School Based Influenza Prevention

Nursing 6313 Epidemiology

Health Promotion and Research in Advance Nursing Practice

Prospectus Assignment

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Texas Women's University

Abstract

Influenza outbreaks in communities all around the United States (U.S.) cause many missed days of school and work for both children and parents, placing a heavy burden on healthcare resources and negatively impacting the economy of these communities every year. Children have been identified in their role during the spread of influenza to their family members as well as others in the community. Research has shown that the vaccination of school children greatly decreases morbidity and mortality in the communities in which they live and is the most effective means of decreasing the spread of influenza (CDC, 2009).

We propose that a school based influenza vaccination clinic in all of the schools in the Ennis Independent School District (EISD) will decrease the incidence and prevalence of influenza in the community of Ennis, Texas. A campaign to notify the community, parents and the EISD faculty will begin in April, 2010. Consent forms will be signed in the spring to give an estimate for needed vaccine and supplies. Following the vaccination clinic anonymous surveys will be sent to evaluate student participation and the impact of the campaign in the community. We propose that the outcome of this observational descriptive cross-sectional study will be a decrease in the influenza morbidity and mortality during the 2010-2011season.

Statement of the Problem

Influenza infection impacts 5 to 20% of the U.S. population annually, and is associated with greater than 200,000 hospitalizations and 36,000 deaths each year (Carpenter, 2007). The attack rates among school-aged children can be as high as 30% which is higher than all other age groups. Having the highest rate of influenza infection, children have a significant role in the transmission of influenza resulting in a substantial socioeconomic impact. This high influenza morbidity rate leads to excess school absenteeism as well as increased parental work absenteeism (CDC, 2009). The Center for Disease Control and Prevention (CDC) has prioritized groups because of recent vaccine shortages and added school-aged children to their "primary target" group for routine vaccination.

Evidences suggests that the universal vaccination of children would not only reduce the burden of disease in this population but would also result in significant health benefits and be a cost-saving measure to the community as a whole. It has been calculated that 70% of children being vaccinated would abort a community outbreak, 50% would benefit the community and 20% would lower the overall mortality in persons greater than 65 years of age. The truth is that the immunization of school age children would be more effective than immunizing 90% of those 65 years or older. Estimates suggest that approximately 19 million cases of influenza could be prevented in the U.S. if 70% of children were vaccinated (Basta et al., 2009). The targeted vaccination of school-aged children could result a reduction in the overall incidence of disease at the community level, decreasing the number of deaths per year and positively impacting the economy via a decrease school and work absenteeism.

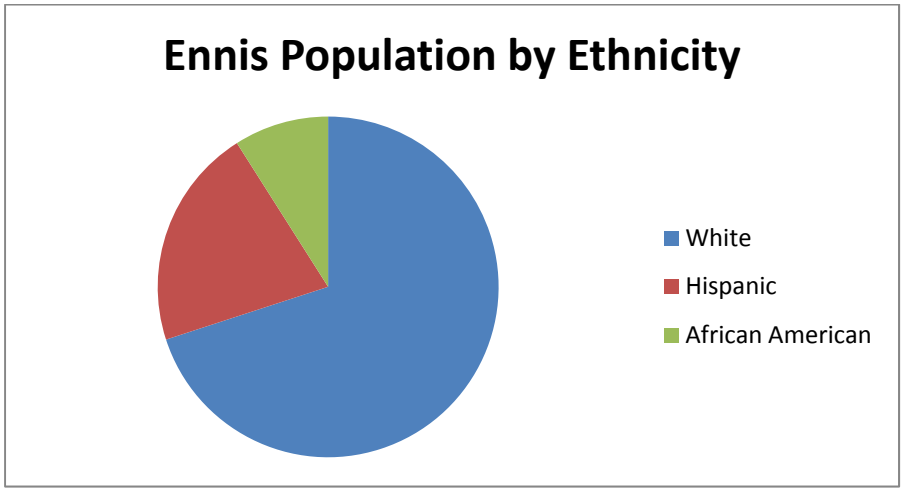
The impact of this type of intervention in Ennis, Texas is an essential need for the community. Insufficient providers represent an issue as there are not enough providers to offer

influenza vaccinations. Many children in the EISD school system lack a medical home. The local emergency room (ER) is inundated with these families during the flu season due to their lack of access to care. The Texas Board of Education requires that a student attend school 90% of the school year and an episode of influenza could potentially prevent a child from proceeding to the next grade level.

Demographic Information

Ennis, Texas is a community in north Texas, 30 miles south of downtown Dallas. The total city population estimated in 2009 was 19,233. Census Data for the year 2000 demonstrates a population of 28,362 in the surrounding area that would be included in the EISD population. The population, shown in Table 1, is comprised of 70% white, 9% African American, and 21% Hispanic (North Texas Counsel of Governments, 2010).

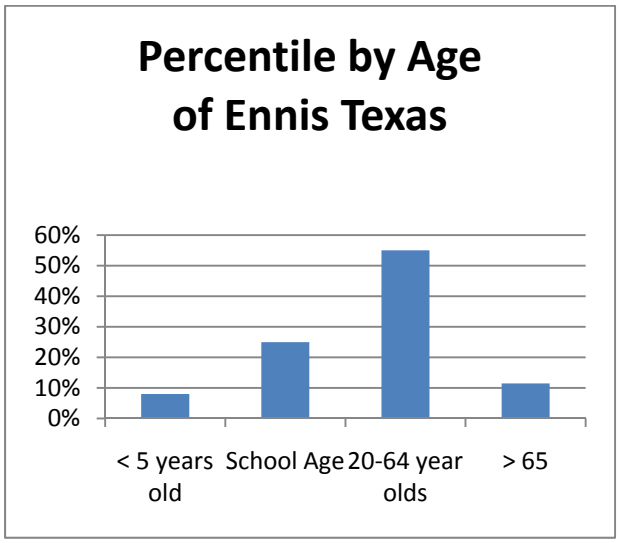
Table 1



The average age of the county population is 36 years of age. Those less than 5 years old comprise 8% of the population, school age children comprise 25% of the population and the

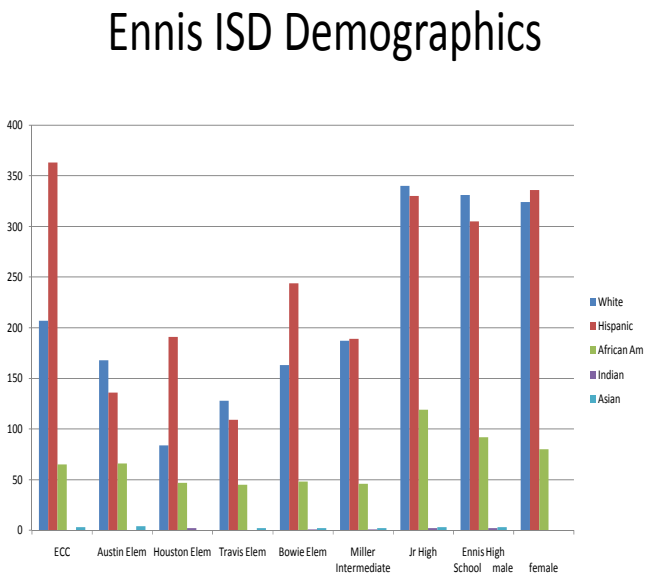
adults, those 20-64, are 55 % of the population. Individuals that are described in the data as older than 65 years of age represent 11.5 % of the population of the community of Ennis as seen in Table 2.

Table 2



The EISD is comprised of 5,398 students, currently. This group is comprised of 2,095 White (38%), Hispanic 2,447 (45%), African American 828 (15%), Indian 7 (<1%), Asian 21 (1%). The following graphic in Table 3 describes the students at each Ennis ISD campus.

Table 3



Goals and Objectives

The goal of preventing influenza spread in the population has been well studied. Some studies have focused on the immunization of school children as a means of preventing the spread of influenza in the community. The objectives for this study would be to increase the number of immunized individuals in a community by administering seasonal influenza vaccination to the students in the EISD, thus reducing the cost of healthcare services by reducing the number of ER visits due to influenza symptoms. The identification of measures to encourage universal vaccination are needed in order to encourage future vaccination of children increasing vaccination rates in this age group and perpetuating yearly behaviors to seek prevention for this disease. The result of reduced incidence of influenza illness spread in schools will result in children having decreased school absences as well as parents having decreased work absenteeism. The overall goal of the project would be to prevent the spread of

influenza in the community of Ennis, Texas, improving the community health in addition to having a positive impact on the economy.

The objectives for this project are:

1. Increase the number of immunized individuals in a community by administering seasonal influenza in the EISD. Behavioral Risk Factor Surveillance System (BRFSS) analyzed data from 19 states including Texas. There was no increase in immunization rates from the 2007-2008 seasons to the 2008-2009 seasons. Of those children that were between 5 years and 17 years of age only 21.0% of White, non-Hispanic children were immunized and16.8% of Hispanic children were immunized (CDC, 2009). Gojovic (2009) found that the delay in vaccination can potentiate infection in the community. Zimmerman (2006) performed an urban study in Pittsburg, Pa, to increase vaccination rates. The study demonstrated that the intervention of immunizing patients at alternative sites over 2 years increased the immunization rates. Carpenter (2007) described the rate of vaccination in a school was 45% which was an increased rate from the Mortality and Morbidity Weekly Report (MMWR) 2008 data. The 2009 the influenza vaccination rate for those 5-18 years was 28.1% of the population (CDC, 2010).

Goal: To vaccinate 70% of the EISD student population.

2. The prevention of the spread of influenza in the community of Ennis, Texas. This objective is supported in the research by Basta et al. (2009) which states in a mild influenza year, 70% of children being immunized would translate to the prevention of 19 million cases of influenza. In an intermediate season (R= 1.6) prevention could prevent 98.7 cases of influenza. Piedra et al. (2005) found that when that the impact of immunizing 20-25% of children resulted in an 8-18% prevention of influenza in those persons greater than 35 years old. Longini &

Halloran (2005) utilized mathematical models to predict that immunization rates of 70% of school children would grossly reduce the spread of influenza. With current population there would need to be 120 million doses for the school age population in the U.S. alone to immunize this population.

Goal: School absenteeism rate in the EISD population will be decreased by 20% as compared to the previous year.

3. The reduction of cost related to healthcare services by reducing the amount of ER visits due to influenza symptoms. Pratt (2009) identified the consequences of seasonal flu, large patient populations and increased healthcare work load. King et al. (2006) demonstrated that there was significant reduction in healthcare utilization among household members when children were immunized through a school based influenza vaccination intervention. King et al. (2006) also demonstrated a decreased rate of hospitalization in those households with immunized children versus those that were not immunized.

Goal: Comparison of 2009 rate of local ER visits to the 2010 visits due to influenza symptoms and will be decreased by 20%.

4. Identify measures to encourage universal influenza vaccination in children. Ransom (2009) suggests that the logical end to the means is for local health departments to partner with school districts to immunize children. Block (2004) noted an increased rate of immunization by utilization of Flumist, the nasal version of immunotherapy for influenza.

Goal: The rate of immunization for the 2011-2012 influenza season would increase by 10%.

5. Reduce the rate of school absences and parental work absenteeism related to influenza symptoms. The rate of school absences related to illness during influenza outbreaks is paramount to the school system educational flow and fiduciary benefits. Stayer et al. (2006) identified increased school attendance of children in a school where FluMist was given to 57% of the population compared to similar schools that did not receive immunizations. Schools were Title 1 which indicates that most of the children were economically disadvantaged. King et al. (2005) demonstrated a decrease in absences in an immunized school versus a control school that was not immunized which had a higher rate of missed school days.

Goal: School absenteeism rate in the EISD population will be decreased by 20% as compared to the previous year.

Methodology

The staff for the immunization clinic will consist of the investigators who are both Advanced Practice Registered Nurses (APRN's), four medical assistants (MA) recruited from Ennis Children's Clinic, school administrators, and the school nurses from each campus. Two groups will be followed for the focus of this study. The first study group will consist of all students enrolled in the EISD, grades prekindergarten though grade twelve that consent to be immunized against Influenza. The second study group will be the general community of Ennis, Texas. Exclusions for the immunizations will consist of persons with chronic conditions, immunosupression, hypersensitivity to egg products, and history of Guillian-Barre' syndrome or persons without signed parental consent form.

The planning of the study will begin in April of 2010 at which time pre-education packets containing a letter to parents about the influenza immunization clinic study along with the CDC

information statement on influenza vaccine, and a consent form. The information in the packet will be provided in both English and Spanish due to demographic needs. Information will also be sent to local physicians, the EISD School Board, the individual schools parent-teacher associations (PTA), campus principals, and school administrators informing them of the study. The signed consent forms will be collected by the teachers sent to the campus office which will then forward them to the administration building where the investigators will collect them once a week. The number of consent forms will be tallied in June 2010, the last day of school, to determine the number of participants and the amount of vaccine needed for the clinic. The vaccine will be ordered for delivery in the fall 2010.

The school based influenza immunization clinic will be held in October 2010, or as soon as the vaccine is available in the fall semester of the 2010 school year. EISD consists of one high school, one junior high school and seven elementary schools. The MAs will administer vaccines at the school the child attends. The MAs will spend one three hour day at the high school and junior high school campuses and one three hour day at each elementary campus. The clinic will be repeated in December for anyone absent for the first clinic or persons less than nine years of age requiring a second vaccine dose. Yessina Reyna, MA will be the staff person responsible for inventory, ordering, storing, and dispensing the vaccine.

Information on vaccine coverage levels in Ennis, Texas will be obtained from Immtrac, the Texas central data base for collecting immunization records, and statistical data published by the CDC. Student demographic information will be collected from the EISD rolls and community information will be obtained through the 2010 preliminary census information. Immunization coverage levels will be based on vaccines given during the influenza

immunization clinic study only. School absenteeism will be monitored daily via phone call to the central office attendance officer for the EISD by a medical assistant.

Evaluation/Outcome Measures

The evaluation of this study will be based on the achievement of the goals and objectives. The vaccination rate will be based on the number of immunizations given during the clinic resulting in the vaccination of 70% of the EISD student population. The effects of the influenza vaccine clinic on the community of Ennis, Texas will be measured by monitoring school absenteeism which will also reflect on parental work absenteeism. School absenteeism rates in the EISD population will be decreased by 20% as compared to the previous year. School absenteeism will be monitored daily via phone call to the central office attendance officer for the EISD.

The local ER will be monitored for patients with influenza symptoms on a daily basis by ER staff entry of data into a Lime Survey allowing the comparison of this seasons spread of infection related to that of the previous year. A comparison of 2009 rates of local ER visits to the 2010 visits due to influenza symptoms will be decreased by 20%. Information on vaccine coverage levels in Ennis, Texas will be obtained from Immtrac and statistical data published by the CDC. Immunization coverage levels will be based on vaccines given during the influenza immunization clinic study only.

The final goal of this study is to increase the yearly vaccination rates in the EISD population. This will be measured by comparing the participation rate in the 2010-2011 vaccination clinic with the rate of participation in the 2011-2012 vaccination clinic. The rate of immunization for the 2011-2012 influenza season will increase by 10%.

Evaluations will be conducted by e-mailing an anonymous Lime survey to physicians to assess knowledge, attitudes, and perceptions of the campaign as well as to the parents of a student who participated in the study, randomly chosen using Statistical Package for Social Sciences (SPSS) software. The data will be collected and entered into the SPSS program for analysis. The Internal Review Board (IRB) will be provided through Texas Women's University IRB where both investigators are Doctor of Nursing Practice students.

Budget

Summary of Clinical Supplies

Clinical			
syringes	23.56/100	49	$1,154.44
Vaccine	80.29/10 doses	4800	$38,539.20
Needles	4.59/100	49	$224.91
Band-Aids	5.90/100	49	$289.10
Alcohol Pad	1.75/200	25	$43.75
Gloves	12.99/100	49	$636.51
Sharps Containers	5.99/1	75	$449.25
Nursing (includes 4 nurses)	40.00/hour	40	$1,600.00

Summary of Forms

Forms			
Introduction to community and healthcare providers	126.00/1M	100	$12.60
Parent's Consent (2 sided form)	189.00/1 M	4800	$907.20
Pt. Imm. Record (1 sided form)	126.00/1M	4800	$604.80
Sign in sheet (1 sided form)	126.00/1M	200	$25.20
CDC Vaccine guides (2 sided)	189.00/1 M	4800	$907.20
Influenza Information form (2 sided form)	189.00/1 M	4800	$907.20
Introduction letter to parents (2 sided form)	189.00/1 M	4800	$907.20

Summary of Research Staff

Research Development			
Statistician	55.00/ hr	8	$440.00
Researchers (APRN's) 2	55.00/hr	160	$8,800.00
Total cost			$56,448.56

Summary

The impact of influenza has long been recognized by school districts and communities. Research has identified that the vaccination of school aged children is the most effective way to decrease the incidence, morbidity, and mortality related to seasonal influenza in all age groups (CDC, 2009). By educating parents and vaccinating children this project can significantly protect the health of all persons in the community of Ennis, Texas as well as have a positive impact on education and economy of this small town. We additionally expect to perpetuate preventative behaviors in the citizens of the community as a whole.

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Notation of author of section	
Review of Literature	Lori Thompson & Rebecca Lucas
Abstract	Lori Thompson
Statement of the problem	Lori Thompson
Goal/Objective	Rebecca Lucas
Methods	Lori Thompson
Evaluation/Outcome Measures	Rebecca Lucas
Budget	Rebecca Lucas
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Lori Thompson

Grading Criteria for Written Prospectus Assignment

	Possible Points:30	***Student Points***	***Comments***
Statement of the problem: Significance of the problem demonstrates need for funding. (Includes an abstract)	5		
Objectives: must be clearly stated, related to the problem, measurable and related to course objectives	5		
Methods: describes the design, timeline, & implementation	10		
Evaluation: describes in detail how outcomes will be measured. Should be quantifiable	5		
Budget and Summary: Describes the specific resources needed to provide the services. Includes both start -up and long term	2		
Follows APA format, Written In a Scholarly Style/Format	1		
Submitted to Blackboard and faculty on assigned date	2		

Student Grade:

Faculty Comments:

Rebecca Lucas

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