



2016 Student Case Study Competition Charlotte, North Carolina Scenario

The Health Issue:

Pertussis, more commonly referred to as “whooping cough”, is a notifiable disease reported to the Centers for Disease Control and Prevention (CDC) through the National Notifiable Diseases Surveillance System (NNDSS) (1). A bacterial infection generally controlled through child and adult immunization, pertussis is characterized by sudden and violent coughing attacks, followed by the “whoop” sound made when trying to inhale after the cough. Vomiting frequently follows coughing attacks (2). The infection is transmitted person-to-person by coughing in close proximity to others, who then inhale the bacteria that cause the disease (3). While rates of Pertussis fell to less than 5,000 per year between 1968 and 1992, they have been rising steadily since 1992 and experienced a doubling in incidence in 2002 to over 25,000 cases in the United States. This trend has continued, peaking in 2012 with 48,277 cases (4). While an increase of pertussis cases among the general population is a priority of public health officials, an increase in the number of pertussis cases among infants under 12 months of age is of particular concern. Approximately half of infants under 12 months old with pertussis will require treatment in the hospital, 23 percent will develop pneumonia, 61 percent will have apnea or other breathing problems, and one percent will die (5, para. 2).

Much of this increase in pertussis incidence is accompanied by a parallel trend of exemption to immunization policies. While the types and number of exemptions vary from state to state, generally a family can receive an exemption to these policies for medical, religious, or philosophical reasons. However, only 16 states allow for exemptions for philosophical reasons (6). The CDC reports “there is a growing body of evidence regarding the...association of non-medical exemption rates with increased disease, and that use of philosophical exemptions...tend to cluster geographically, making some communities at greater risk for outbreaks,” in particular diseases like pertussis (7).

The Epidemiological Data:

Idaho is one of the 16 states that allow a philosophical exemption to following state law regarding the immunization of children before entering school. For the 2014-2015 academic year, almost 1,300 incoming kindergarten students (6.2 percent of the class) had received an exemption from immunization for philosophical reasons. The prior academic year, 2013-2014, 6.4 percent of incoming Kindergarten class received the exemption (8). The Idaho Department of Health and Welfare (IDHW) reports a steady and progressively increasing caseload for pertussis, beginning with 40 cases in 2008 and capping at 367 in 2014 (9). Nationally, the immunization rate for children receiving the full spectrum for pertussis (DTaP or Tdap) was 84 percent. However, this rate was only 77 percent in the state of Idaho. According to a 2013 summary of the Idaho Pregnancy Risk Assessment Tracking System (PRATS), 92.7 percent of unmarried mothers in the state of Idaho reported their babies’ immunizations were up to date, while only 87.1 percent of married mother reported this (10). Furthermore, as age of Idaho mothers increased, the percentage reporting their babies’ immunizations were up to date decreased (e.g., 97.1 % for Idaho mothers between the ages of 18 to 19 decreasing to 83.6% for Idaho mothers 35 years of age and older) (10).

The Territory

Idaho is located in the Northwest section of the continental United States. The total population is approximately 1.6 million, with nearly half of that in the Boise metropolitan area. The state is 89 percent non-Hispanic White. Approximately 12 percent of the population has less than a high school diploma, less than 8 percent have an advanced degree, and 15 percent live below the poverty level. Additionally, Idaho ranks 49th in per capita income. In 2014, 22,805 (1.40%) of the Idaho population was under 12 months of age, and 91,027 (5.57%) were between one and four years of age (11).

The Agency and Statewide Initiative:

The Idaho Immunization Program (IIP) is run under the guidance of the Idaho Department of Health and Welfare (IDHW). The program provides:

- free vaccine to all participating providers
- education for the public, providers, and nursing programs, and
- maintains the statewide immunization registry (IRIS).

The Goal:

Your team represents a group of public health educators working for the IDHW. Given the demographics of the state, and the growing presence of pertussis as a public health epidemic, you are charged with the development of a three-year theory-based prevention program using the Health Belief Model to educate the public and increase the rates of immunization.

References

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- (3) Idaho Department of Health and Welfare, Help Protect Babies From Whooping Cough. Accessed Jan 2016 at <http://healthandwelfare.idaho.gov/Health/DiseasesConditions/Pertussis/tabid/700/Default.aspx>.
- (4) Centers for Disease Control and Prevention, Pertussis Cases by Year. Accessed at <http://www.cdc.gov/pertussis/surv-reporting/cases-by-year.html>.
- (5) Centers for Disease Control and Prevention. Pertussis (Whooping Cough): Complications. Accessed at <http://www.cdc.gov/pertussis/about/complications.html>
- (6) Seither, R., Calhoun, K., Knighton, C., Mellerson, J., Meador, S., Tippins, A., Greby, S., and Dietz, V. (2015). Vaccination Coverage Among Children in Kindergarten — United States, 2014–15 School Year. *MMWR*, 64(33); 897-904.
- (7) Centers for Disease Control and Prevention, State Immunization Laws. Accessed at <http://www.cdc.gov/vaccines/imz-managers/laws/state-reqs.html>.
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(10) State of Idaho Department of Health and Welfare, Division of Public Health, 2013 Results Summary Pregnancy Risk Assessment Tracking System: A Survey of the Health of Mothers and Babies in Idaho. Accessed at <http://healthandwelfare.idaho.gov/Portals/0/Users/074/54/1354/2013%20PRATS%20Summary%20Fact%20Sheet.pdf>

(11) Idaho Department of Health and Welfare, Idaho Health Statistics, Fact Sheets and Reports, Vital Statistics Summary for Idaho-2014. Accessed at http://www.healthandwelfare.idaho.gov/Portals/0/Users/074/54/1354/Summary_2014.pdf