Health Promotion-Tdap Immunization

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Nurse practitioners are a vital component of today’s health care system. They diagnose and manage acute and chronic illnesses while placing an increased emphasis on health promotion and disease prevention (AANP, 2013). According to the World Health Organization (2014), “health promotion is the process of enabling people to increase control over, and to improve, their health.” One way to achieve improved health is through the utilization of primary prevention measures. The goal of primary prevention is to protect individuals from developing a disease or experiencing an injury . Examples of primary prevention include education regarding healthy lifestyle choices, legislation on seatbelt and helmet use, regular physical examinations and screening tests, limiting hazards at home and in the workplace, and immunization against infectious diseases (Arthritis - The Arthritis Challenge, 2013). The health promotion project discussed in this paper will focus on the importance of the Tdap vaccination for pregnant women.

# Pertussis

The epithelial cells of the respiratory tract are covered in protective, hair-like projections known as motile cilia. They move in a rhythmic waving motion that helps to keep the airways clear of dust and dirt (Structure and Function of Cilia, 2014). They are also responsible for propelling mucus to the oropharynx so it can be swallowed or expectorated (Liang, Jiang, Han, Liu, & Zhai, 2012). Pertussis, or whooping cough, is a highly contagious infection caused by the bacterium *Bordetella pertussis*.The bacteria invade the epithelial cells of the respiratory tract and attach to the cilia. This initiates a toxin-mediated response causing paralysis of the cilia, inflammation of the respiratory tract, and the inability to clear pulmonary secretions (Pertussis, 2013).

Pertussis is transmitted by direct contact with mucus or droplets from the nose and throat of infected individuals. This generally occurs by coughing or sneezing while in close contact with others. Symptoms of pertussis usually develop approximately one week after exposure and can be divided into three stages. Stage one is the catarrhal stage and is characterized by symptoms that may be indistinguishable from the common cold. Mucous membranes become inflamed resulting in a mild cough and low-grade fever. Stage two is the paroxysmal stage and symptoms begin to intensify. Coughing episodes occur more frequently as mucus becomes thicker and more difficult to expel. Coughing is followed by vomiting, exhaustion, and a whooping sound during inspiration. Stage three is the final convalescent stage characterized by gradual recovery (Pertussis - Clinical Features, 2014).

Infants with pertussis may not present with the characteristic signs and symptoms of the disease. Often times the cough is minimal or absent and apnea may be the only symptom. Therefore, pertussis can cause result in serious and potentially life-threatening complications in infants and young children who are not fully vaccinated. Possible clinical complications in this population include: apnea, pneumonia, seizures, encephalopathy, anorexia, dehydration, difficulty sleeping, epistaxis, hernias, otitis media, urinary incontinence, pulmonary hypertension, pneumothorax, rectal prolapse, subdural hematomas, and death (Pertussis - Clinical Complications, 2014).

The best way to prevent infants from becoming infected with pertussis is by administering the Tdap vaccine to pregnant women between the 27th and 36th week of gestation. Tdap is a combination vaccine that protects against tetanus, diphtheria, and pertussis. In October 2012, the Advisory Committee on Immunization Practices (ACIP), in response to a sudden resurgence in pertussis cases in the United States, voted to administer the vaccination during the third trimester of each pregnancy regardless of prior immunization history. Administering the vaccine during the third trimester optimizes the transfer of maternal pertussis antibodies in early life, before infants are able to receive the primary DTaP series (Vaccines and Immunizations, 2014).

There are some individuals who should not receive the Tdap vaccination. If an individual has had a life-threatening reaction, coma, or seizures following a vaccination containing the tetanus, diphtheria, or pertussis vaccine they should not get the vaccination. Individuals who have epilepsy or other nervous system problem, had pain or swelling following a vaccination containing any of the components of Tdap, ever had Guillain-Barré Syndrome, or are not feeling well on the day of the immunization should consult with their health care provider before receiving the vaccine (Tdap Vaccine What You Need to Know, 2013).

There are minimal risks associated with the vaccination. It is estimated that only one in one million doses will result in a severe allergic reaction. The side effects of the Tdap vaccination are usually mild to moderate and subside on their own. These effects include: pain, redness, swelling, fever, headache, tiredness, nausea, vomiting, diarrhea, stomachache, chills, body aches, sore joints, rash, and swollen glands (Tdap Vaccine What You Need to Know, 2013).

## Implementation

The health promotion project was implemented at Special Care for Women in Anniston, AL in collaboration with Dr. Braden Richmond, OB/GYN. The clinic offers a wide variety of women’s health services and most insurances are accepted. Comprehensive obstetric and specialized prenatal care are two of the many services provided by Dr. Richmond and his staff. In the second trimester, immunization status is discussed with each patient during their prenatal examinations. The Tdap vaccine is one of the vaccinations addressed during this time. It was found that many patients had misconceptions regarding immunizations during pregnancy. This presented an area of need within the obstetric population of this particular clinic. Therefore, education on the Tdap vaccination was used for the implementation of a health promotion project.

## Design

The design of the project focused on women who were approaching their third trimester and experiencing an uncomplicated pregnancy. The women were scheduled for their regular prenatal examination during the month of October 2014. The goal of the project was to provide education regarding the significance of the Tdap vaccination during pregnancy so the women could make informed decisions about receiving the vaccination. Education was designed by the primary care nurse practitioner (PCNP) student. It was provided in the form of both a brochure and verbal reinforcement to increase the level of comprehension. Education provided to the individuals included the significance of pertussis, how it is transmitted, how it effects the body, who is at highest risk, and how it is prevented. Education also included CDC recommendations for who should not receive the vaccination as well as risks associated with the vaccination.

## Delivery

The Health Belief Model (HBM) was utilized for the delivery of this health promotion project. The HBM was initially designed in the 1950s by social psychologists Godfrey Hochbaum, Irwin Rosenstock, and Stephen Kegels in response to individuals failing to participate in free tuberculosis (TB) health screenings provided by the U.S. Public Health Services. The HBM hypothesizes that changes in knowledge and beliefs will result in changes in behaviors. The model is based on the assumptions that individuals value avoiding illness and that they will take action in order to prevent illness. The theorists believed that the higher the level of perceived threat of illness, the more likely that an individual will be to attempt to prevent the illness (Adams, Hall, & Fulghum, 2014). According to this model, providing pregnant women with information about pertussis and how to prevent its transmission to their infant will result in an increased number of individuals receiving the Tdap vaccination.

## Evaluation

The health promotion project was implemented over a three clinical day time period at Special Care for Women. During this time seven pregnant women were educated on pertussis and the Tdap vaccination. A questionnaire was competed by each participant to evaluate their level of understanding. The following questionnaire was used:

Answer the questions using this scale:

1 = strongly disagree

2 = somewhat disagree

3 = neutral

4 = somewhat agree

5 = strongly agree

1. Was the information provided easy to understand?
2. Was the brochure clear and easy to read?
3. Did the information provided increase your knowledge about pertussis and the Tdap vaccination?
4. Was the instructor knowledgeable and able to answer your questions?
5. Will you receive the Tdap vaccination?

 As a result of the education provided all seven participants agreed to receive the Tdap vaccination between the 27th and 34th week of pregnancy. Vaccinations are not offered in the clinic, but information was provided on how the women could obtain the vaccine.

# Conclusion

Primary care nurse practitioners play an important role in managing the health of their patients. They possess the skills to improve health promotion, disease prevention, and health education. This can be accomplished by integrating technologies and information systems to enhance health care delivery, developing and implementing patient-centered and culturally responsive clinical prevention and health promotion interventions, and employing leadership and management skills in the healthcare setting to encourage lifelong learning related to quality improvement, professional standards, and accountability. These objectives were achieved through this health promotion project. Once the area of need was identified, technology was used to gather evidence-based information. A brochure was designed and information was provided to the participants. The quality of the intervention was assessed using a simple Likert scale questionnaire. The project resulted in increased knowledge regarding infants contracting pertussis and the importance of the Tdap vaccination during pregnancy as evidenced by 100% of participants agreeing to receive the Tdap vaccination.

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