ARTICLE

Using Google to Survey PNPs About Agricultural Safety

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ABSTRACT

Introduction: Youth and children in agriculture are highly vulnerable to the health hazards associated with agricultural work and the rural environment.

Methods: The purpose of this study was to conduct a national needs assessment for developing a continuing education unit that increases the knowledge of pediatric nurse practitioners (PNPs) on safety in an agricultural environment using the Google family of products. This was a cross-sectional, one-group design descriptive-correlational study.

Results: Surveys were received from 315 participants. On Day 1, 57% of responses were received, and 91% were received within Week 1.

Discussion: The use of the free Google Forms and Google Sheets facilitated this researcher to obtain a sample size, saving research expense dollars, and entering data file into SPSS. In addition, a pattern of survey return rates was demonstrated. Second, clinical implications indicate that agricultural safety is missing from PNP curricula: PNPs are not knowledgeable about existing resources and would be interested in a continuing education unit. J Pediatr Health Care. (2018) ■■, ■■-■■.

KEY WORDS

Agriculture, pediatric nurse practitioner, safety, surveys

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Youth and children in agriculture are highly vulnerable to the health hazards associated with agricultural work and the rural environment. Best evidence reports that every 3 days, one child dies in an agricultural-related injury, 115 children (age range = 0-19 years) each year, and that every day, 33 children are injured (Goldcamp, Hendricks, & Meyers, 2004; National Children's Center for Rural and Agricultural Health and Safety, 2016). According to the U.S. Department of Agriculture, in 2009 approximately 2,500 household youth were injured while performing farm work and 4,100 children under 10 years were injured while living on farms; 80% of those were not actively working (National Institute for Occupational Safety and Health, 2007, National Institute for Occupational Safety and Health, n.d.; U.S. Department of Agriculture, 2012). However, there is no central database on childhood agricultural injuries. Although data from the NCCRAHS documented that childhood agricultural injury rates have declined, any fatality or injury is unacceptable, regrettable, and usually preventable, and agricultural youth injuries and death are still reported in the media today (National Children's Center for Rural and Agricultural Health and Safety, 2016; National Institute for Occupational Safety and Health, 2007).

A review of pediatric nurse practitioner (PNP) textbooks discusses developmentally appropriate safety anticipatory guidance; however, there is minimal information on directing family and child discussions about safety in the agricultural home and agricultural work environment. Pediatric injuries in agriculture

> PNP textbooks contain minimal information on safety in the agricultural home and agricultural work environment.

continue to be reported, including those injuries associated with tractors, grain bin storage facilities, livestock, and bodies of water, to name a few, and represent the largest source of pediatric morbidity and mortality (National Children's Center for Rural and Agricultural Health and Safety, 2016).

The purpose of this study was to conduct a national needs assessment for developing a continuing education unit that increases the knowledge of PNPs about safety in an agricultural environment using the Google (Mountain View, CA) family of products. Google Forms is a free Web-based application associated with Google where a document and spreadsheet can be created, edited, and saved online from any computer with Internet access (Google, 2016). Google Forms is a survey connected to a Google Sheet with the capability of asking unlimited questions. The spreadsheet app of Google Forms allows simultaneous work with other participants, meaning that multiple participants can answer survey questions at the same time. Survey questions were constructed to determine PNPs' knowledge and level of comfort for providing agricultural safety anticipatory guidance to families and children and their interest in a continuing education unit focused on the topic.

METHODS

This was a cross-sectional, one-group–design, descriptive–correlational study. The research questions were (a) Do National Association Pediatric Nurse Practitioners (NAPNAP) members feel knowledgeable about pediatric agricultural safety? (b) Do NAPNAP members feel comfortable providing agricultural safety anticipatory guidance? And (c) What is the level of interest in a continuing education/contact hour module on agricultural safety? To access the NAPNAP membership list, an application was submitted to the Research Committee of NAPNAP requesting use of the national membership list electronic mailing list, and approval was obtained (National Association of Pediatric Nurse Practitioners, n.d.). The focus of the study met one of the priorities of the NAPNAP Research Agenda (National Association of Pediatric Nurse Practitioners, 2013), namely, clinical priorities Priority 1: Health promotion and disease prevention.

The study example survey questions were constructed through a literature review for needs assessment–type questions. Twelve multiple choice questions were asked of participants via a link to Google Forms. These questions queried NAPNAP members about the level of knowledge and comfort in disseminating anticipatory guidance on agricultural safety to children and families, their work with agricultural families, their level of knowledge of agricultural educational materials and sources of information, and their interest in participating in a continuing education program/contact hour module on increasing their personal knowledge of agricultural safety issues. The initial invitation of recruitment was sent in an e-mail to current members. Clicking forward to participate in the survey verified their consent to participate. The Google survey was personalized with a colorful farm scene displayed at the top of the page. An invitation reminder regarding the research survey appeared approximately 1 week later in *NAPNAP Daily News,* an electronic e-mail blast that includes update information on research findings, organizational news, and policy updates. Use of the electronic mailing list allowed the investigator to place one reminder notice in *NAPNAP Daily News*.

The sample was composed of adults who are members of NAPNAP, all registered nurses, and almost all pediatric nurse practitioners. At the time of the study there were approximately 7,500 geographically diverse members, but a goal of a 5% response rate was anticipated (350 participants), based pm the recommendations of Dillman and the researcher's past experience (Dillman, 2000; Kilanowski, 2012). An inclusion criterion for the study was any member of NAPNAP. To achieve power for the sample of a descriptive study with dichotomous variables with a 95% confidence interval of $d = 0.05$ and $p = .10$, a sample of 138 is needed. In the worst-case scenario of having no knowledge about the participants, with $p = .05$ the sample would need to be 384 participants (Cohen, 1988). Survey questions were dichotomous or multiple choice with nominal, categoric, and interval levels of measurement.

RESULTS

Results were received from 315 participants, corresponding to a 4.2% response rate. The study was adequately powered to answer the research questions. On the first day, 57% of responses were received; 91% were received within Week 1 and 99.7% within 1 month's time (see Figure).

The last survey response was received on the 49th day after the survey was sent. Overall, 90% of participants identified themselves as PNPs, 5% as were family nurse practitioners, and 4% as pediatric registered nurses; 97% were female. The largest percentage of responding participants graduated in 2005 through 2015 (35%), with an additional 26% of respondents graduating between 1995 and 2004. Practice settings were 14% rural, 33% urban, and 47% suburban, and 6% were not clinical practitioners. In their best memory 95% said their PNP education included safety anticipatory guidance; however, only 8% said that agricultural safety was included. Sixteen percent felt comfortable or very comfortable in delivering agricultural safety guidance. When asked about the prevalence of delivery of agricultural safety anticipatory guidance, only 25% said they sometimes, often, or very often provided this safety guidance. Nevertheless, 58% believed it was important or very important to be knowledgeable.