high discontinuation, probably due to irregular bleeding, weight gain, and increased headaches.

(Rosenfeld, 2004)

The benefit of Depo-Provera includes:

1. Provides major degree of protection against the development of endometrial adenocarcinoma, and possibly against ovarian cancer.
Combined Hormonal Contraceptives

Combined estrogen-progesterone hormonal contraceptives includes: combined oral contraceptives (COC), depo-Lunelle, NuvaRing, and Ortho-EVRA transdermal patch. The World Health Organization recommends that combined contraceptives be avoided in lactating women within the first six weeks postpartum and used with caution between six weeks and six months. Studies have advised women if they are breastfeeding not to begin combined contraceptives until at least six weeks, but preferably at six months postpartum (Youngkin & Davis, 2004). World Health Organization studies found a statistically significant decline in breast milk volume in women using combined oral contraceptives compared to women using progestin-only pills. However, infant growth for the two trials did not differ (Truitt et al., 2003).

The estrogen component of combined contraceptives that is transmitted in breast milk has not been shown to be detrimental to the infant, has been found to decrease milk supply (Rosenfeld, 2001). If not breastfeeding, women may begin COC (Combined Oral Contraceptives) three weeks postpartum. Starting COC prior to two weeks postpartum increases the risk of thromboembolic disease (Youngkin & Davis, 2004).

Studies have mentioned that some postpartum hormonal contraceptives affect postpartum amenorrhea status. For example, the pill induces withdrawal bleeding that mimics the menstrual cycle. Many amenorrheic women who begin using the COC will experience withdrawal bleeding three weeks later, and was reported as the resumption of menstruation, although menstruation may not have been returned naturally at this time (Curtis, 1996).
Despite adverse effects of combined oral contraceptives on lactation, many women still prefer this method due to its many benefits including: familiarity, effectiveness, safety, reversibility, excellent cycle control, decrease menstrual cramps and pain, decreased days of bleeding and amount of blood less compared to other methods.

Other methods more suitable for lactation, may not offer these advantages. Some women quit breastfeeding in order to start the combination pill (Truitt et al., 2003). Clinicians need to educate women on the importance of continued breastfeeding and on their contraception methods aside from COC. Women should be advised that the use of COC while breastfeeding is outside product licenses (*National Guidelines Clearinghouse*, 2006).

**Emergency Contraception (EC)**

This can be indicated if there has been unprotected intercourse or potential for contraception failure after day twenty-one. Progesterone only EC can be used without restriction in breastfeeding women. EC is 89% effective. It needs to be taken within seventy-two hours after unprotected sex or contraception failure. Take second pill twelve hours after the first dose (Duramed 2004).

EC requests by breastfeeding women is very common. Although, the risk of pregnancy for a nursing mother is small, most women are highly motivated to avoid short inter-birth intervals and EC should not be withheld (Glasier 2000).

**Intrauterine Devices (IUDs)**

- Copper T 380A (ParaGard) IUD
- Mirena (LNG IUS) IUDs
Among women using IUDs within the U.S., 99% state they are satisfied with this method of contraception. As health care providers, we need to furnish the correct information to postpartum women regarding this method of contraception (Hatcher et al., 2000).

All IUDs cause a foreign-body reaction in the endometrium, which increases prostaglandin production and leucocyte infiltration. This reaction is enhanced by copper which affects endometrial enzymes, glycogen metabolism and oestrogen uptake and also inhibits sperm transport. They also induce endometrial atrophy and the development of hostile cervical mucus (Glasier & Gebbie, 2000).

IUDs are more effective then oral contraceptives. Efficacy has improved, with pregnancy rates less then 0.5% with newer copper devices. Rate of pregnancy, spontaneous expulsion and removal for bleeding tend to fall with continued use (Glasier & Gebbie, 2000).

IUDs can be inserted immediately after delivery of the placenta, within 48 hours postpartum or six weeks postpartum. If immediate post-delivery insertion is done, then the ParaGard is indicated due to being most effective and safe IUD for postpartum women. Expulsion rates are much higher if insertion is done immediately postpartum than if done at six weeks postpartum (Kennedy & Trussell, 1998). National Guidelines Clearinghouse recommends IUDs be inserted within 48 hours postpartum, if not then insertion should be delayed until four weeks postpartum. WHO recommends that the risks of IUD insertion prior to six weeks postpartum outweigh the benefits in postpartum women if not inserted in the first forty-eight hours postpartum.
The postpartum period offers a great opportunity for IUD insertion due to: insertion could be less painful, women are infertile, and they are followed at regular intervals (Levitt et al., 2004). One study where IUDs were inserted within ten minutes post-placental expulsion in term pregnancies for both vaginal and cesarean deliveries, found high continuation rates for the devices. Continuation rates were 87.6% and 76.3% after six and 12 months respectively. The study also reported a 12.3% expulsion rate for immediate post-placental insertion of IUDs. Overall, the study recommended copper T 380 IUD models are an effective, safe, useful, convenient and low cost procedure for early postpartum contraception (Sevki, Perran, Ayhan, Ayla & Nuri, 2004).

Another study found Copper T IUDs have a high continuation rate over a 12 month interval postpartum. The study reported it is an effective method for lactating women (Althaus, 1997). A Cochrane Library review suggested immediate postpartum insertion of IUDs is generally safe and effective. The review was unable to determine if time of insertion of IUDs plays a factor in expulsion. The study found insertion of IUDs by hand or by instrument are equally successful (Grimes, Gallo, Halpern, Nanda & Schulz, 2005). Similar findings were found on the same topic by Levitt et al., 2004, stating that it appears immediate postpartum insertion of IUDs was associated with higher expulsion rates and removal for pain and bleeding than the interval insertion, no clear recommendation can be made since timing was not randomized (Levitt et al.).

Women should be informed failure rates for IUD use is very low, with the most likely cause of failure being expulsion. Trials evaluating IUD insertion immediately postpartum suggested expulsion rates are lower for women who are breastfeeding.
compared to women who were bottle-feeding. Low rates of IUD discontinuation occur when inserted between four to six weeks postpartum (FFPRHC, 2004).

Advantages of IUDs

1. Highly effective requiring very little compliance for successful use. Apart from the initial visits for counseling and insertion, there is little demand of time or effort for efficacy.
2. Not related to coitus.
3. Can be removed easily and return to fertility is rapid with conception rates of 78-88% after 12 months. (Glasier & Gebbie, 2000)
4. Remarkably reduces menstrual flow and dysmenorrhea, and can be used for treatment of menorrhagia (Anderson, 1990).
5. Protective against ectopic pregnancy: IUDs have been found to significantly reduce the risk of ectopic pregnancy because IUDs prevent all types of pregnancies. If a pregnancy does occur with IUD in place, the ratio of ectopic to intrauterine pregnancy may be increased.
7. Well liked by users.
8. Low risk of side effects.
9. Cancer protection: found to protect against endometrial cancer.
10. No effect on breast milk or infant growth and development.
Disadvantages of IUDs

1. Menstrual bleeding pattern: heavier and prolonged menstrual periods for copper IUDs. Over 10% of users report menstrual problems.

2. Infection: PID (Pelvic Inflammatory Disease) in IUD users is 1.4 to 1.6 cases per 1,000 users. The risk is 9.7 per 1000 in the first 20 years after insertion. The IUD itself does not cause the pelvic infection. The sexual behavior of the woman and her partner may increase the risk of sexual transmitted infection, as well as the introduction of infective organisms at the time of insertion if the provider doesn’t use proper aseptic technique. Tubal damage and subsequent infertility are serious consequences of pelvic infection in women.

3. Expulsion: IUDs can become displaced or expelled from the uterine cavity.

4. Perforation: perforation of the uterus is rare and it is related to the type of IUD, insertion technique and the skill of the provider. The risk of fundal perforation is greater early in postpartum period before the uterus is fully involuted. (Glasier & Gebbie, 2000)

5. Cramping and pain: after IUD insertion, women may feel discomfort of cramping pain for 10 to 15 minutes (Hatcher et al., 2004).

Who Should Use IUDs

- Fist choice contraceptive method for women in a mutually monogamous relationships.
- Women who have difficulties using a contraceptive method that requires compliance.
- Women who are spacing pregnancies (immediately reversible).
- Women who have completed families but wish to avoid sterilization.

(Glasier & Gebbie, 2000)

Cost of IUDs

Initial cost can be expensive, but if this cost is spread over the life of the device then it is very inexpensive, even when compared to condoms (Hatcher et al., 2004). The copper T IUDs costs around $344, while the levonorgestrel IUDs costs around $450 (PocketGuide for Family Planning Service Providers, 2006).

Copper T 380A IUDs

Copper T 380A IUDs are a good choice for breastfeeding women because it doesn’t affect the quantity or quality of breast milk. It is made of polyethylene with barium sulfate to create x-ray visibility with copper wire around the vertical stem of the T. This particular IUD is approved to be used for up to 10 years (Hatcher et al., 2004).

Mirena (LNG IUS) IUDs

Mirena or levonorgestrel intrauterine system (LNG-IUS) has been approved for use within the United States since 2000. This IUD releases levonorgestrel directly into the endometrial cavity. The approved time use of this device is five years. Small amounts of levonorgestrel are systemically absorbed and therefore some systemic side-effects can occur. The amount of daily levonorgestrel is about 10% of oral contraceptives (Hatcher et al., 2004). LNG-IUS have added advantages. They can be used to treat heavy menses and has also been found to be an acceptable alternative to endometrial ablation or hysterectomy (Hatcher et al., 2004).
Sterilization

- Female Sterilization (Tubal Ligation)
- Male Sterilization (will not be covered in this Module)

Female Sterilization

Female sterilization involves blocking both fallopian tubes, which can be achieved by laparotomy, mini-laprotomy, or more commonly by laproscopy. Sterilization can also be achieved by removal of both tubes (salpingectomy) or by hysterectomy, and either of these procedures is indicated by the presence of gynecological disease (Glasier & Gebbie, 2000). Whatever the approach, the fallopian tubes can be blocked or divided by: clips, falope ring, diathermy, laser and non-surgical method (chemical method like quinacrine) (Glasier & Gebbie).

Female sterilization is a safe procedure. It is the most common method of contraception for women in the U.S. (Gilliam, 2005). The risk of complications is less than 1%. About six to 22% of women do report “regret” over this decision, but only 1% choose to reverse the procedure. It should be considered a permanent, nonreversible option, although it can be revered but it is difficult and expensive. The likelihood of regret is increased in women who had no inadequate counseling, women younger then thirty years of age, women who had it done during postpartum, and women who had changed marital status or relationships. Women considering this option need to be counseled as well as informed about other reversible options (Rosenfeld, 2001).

Consistent use of oral combined contraceptives or IUDs is more efficacious then tubal ligation. About 18.5/1000 women will become pregnant within ten years following
the procedure with one-third of the pregnancies being ectopic. Postpartum tubal ligation
is less effective than ligations performed at other times (Rosenfeld, 2001). Failure of
female sterilization varies according to method used and the experience of the surgeon.
The U.S. Collaborative Review of Sterilization demonstrated higher failure rates than had
previously been reported (Glasier & Gebbie, 2000).

Other references recommend postpartum sterilization ultimately be performed
after the infant’s first successful feed, with the mother allowed to nurse again in the
delivery room. Otherwise, it can be performed at six weeks postpartum (Rosenfeld,
2001). As primary care providers, we aren’t going to be the main provider that counsels
or performs this procedure but nevertheless, it is important to provide women with this
information if they so desire.

Advantages of Female Sterilization

- Highly effective, convenient
- One-time decision provides permanent sterility
- Safe: low complication and morbidity rates
- Bilateral tubal ligation has been effective against ovarian cancer and PID
- Partner cooperation not required
- Short recovery time
- Certain techniques can be performed immediately after childbirth or abortion
- Bilateral tubal ligation is immediately effective
- No interference with lovemaking
- Low long-term risks
- Low, long-term costs, and it’s covered by 85-90% of private insurance plans
- Can be performed while lactating

(Youngkin & Davis, 2004)

Note: Vasectomy is equally effective, simpler, safer, and much less expensive than bilateral tubal ligation (Youngkin & Davis).

Disadvantages of Female Sterilization

- Permanence (difficult to reverse)
- Regret of decision
- Technical difficulty of the procedure
- Need of surgeon, operating room, trained assistants, equipment
- Expense at the time of the procedure (initially)
- Higher probability of pregnancy being ectopic if method fails
- Lack of protection against sexually transmitted infections including infection with HIV.

(Hatcher et al., 2004)

- Carries risk of infection, injury to other organs, hemorrhage, complications from anesthesia.
- Uterine perforation is possible.

(Youngkin & Davis, 2004)

Postpartum Female Sterilization

Usually performed ten or more hours after delivery, once the risk of postpartum hemorrhage has passed, and the status of the baby can be assessed (Hatcher et al., 2004).
Tubal occlusion can easily be accomplished during cesarean section, but cesarean section should not be done just to gain access for tubal sterilization. About 46% of pregnant women within the U.S. who request postpartum sterilization ultimately do not undergo the procedure. Some women might consider sterilization an initial possibility due to their concern about whatever they could successfully use reversible contraception to prevent unintended pregnancy. Therefore, providers need to counsel women who desire this procedure about reversible options available to them (Gilliam, 2005).

Factors that might cause a woman not to undergo sterilization include: being young, being African American, making the request during the second trimester of pregnancy, and having a vaginal delivery instead of cesarean.

Barrier Methods

- Male condom
- Diaphragm
- Cervical cap
- Spermicides/Sponge

Barrier methods of contraception interrupt the process of human reproduction by blocking the progress of sperm from the male partner to the female, preventing fertilization. Their efficacy depends on quality of use, their failure rates are significantly reduced when used consistently and correctly by well-motivated individuals (Glasier & Gebbie, 2000).

Barrier methods are often acceptable to women in the postpartum period because of limited sexual activity. Additional lubrication should be used by breast feeding
women due to increased vaginal dryness. Spermicide has no effect on breast milk or on infant health (Glasier & Gebbie, 2000).

**Male Condom**

World Health Organization (WHO) states male condoms and spermicides can be used by breastfeeding women without restrictions, before and after six weeks postpartum. The WHO also recommends women at low risk for sexually transmitted disease use spermicide containing nonoxynol-9 (N-9) and, that condoms without N-9 are just as affective as those with N-9 (FFPRHC, 2004). Because breastfeeding can cause vaginal dryness due to decreased estrogen, spermicides may add comfort (Youngkin & Davis, 2004).

Postpartum endometritis is a serious complication. The risk of introducing bacteria into the uterus is elevated before cervical closure is complete, therefore the male condom may be a great option during that time.

**Diaphragm**

Women should be advised to delay the use of diaphragms and cervical caps until uterine involution is complete, around six weeks postpartum (FFPRHC, 2004). Episiotemies are also tender and attempting to fit a diaphragm before six weeks could only increase discomfort (Youngkin & Davis, 2004). Because a sperm-tight seal between the rim of the diaphragm and the vaginal walls is impossible to achieve, spermicide needs to be used with all diaphragms and caps for maximum effectiveness. Failure is usually associated with poor motivation, incorrect insertion or fitting, displacement during intercourse and unnoticed defects in the diaphragm (Glasier & Gebbie, 2000).
The diaphragm is up to 94% effective when used with spermicide (Duraderm Pharmaceuticals Inc., 2004).

Indications for Diaphragm Use

1. When a couple wants to use a barrier method and find other methods of contraception unacceptable.
2. When there are medical reasons that exclude the women from taking hormonal contraception.
3. When a couple needs intermittent, or infrequent, yet reliable contraception. (Glasier & Gebbie, 2000)

Advantages of Using the Diaphragm

- No systemic side-effects
- Effective when fitted and used correctly
- Does not interfere with lactation
- Spermicide provides extra lubrication if vaginal dryness is a problem (especially while breastfeeding).
- Reduction in the risk of pelvic inflammatory disease (spermicide might be the actual protective factor).
- Reduction in the risk of pre-malignant disease and carcinoma of the cervix. The use of spermicidal agents might be the actual protective factor. (Glasier & Gebbie, 2000)

Disadvantages of Using the Diaphragm

- Requires premeditation, and therefore loss of spontaneity with intercourse.
Spermicide makes these methods “messy”.

May cause discomfort to the women or partner during intercourse.

May cause loss of cervical and vaginal sensation.

Needs to be fitted and check regularly by a trained provider.

 Doesn’t provide protection from transmission of HIV or other viral infections.

Sensitization to rubber or spermicide may develop.

Significantly more frequent candidus infections.

Increased incidence of urinary tract infections. Women with recurrent urinary track infections should use alternative method of contraception.

Toxic shock syndrome following prolonged retention of a diaphragm has been reported is a small number of cases.

Efficacy depends on correct use and sustained motivation.

(Glasier & Gebbie, 2000)

Cervical Cap

The cervical cap is held in place by suction, not by spring tension as in the diaphragm. Efficacy is 74% effective after having children (Duramed Pharmaceuticals Inc., 2004). Inform women regarding this substantial decrease in efficacy, even during perfect use so they can make an informed choice of an alternative contraceptive method (Hatcher et al., 2004). Approximately half the pregnancies were due to user failure when using the cervical cap, and the others by accidental dislodgement of the cap during intercourse (Glasier & Gebbie, 2000).
The cervical cap is indicated for women who are unsuitable for a diaphragm, provided that the cervix is normal and healthy, pointing down the axis of the vagina and not backwards (Glassier & Gebbie, 2000).

Advantages of Using the Cervical Cap

- Suitable for women with poor muscle tone and some cases of uterovaginal prolapse.
- Not felt by male partner
- No reduction in vaginal sensation
- Fitting not effected by changes in the size of the vagina, either during intercourse or as a result of changes in body weight
- Can be kept in place for several days
- Not likely to produce urinary symptoms

(Glasier & Gebbie, 2000)

Disadvantages of Using the Cervical Cap

- Requires accurate selection of cap size and fitting to avoid displacement during intercourse.
- Self-insertion and removal cap are more difficult than with a diaphragm.
- An unpleasant odor can develop if the cap is left in place for more then a day or two.

(Glasier & Gebbie, 2000).

Overall, the cervical cap is not a good choice for postpartum contraception due to its low efficacy rate of 74%. Also, although this product is available within the United
States, many clinicians are unfamiliar with it (Rosenfeld, 2001). Counseling needs to occur making sure the women understands her risk of unintended pregnancy with this type of contraception method especially during postpartum.

Spermicides and Sponge

Spermicides are chemicals that are toxic to the sperm. Most contain nonoxynol-9 or octoxynol-9 as an active ingredient. They can be used by themselves or in combination with other barrier methods like condoms, diaphragms or cervical caps. Suppositories and tablets dissolve in thirty minutes and are effective for less then one hour and either partner can develop a hypersensitivity to the product, and can be associated with local irritation of tissue (Rosenfeld, 2001).

The sponge is a physical barrier containing spermicide and provides protection against contraception for twenty-four hours. They are usually more effective in nulliparous women rather then post-partum women. Nevertheless, this product is currently not available within the United States (Rosenfeld, 2001).

Natural Family Planning (NFP) and Fertility Awareness-Based Methods (FAB)

In under-developed countries, people do not have the funds for medical or surgical means for contraception. In developed countries, hormonal contraception and mechanical interventions are becoming less accepted, both societal and personal. This has lead to the search for effective non-medical contraception techniques, and NFP (Natural Family Planning) has become an area of interest (Roscoe, 2003).

Women in developed countries using hormonal contraceptives experience mood swings and low sex drive as side-effects. Liu, 2003 in her article gave an example of a
A thirty-year-old woman who tried four different kinds of oral contraceptives in many years hoping to find one that would agree with her body. In the end, she became so frustrated that even an intended pregnancy would have been a better choice than the pill until she discovered NPF (Liu, 2003). Many women are turning to NFP for other reasons than religion, some wanting to give their bodies a break from hormones, estimating that forty percent of women using NPF are non-Catholics (Liu).

Fertility awareness based methods and natural family planning methods depend on identifying the “fertile window” or “fertile period” or the days when intercourse is most likely to result in conception. These methods therefore can be used to avoid conception but also useful for couples wanting to conceive. Because of this fact, NFP is not considered a true method of contraception (Roscoe, 2003).

These methods are usually practiced by certain religious denominations and taught outside the medical community. Many providers are skeptical of NFP and view it as unscientific. It has been found that seventy-nine percent of health care providers underestimate its effectiveness (Roscoe, 2003).

NFP and FAB (Fertile Awareness-Based Method) are both based on the menstrual cycle. To avoid pregnancy, couples can either use a barrier method or not have intercourse during the fertile period. If the couple uses a barrier method during the fertile period then they are using fertility awareness-based method. If they are abstaining from intercourse then they are using natural family planning method (Hatcher et al., 2004). Natural family planning has a Catholic background because the Catholic doctrine forbids
artificial contraception (Liu, 2003). Many couples have found periodic abstinence more difficult then any other method (Senanayake & Potts, 1994).

The WHO states FAB of family planning, involves identification of the fertile days of the menstrual cycle, whether by observing fertility signs such as cervical secretions and basal body temperature, or by monitoring cycle days. These methods will be covered within this module for providers need to be aware of them, although they need to be taught by a specialist.

For the women that are not exclusively breastfeeding and do not desire to become pregnant this is another contraception option to consider if the couple wants to avoid medications or contraception devices. The methods are:

- Calendar or rhythm method
- Standard days method
- Temperature method
- Ovulation (Mucus or Billings) method
- Cervical palpation method
- Symptothermal method
- Simple Observation (TwoDay) Method
- Creighton Model

(Glasier & Gebbie, 2000)

Concept of NFP and FAB

Ovulation usually occurs 14 days before the next menstrual cycle. The NFP and FAB contraception methods are based on knowledge there are only a few days during the
menstrual cycle when conception can occur. This “fertile period” can be identified by indicators, knowledge of a woman’s cycle, timing of ovulation and the lifespan of the ovum and the sperm. This knowledge is used in order to determine when the couple needs to abstain or use another form of contraception during that period in order to avoid conception (Glasier & Gebbie, 2000). This kind of method requires commitment, abstinence from penetrative sex or use of other method during fertile period, motivation, as well as a caring and committed partner. Both the provider and the couple need to understand the menstrual cycle in order to use the NFP method.

Cost of FAB and NFP Methods

Cost depends on supplies, materials and time. This method is usually low cost. If the couple uses a barrier method during the fertile time then additional costs will be made (Hatcher et al., 2004).

Effectiveness of NFP and FAB

In a systemic review regarding FAB methods concluded due to poor methods and reporting, pregnancy rates could not be determined (Grimes et al., 2005). These results were similar to a trail conducted in Columbia. Continuation rates are poor and most participants discontinued their assigned method before entering the observation trail. The study concluded the efficacy of fertility awareness-based methods of contraception remains unknown (Grimes et al.).

Roscoe, 2003 looked at both method-effectiveness and use-effectiveness for avoiding pregnancy when describing effectiveness of natural family planning. “Method-effectiveness refers to perfect use, with appropriate instruction and proper application of
the principles achieved through cycle-by-cycle evaluation” and “use-effectiveness encompasses method-effectiveness as well as the imperfect use of NPF, caused either by inadequate instruction or faulty application of principles”. The user-effectiveness is the most accurate measurement when looking at the population (Roscoe, 2003).

The Billings Ovulation Method and Creighton Model are the most evaluated in medical literature. The Billings Ovulation Method has a method-effectiveness of 98.3% to 100% and a user-effectiveness from 93% to 98.7% (Roscoe, 2003). The Creighton Model was found to have a method effectiveness from 99.5% to 99.8% and a user-effectiveness of 94.6% to 97.9% (Roscoe).

Calendar or Rhythm Method

The Calendar Method, also known as “Rhythm Method” or “Russian Roulette”, named so by its high failure rate (Glasier & Gebbie, 2000). This method predicts time of ovulation based on the length of the previous cycle (Senanayake & Potts, 1994). Information is collected over a number of consecutive menstrual cycles. The duration of six to 12 cycles is documented, 20 days are subtracted from the shortest cycle to identify the first fertile day, and 11 days from the longest cycle to identify the last fertile day (Glasier & Gebbie). Women with shorter cycles have a lower number of fertile days. This method can be effective if used with other fertility indicators (Glasier & Gebbie).

Standard Days Method

This is a new natural technique, found to be 95% effective when used correctly (Liu, 2003). Most appropriate for women with cycles of 26 to 32 days long. To use, the days for the menstrual cycle are counted starting with the first day of menses. Most
women use a colored-coded string of beads called CycleBeads to keep track of their menstrual days (Hatcher et al., 2004).

1. The first day of menstrual bleeding is day one.

2. Days one to seven can have unprotected intercourse.

3. Days eight to 19 a barrier method or abstinence used in order to avoid conception.

4. Day 20 through end of cycle can have unprotected intercourse.

(Hatcher et al., 2004)

Temperature Method

At ovulation, progesterone rises body temperature about 0.2C to 0.4C, which is maintained until the start of menstruation. Rise in temperature indicates ovulation has occurred. A woman’s temperature declines 0.1 to 0.2C prior to ovulation, then rises 0.5 to 0.6 degrees C and remains elevated twelve to fifteen days until onset of menstruation (Rosenfeld, 2001).

This method identifies the end of ovulation but not the beginning. Therefore, this method needs to be used in conjunction with other indicators (Glasier & Gebbie, 2000). The ovum can be fertilized for only twelve hours after release, therefore the woman needs to abstinent or use barrier method for three consecutive days of recording the higher temperature before unprotected intercourse. This method also requires barrier or abstinence method between menstruation and ovulation. Not a good method for women with irregular cycles (Senanayake & Potts, 1994).
Ovulation (Mucus or Billing) Method

This is a newer method described first in Australia by John and Evelyn Billings in the 1960s (Roscoe, 2003). The woman is taught how to recognize fertile cervical mucus. Cervical fertile mucus looks like a raw egg white, and can be stretched for several centimeters between finger and thumb without breaking. This is due to the increase levels of estrogen which alters the cervical mucus making it thick and sticky then thin, clear and slippery until the ‘peak day’ after which it changes (Senanayake & Potts, 1994). It appears several days prior to ovulation and the final day of fertile mucus is the day when ovulation is most likely to occur. Therefore, abstinence must occur from the first day of fertile mucus to three days after the final day of fertile mucus. Infertile mucus is scanty and viscous. Within the first month, 93% of women are able to identify fertile mucus (Glasier & Gebbie, 2000). Unintended pregnancies sometimes occur during the learning period (Senanayake & Potts).

Infertility due to breastfeeding can also be assessed with this method. If the cervical mucus remains tacky without becoming clear and stretchy, then it is the strongest indicator the women remains infertile (Youngkin & Davis, 2004).

Cervical Palpation Method

The cervix itself can also be palpated on a daily bases in order to identify the fertile window. During the infertile period, the cervix feels lower in the vagina and is firm and dry. As ovulation approaches, it feels wet and soft to the touch, rises up 1 to 2 cm and the cervical os opens slightly (Glasier & Gebbie, 2000).
Symptothermal Method

This method combines the temperature and mucus methods and also uses other hormonal changes like pain, spotting or bleeding, breast tenderness, mood swings and bloatedness (Glasier & Gebbie, 2000).

Simple Observation (TwoDay) Method

This method doesn’t require the woman to observe consistency or appearance of mucus. Based on presence or absence of cervical secretions, this method allows the woman to determine if she had secretions that today, or the day before. If secretions of any type occurred today or the day before, she needs to consider herself fertile (Hatcher et al., 2004).

Creighton Model

Introduced in the 1980s, this method uses cervical mucus measurements, different types of vaginal bleeding, and different biologic markers of fertility. This method requires close monitoring by a NFP counselor.

NFP, FAB Methods and Breastfeeding

The temperature method is only reliable for women who have six hours of uninterrupted sleep, and so this might not be a good option for postpartum women. Studies determined changes in cervical secretions during lactation are reliable (Lawrence & Lawrence, 1999). The couple should note when:

- the infant sleeps through the night
- the mother reduces the number of breast feedings
- the infant begins solid foods
the infants begins other liquids or a bottle

illness occurs either in infant or mother

(Lawrence & Lawerence)

If any of the above occur, abstinence or barrier method should be used. Keep in mind stress and illness can alter ovulation patterns (Liu, 2003).

Cervical mucus changes may also be misleading during postpartum period (Younkin & Davis, 2004). These kinds of methods are more difficult to use and require more extensive counseling especially if the woman had recent childbirth and is currently breastfeeding (Hatcher et al., 2004). During the postpartum period, predicting the fertile window can be difficult (Younkin & Davis).

Abstinence

Sexual abstinence is the only contraception that is 100% effective. In reality, this method is difficult to practice. Abstinence is defined as refraining from penile-vaginal intercourse. For various reasons, women may choose to become abstinent postpartum. As health care providers, we need to support this choice of contraception. They need to know this choice can be reversed at anytime (Hatcher et al., 2004). For example, adolescents may consider this option. Once adolescents have had a sexual experience, they may be more incline to consider abstinence (Rosenfeld, 2001). If this method is elected, make sure the woman is informed regarding emergency contraception (Youngkin & Davis, 2004). Abstinence also requires both partners agree with this kind of contraception.
Various databases have been searched for journal articles or studies on “postpartum abstinence” or “abstinence contraception postpartum” but no results were found.

Coitus Interruptus

This method has been used since ancient times. Always available with no cost, but its failure rate is high. This contraception method has received criticism, including the possibility of physical and psychological damage (Senanayake & Potts, 1994). Other criticism has been considered that pre-ejaculatory fluid contains sperm which can lead to accidental fertilization. This argument has no merit in reproductive physiology, for “if such a small number of sperm was found in the ejaculate of a man seeking treatment for infertility, he would be considered and incurable case” (Senanayake & Potts). Couples using this method may benefit from knowledge on emergency contraception (Rosenfeld, 2001).

Table 3.1 is derived from the module and contains the different contraception options available to postpartum women. Women who are breastfeeding should be advised they can and should return at anytime to discuss side effects, other problems, or the desire to change their contraceptive method.

Summary of Chapter 3

This module covers the following options for postpartum couples: lactation amenorrhea method, hormonal contraceptives, intrauterine devices, barrier methods, sterilization, natural family planning and fertility awareness-based methods, abstinence and coitus interruptus. The efficacy, advantages, disadvantages and effects on breast...
milk and infant growth and development have also been covered for each method. Please see Table 3.1 for a quick reference guide. Each woman and her situation is different, therefore counseling on possible options and allowing to pick the contraceptive that fits her needs should be encouraged. If she isn’t satisfied with her option, further counseling should be offered in order to find the contraception choice that fits.
CHAPTER 4
DISCUSSION

Introduction

Chapter 4 addresses the educational module as it relates to the theoretical framework; overall significance to nursing; plan on how the module can be evaluated for effectiveness to health practice; possible extension of the project and recommendations for future research; and strengths and limitations.

Overview

This project was intended to be used as an educational module on postpartum contraception for health care providers. The module should help guide clinicians in helping women choose the postpartum contraception option right for them, encouraging family spacing, and decrease rate of unintended pregnancies. In an era where couples can control their fertility, over half of all pregnancies are unintended. It is not realistic for individuals to avoid unintended pregnancies, if they are not given adequate access to comprehensive family planning services. Family planning remains a keystone in attaining a national goal aimed at ensuring every pregnancy is intended. The CDC in 2004 reported women between 15 and 44 years of age receive family planning or medical services as follows:

- 56% from a private practice, private group practice or HMO
- 22% from a public clinic

Therefore, 78% of women within the reproductive age receive family planning or medical services from a private practice, HMO, or a public clinic. This encompasses a
large number of women and clinicians providing their care need to be knowledgeable on
postpartum contraception (CDC, 2004). Improvement of contraceptive education has the
potential to positively impact rates of contraceptive failure, inconsistent contraceptive
use, and finally, rates of unintended pregnancies (Johnson et al., 2003).

This project has been focused on the postpartum component of contraception for
several reasons. First, it has been found readdressing this issue during the postpartum
period may reinforce a decision regarding birth control and improve patient satisfaction
and continuation rates (Johnson et al., 2003). Second, has been identified using type of
education, if presented to postpartum women can be effective in increasing short-term
use of contraception.

Women are more likely to report a birth as unintended if it occurred 24 months or
less from previous birth (Truitt et al., 2003). So why are these women encountering
repeat pregnancies? Have they forgotten their recent obstetric event? Has been reported
women were more likely to use contraception after pregnancy if their health care provider
discussed birth control options.

Relation to Theoretical Framework

The Health Belief Model is appropriate for this project because it was initially
developed to help explain an individual’s failure to accept disease preventives or
screening test for the early detection of an asymptomatic disease. This model works well
with postpartum contraception for it predicts behavior based on the value of the outcome
to an individual (Orr & Langefeld, 1993).
The model considers motivation for health by an individual, access to health care, and ability of medical care to promote health and reduce the burden of disease (Sharps et al., 2003). Postpartum women can be armed with knowledge regarding contraception by their providers in order to plan spacing and family size and avoiding unintended pregnancy.

The 7 components of the HBM work well with postpartum contraception as shown in Table 2.1. Prior studies have used the HBM determining there is advantage in receiving health information in order to take steps in becoming healthier. Health promoting can increase health knowledge and enhance health beliefs, which contributes to healthy behavior (Chew et al., 2002).

This model fits with the module, and the 7 components can be used as a guide for clinicians to help postpartum women identify perceived susceptibility, perceived severity, perceived benefits, perceived barriers, other variables or modifying factors, cues to action and self-efficacy.

Significance of the Module to Nursing

Nurses have been well known as patient educators. They are known to empower patients with information regarding health issues and concerns. Nurses and NPs don’t just tell patients what to do, but also why, and how. This module can help nurses and NPs broaden their postpartum contraception knowledge and therefore feel more at ease and more able to pass on the information to their clients. As mentioned, postpartum contraception is sometimes overlooked, yet it is an important component in health care.
Each year, over 100 million women make decisions regarding beginning or resuming contraception after childbirth. About 78% of women between the reproductive age 15 to 44 are being seen in either private practice, HMO or public clinic for family planning or medical services. Their providers need knowledgeable regarding postpartum contraception. Providers not only need to educate women on postpartum contraception, but also let them know the advantages of breastfeeding, encouraging them to combine breastfeeding with modern methods as the women return to fertility. This subject not only affects women but couples as well. In an effort to decrease unwanted pregnancies, this information can help society, for unintended pregnancies not only take a toll on the couple, but also on society and the unwanted infant.

Plan on Evaluating Module Effectiveness

Prior to module administration to clinicians, a pre-test will be given in order to evaluate each provider’s knowledge on postpartum contraception. The module will then be administered to clinicians, and at the end a post-test will be administered to determine knowledge after the module is completed. This test will help identify how improvement has been made, and if the learning was beneficial. The same questions will be used for the pre- and post-test. This way, there will be no concern or criticism on how the pre- and post-test questions compare. Was the pre-test too hard or too easy? Was the post-test to hard or too easy?

The clinicians going through the module will be notified an evaluation of long term learning will be done in four months. An incentive will be offered to help ensure
clinicians will take the test in four months. Gift certificates or some sort of prize will be sent after completing the test.

Based on overall results of basic knowledge (pre-test), immediate learning (post-test) and long term retention of information (test administered after four months), a decision will be made regarding validity and effectiveness of the module.

Future Studies and Recommendations

This module, if proven effective, can be proposed as a means to obtain continuing education hours for providers. If proven ineffective, the module can be improved based on required needs. The information can also be translated to a more easy to understand language and condensed, used as a handout to satisfy the educational needs of women during the prenatal and postpartum period. Pre-test and post-tests can also be administered as well, to determine effectiveness and validity. The module can be altered to help women understand their postpartum contraception options.

Strengths and Limitations

The project has several strengths. First, the information covered within the module can provide knowledge to clinicians regarding postpartum contraception. Secondly, the information not only is important to women’s health but also affects men and society. Men also play an important role in choosing postpartum contraception method, for they can support women or help choose a method that will work for them as a couple.

Secondly, a high unintended pregnancy rate in this country can have a toll on overpopulation, finance, time off work and abortion rates. Estimated costs of unintended
pregnancy for medical care alone, totals billions of dollars annually. The cost of pregnancy, for each woman of typical fertility who does not intend to be pregnant, yet is sexually active and uses no contraception is about $3,200 annually.

Thirdly, unintended births can increase welfare dependency, which affects us all. The fourth strength of this module is it can help reach the goal of ensuring each U.S. pregnancy is intended (Healthy People 2010). Lastly, with increased attention to postpartum contraception, couples will be more comfortable asking questions on the subject.

Limitations of the project include inconsistent recommendations for postpartum contraception. For example, some sources stated natural family planning and fertility awareness-based methods can be used postpartum, while others discouraged their use during this period. Also, contraception options are frequently updated, their recommendations changed, and at times, pulled from the U.S. market or added with little warning. For example, the sponge is not available within the U.S.

Another limitation is the module is intended to be used as an educational guide for clinicians. It fails to take into account cultural differences, female’s age, and background. Another limitation is it might be too long, and clinicians might grow tired and not retain the information. The module also lacks a time range in order to help clinicians determine how long they need to dedicate to the module. This is important, especially in today’s busy health care world. This last part can be added after the module has been tested, in order to first determine the average amount of time providers require to finish the module and pre-test and post-test.
Summary of Chapter 4

This project is proposes a module on educating clinicians regarding postpartum contraception. The Health Belief Model is a good fit, and its seven components were addressed within the project. The significance of this subject include high rate of unintended pregnancy within this country, as well as a need of contraception education recommended by previous studies. The plan for evaluating the module has also been presented. A pre-test and post-test will be administered, as well as a test after four months in order to measure retention of information presented. Recommendations for future studies have also been addressed, as well as strengths and limitations.
FIGURE 3.1: Decision Tree for Introduction of Contraception During Breastfeeding (Senanayake & Potts, 1995)

- **Menses resumed**
  - no
  - yes

- **Infant takes food supplements daily or sleeps through the night**
  - yes
  - no

- **Long time since delivery.**
  - no
  - yes

- **Less then 6 months**
  - yes
  - no

- **Low risk of pregnancy, but may use barrier method or IUD**
  - Begin hormonal or other methods
  - Begin methods other than combined oral contraceptives
FIGURE 3.2: LAM: Lactation Amenorrhea Method
(Hatcher, Trussell, Steward, Neslon, Cates, Guest et al., 2004).

1. Have your menses returned?
   - no

2. Are you supplementing regularly or allowing long periods without breastfeeding. Either night or day?
   - yes
   - no

3. Is your baby more than 6 months old?
   - yes
   - no

There is only a 1% to 2% change of pregnancy at this time

The mother’s chance of pregnancy is increased. For continued protection, advise to begin using contraception safe for breastfeeding and to continue breastfeeding for the child’s health.
TABLE 2.1: The Health Belief Model Constructs and Their Application to Postpartum Contraception

<table>
<thead>
<tr>
<th>Constructs</th>
<th>Definition</th>
<th>Application to postpartum contraception</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived Susceptibility</td>
<td>One’s opinion of chances of getting the condition</td>
<td>➢ Understanding that half of unintended pregnancies in US occur among women who do not use contraception(The Allen Guttmacker Institute) ➢ Increase awareness of the problem if individual doesn’t feel it’s a problem</td>
</tr>
<tr>
<td>Perceived Severity</td>
<td>One’s opinion of how serious a condition and its consequences are</td>
<td>➢ Consequences of the risk includes another pregnancy, resources, time, money, stress</td>
</tr>
<tr>
<td>Perceived Benefits</td>
<td>One’s belief in the efficacy of the advised action to reduce risk or seriousness of impact</td>
<td>➢ Clarify the positive effects to be expected: spacing, decreased stress, satisfaction</td>
</tr>
<tr>
<td>Perceived barriers</td>
<td>One’s opinion of the tangible and psychological costs of the advised action</td>
<td>➢ Reduce barriers by identifying them and addressing them through education: pick method right for in woman</td>
</tr>
<tr>
<td>Other variables and</td>
<td>Demographic: age, income, education, marital status</td>
<td>➢ Does she have enough money for the contraception options? Relationship status? Is she able to understand? Point out the importance of using a form or contraception even if she doesn’t have a steady partner. ➢ Address her beliefs, fears, culture.</td>
</tr>
<tr>
<td>Cues to action</td>
<td>Sociopsychological: beliefs, attitudes, culture</td>
<td>➢ Provide education, time, guidance, encouragement, praise for using contraceptive method successfully</td>
</tr>
<tr>
<td>Self-Efficacy</td>
<td>Confidence in one’s ability to take action</td>
<td></td>
</tr>
<tr>
<td>Method</td>
<td>Efficacy</td>
<td>Time to start Postpartum</td>
</tr>
<tr>
<td>---------------------------------------------</td>
<td>-----------------------------------------</td>
<td>--------------------------</td>
</tr>
<tr>
<td><strong>LAM</strong> (Lactation Amenorrhea Method)</td>
<td>98% (if primary feeding for infant without supplements [or very little supplements] and without use of breast pump)</td>
<td>Immediately</td>
</tr>
<tr>
<td><strong>Hormonal</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1). Progesterone only pill</td>
<td>1). 99%</td>
<td>1). 6 weeks or earlier if other methods unacceptable 2). 6 weeks</td>
</tr>
<tr>
<td>2). Depo-Provera</td>
<td>2). 99%</td>
<td></td>
</tr>
<tr>
<td>3). Emergency contraception</td>
<td>3). 89%</td>
<td>3). N/A</td>
</tr>
<tr>
<td>4). Combined oral contraceptives</td>
<td>4). 99%</td>
<td></td>
</tr>
<tr>
<td><strong>IUDs</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Copper T 380A</td>
<td>98.5% to 99.5%</td>
<td>Immediately after post-placenta delivery; 48 hours postpartum; or after 6 weeks</td>
</tr>
<tr>
<td>• Levonorgestrel (LNG IUS)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Female Sterilization</strong></td>
<td>99.5%</td>
<td>10 hours postpartum; or 6 weeks</td>
</tr>
<tr>
<td><strong>Barrier Methods</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1). Male condom</td>
<td>1). 97%</td>
<td>1). When sex is resumed 2). 6 weeks 3). 6 weeks</td>
</tr>
<tr>
<td>2). Diaphragm</td>
<td>2). 94% when used with spermicide</td>
<td></td>
</tr>
<tr>
<td>3). Cervical cap</td>
<td>3). 74% after having children</td>
<td></td>
</tr>
<tr>
<td><strong>Natural Family Planning Or Fertility Awareness Based Method</strong></td>
<td>2% to 5% failure rate among perfect users</td>
<td>Postpartum</td>
</tr>
<tr>
<td><strong>Abstinence</strong></td>
<td>100% if consistently used</td>
<td>No data available</td>
</tr>
<tr>
<td><strong>Coitus Interruptus</strong></td>
<td>High failure rate</td>
<td>postpartum</td>
</tr>
</tbody>
</table>
APPENDIX A

PRE-TEST AND POST-TEST QUESTIONS
Pre-Test and Post Test Questions

1). How long is a couple advised to wait before the resumption of intercourse postpartum?
   a). 6 weeks
   b). 24 hours
   c). after bright-red bleeding has stopped and the perineum is comfortable
   d). after the first successful breastfeeding

2). Women are not at risk for unintended pregnancy if they are using a breast-pump every 3 to 4 hours (this is known as the Lactation Amenorrhea Method)

   True or False

3) When breastfeeding is used solely to supply the infant with food, it delays resumption of fertility after childbirth and can be used as a natural method of contraception

   True or False

4). As of now, only ¼ of new mothers in the United States are breastfeeding.

   True or False

5). The recommended time to start progesterone only pills for breastfeeding women is 2 weeks postpartum.

   True or False

6). A woman who uses Depo-Provera postpartum while still amenorrheic may remain amenorrheic longer than if she did not use it.

   True or False
7). Using combined oral contraception while breastfeeding can delay infant growth and development.
True or False

8). Using combined oral contraceptives while breastfeeding is outside product license.
True or False

9). IUDs are more effective than oral contraceptives.
True or False

10). Studies found that expulsion rates for IUDs is lower in breastfeeding women than non-breastfeeding women.
True or False

11). The IUD device itself has been found to cause PID.
True or False

12). About 85%-90% of private insurance plans cover female sterilization and the procedure can be performed during lactating time.
True or False

13). There is a high probability of pregnancy being ectopic if female sterilization fails.
True or False

14). Breastfeeding women produce less estrogen which causes vaginal dryness.
True or False

15). The male condom might be a great option for postpartum women due to the high risk of introducing bacteria into the uterus before cervical closure is complete.
True or False
16). There is an increased risk for UTI for women using the diaphragm for contraception. True or False

17). The cervical cap is 96% effective postpartum when used correctly. True or False

18). The calendar or rhythm method of family planning predicts fertile days based on the previous menstrual cycle. This is a reliable form of contraception True or False

19). The Progesterone IUD and Progesterone ring are currently available within the U.S. True or False
REFERENCES


Healthy People 2010 Objectives: Draft of public Comment. Family Planning. Retrieved February 16, 2006 from:


