

The Use of Web-Based Electronic Surveys to Promote Pertussis Vaccination in Adults

Elizabeth Gardner

Texas Woman's University

Author Note

This Capstone Proposal was prepared by Elizabeth Gardner, Doctor of Nursing Practice Student, Texas Woman's University Dallas, TX in partial fulfillment of the requirement for NURS 6303 Professional Capstone Project.

No grants of financial support are requested for this study. Dr. Peggy Mancuso will assist with the critique of the study manuscript.

Correspondence concerning this article should be addressed to Elizabeth Gardner, 13013 Sweet Bay Drive, Fort Worth, TX, 76040.

E-mail-lizbgardner@sbcglobal.net

The Use of Web-Based Electronic Surveys to Promote Pertussis Vaccination in Adults

Bordetella pertussis, a gram-negative pleomorphic aerobic bacilli infection of the respiratory tract, was discovered by Jules Bordet and Octave Gengou in 1906 (Halperin, 2008). The first pertussis vaccination was developed and licensed in the United States in 1914, and the “whooping cough” vaccine was combined with diphtheria and tetanus toxoids in 1918 (Coudeville, et al., 2009). Before a vaccination was available, pertussis was a leading cause of death in children under the age of 14 (Dale, 2003). Charles West, a pioneer of English pediatrics, observed that “there is scarcely a nursery to everyone’s great discomfort in which it is not known as a familiar and most unwelcome visitant” (Hardy, 2003, p. 9). Despite the development of effective vaccines, pertussis has reemerged as a significant public health threat.. This is due at least in part to the under utilization of vaccinations, especially in adults. This project focuses on investigating strategies to increase the utilization of the adult pertussis vaccination via use of web-based surveys.

The Significance of Pertussis Infection

Initial symptoms of pertussis infection are identical to those of the common cold. Instead of resolving, the cough increases in frequency and becomes spasmodic, with bursts of five to ten coughs within a single inspiration. The coughing cycle ends with a whooping sound, giving pertussis its common name. These coughing episodes may continue for as long as three months (Halperin, 2008). Pertussis in young infants is a serious disease. The sequelae of prolonged coughing include apnea, hypoxia, subconjunctival and scleral hemorrhages, upper-body petechiae, umbilical and inguinal hernias, subcutaneous emphysema, rib fractures, otitis media, pneumonia, atelectasis, pneumothorax, and esophageal tears with hematemesis and

melen. Neurologic complications include hypoxic encephalopathy, seizures, and intracranial hemorrhage. Post-tussive vomiting can compromise nutritional status. The risk of death in the very young, unvaccinated infant is between 0.3 and 1.3 % (Connelly, 2003). In adolescents and adults, pertussis infection may be asymptomatic or produce symptoms that range from mild to severe. Complications include otitis media, urinary incontinence, rib fractures, pneumothorax, inguinal hernia, aspiration pneumonia and seizures. (Rothstein & Edwards, 2005).

Reemergence of Pertussis

The widespread use of infant vaccinations in the United States starting in the 1940's led to a dramatic decrease in the number of infections. In 1976, the number of reported U.S. cases reached its lowest point of just over 1,000. There has been a "steady and disproportional increase" in the number of cases of whooping cough in adolescents and adults since that time (Kretsinger et al., 2006, p.6). This is due to waning antibody production among vaccinated populations, with immunity declining five to ten years after completing childhood vaccines (Wendelboe, Van Rie, Salmaso, & Englund, 2005, Kretsinger, et al., 2006).

From 2000 to 2006, there were 103,940 cases of pertussis reported in the United States (an average of 14,849 cases per year) and 156 pertussis-related deaths. Because pertussis infection is under recognized in adults and adolescents, the actual number of adult cases is estimated to be 600,000. (Centers for Disease Control and Prevention [CDC], 2009). As of June 2010, there have been pertussis outbreaks in Texas (1,154cases), Ohio (523 cases), Michigan (380 cases), and Arizona (163 cases). In California, there have been 5,978 cases, and 10 infants have died (American Academy of Family Physicians, 2010; California Department of Public Health, 2010).

An effective vaccine for adults and adolescents (Tetanus/diphtheria/attenuated pertussis-Tdap) has been available since 2005, and the CDC recommends that adolescents aged 11 through 18 and adults aged 19 through 65 receive a single dose of Tdap instead of tetanus/diphtheria (Td) as a booster immunization (CDC, 2008, para 7-8). This vaccine is underutilized; only 5.9% of eligible adults have received Tdap vaccination (Morbidity and Mortality Weekly Report, 2010).

Context

Several studies indicated that employees of schools and colleges are at increased risk of infection when there is a pertussis outbreak among students at their facilities. In one study of a pertussis outbreak at a military school/college, 14.1% of cases were diagnosed in staff members (Berger, et al., 2010). In a Canadian study, teachers had an approximately fourfold higher risk for infection as compared to the general population during period when high rates of pertussis occurred among adolescents (Kretsinger et al., 2006). Matthews, Armstrong, and Spencer (2008) described an outbreak of pertussis infection among students in a baccalaureate-nursing program. Significantly, the first confirmed case was in a laboratory instructor. Ultimately, the outbreak led to disruption of student's clinical rotations. Texas Woman's University (TWU) currently enrolls 13,017 students and employs 1951 faculty, staff, adjunct faculty, and graduate assistants on its four campus locations (TWU, 2010a; TWU, 2010c). These employees are important candidates for pertussis vaccination because TWU staff and faculty members may no longer have immunity to pertussis, and because of their exposure to large numbers of students.

Methods To deliver Health Information

What are effective methods of reaching faculty and staff of this large public institution with important health information? One method maybe through the use of web- based surveys. Although surveys are usually used to systematically collect data about populations and investigate the opinions or experiences of a group of people based on a series of questions (Survey, 2010), they have also been used successfully (although inadvertently) as a mechanism to deliver information. Weingart and Anderson (2000), concerned that faculty members at Utah State University were not aware of their library's electronic databases, surveyed faculty members via e-mail regarding their awareness and use of these resources. As part of the survey, they included a list of available databases. An unexpected research finding was that the act of including the database met the needs that the survey had identified.

Advantages of using web-based surveys.

The advantages that web-based surveys have over other survey methods (e-mail, postal mail, and telephone) include lower cost, more design options, decreased data entry time ,and increased respondent flexibility(Fan and Yan, 2010, Sue and Ritter, 2007). Surveys also provide access to groups and individuals who would be difficult to reach using other methods. (Wright, 2005).

Disadvantages of using web-based surveys.

The major disadvantage of using web-based surveys is low response rates. On the average, web surveys yielded an 11% lower response rate compared to other modes (Manfreda, Bosnjak, Berzelak, Haas, & Vehovar, 2008, p. 13). Low response rates jeopardize the ability to generalize results to the survey population.

Techniques to augment response to surveys.

Numerous studies have investigated strategies to increase response rates. Edwards et al., (2009) conducted a systematic review of 32 studies of methods to increase response rate to electronic questionnaires. Effective strategies included: (a) non- monetary incentives, (b) heterogeneity, (c) shorter e-questionnaires, (d) a more interesting topic , (e) an offer of distribution of survey results to participants, (f) using a white background for the survey text, (g) a lottery with immediate notification of results, (h) giving a deadline, (i) using a simple header, (j) textual representation of response categories, (k) including a picture, (l) reminders with a second copy of the survey sent to non- participants e-mail, and (m) avoidance of the use of the word “survey”. Anseel, Lievens, Schollaert, and Choragwicka’s meta-analytical review and guidelines for survey researchers identified nine techniques that are effective in enhancing response rates. These include (a) advance notice (b)contacting non-respondents (c) monetary incentives or gifts(d) a relevant topic (e) personalization(f)preservation of anonymity g) university sponsorship (h/i) personal distribution of paper and pencil surveys. Fan and Yan (2009) identified salience, sensitivity of topic, and survey length (13 minutes or less was considered an ideal length) as factors influencing response rate.

Characteristics of survey respondents.

Anseel, et al. (2010) analyzed 2,037 web- based or written surveys. They identified five types of respondent groups (non- working respondents, consumers, non-managerial employees, managers, and top executives) and hypothesized that response rates would vary by respondent group. Non-working and non-managerial respondents had the highest response rates (61.5% and 59.6%), followed by consumers (44.1%) and managerial respondents (47.1%). The response rate for top executives was 37.0%. They concluded that the higher the respondents are situated in an

organizational hierarchy, the more difficult it is to involve them in surveys (Anseel et al., 2010 p. 346). They did not find any difference in response rates with web-based versus paper surveys..

Fan and Yan (2009) found that surveys sponsored by academic and governmental agencies have a higher response rate than commercially sponsored surveys. Types of populations most willing to respond included employees, student, and army populations, while top managers are less likely to respond than employees and managers. Age and race affect respondents' willingness to complete a web survey. Conscientiousness, agreeableness, and openness to experience are psychological characteristics of respondents most likely to complete a survey.

Purpose

The purpose of this clinical inquiry project is to determine if use of web-based surveys affects intention of faculty and staff to obtain a pertussis booster vaccination, and to explore if a difference in survey content influences degree of intention to obtain vaccination.

Problem Statement

Pertussis is a serious disease in young infants and under-immunized children, capable of causing severe illness and death. It can also cause significant disease in adolescents and adults. Pertussis is increasing in the United States and there have been significant outbreaks of disease activity. An effective but underutilized vaccination for adults exists. An important public health goal is to increase the utilization of this vaccine, especially in populations that have a higher risk of being infected and impacted by an epidemic. Effective mechanisms to disseminate this information need to be explored. This clinical inquiry project will assess if use of web-based surveys increases intent of the employees (faculty and staff) of a state university to obtain pertussis vaccination.

Research Questions

This inquiry will address the following research questions:

1. Is the use of web-based surveys an effective means of stimulating intention to obtain pertussis vaccination?
2. Is there a significant difference between the type of survey (informational message vs. educational component) and level of intention to obtain vaccination?

Hypotheses

1. More than 50% of survey respondents will report that they are “likely, very likely, or absolutely sure” they will pursue obtaining a pertussis vaccination for themselves or a family member.
2. Respondents who complete a survey with an educational component will report a significantly higher level of intention to obtain pertussis vaccination than respondents who complete a survey with an informational message.

Null Hypotheses

1. Less than 50% of survey respondents will report that they are “likely, very likely, or absolutely sure” they will pursue obtaining a pertussis vaccination for themselves or a family member.
2. There is no significant correlation between type of survey and level of intention to obtain pertussis vaccination.

PICO Questions

1. Among faculty and staff members of a large state university who have completed a survey recommending pertussis vaccine, what percentage of respondents report that they

are “likely, very likely, or absolutely sure” they will pursue obtaining a pertussis vaccination for themselves or a family member?

2. Among faculty and staff members of a large state university who have completed a survey recommending pertussis vaccine, is there significant difference between type of survey and self-reported intention to obtain pertussis vaccine?

Theoretical Framework

Health promotion is the process of enabling an individual or group to increase control over health status and to improve health (World Health Organization [WHO], 1998, p. 1). Of all health promotion activities, vaccination has been the most beneficial in improving the health of individuals and the nation. This is duly noted by the United States government: “perhaps the greatest success story in health promotion is the reduction of infectious diseases resulting from the use of vaccines” (CDC, 2010, para. 1).

Pender’s health promotion model (“Health Promotion Model”, 2010) proposed that there are three domains of behavior that individuals engage in to achieve well-being. These domains consist of: (a) individual characteristics and experiences, (b) behavior-specific cognitions and affects, and (c) behavioral outcomes (para 1). Within these domains, Pender identified 13 theoretical propositions that provide direction for research on health behaviors. Four of these theoretical propositions are part of the assumption of or are being investigated in this study. The first assumption is that persons commit to engaging in behaviors from which they anticipate deriving personally valued benefits. The valued benefit in this study is avoidance of a disease (whooping cough) in the recipient and family. The second assumption is that families, peers, and health care providers are important sources of interpersonal influences that can increase or decrease commitment to and engagement in health-promoting behavior. In this case, the health

care provider-a nurse practitioner in a doctoral program- is using her influence to induce commitment to a plan of action (i.e. , obtain a pertussis vaccination). Pender identifies perceived barriers to care as constraining commitment to action. The author identified a barrier to care as lack of knowledge of need to obtain a pertussis vaccination and provided a resource list to address this concern.

Pender also proposed that there is a need to commit to a plan of action, which she identifies as “leading to an implementation of health behavior”(para 10). This is achieved by querying survey recipients about their degree of intention to obtain a vaccination. Once placed in writing, it becomes a form of commitment.

Instrumentation

Two web-based surveys were developed for use in this project. The Texas Woman’s University Pertussis Immunization Survey A consists of a message informing the recipient of the need to be vaccinated against pertussis, one question asking the recipient about the number of years since their last vaccination against pertussis and two questions measuring the recipient’s intention to obtain vaccination for themselves or a family member. An ordinal 5- point Likert scale measures the variable “level of intention to obtain pertussis vaccination.” There are also five demographic questions. The Texas Woman’s University Pertussis Survey B contains an educational component framed as a quiz : this consists of five true/false and four multiple choice questions . It also includes one question asking the recipient about the number of years since their last vaccination against pertussis, two questions measuring the recipient’s intention to obtain vaccination for themselves or a family member, and five demographic questions. (These are identical to the questions included in Survey A). See appendix A for complete content of Survey A and B. Survey content was developed and validated using the Lynn criteria (1983).

The surveys were submitted to five public health experts, who were asked to rate the relevance of an individual question using a 4- point ordinal rating scale. A score of 1 indicated the item did not measure the content, a score of 2 indicated that the question measured the concept but was not clearly stated, a score of 3 indicated that the item was relevant but need minor revision for clarity, and a score of 4 indicated that the item was relevant and clearly stated. There was also an *unknown/no opinion* option. The initial Content Validity Index (CVI) was calculated to be 0.78, so two low scoring questions were excluded. A recalculated CVI was 0.80, which is within the acceptable range of 0.80 to 1.00.

Conceptual and Operational Definitions of Variables

Variable	Conceptual definition	Operational definition
Survey	A systematic collection of data about populations ; an investigation of the opinions or experiences of a group of people, based on a series of questions. (New Oxford American Dictionary, 2010). An analytical survey compares population subgroups in order to learn about their differences. (Millar, 2002).	Texas Woman's University Pertussis Surveys A and B
Web- based survey	A web-based (internet-based) survey is a fill-in-form survey, which uses the hypertext markup language (HTML) and common-gateway-interface (cgi) programming of the World Wide Web to construct, format, and administer	

questionnaires to web users (Smith, 1997, para 2).

Informational
survey

A survey in an informational format involves the communication of knowledge or intelligence. The receipt of information (as a message, experimental data, or a picture) justifies a change in a construct (as a plan or theory) that represents physical or mental experience or another construct (Informational, n.d.).

Texas Woman's
University Pertussis
Survey A.

Educational
survey

A survey in an educational format develops knowledge or skill through a learning process (Education, 2009) The purpose of the process is to persuade or condition to feel, believe, or act in a desired way (Educate, n.d.).

Texas Woman's
University Pertussis
Survey B.

Intention	A determination to act in a certain way: resolve (Intention, n.d.a). A purpose or an anticipated outcome that is intended or that guides planned actions (Intention, n.d.b). A behavioral intention is an indication of an individual's readiness to perform a given behavior. Intent is assumed to be the immediate antecedent of behavior (Ajzen, 2006).	A survey respondent's self-reported intention measured on a 5 point Likert-like scale. A score of 1 indicates the respondent is not at all likely to pursue obtaining a pertussis vaccination and a score of 5 indicates the respondent is absolutely sure they will pursue obtaining a pertussis vaccination .
Faculty	The teaching and administrative staff and those members of the administration having academic rank in an educational institution (The Merriam–Webster Dictionary, 2010).	Pertussis Immunization Survey A or B survey respondents who identify themselves as faculty on the Texas Woman's University.

Adjunct	Non-tenure track faculty serving in a temporary or auxiliary capacity to teach specific courses on a course-by course basis (Adjunct Faculty, 2010).	Survey respondents who identify themselves as adjunct faculty on the Texas Woman's University Pertussis Immunization Surveys.
Staff	Employees whose operational jobs support the delivery of core services to students and faculty (TWU, 2010b, para 3).	Survey respondents who identify themselves as staff on the Texas Woman's University Pertussis Immunization Surveys.
Graduate Assistant	An employee who serves in a support role (assistantship) at a university, usually while completing post-graduate education (Graduate Assistant, 2010).	Survey respondents who identify themselves as a graduate assistant on the Texas Woman's University's Pertussis Immunization Surveys.

Population and Sample

The study population consists of all TWU faculty and staff accessible via TWU e-mail. As of October 2010, this consisted of 1,957 persons. (TWU, 2010a). The study population will be randomized into two groups via selection of the second to last number of the employee's identification number. Survey A will be sent to employees with even numbers, and survey B to employees with odd numbers. Response rate is estimated to be 10%, or 200 respondents. A Spearman's Rho will be calculated to determine if there is a significant association between number of years since last vaccine and level of intent to obtain vaccine. This would yield a power of 0.90. A Mann-Whitney *U* test will be calculated to determine if there is a significant difference between survey type and level of intent to obtain vaccine. The Mann-Whitney *U* test requires two groups of 68 for a power of 0.90.

Implementation

Timeline

The proposed timeline for this project is from September 2010 to April 2011. Data collection is expected to start in January 2011 (see Appendix C for a detailed timeline).

Project Objectives

Two objectives were formulated to guide the researcher through survey development and data collection.

1. Determine if web-based surveys are an effective means of stimulating faculty and staff intention to obtain pertussis vaccination.
2. Compare the differences between the type of survey (informational vs. educational survey) and intention to obtain pertussis vaccine.

Project Requirements

This project requires approval of the Texas Woman's University's Institutional Review Board (IRB). A copy of the letter of approval from the IRB is located in Appendix B. The researcher requires access to Texas Woman's University faculty and staff e-mail addresses via her Capstone Chairperson.

Resources

In addition to IRB approval, this project requires approval of the student's Capstone committee, assistance with randomization and dissemination of the web surveys via e-mail, and statistical advice and support.

Evaluation

It is expected that a majority of survey participants will report that they are likely, very likely or absolutely sure that they will pursue obtaining a pertussis vaccination after completing either survey. It is also expected that participants who complete survey B will be more likely to pursue obtaining vaccination than those participants who complete survey A. In other words, the assumption that an educational process is more effective in influencing health behaviors than a simple informational message when using this modality will be demonstrated to be accurate. As a result of these findings, educationally oriented web-based surveys could be used as an additional method of disseminating important health information.

End Products

Prevention of pertussis in vulnerable infants as well as adolescents and adults is an important public health goal. This project supports this goal by implementing and evaluating methods to increase staff and faculty awareness of the need for pertussis booster vaccination. If this project is successful, there will be a significant increase in the number of TWU faculty and staff who obtain this vaccination. A pertussis epidemic at any of the University's campuses

would result in a) disruption of class and university functions b) medical costs associated with the treatment of infected individuals c) needs for manpower and financing to implement a wide scale emergency vaccination program for students and staff d) long term absence of faculty and staff members due to the effects of pertussis

greatest benefit for the university is the decreased likelihood of a pertussis epidemic at any of its locations. Lost productivity

Associated health care costs for treatment of cases

Costs of response and need for wide scale emergency response and emergency vaccination program for students and staff in the event of an outbreak

Potentially they have mechanism to rapidly disseminate health care information.

References

- Adjunct Faculty (2010). Retrieved from <http://www.marist.edu/ir/factbook/glossary.html>
- Ajzen, I. (2006.). *Intention*. Retrieved from <http://www.people.umass.edu/aizen/int.html>
- American Academy of Family Physicians (AAFP) (2010). Pertussis activity spiking in several states. *AAFP News Now*. Retrieved from <http://www.aafp.org>
- Anseel, F., Lievens, F., Schollaert, E., & Choragwicka, B. (2010). Response rates in organizational science, 1995-2008: A meta-analytic review and guidelines for survey researchers. *Journal of Business Psychology*, 25, 335-349.
- Berger, F., Njamkepo, E., Minaberry, S., Mayet, A., Haus-Cheymol, R., Verret, C. & Spiegel, A. (2010). Investigation of a pertussis outbreak in a middle school: Risk factors and approach to vaccine efficacy. *Vaccine*, 28(32), 5147-5152. doi: 10.1016/j.vaccine.2010.05.070
- California Department of Public Health. (2010, October 19). *Pertussis report*. Retrieved from <http://www.cdph.ca.gov/programs/immunize/Documents/PertussisReport10-19-2010.pdf>
- Centers for Disease Control. (2008). *Vaccines and preventable diseases: Pertussis disease in-short*. Retrieved from <http://www.cdc.gov/vaccines/vpd-vac/pertussis/in-short->
- Centers for Disease Control. (2009). *Pertussis* (Fact Sheet ed.). Retrieved from http://www.cdc.gov/ncidod/dbmd/diseaseinfo/pertussis_t.htm
- Centers for Disease Control. (2010a). *Pertussis (Whooping cough)-what you need to know*. Retrieved from <http://www.cdc.gov>
- Centers for Disease Control. (2010b). *History of vaccine safety*. Retrieved from http://www.cdc.gov/vaccinesafety/Vaccine_Monitoring/history.html

- Connelly, B. L. (2003). Pertussis. In C. D. Rudolph & A. M. Rudolph (Eds.), *Rudolph's pediatrics*. New York: McGraw-Hill.
- Coudeville, L., VanRie, A., Getsios, D., Caro, J. J., Crepey, P., & Nguyen, V. H. (2009). Adult vaccination strategies for the control of pertussis in the United States: An economic evaluation including the dynamic population effects. *PLoS One*, *4*(7), 6824. doi: 10.1371/journal.pone.0006284
- Dale, D. C. (2003). *Infectious diseases: The clinician's guide to diagnosis, treatment, and prevention*. New York: WebMD.
- Educate .(n.d.). In the Merriam-Webster Dictionary. Retrieved from <http://ezproxy.twu.edu:2215/bps/dictionary?query=educate>
- Education. (2009). Retrieved from <http://education.yahoo.com/reference/dictionary/?s=education>
- Edwards, P. J., Roberts, I., Clarke, M. J., DiGuisseppi, C., Wentz, R., Kwan, I., Cooper, R.,Pratap, S. (2009). Methods to increase response to postal and electronic questionnaires. *Cochrane Database of Systematic Reviews*. doi: 10.1002/14651858.MR000008.pub4
- Faculty. (2010). In the Merriam Webster Dictionary. Retrieved from <http://www.merriam-webster.com/dictionary/faculty?show=0&t=1288367089>
- Fan, W., & Yan, Z. (2009,). Factors affecting response rates of the web survey: A systematic review. *Computers in Human Behavior*, *26*, 132-139. doi: 10.1016/j.chb.2009.10.015
- Graduate Assistant.(2010). Retrieved from Wikipedia: http://en.wikipedia.org/wiki/Graduate_assistant.

Halperin, S. (2008). Pertussis and other Bordetella infections. In A.S Fauci, D.L. Kasper, D.L.

Longo, E. Braunwald, S. L. Hauser, J. L. Jameson, & J. Loscalzo (Eds.), *Harrison's principles of internal medicine* (17th ed.). New York: McGraw-Hill.

Hardy, A. (2003). *The epidemic streets: Infectious disease and the rise of preventative medicine, 1856-1900*. Oxford: Clarenton Press.

Health Promotion Model. (2010). Current Nursing. Retrieved from <http://currentnursing.com>.

Informational. (n.d.) In the Merriam-Webster Dictionary. Retrieved from

<http://ezproxy.twu.edu:2215/bps/dictionary?query=informational>.

Intention. (n.d.a). In the Merriam -Webster Dictionary. Retrieved from

http://ezproxy.twu.edu:2122/bps/dictionary?query=intention&header_go=

Intention.(n.d. b). Retrieved from <http://wordnetweb.princeton.edu/perl/webwn?s=intention>

Kretsinger, K., Broder, K. R., Cortese, M. M., Joyce, M. P., Ortega-Sanchez, I., & Lee, G. (2006,

December 15). Preventing tetanus, diphtheria, and pertussis among adults: Use of tetanus toxoid, reduced diphtheria toxoid and acellular pertussis vaccine. *Morbidity and*

Mortality Weekly Report, 55, 1-33. Retrieved from

<http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5517a1.html>

Lynn, M. (1986). Determination and quantification of content validity. *Nursing Research*, 35(6), 382-385.

Matthews, E., Armstrong, G., & Spencer, T. (2008). Pertussis infection in a baccalaureate

nursing program: Clinical implications, emerging issues, and recommendations. *Journal of Continuing Education in Nursing*, 39(9), 419-426. Retrieved from

<http://search.ebscohost.com/login.aspx?direct=true&db=rzh&AN=2010021294&site=ehost-live>

Millar, W. (2002). Surveys. In L. Breslow (Ed.), *Encyclopedia of Public Health* (pp. 1174-1175). New York: Macmillan Reference USA.

Morbidity and Mortality Weekly Report. (2010, October 15). Tetanus and pertussis vaccination coverage among adults aged ≥ 18 Years- United States, 1999 and 2008. *Morbidity and Mortality Weekly Report*, 59(40), 1302-1306. Retrieved from <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5940a3.html>

Rothstein, E., & Edwards, K. (2005). Health burden of pertussis in adolescents and adults. *Pediatric Infectious Diseases*, 24(5), S44-S47.

Smith, C. B. (1997). Casting the net: Surveying an internet population. *Journal of Computer-Mediated Communication*, 3(1). Retrieved from <http://www.jcmc.indiana.edu/vol3/issue1/smith.html#abstract>

Sue, V.M, & Ritter, L.A. (2007). *Conducting online surveys*. Thousand Oaks, California: Sage Publications.

Texas Woman's University (TWU). (2010a). *Compensation and Classification*. Retrieved from <http://www.twu.edu/compensation-classification/twu-campus-stats-report.asp>

Texas Woman's University (TWU). (2010b). *Recruitment and Selection* .Retrieved from <http://www.twu.edu/recruitment-selection/>

Texas Woman's University (2010c). TWU sets record for enrollment. *Dallas Business Journal*. Retrieved from <http://dallas.bizjournals.com>.

Surveys. (2010)..In the New Oxford American Dictionary (2nd ed.). In E. McKean (Ed.) New York: Oxford University Press.

- Warren, C.W, & Kann, L. (2002). Survey Research Methods. In L. Breslow (Series Ed.), *Encyclopedia of public health. 4* (pp. 1172-1174). New York: Macmillan Reference USA.
- Weingarten, S.J., & Anderson, J.A. (2000). When questions are answers: Using a survey to achieve faculty awareness of the library's electronic resources. *College and Resources Libraries, 61*(2), 127-134.
- Wendelboe, A. M., Van Rie, A., Salmaso, S., & Englund, J. A. (2005). Duration of immunity against pertussis after natural infection or vaccination. *Pediatric Infectious Disease Journal, 24*(5 suppl), S58-61.
- World Health Organization. (1998). *Health Promotion Glossary*. Retrieved from http://www.who.int/hpr/NPH/docs/hp_glossary_en.pdf.
- Wright, K. B. (2005). Researching Internet-based populations: Advantages and disadvantages of online survey research, online questionnaire authoring software packages, and web survey services. *Journal of Computer-Mediated Communication, 10*(3), article 11. <http://jcmc.indiana.edu/vol10/issue3/wright.html>

Appendix A

Survey A

Welcome to this anonymous study and thank you for your time. The return of your completed questionnaire constitutes your informed consent to act as a participant in this research. It will take about two minutes to complete these questions. The purpose of this e-mail is to inform you of the reemergence of whooping cough (pertussis). Whooping cough can make adults seriously ill and cause death in infants and young children. Whooping cough has been increasing in the United States, and in 2010 there were outbreaks in Texas, Ohio, Michigan, Arizona and South Carolina. In California, 10 infants died from this preventable disease. For this reason, the U.S. Centers for Disease Control strongly recommends **that adolescents between the age of 11 and 18 and adults up to the age of 64 receive one booster dose of a vaccine against pertussis**. Therefore, we urge you to contact your doctor or health care provider to discuss if you or a family member need a pertussis vaccination called “Tdap.”

Q 1. When did you last have a vaccination to prevent whooping cough?

1. Less than 2 years ago
2. Between 2 and 10 years ago
3. More than 10 years ago
4. I am unsure/ can't remember
5. I have never been vaccinated against whooping cough

Q 2. After receiving this information, how likely are you to pursue obtaining a whooping cough vaccine?

1. Not likely at all
2. A little likely
3. Likely
4. Very likely
5. Absolutely sure

6. It doesn't apply to me- I am sure my pertussis vaccination is up-to- date.

Q 3. How likely are you to recommend that a family member obtain a vaccine?

1. Not likely at all
2. A little likely
3. Likely
4. Very likely
5. Absolutely sure
6. It doesn't apply to my situation.

Do you have any comments?

Demographics:

- Age
- Gender
- Faculty Staff Graduate Assistant Adjunct (choose one)
- Part time Full Time
- Campus: Denton Houston Presbyterian Dallas(Parkland)

Survey B

Welcome to this anonymous study. The return of your completed questionnaire constitutes your informed consent to act as a participant in this research. The purpose of this study to inform you of the reemergence of whooping cough (pertussis) and the need for adults and their family members to be vaccinated, to learn more about what you know about whooping cough, and to provide information and resources. It should take about 5 minutes to complete. Thank you in advance for your time.

TEST YOUR KNOWLEDGE!

Q1. Adults do not get ill from whooping cough.

Answer: False.

Although whooping cough usually does not make adults as sick as children, it can make some adults very ill.

Q2. Whooping cough (pertussis) is dangerous for infants and children.

Answer: True.

Before there was a vaccine, whooping cough was one of the most common causes of death in children. In California, 10 infants have died in a pertussis outbreak this year.

Q3. Whooping cough no longer exists in the United States because of an effective vaccination program.

Answer: False.

Every year since 1976 there has been an increase in the number of cases in the US. This year (2010) there was an outbreak in Texas and an epidemic in California.

Q4. Grandparents do not transmit whooping cough to their grandchildren.

Answer: False.

Whooping cough is easily passed from grandparents, parents, siblings, and caretakers to infants and children.

Q5. To prevent whooping cough, adolescents and adults must obtain a vaccination once a year, like the flu vaccine.

Answer: False.

The CDC is recommending that adolescents age 11 and older and adults up to the age of 64 get **one** booster vaccination in their lifetime to protect themselves against the whooping cough.

Q6. Infants and children receive 5 pertussis shots. The last one is given at age 6. How many years does it take before you are no longer immune to pertussis?

- a) 1 to 4 years
- b) 5 to 10 years
- c) 11 to 20 years
- d) It never wears off

Answer: b.

We have immunity to pertussis for 5 to 10 years after receiving childhood vaccinations. After that, a booster is necessary to maintain immunity against whooping cough.

Q.7 Which of the following groups **DO NOT** need a pertussis booster?

- a) Adolescents between the ages of 11 and 18.
- b) Adults up to the age of 64.
- c) Children between the ages of 6-10
- d) a and b

Answer: c. Children between the ages of 6-10 should be immune if they received all of their childhood vaccinations.

Q8. Of the following groups, which group **especially needs** a pertussis vaccination?

- a) Grandparents up to the age of 64, parents, relatives, or caretakers who have close contact with an infant younger than 12 months of age.
- b) Healthcare workers who have contact with patients in hospitals or clinics.
- c) Women who are planning to become pregnant.
- d) All of the above
- e) None of the above

Answer: d. All of the above.

Q.9. Where can you obtain a Tdap vaccination?

- a) State and local health departments
- b) Your primary care physician
- c) Retail health clinics located in national chain pharmacies (Like Minute Clinic in CVS or Take Care in Walgreen's)
- d) Texas Woman's University Student Health Centers
- e) All of the above locations

Answer: e. All of the above locations.

Q10. When did you last have a vaccine to prevent whooping cough?

- 1. Less than 2 years ago
- 2. Between 2 and 10 years ago
- 3. More than 10 years ago

4. I am unsure/ can't remember
5. I have never been vaccinated against whooping cough

Q. 11. After taking this survey, how likely are you to pursue obtaining a pertussis vaccine?

1. Not likely at all
2. A little likely
3. Likely
4. Very likely
5. Absolutely sure
6. It doesn't apply to me- I am sure my pertussis vaccination is up-to- date.

Q 12. How likely are you to recommend that a family member obtain a vaccine?

1. Not likely at all
2. A little likely
3. Likely
4. Very likely
5. Absolutely sure
6. It doesn't apply to my situation.

Do you have any comments?

Demographics:

- Age
- Gender
- Faculty Staff Graduate Assistant Adjunct (choose one)
- Part time Full Time
- Campus: Denton Houston Presbyterian Dallas(Parkland)

Web Resources

This video features stories from adults who had whooping cough.

<http://www.helppreventwhoopingcough.com/real-stories.html>

Follow this link to view a video of children with whooping cough

<http://www.vaccineinformation.org/video/pertussis.asp>

This information is from YouTube <http://www.dipity.com/timetube/YouTube-Whooping-Cough>

This is general information about whooping cough from the Centers for Disease Control

<http://www.cdc.gov/vaccines/vpd-vac/pertussis/in-short-both.htm#who>

Appendix B

IRB Approval Letter



Institutional Review Board
Office of Research and Sponsored Programs
P.O. Box 42561P, Denton, TX 76204-561P
940-898-3278 FAX 940-898-4416
e-mail: IRB@twu.edu

January 10, 2011

Ms. Elizabeth B. Gardner
13013 Sweet Bay Drive
Fort Worth, TX 76040

Dear Ms. Gardner:

Re: The Use of Web-based Surveys to Promote Pertussis Vaccination in Adults (Protocol #: 16362)

The above referenced study has been reviewed by the TWU Institutional Review Board (IRB) and was determined to meet requirements in regard to protection of individuals' rights and is exempt from further review.

Any modifications to this study must be submitted for review to the IRB using the Modification Request Form. Additionally, the IRB must be notified immediately of any unanticipated incidents. If you have any questions, please contact the TWU IRB. The Institutional review board is pleased to acknowledge your sense of responsibility for ethical research.

Sincerely,

Dr. Sub-Jen Lin, Chair
Institutional Review Board - Dallas

cc: Dr. Stephanie Woods, College of Nursing - Dallas
✓ Dr. Peggy Mancuso, College of Nursing - Dallas
Graduate School

Appendix C

Project Timeline

Date	Activities
August-October 2010	Obtain approval from TWU to distribute surveys to all TWU faculty and staff Identify test population
October-December 2010	Test surveys for content validity. Identify mechanisms of randomization and distribution via TWU e-mail Test surveys in sample populations
January 2011	Defend proposal. Obtain IRB consent for project.
February- April 2011	Disseminate surveys , and repeat release in one week. Analyze data and complete Capstone write-up. Defend Capstone and submit article for publication.

Appendix D

Statistics

1. The demographic variables “employment category”, “work status” “campus location”, and “gender” will be described by mode, median and frequency. The mean and standard deviation will be calculated for the variable “age.”
2. Survey response rate will be calculated by demographic variable, survey type and total response rate. A Chi- square Goodness of Fit will be calculated to determine if there is a significantly different response rate to the two surveys.
3. Percentage of respondents who indicate that they are “likely”, “very likely” or “absolutely sure “that they will pursue obtaining a pertussis vaccination for themselves or a family member will be calculated.
4. Percentage of respondents are already vaccinated will be calculated and compared with national averages.
5. The median, mode, and frequency will be calculated for the variables “amount of time since last vaccination” and “level of intent to obtain vaccination”.
6. A Mann- Whitney *U* test will be calculated to determine if there is a significant difference between survey type and level of intent to obtain vaccine.
7. A Spearman’s Rho will be calculated to determine if there a significant association between number of years since last vaccine and level of intent to obtain vaccine.