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Parental Knowledge and Behavior about Poison Prevention:

A Study of Group versus Individual Education

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ABSTRACT

BACKGROUND: Children under the age of 6 annually account for 1 million childhood poisonings in the United States. The purpose of this study is to determine differences in poison prevention knowledge and behaviors between caregivers receiving “*Be Poison Smart!*®” education via individual education and those caregivers receiving group education.

NURSING IMPLICATIONS: This study will help determine which education style (group or individual) will more positively impact caregivers and provide guidance to public health nurses concerning the delivery of poison prevention educational interventions.

METHODS: Using the “Do You Know How to *Be Poison Smart?*®” Evaluation Tool, 40 caregivers, recruited from Women, Infant and Children clinics, were assessed on their knowledge of poison prevention education based on a pre and post-test score.

The pre-test tool, “Do You Know How to *Be Poison Smart?*®”, is a 32 question survey designed to elicit baseline knowledge and behaviors related to poison safety. Twelve questions elicit knowledge information and 10 questions are directed at caregiver poison prevention behaviors, the remaining 10 questions involve demographic information. The post-test is the same questionnaire, without the demographic information.

Participants must have been caregivers to children under 6 years old, at least 21 years old, spoke and read English, and have a mailing address. Participants may not have previously participated in the program. Twenty caregivers received the “*Be Poison Smart!*®” education in an individual setting and 20 in the group setting, six groups of three participants each and one group of two. The pre-test was given before the program and the post-test was mailed 4 weeks later. Nine participants of the individual education responded and 10 of the group education participants responded. The numbers of poison prevention knowledge questions answered correctly on the Evaluation Tool were summed for a total knowledge score, and the number of correct poison prevention behavior questions were summed for a total behavior score. T-tests and Chi Square statistics were used to determine differences between groups on pre and post-test scores on poison prevention knowledge and behavior.

RESULTS: There were no significant differences between receiving the “*Be Poison Smart!*®” education individually or as a group. A significant improvement was found in both the knowledge and behavior scores when results from all pre-post participants were combined. Poison prevention knowledge scores increased from 6.89 to 8.79, $t(18, N = 19) = 0.301$, $p = 0.001$. Poison prevention behaviour scores increased from 6.68 to 7.47, $t(18, N = 19) = 0.686$, $p = 0.01$.

CONCLUSION: Findings suggest that poison prevention education can be taught either individually or in a small group and such education will positively impact the poison prevention knowledge and behavior of caregivers.

Chapter 1 Introduction

Children under the age of 6 account for one million childhood poisonings each year, in the United States alone (Kelly, Huffman, Mendoza, & Robinson, 2003). Interventions are needed to reduce the risk of poisoning to this vulnerable group. Many poisonings could be prevented by poison prevention education, thus decreasing unnecessary hospitalizations or even death. Poison prevention education can be taught to caregivers relatively quickly and in many different settings including the home, the physician's office, or the hospital. Because nurses generally spend the most time with a patient, as compared to other health professionals, they have the ability to intervene by providing basic poison prevention education to caregivers. Limited research has been conducted on poison prevention education and there are almost no data to support that poison prevention education is routinely provided at well child visits or hospital stays (Gerard et al., 2000). It can be assumed that many families would benefit from an outside intervention, such as poison prevention education, in order to make the critical information clear. It has also been shown that those caregivers who have received the critical information are not putting their knowledge into effect by acting with new, safer behaviors (Woolf, Saperstein, & Forjuoh, 1992). A critical aspect that has not been studied is the means by which the education is taught to increase the caregivers' knowledge and behaviors of the poison safety information. The purpose of this study was to determine differences in poison prevention knowledge and behaviors between caregivers receiving "*Be Poison Smart!*[®]" education via individual education and those caregivers receiving group education.

This project was executed by providing poison prevention education to individuals and groups of parents who were affiliated with two Women, Infants, and Children clinics (WIC). The (WIC) program's mission is to safeguard the health of low-income women, infants, and children. Screening and referrals to other health, welfare, and social services are made through WIC as

well. Parents and caregivers were educated through a 20 minute program known as “*Be Poison Smart!*®”.

The program is a multi-faceted approach to education that combines color and visual images, along with stories and pictures, to explain how common household products often look like consumable items when seen through the eyes of young children. The program addresses ways in which a family can poison proof their home, key things to remember when using poisonous substances, along with “pretty poisons” which are substances that can hurt a child when put into their mouths, but to a child they look like something that would be excellent to eat or drink.

Little research has been conducted on poison prevention education in general, and what has been done largely identifies the barriers to education such as race, income, and level of education. While these are all very important, it is necessary that we look more closely at how the education is approached. It has been shown by pre and post-test scores from the “*Be Poison Smart!*®” education program, that this type of education is improving the knowledge and behaviors of caregivers and parents. It is also know that the education is being performed both for individuals, as well as groups, but the exact effects on the knowledge and behavior scores are not yet known. This study was designed to focus on this gap. By studying the differences between individual and group education, a potentially beneficial change could have been made to the program if it was determined that one method of education was superior to the other. In this way, poison prevention education would be taught in an improved manner, and children would reap the benefits of their caregiver’s new and lasting knowledge on poison prevention, as well as their positive change in behaviors related to childhood poisoning.

Chapter 2 Literature Review

In the United States, unintentional poisoning of children less than six years of age is an existent public health issue with nearly 1.1 million cases reported to the Poison Control Centers and the hospital Emergency Departments each year (Kelly et al., 2003). This is an alarmingly high number of cases, a number which has the potential to be far higher, assuming there are many more cases of poisonings that go unreported. In 1999, poisoning was the third cause of mortality due to injury in children, making this an issue worthy of closer assessment, particularly regarding new ways to diminish the number of children who are harmed by poisons annually (McCaig & Burt, 1999).

Several factors play a role in poisonings including knowledge and behaviors of the caregivers, specific types of poison prevention education, and barriers to access and use of this education. These factors all individually, as well as collaboratively, affect the outcome of a poisoning situation.

Types of Poisons and Their Respective Frequencies

Poisonings can occur in a variety of settings and with several different kinds of hazardous and potentially deadly chemicals with 85% of all poison exposures being unintentional (Watson et al., 2003). Toxic substances, when ingested, inhaled, or applied to skin, can damage a child's body at the cellular level. Numerous times, these toxins can cause irreversible damage, but in many cases the effects can be reversed or minimized with early intervention. In 2002, 23 childhood poisoning cases ended in death (Watson et al., 2003). The ultimate goal in poison prevention education is to avoid any exposures to potential toxins.

Children are a vulnerable population because of their innate curiosity and strong will. Many children will often mistake a poisonous substance for a non-poisonous substance of similar color and consistency ("*Be Poison Smart!*", 2001). Frequently, a child may discover a medication that looks like a candy, a cleaner that looks like juice, or a bottle of poisonous bug

spray that resembles a cooking supply in the kitchen. It is because children can make these connections that many end up in a poisoning situation that requires medical attention (“*Be Poison Smart!*”, 2001). In a comparison of data from the National Health Interview Survey (NHIS) and the Toxic Exposure Surveillance System (TESS), both of which seek to identify hazards, education needs, and demographic and health data, childhood poisonings are most often due to pharmaceutical products (Polivka, Elliot, & Wolowich, 2002).

Most childhood poisonings are likely to occur in the home, as that is where the child spends most of his/her time. Data acquired from the 2002 Annual Report of the American Association of Poison Control Centers established that 92.3% of poisonings, in the year 2002, occurred at one’s residence (Watson et al., 2003). The home, the kitchen, bathroom, laundry room and garage are the rooms that have the most risk associated with them mainly due to the types of products stored there. In the kitchen, a small child can find many toxins including dish detergent, cleaning supplies such as window cleaner, oven cleaner and floor cleaner and other similar products. A bathroom also has some likely poisons, such as soaps, toilet and shower cleaners, medications, mouth wash and nail polish remover. The biggest potential poison in the laundry room is laundry detergent and in the garage there are bug sprays, oils and car supplies which are all extremely poisonous and can harm a child very quickly (Polivka et al., 2002; Watson et al., 2003).

McCaig and Burt (1999), researched poisoning visits to US emergency departments by examining data from the National Hospital Ambulatory Medical Care Survey (NHAMCS). The NHAMCS is a national probability sample survey of visits to the emergency departments. Out of a sample of 337 hospitalizations related to poisonings, 18% were determined to be for children under the age of six with the majority of poisonings caused by “nonmedical substances” (McCaig & Burt, 1999). Perhaps, the most important finding of McCaig’s and Burt’s was that 99% of all the reported poisonings for children under age 6 were unintentional and were most

often due to cosmetics, personal care products, plants, cleaning supplies, analgesics, and cough and cold medicines (McCaig & Burt, 1999).

A study conducted in Greece (Petridou, 1997) was similar to McCaig's and Burt's in its methods and findings. Hospital records were examined to determine specific poisons and their frequencies. Results indicate that 90% of childhood poisonings were reported in children under five years old with medications, detergents, cigarettes, petroleum products, and pesticides being the most common poisons (Petridou, 1997).

The results of these studies are important in that they helped to identify which substances are the most commonly reported in child poisoning cases. These kinds of facts make it easier to determine new methods for keeping likely poisons out of the hands of children.

Barriers to Access and Use of Poison Prevention Information

Those without access to poison prevention resources may not be receiving crucial educational information and therefore are at risk for a poisoning exposure. Children living with a family not educated in poison prevention are far more likely to be victims of accidental poisonings. Identified barriers include affordability of education, cultural beliefs, attitudes of parents, and values a certain community places on specific resources (Brannan, 1992).

McCaig and Burt (1999) found that African Americans had a significantly higher number of poisoning related hospital visits than whites. The percentage of African-Americans nearly doubled that of the rest of the hospital visitors combined (McCaig & Burt, 1999). The African American community may have feelings of alienation towards health care resources and racism may still be problematic in certain areas thus leading to limited education services for this population (Brannan, 1992). In a study on parental attitudes, 75% of parents of higher socioeconomic status were able to name measures to take in order to prevent injury, while only 50% of lower socioeconomic status could name such measures (Eichelberger, Gotschall, Feely, Harstad, & Bowman, 1990).

Brannan (1992) explored reasons why black mothers were not using educational resources. As a result of interviewing mothers about their knowledge, behaviors, and barriers of poison prevention education, Brannan suggested that barriers often result from the perceived reality and personal or common experiences (Brannan, 1992). This more clearly means that experiences are what shape a person's thoughts and feelings about specific situations and issues. Thus it is likely that a mother or family who has experienced a poisoning in the past is far more likely to hold knowledge and certain behaviors. Brannan also identified that 87% of black mothers had a lack of awareness on what to do or who to call when faced with a poisoning situation, while 72% stated they had no phones with which to call anyone for help (Brannan, 1992).

There are few studies that directly examine barriers to accidental poisonings. Barriers to health care and important education is a critical issue for those in the health care field, as health care professionals are the ones who have the ability to minimize these barriers.

Parental Poison Prevention Knowledge and Behaviors

Frequently, parental knowledge about how to keep children safe from harm is thought to be an innate characteristic. Theoretically, parents should know how to take care of their child and prevent them from harm; however, this is not always the situation. It is through this misunderstanding that many people do not get needed information.

Depending upon a parent's basic knowledge of poison prevention, their behaviors can vary drastically from family to family. Behaviors are not necessarily dependent upon knowledge, but they do tend to be correlated (Brannan, 1992). Those parents who may have higher poison prevention knowledge will likely have better behaviors related to poison safety (Woolf et al., 1987).

Eichelberger, conducted a national phone survey in 1990, to assess parental attitudes and knowledge of childhood injury, including poisonings, to identify groups who would benefit the most from intervention and to identify ways that child safety could be made more significant

to parents (Eichelberger et al., 1990). Many misconceptions were discovered, leading researchers to believe that parents did not have a strong grasp on the likelihood of childhood poisonings. Of 404 parents surveyed, one-third thought it was more likely that their child would be abducted by strangers than involved in a car accident. Parents were most often worried about their children being kidnapped, involved in drugs, accidents and not getting a good education. Only nine percent of parents identified poisoning as being a frequent cause of death of children with motor vehicle accidents and child abuse being more likely. While this indicates that some parents do not have accurate information, 87% were able to say that most accidents are avoidable and 68% said they had taken actions in the past to prevent injury to their children (Eichelberger et al., 1990).

Hu, Wesson, Parkin, & Rootman (1996), implemented similar phone surveys in 1993 and 1994 regarding child safety attitudes and knowledge, history of past injury and selected safety practices. Hu's results were congruent with Eichelberger's in that infectious diseases and cancer were among the parents' biggest concerns, with childhood injury following (Hu et al., 1996). Both studies showed that parents need to be reacquainted with the commonality of childhood injuries. Nearly 90% of participants agreed that most accidents are avoidable when parents intercede (Hu et al., 1996). Seventy percent of these parents also felt they knew all they needed to know about preventing injury with 80% having taken the proper precautions. Both Eichelberg's and Wu's studies suggest that parents are over confident in their knowledge and behaviors regarding injury prevention in children, including poisonings.

Another important behavior regarding parents is the use of the Poison Control Center (PCC). Many of the poisonings that children are brought into the hospital for can be easily treated at home if the PCC is consulted first. It is imperative to stress to parent's the efficacy of the PCC and its many uses. Kelly and Kirkland (1997) identified those caretakers that did not use the PCC and the reasons why. With 210 participants, 54% were noted to have contacted the PCC before bringing their children into the emergency room. Seventy percent of these

poisonings resulted from medications which generally can be treated over the phone with the PCC (Kelly & Kirkland, 1997). Polivka et al., (2002) noted that 79% of parents contacted the poison control center for children under the age of 6. Kelly and Kirkland (1997) also discovered that those that did not initially call the PCC were African American and/or schooled outside of the United States. Polivka et al., (2002) had comparable findings in their comparison of exposure data in that 62% of African Americans were reporting their children's poisonings to the poison control center, while 87.5% of poisonings of white children were reported. It is possible that limited access to telephones played a factor in these studies.

Types of Poison Prevention Education

Poison prevention education has been taught in various settings and in different manners such as videotapes, handouts, presentations, and as pictorial information. This mixture demonstrates that many aspects have been taken into consideration such as visual, auditory and reading preferences. Several studies have been conducted to demonstrate the effectiveness of different types of education and are useful when trying to determine the most successful route of education.

In 2003, Kelly et al., completed an intervention study designed to increase low-income and Spanish speaking families utilization of poison control centers. Parents (n=289) attending educational classes at WIC clinics were randomly assigned to the intervention group who watched a video or to the control group who had a typical informational class. Each group was given a pre test and a post test with questions about knowledge, attitudes, behaviors, and behavior intent with regards to the Poison Control Center. The group receiving the video intervention showed improvement in all four knowledge questions. They demonstrated a significant improvement in their attitudes, 63% were able to correctly state the Poison Control Center telephone number and twice as many were able to identify the correct actions to take in an emergency situation (Kelly et al., 2003).

A study conducted by Oermann, Webb & Ashare (2003) was very similar in execution to Kelly's and had similar findings. Although this study was done with orthopedic patients, the intervention similarly used a video to promote health education. Oermann found that the group exposed to the video also scored 7.5 points higher on a post-test than those who did not see the video (Oermann et al., 2003). Both of these studies demonstrate that video intervention is an advantageous tool when trying to help people learn important health information.

The use of pictures with regards to injury prevention education, which included poisonings, is an area that has not been studied frequently, but important findings were identified by Powell. In their two-group design, one group received information requiring limited reading ability and pictures to explain the text, while one group received the standard injury information sheet. Both sheets addressed poisonings, as well as burns, falls, drowning, choking, car safety, and gun safety (Powell, Tanz, Uyeda, Gaffney, & Sheehan, 1999). Both of the groups were interviewed by phone 2 to 4 weeks later to test their knowledge on what they had read or seen on their information. Results indicated that pictures were very helpful in recollection of education, as 83% of parents in the intervention group were able to recall something they learned from their sheets (Powell et al., 1999). Perhaps the visual component is important when trying to commit information to memory based on the findings of these studies.

A different type of study was carried out in Boston by Woolf et al., in 1987. Woolf explored poison prevention education completed in the emergency clinic, thus they were interested in the setting of education and not how the education was carried out. Woolf et al., assessed ipecac storage, knowledge of the uses of ipecac, knowledge of the poison center's phone number and poison identification, storage practices, and poisoning readiness. The treatment group was counseled on correct poisoning treatment methods, given a handout on preventing poisoning accidents, a sticker with the Poison Control Center's phone number, and a bottle of ipecac. While both groups were given pre and post tests, the control group did not receive any counseling and were followed up with a telephone interview. The group who

received the intervention scored better on their post-test. Nearly 70% of those receiving the intervention stored ipecac in their home while only 37% did prior to the intervention; 40% of the families in the intervention group knew how to correctly use ipecac, with twenty five percent of families in the control group. Woolf's findings suggest that interventions such as counseling individuals on a one-on-one basis have a beneficial effect on poison prevention knowledge and behaviors (Woolf et al., 1987).

Conclusion

Based on various studies that have investigated different factors affecting poison prevention knowledge and behavior, a number of conclusions can be drawn. One such factor is baseline poison prevention knowledge of caregivers. It has been demonstrated that caregivers across the country are lacking in the necessary and critical poison prevention information as shown by such researchers as Eichelberger, Polivka, Wu, and Kelly. Several barriers also exist for obtaining poison prevention education. Brannan and McCaig have shown that African Americans, as well as those who have not been exposed to poisonings in the past, are for more likely to have limited poison prevention knowledge and behaviors. While it has also been shown that people are not consistently using the Poison Center as a resource when faced with a poisoning, most poisonings occur in the home, and most poisonings can be handled at home with the advice of from PCC's

Perhaps the most important area with which investigation can be conducted is the way in which caregivers will learn and retain poison prevention information. Videos, handouts, presentations, and pictorials have all been utilized, but the results are not outstanding for any one type of education. A gap exists in the research as to whether poison prevention knowledge and behaviors would be increased if the education was performed in groups or individually.

Chapter 3 Methods

Research Questions

Among caregivers of a child or children under the age of 6 receiving poison prevention education by a trained health care provider:

1. What is the change in poison prevention knowledge and behaviors for those receiving individual education?
2. What is the change in poison prevention knowledge and behaviors of for those receiving group education?
3. What is the difference between the two modes of education?

Hypotheses

1. Poison prevention knowledge and behavior scores will improve after receiving the “*Be Poison Smart!*®” education.
2. The poison prevention knowledge and behavior scores will be different between those caregivers receiving individual education and those receiving group education.

Human Subject Concern

This study was approved by the institutional review board of The Ohio State University. This board assured that this study does not infringe on a participant’s right to not be harmed, as well as ensuring their rights to self determination, full disclosure, privacy, and confidentiality.

“Be Poison Smart!” Education

“*Be Poison Smart!*®” is a program designed by the Central Ohio Poison Center to educate caregivers on poison prevention with respect to young children. The program is a multi-faceted approach to education that combines color and visual images, along with stories and pictures, to explain how common household products often look like consumable items when see through the eyes of young children. This poison prevention program addresses a multitude of information, especially “pretty poisons”, which are substances that can hurt children when put

into their mouths, but to children they look like something that would be good to eat or drink. Examples of pretty poisons and their household counterparts include rubbing alcohol and water, sports creams and toothpastes, beer and cola drinks, Pine-Sol™ and apple juice, windshield wiper fluid and blue Kool Aid™, chocolate laxatives and chocolate candy bars, and cleansers and grated cheese. Also addressed in the program are ways in which families can poison proof their home, along with key things to remember when using poisonous substances. Physical props of several “pretty poisons” are used as visuals, as well as a display, encased with medicines and candies paired together by their likeness. Review brochures are given along with stickers, providing the Poison Center phone number, and are passed out as a tote to be taken home by the parents and caregivers. These totes are designed to encourage positive poison prevention behaviors in the future.

“Be Poison Smart!®” Training

“Be Poison Smart!®” training is a train-the-trainer program directed toward education, social service, and medical providers who work with parents and caregivers of young children. Training is aimed at providing effective, low-cost materials and accredited training in order to build a poison prevention program that provides a consistent message. Train-the-trainer is a way of educating others who will in turn educate even more individuals in “Be Poison Smart!®”. In this way there is a cascade effect of trained educators teaching others to also be trained educators. A training program such as this enables all educators to learn the same material in order that the “Be Poison Smart!®” education remains consistent.

Sample

The target population of this study is caregivers of children under the age of 6 years old. Samples were drawn from two separate locations to obtain individuals and groups of caregivers through a convenience sample. Individual parents were recruited at the one WIC clinic while groups of parents were recruited at a separate WIC clinic. Groups of caregivers were recruited

by flyer and meetings were organized for those parents in the WIC program who were interested in participating.

Based on previous evaluation of the “*Be Poison Smart!*®” program, a medium effect size was demonstrated. Therefore, given a medium effect size and a power of 0.05, a sample size of 63 in each group was needed. Participants must be a caregiver of a child under the age of 6 years old, must be 21 years or older, speak and read English and have a mailing address. Exclusion criteria is previous participation in “*Be Poison Smart!*®” education. For this study, the samples sizes were selected as 20 individual participants and 20 group participants due to the time constraints. Sixty-three participants was not a practical number to achieve in a relatively short time period.

Operational Definitions

Poison prevention knowledge- total poison prevention knowledge score.

Poison prevention behaviors- total poison prevention score.

Procedure

“Be Poison Smart!” Training. The private investigator (PI) of the study was personally trained in the “*Be Poison Smart!*®” education, by the Central Ohio Poison Center, prior to beginning data collection. All data were obtained by the PI over the course of several months through many educational sessions with both the groups of participants and individual participants.

Recruitment. For individual education, participants from the WIC clinic were given a flyer explaining the study and asking for participants while they waited for the completion of their child’s appointment (Appendix A). When the caregivers agreed to participate, the private investigator read them the handout with a brief description of the purpose of the study (Appendix B). The investigator explained the study and its purpose and obtained signed, informed consent to participate in the research study (Appendix C). After having read the purpose of the study, signing the consent form and being directed to the education room, the

caregivers or parents were given a pre-test questionnaire consisting of 32 questions (Appendix L).

Group education participants were recruited through a convenience sample. Every month, parents who are part of the WIC program must come in for an informational class in order to receive their monthly food stamps. On one particular day, the parents were offered the opportunity to take part in the poison prevention education as opposed to the standard class, or they could attend their standard class if they were uninterested in the poison education.

Six groups of 3 participants and one group of 2 participants were educated. The PI trained in the program, "*Be Poison Smart!*"[®], completed group presentations. The purpose of the study was explained to caregivers attending the group presentations (Appendix E) and their consent to participate was obtained (Appendix C) prior to completing the pre-test questionnaire (Appendix J).

Individual and Group Education. Caregivers in both individual and group education were informed that participation was voluntary and they could withdraw at any time. Following the pre-test, caregivers in both the individual and the group sessions, were given the poison prevention education through the "*Be Poison Smart!*"[®] program, lasting approximately 15 minutes. After the education session ended, the participants were thanked for their time and were given a small bag filled with health education materials and small toys for the children, as well as a \$ 5.00 Kroger[®] gift-card. The entire program, including the questionnaire and education program took 10-15 minutes for both individuals as well as groups.

The post-test (Appendix F) was mailed to all of the caregivers, four weeks later with a self-addressed stamped envelope and a letter from The Ohio State University (Appendix G). Post-tests were sent to the addresses filled out on their initial survey. In order to maximize the number of returned surveys, an initial letter was sent out about a week before the post-test to remind the caregivers that a survey will be arriving (Appendix H). After the post-tests were sent out, a post card reminder was sent out one week later thanking those that completed the post-

survey and requesting those who had not yet responded to do so (Appendix I). At the receipt of the answered post-tests, 30 minute phone cards and five-dollar Kroger[®] gift-cards were sent to all the participants who completed the post surveys. At the completion of the study, a short summary of the results was sent to each of the participants as well. In order to keep the information provided by these caregivers confidential, their pre- and post-tests were stored in a locked file cabinet in the office of Dr. Barb Polivka at The Ohio State University, College of Nursing. Confidentiality was honored by using identification numbers that were individually assigned to each pre-test, therefore each participant, as they filled out the pre-test questionnaire. A tracking sheet with identification numbers, names and addresses was compiled and stored in a locked cabinet in Dr. Polivka's office (appendix K). The tracking sheet was kept until all the post-tests were returned, at which point the tracking sheet was shredded. The reminder letter, post-test, and post-card that were mailed out to participants, were done by identification number only, and the dates of each mailing was marked on the tracking sheet, along with the date the post-test was returned and the date the phone card and Kroger[®] gift-card was mailed to the participant. The pre and post-tests were linked via the identification numbers so that no names were used for the data analysis.

There were a number of threats to internal and external validity in this study based on design and execution. Threats to the internal validity of this study include that the subjects were not randomly assigned and there were pre- and post-tests. Also, if the caregivers had been involved in any other poison prevention education programs within close proximity to the "*Be Poison Smart!*"[®] program, then internal validity would be threatened. Because of the elapsed time between the two surveys, which allows for outside sources to play a role in the poison prevention knowledge and behaviors, caregivers may be subject to maturation, a change that occurs over time. Attrition was also a threat because of the time between the two tests, further harming the internal validity.

External validity, focusing on generalizability of the findings, was affected because the study was conducted only in Columbus. Also, the population studied may not be representative as a whole simply because some exclusion factors apply such as caregivers who don't have mailing addresses, and don't have the means by which to bring their children into WIC clinics.

Instrument

The pre-test tool, "Do You Know How to *Be Poison Smart?*[®]", is a 32 question survey designed to elicit baseline knowledge and behaviors related to poison safety and only takes 5-10 minutes to complete (Appendix L). Dr. Polivka developed the initial 12 knowledge questions on the "Do You Know How to *Be Poison Smart?*[®]" questionnaire, with input from poison prevention education specialists. This section includes 10 True/False questions and two multiple choice questions. The questions were derived from the educational content of the "*Be Poison Smart!*[®]" curriculum. Content validity was achieved by having 10 poison prevention specialists review the questions (registered nurses who are certified specialists in poison prevention; pharmacists, toxicologist, and two poison prevention education specialists). The instrument has been revised several times, most recently in July, 2004, based on input from poison specialists and participant responses.

The remainder of the poison prevention behavior questions were adapted from the Massachusetts Statewide Childhood Injury Program (SCIPP) Survey (Lovejoy, Caplan, Rowland, & Fazen, 1979). These questions were originally used in a statewide phone survey of injury prevention activities. The behavior section of the questionnaire is multiple choice and designed to determine the behaviors a parent or caregiver utilizes or would utilize in the event of an emergency. These questions address where poisons are stored and what one would do if they were ingested by a child.

The demographic information is an 10 question section that includes race, gender, level of education, employment, family income, and zip code and previous participation in the "*Be Poison Smart!*[®]" curriculum.

In this study the alpha coefficient reliability for the 10 true and false knowledge questions was 0.32 and the alpha coefficient for the behavior questions was 0.35.

Analysis

Descriptive statistics were used to initially analyze the data. The alpha level selected for this study is 0.05 and Chi Square and T-tests were used to analyze the data accumulated from participants to compare pre and post-test scores on poison prevention knowledge and behavior.

Response Rate

The response rate for the post-test for individual participants was 45% (n = 9). The response rate for the post-test for the group participants was 50% (n = 10).

Chapter 4 Results

Demographics

All pre-test participants. A description of the 40 participants who completed the pre-test questionnaire is presented in Table 1. Of the original 40 participants, the majority were female, had at least a high school education, were unemployed with an annual income of less than \$30,000, and had a mean age of 31 years (standard deviation (SD) = 7.5 years)). There were no significant demographic differences between those who filled out only the pre-test and those who filled out both the pre- and post-test. None of the participants had ever previously participated in the “*Be Poison Smart!*®” education.

Pre-post test participants. The demographics of the 19 participants who completed both the pre- and post-test are presented in Table 2. The majority of those who returned the post-tests were between the ages of 20-29. Males constituted 11% of those who were educated individually, and 100% of those who were educated as a group were females. Slightly over half of those completing the post-test were white and close to one-third were African-American. While 70% of those in the group intervention had a college degree, only 44% of those in the individual intervention held a college degree. Most of the post-test respondents in both educational types had a yearly income of less than \$30,000 a year. Those participating in the individual education had an average of two children (SD = 0.81), while those in the group education had an average of one child (SD = 0.89). Significantly more of those who took part in the individual education (40%) were unemployed compared to those in the group intervention (60%), ($\chi^2 (1, N = 19) = 7.89, p = 0.005$). There were no other significant demographic differences between those who completed individual and those who completed group “*Be Poison Smart!*®” educations.

Pre-test results for all participants

Knowledge. Poison prevention knowledge of those who received the individual intervention and those who received the group intervention were very similar (Table 3). Most

participants correctly answered the question related to the body's need for lead and the idea that children, under age 6, can understand the difference between medicine and candy. A large amount of participants were knowledgeable on the dangers of gasoline and dish soap, as well as the fact that lead poisoning does not present with signs and symptoms typical of an ill child. Two-thirds of participants affirmed that child-proof caps are not safe, while only one-fifth responded that you should check your house for poisons more than twice a year. Half of the participants were aware that a pharmacist or a nurse answers the phone at the poison center. A majority were aware of "pretty poisons". What to do if a child swallows lamp oil, where to place vitamins to be safe from toddlers, and whether or not Children's Protective Services must be notified in a poisoning case were answered incorrectly by a majority of the participants.

Behaviors. Less than half of all individuals considered calling the poison center if a child swallowed rat poison and only one-third had the poison center's phone number posted where it could be seen. Behaviors related to the storage of poisons were largely positive, with a vast majority of participants keeping poisons out of sight and above shoulder height. Almost all participants reported their children wash their hands all or most of the time before eating.

Results for all pre-and post-test participants

For a majority of the pre-test knowledge and behavior questions, the individual participants and the group participants answered very similarly (Table IV). However, a statistical difference was seen between the intervention groups ($n=19$) when asked if children's services needed to be notified when a poisoning occurred that involved a child, half of those who received the individual education answered correctly, while 80% of those who received group education answered incorrectly, ($\chi^2 (1, N = 40) = 3.96, p = 0.05$). This difference was not evident on the post-test.

Research Questions

Among caregivers of a child or children under the age of 6 receiving poison prevention education by a trained health care provider:

1. What is the change in poison prevention knowledge and behaviors for those receiving individual education? Those receiving individual education increased their knowledge scores by 2.66 points and their behavior scores by 1.44 points.
2. What is the change in poison prevention knowledge and behaviors of for those receiving group education? Those receiving the “*Be Poison Smart!*®” education in a group setting increased their knowledge scores by 1.20 points and their behavior scores by 1.20 points as well.
3. What is the difference between the two modes of education? There were no statistically significant differences between those completing the individual education and those completing the group education with respect to their pre- and post-test knowledge and behavior scores (Table 5). A statistically significant difference was found in both knowledge and behavior pre- and post-test scores for all 19 participants (individual and group data combined). The pre-test average knowledge score for these 19 respondents was 6.89 (SD = 1.85). Poison prevention knowledge scores increased from 6.89 to 8.79, $t(18, N = 19) = 0.301$, $p = 0.001$. Poison prevention behaviour scores increased from 6.68 to 7.47, $t(18, N = 19) = 0.686$, $p = 0.01$.

Hypotheses

1. Poison prevention knowledge and behavior scores will improve after receiving the “*Be Poison Smart!*®” education. This hypothesis was supported after conducting the research project. An overall improvement in the knowledge and behavior scores was seen between all pre-and post-test participants.
2. The poison prevention knowledge and behavior scores will be different between those caregivers receiving individual education and those receiving group education. This hypothesis was not supported after conducting the research project. There was not a significant difference in the knowledge and behavior scores between the individual and group participants.

Chapter 5 Discussion

Assessment of differences in pre- and post-test knowledge and behavior scores among participants who received individual versus group education revealed no significant differences in how the intervention was delivered. However, there were statistically significant findings from pre- to post-test scores for the participants as a whole. These findings support the “*Be Poison Smart!*®” curriculum and its ability to positively improve the knowledge and behavior of caregivers regardless of the environment in which it is taught.

Previous studies have found similar results to this research with respect to poison prevention knowledge and behaviors of caregivers. In 1987, Woolf conducted a study wherein he explored poison prevention education completed in the emergency department. After pre- and post- test results were analyzed from a group who received the education, and those who received only informational handouts, it was noted that the intervention group scored far higher on their post-test questionnaires specifically on behavior questions such as placement of poisonous substances and location of the poison center phone number. Similarly, the “*Be Poison Smart!*®” curriculum showed a significant improvement in the scores these same behavior questions, as well as all knowledge question scores on the participants’ post-tests.

Kelly et al., (2003) completed a study to improve the use of the poison center phone number by low-income families. In her study of 289 participants from WIC clinics who were educated on knowledge, attitudes, behaviors, and behavior intent related to the poison control center, 63% were able to correctly recall the poison center number on their post-tests. This is comparable to the increase seen in the participants placement of the poison control center’s phone number in the “*Be Poison Smart!*®” curriculum.

Powell et al., (1999) explored injury prevention utilizing pictures for one group and text explanations for another group. Eighty-three percent of participants in the pictorial group were able to recall injury information learned from the education two to four weeks after the

intervention. An overall increase in knowledge and behavior scores after the “*Be Poison Smart!*®” curriculum may be attributed to the education’s colorful, visual images, and props.

Limitations

A number of threats to internal and external validity were noted in this study. Design and execution were two areas that may have affected the results. Subjects were not randomly assigned and a convenience sample was utilized. This may have affected the data in that those who did not have the means to attend WIC clinics were inevitably omitted. Another possible limitation that would affect the data is that both a pre- and post-test were used. The percentages of people who will complete a second survey is significantly lower than those who completed the first survey. This limitation was furthered by the use of mailings to obtain the post-test. It is possible that response rates would have been greater using a phone post-test method. However, using a phone follow-up method is time and cost intensive and was not practical for this study. It is also possible that caregivers may have been involved in another poison prevention education programs around the same time as the “*Be Poison Smart!*®” program, threatening internal validity.

Because several weeks elapsed between the pre- and post-test surveys, allowing for outside sources to play a role in the poison prevention knowledge and behaviors, the participants may have been subjected to maturation, a change that occurs over time. During the several weeks the caregivers may have gained outside knowledge related to poison prevention, altering the validity of the results gained from the post-test. Attrition is also an issue with this study because many participants do not return the post-tests, possibly because of the time between the two tests.

External validity, focusing on generalizability of the findings, may be affected because the study was conducted only in Columbus and only with WIC clients, a non-probability sample. This study can not be extended to other populations. Also, the population being studied may not

be representative as a whole because of exclusion factors such as an inability to speak or read English, being under the age of 21 or not having a mailing address.

Implication for future research

More research should certainly be conducted with respect to poison prevention education. With small sample sizes it is hard to determine how effective the intervention is for a larger population. Larger numbers help to determine the generalizability of the education. It is also necessary that the education be studied for all types of people. This study focused mainly on lower income participants, while research conducted with other populations, such as middle and upper-class participants, Latinos, Asians, rural residents, and teenagers will also yield beneficial statistics.

Implication for practice

Poison prevention education is typically taught in the pediatrician's office at well-child visits. However, the education can be taught easily in a variety of settings. Because of the value of such education, it should be taught more often, whenever possible. For nurses, it is extremely important, when contact is made with a parent of a young child, that poison prevention education be taught. Nurses are the health care providers that come into contact with parents most often. For this reason, it is imperative that the nurses be sure to utilize the time they have with parents and instruct them in this life saving education. The more nurses who review this education with parents, the fewer poisoning accidents will occur.

Conclusion

The lack of significant differences between the individual and group participants indicates that the route of education was not critical when referring to poison prevention. Poison prevention education can be taught effectively either individually or in a group setting. The "*Be Poison Smart!*"[®] program is effective in educating caregivers on the dangers of poisons and the behaviors that will help minimize the risks of childhood poisonings.

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Tables

- I. Total Participant Demographics (n=40)
- II. Individual and Group Participant Demographics (n=19)
- III. Pre-Data (n=40)
- IV. Pre and Post Data for Full Participants (n=19)
- V. Individual and Group Pre- and Post-Test Scores
- VI. Respondent Pre- and Post-Test Scores (n=19)

Table I
Total Participant Demographics (n=40)

Characteristic	n	%	
Age	20-29	22	56.6%
	30-39	11	28.2%
	40 +	6	15.5%
Gender	Male	5	12.5%
	Female	35	87.5%
Race/Ethnicity	White	17	42.5%
	African-American	16	40%
	Hispanic	4	10%
	Asian	1	2.5%
	Other	2	5%
Highest Level of Education	Less than high-school	4	10%
	High-school or GED	18	45%
	College/technical school	18	45%
Employment Status	Employed	17	42.5%
	Unemployed	23	57.5%
Yearly Income	Less than \$30,000	30	75%
	More than \$30,000	10	25%
Children under age 6 in home	Zero	7	17.5%
	One	15	37.5%
	Two	14	35%
	Three	3	7.5%
	Four	1	2.5%
Previous Participation in Be Poison Smart Intervention	Previous participation	0	0%
	No previous participation	40	100%

Table II
Individual and Group Participant Demographics (n=19)

Characteristic		Individual intervention n (%)	Group Intervention n (%)
Age	20-29	62.5	80
	30-39	25	10
	40 +	12.5	10
Gender	Male	11.1	0
	Female	88.9	100
Race/Ethnicity	White	55.6	60
	African-American	33.3	30
	Asian	0	10
	Other	11.1	0
Highest Level of Education	Less than high-school	11.1	0
	High-school or GED	44.4	30
	College/technical school	44.4	70
*Employment Status	Employed	0	60
	Unemployed	100	40
Yearly Income	Less than \$30,000	77.8	70
	More than \$30,000	22.2	30
Children under age 6 in home	Zero	0	40
	One	55.6	50
	Two	44.4	10
Previous Participation in Be Poison Smart	Previous participation	0	0
	No previous participation	100	100

* $p \leq 0.05$

Table III
Pre-Data (n=40)

Question	Individual intervention %	Group intervention %	All Participants %
1. The body needs a small amount of lead for good nutrition.			
True	25%	40%	32.5%
False**	75%	60%	67.5%
2. Children over 6 can usually understand the difference between medicine and candy.			
True**	65%	55%	60%
False	35%	45%	40%
3. If a child swallows lamp oil, make him/her throw up right away.			
True	65%	45%	55%
False**	35%	55%	45%
4. By putting vitamins on a high shelf, they are safe from a toddler.			
True	60%	70%	65%
False**	40%	30%	35%
5. Children's protective services must be notified when a poisoning involves a child.			
True	50%	80%	65%
False**	50%	20%	35%
6. Gasoline can be safely stored on a garage shelf.			
True	55%	35%	45%
False**	45%	65%	55%
7. Dish soap would be harmful if swallowed by a child.			
True**	60%	70%	65%
False	40%	30%	35%
8. Children with lead poisoning usually don't look sick.			
True**	70%	75%	72.5%
False	30%	25%	27.5%
9. Medicine bottles with child-proof caps are not safe.			
True**	35%	30%	32.5%
False	65%	70%	67.5%

Question	Individual intervention %	Group intervention %	All Participants %
10. You should check your house for poisons two times a year.			
True	80%	85%	82.5%
False**	20%	15%	17.5%
11. When you call them emergency number for the Poison Center, who will answer...			
Volunteer	20%	10%	15%
Secretary/clerk	5%	10%	7.5%
Pharmacist/Nurse**	40%	60%	50%
Dispatcher	35%	20%	27.5%
12. A “pretty poison” is...			
A blue mouthwash	10%	5%	7.5%
A cleaner that looks like fruit juice	5%	20%	12.5%
Both, a cleaner that looks like fruit juice and bug spray	25%	20%	22.5%
All of the above**	60%	55%	57.5%
13. If you thought a child swallowed rat poison you would first...			
Go to the ER	5%	10%	7.5%
Call the Poison Center**	50%	30%	40%
Make him/her throw up	10%	20%	15%
Call 911	35%	40%	37.5%
14. Do you have the Poison Center’s phone number posted where it can be easily seen?			
Yes**	35%	40%	37.5%
No	60%	55%	57.5%
Don’t Know	5%	5%	5%
15. Is the place where you keep medicines in your home...			
In the open/visible	5%	5%	5%
Out of sight/not visible**	95%	80%	87.5%
Don’t know	0%	5%	2.5%
Never keep any**	0%	10%	5%
16. Is the place where you keep medicines in your home...			
Below shoulder height	5%	10%	7.5%
Above shoulder height**	95%	80%	87.5%
Don’t know	0%	5%	2.5%
Never keep any**	0%	5%	2.5%

Question	Individual intervention %	Group intervention %	All Participants %
17. Is the place where you keep bleach in your home...			
In the open/visible	10%	20%	15%
Out of sight/not visible**	80%	70%	75%
Don't know	0%	0%	0%
Never keep any**	10%	10%	10%
18. Is the place where you keep bleach in your home...			
Below shoulder height	15%	20%	17.5%
Above shoulder height**	75%	70%	72.5%
Don't know	0%	0%	0%
Never keep any**	10%	10%	10%
19. Is the place where you keep drain cleaner in your home...			
In the open/visible	0%	0%	0%
Out of sight/not visible**	60%	80%	70%
Don't know	5%	0%	2.5%
Never keep any**	35%	20%	27.5%
20. Is the place where you keep drain cleaner in your home...			
Below shoulder height	15%	45%	30%
Above shoulder height**	45%	35%	40%
Don't know	5%	0%	2.5%
Never keep any**	35%	20%	27.5%
21. Do you ever keep a cleaning product, gasoline, oil, etc., in something other than the original container it came in?			
Yes	10%	20%	15%
No**	90%	75%	82.5%
Don't know	0%	5%	2.5%
22. How often do children visiting or living with you wash their hands before eating?			
Always**	50%	55%	52.5%
Most of the time**	40%	20%	30%
Sometimes	5%	25%	15%
Never	5%	0%	2.5%

** indicates a correct answer

Table IV
Pre and Post Data for Full Participants (n=19)

	Pre-Test			Post-Test		
	Ind. %	Group %	Total %	Ind. %	Group %	Total %
	Correct	Correct	Correct	Correct	Correct	Correct
1. The body needs a small amount of lead for good nutrition. True False**	66.7%	70%	68.4%	66.7%	80%	73.7%
2. Children over 6 can usually understand the difference between medicine and candy. True** False	66.7%	50%	57.9%	44.4%	20%	31.6%
3. If a child swallows lamp oil, make him/her throw up right away. True False**	33.3%	70%	52.6%	66.7%	90%	78.9%
4. By putting vitamins on a high shelf, they are safe from a toddler. True False**	44.4%	50%	47.4%	33.3%	50%	42.1%
5. Children's protective services must be notified when a poisoning involves a child. True False**	55.6%	20%	36.8%	77.8%	40%	57.9%
6. Gasoline can be safely stored on a garage shelf. True False**	44.4%	80%	63.2%	66.7%	40%	52.6%
7. Dish soap would be harmful if swallowed by a child. True** False	55.6%	60%	57.9%	100%	70%	84.2%
8. Children with lead poisoning usually don't look sick. True** False	66.7%	80%	73.7%	100%	90%	94.7%

	Pre-Test			Post-Test		
	Ind. % Correct	Group % Correct	Total % Correct	Ind. % Correct	Group % Correct	Total % Correct
9. Medicine bottles with child-proof caps are not safe. True** False	44.4%	30%	36.8%	88.9%	60%	73.7%
10. You should check your house for poisons two times a year. True False**	88.9%	90%	89.5%	77.8%	70%	73.7
11. When you call them emergency number for the Poison Center, who will answer... Volunteer Secretary/clerk Pharmacist/Nurse** Dispatcher	44.4%	70%	57.9%	88.9%	80%	84.2%
12. A "pretty poison" is... A blue mouthwash A cleaner that looks like fruit juice Both, a cleaner that looks like fruit juice and bug spray All of the above**	77.8%	80%	78.9%	66.7%	90%	78.9%
13. If you thought a child swallowed rat poison you would first... Go to the ER Call the Poison Center** Make him/her throw up Call 911	44.4%	50%	47.4%	100%	100%	100%
14. Do you have the Poison Center's phone number posted where it can be easily seen? Yes** No Don't Know	44.4%	30%	36.8%	88.9%	80%	84.2%

	Pre-Test			Post-Test		
	Ind. % Correct	Group % Correct	Total % Correct	Ind. % Correct	Group % Correct	Total % Correct
15. Is the place where you keep medicines in your home... In the open/visible Out of sight/not visible** Don't know Never keep any**	88.9%	100%	94.7%	66.7%	100%	84.2%
16. Is the place where you keep medicines in your home... Below shoulder height Above shoulder height** Don't know Never keep any**	88.9%	80%	84.2%	100%	90%	94.8%
17. Is the place where you keep bleach in your home... In the open/visible Out of sight/not visible** Don't know Never keep any**	77.8%	80%	78.9%	77.8%	80%	79%
18. Is the place where you keep bleach in your home... Below shoulder height Above shoulder height** Don't know Never keep any**	88.9%	70%	78.9%	66.7%	70%	68.8%
19. Is the place where you keep drain cleaner in your home... In the open/visible Out of sight/not visible** Don't know Never keep any**	88.8%	100%	94.8%	100%	100%	100%
20. Is the place where you keep drain cleaner in your home... Below shoulder height Above shoulder height** Don't know Never keep any**	77.7%	30%	52.7%	88.9%	50%	68.4%

	Pre-Test			Post-Test		
	Ind. % Correct	Group % Correct	Total % Correct	Ind. % Correct	Group % Correct	Total % Correct
21. Do you ever keep a cleaning product, gasoline, oil, etc., in something other than the original container it came in? Yes No** Don't know	88.9%	70%	78.9%	100%	90%	94.7%
22. How often do children visiting or living with you wash their hands before eating? Always** Most of the time** Sometimes Never	77.8%	60%	68.5%	77.8%	80%	78.9%

** indicates a correct answer

Table V
Individual and Group Pre- and Post-Test Scores

Total Scores	Individual (n=9) M (SD)	Group (n=10) M (SD)	t-test
Pre-test Knowledge Score	6.56 (2.30)	7.20 (1.40)	-0.75
Post-test Knowledge Score	9.22 (1.09)	8.40 (2.01)	1.09
Pre-test Behavior Score	7.22 (0.83)	6.20 (1.69)	1.64
Post-test Behavior Score	7.56 (1.01)	7.40 (1.58)	0.25

Table VI
Respondent Pre- and Post-Test Scores (n=19)

Total Scores	Pre M (SD)	Post M (SD)	t-test
Knowledge Score	6.89 (1.85)	8.79 (1.65)	* -3.97
Behavior Score	6.68 (1.42)	7.47 (1.31)	* -3.17

* $p \leq 0.05$

Appendix A

Announcing...**“Be Poison Smart!®”**

a brief educational program on keeping your child safe from poisons
(about 15 minutes, while you are waiting!)

Sponsored by the OSU College of Nursing and the Central Ohio Poison Center

*****If you are interested in participating,
please see the researcher located in the
waiting area who will be happy to help you 😊*****

Parents will get a goody bag today for completing a pre-survey and hearing the Be Poison Smart education. For completing a post-survey in about a month, parents will get a 30 minute phone card.

Don't miss the wonderful opportunity to learn how to poison proof your home and keep your children safe, while taking part in a research project.

Please consider taking part, it will be greatly appreciated!!

*** Participation in the study is **NOT** required and you may withdraw from the study at any time Confidentiality will be maintained for all participants***

**You must be 21, caregiver of a child under 6, speak and read English,
and have a mailing address to participate**

For further information contact Dr. Barb Polivka at 614-292-4902 or polivka.1@osu.edu

THANK YOU!!!

Appendix B

Script to introduce the research study to caregivers at WIC clinic

I am Melissa Eckert, an honor's nursing student, from Ohio State University and I am working on my senior honor's thesis project. Thank you for your interest in this research study on poison prevention education and the "*Be Poison Smart!*"[®] program. Participating in this education will not only benefit you, as a caregiver, but also those people researching parental knowledge and behaviors of poison prevention, with relation to young children. We hope that you learn a lot about poison prevention, some of which you may already know, but some of which you may not, that could ultimately save the life of a child. This study is comparing education provided one-on-one to parents with the same education provided in a group format.

If you agree to participate, you will be asked to fill out a short survey that asks questions such as where you keep your poisons, what you would do if your child was poisoned, and some other general questions about poisonings. This survey will take about 10-15 minutes. All that I ask is that you answer the question to the best of your ability.

Please read and sign the informed consent at this time if you wish to participate. Thank you.

Your answers to the pre-test and post-tests are confidential and they will be compiled with the responses of all the other participants so they may be analyzed as a group. I am not looking to see how any one person answers the questions. After you are done with the survey, I will go through the "*Be Poison Smart!*"[®] program with you, which will take about 10-15 minutes. I am asking for about 25 minutes of your time today.

In about 4 weeks, you will be contacted by mail. A post-test survey will be sent out and upon finishing it I would like you to mail it back in the envelope we will provide.

Please remember that participation is voluntary, you can choose to withdraw at any time, you can choose not to answer questions, and your affiliation with this office is not affected by your decision to participate or not participate.

For completing the survey now and listening to the "*Be Poison Smart!*"[®] program, you will receive a goody bag filled with health education materials. When the second survey is completed and mailed in, you will receive a 30 minute phone card for your participation.

Do you have any questions?

I will now give you the survey.

Appendix C

CONSENT FOR PARTICIPATION IN SOCIAL AND BEHAVIORAL RESEARCH

Protocol title: **Parental Knowledge and Behavior about Poison Prevention: A Study of Group versus Individual Education**

Protocol number: _____

Principal Investigator: Dr. Barbara Polivka

I consent to my participation in research being conducted by Dr. Barbara Polivka of The Ohio State University and his/her assistants and associates.

The investigator(s) has explained the purpose of the study, the procedures that will be followed, and the amount of time it will take. I understand the possible benefits, if any, of my participation.

I know that I can choose not to participate without penalty to me. If I agree to participate, I can withdraw from the study at any time, and there will be no penalty.

I have had a chance to ask questions and to obtain answers to my questions. I can contact the investigators at **614-292-4902**. If I have questions about my rights as a research participant, I can call the Office of Research Risks Protection at (614) 688-4792.

I have read this form or I have had it read to me. I sign it freely and voluntarily. A copy has been given to me.

Print the name of the participant:

Date:

Signed:

(Participant)

Signed:

(Principal Investigator or his/her authorized representative)

Signed:

(Person authorized to consent for participant, if required)

Witness:

(When required)

Appendix D

Announcing...**“Be Poison Smart!®”**

a brief educational program on keeping your child safe from poisons

Sponsored by the OSU College of Nursing and the Central Ohio Poison Center

**Mark your calendars to attend the parent meeting on
Insert date at time, located in
the Morse Road WIC clinic meeting room, upstairs.**

**Parents will get a goody bag for completing a
pre-survey and hearing the Be Poison Smart education.
For completing a post-survey in about a month,
parents will get a 30 minute phone card.**

Don't miss the wonderful opportunity to learn how to poison proof
your home and keep your children safe, while taking part
in a research project.

Please consider attending, it will be greatly appreciated!!

***Participation in the study is **NOT** required and you may withdraw from the study at any time.
Confidentiality will be maintained for all participants***

**You must be 21, caregiver of a child under 6, speak and read
English,
and have a mailing address to participate!**

For further information contact Dr. Barb Polivka at 614-292-4902 or polivka.1@osu.edu

THANK YOU!!!

Appendix E

Script to introduce the research study to caregiver groups at Morse Road WIC

I am Melissa Eckert, an honor's nursing student, from Ohio State University and I am working on my senior honor's thesis project. Thank you for your interest in this research study on poison prevention education and the "*Be Poison Smart!*[®]" program. Participating in this education will not only benefit you, as a caregiver, but also those people researching parental knowledge and behaviors of poison prevention, with relation to young children. We hope that you learn a lot about poison prevention, some of which you may already know, but some of which you may not, that could ultimately save the life of a child. This study is comparing education provided one-on-one to parents with the same education provided in a group format.

If you agree to participate, you will be asked to fill out a survey that asks questions such as where you keep your poisons, what you would do if your child was unintentionally poisoned, and some other general questions about your behaviors and feelings with regards to poisonings. This survey will take about 10-15 minutes. All that I ask is that you answer the question to the best of your ability.

I ask you to please sign the informed consent at this time if you wish to participate. Thank you.

Your answers are confidential and they will be compiled with the responses of all the other participants so they may be analyzed as a group. I am not looking to see how any one person answers the questions. After you are done with the survey, I will go through the "*Be Poison Smart!*[®]" program with your group, which will take about 10 minutes. I am asking for about 25 minutes of your time today.

In about 4 weeks, you will be contacted by mail. A post-test survey will be sent out and upon finishing it, I ask that you mail it back in the envelope provided.

Please remember that participation is voluntary, you can choose to withdraw at any time, you can choose not to answer questions, and your affiliation with this organization is not affected by your decision to participate or not participate.

For completing the survey tonight, and listening to the "*Be Poison Smart!*[®]" program, you will receive a lunch bag filled with health education materials. When the second survey is completed and mailed in, you will receive a 30 minute phone card for your participation.

The questions refer to children under 6 years old.

Are there any questions?

I will now pass out the surveys.

Appendix F

ID# _____

Do You Know How to *Be Poison Smart!*[®] ?
 Post Intervention Mail-In Survey

Date: _____

For each of the following 10 questions, please check whether you think the sentence is TRUE or FALSE:

1. The human body needs a small amount of lead for good nutrition.	<input type="checkbox"/> True	<input type="checkbox"/> False
2. Children over 6 years of age usually understand that there is a difference between medicine and candy.	<input type="checkbox"/> True	<input type="checkbox"/> False
3. If a child swallows lamp oil, make him/her throw up right away.	<input type="checkbox"/> True	<input type="checkbox"/> False
4. By putting vitamins on a high shelf, they are safe from a toddler.	<input type="checkbox"/> True	<input type="checkbox"/> False
5. Children’s protective services must be notified when a poisoning involves a child.	<input type="checkbox"/> True	<input type="checkbox"/> False
6. Gasoline can be safely stored on a garage shelf.	<input type="checkbox"/> True	<input type="checkbox"/> False
7. Dish soap would be harmful when swallowed by a child.	<input type="checkbox"/> True	<input type="checkbox"/> False
8. Children with lead poisoning usually don’t look sick.	<input type="checkbox"/> True	<input type="checkbox"/> False
9. Medicine bottles with child-proof caps are not safe.	<input type="checkbox"/> True	<input type="checkbox"/> False
10. You should check your home for poisons two times a year.	<input type="checkbox"/> True	<input type="checkbox"/> False

For each of the next 3 questions, please check the ONE answer you think is correct:

11) **When you call the emergency number for the Poison Center, who will answer?**

- Volunteer
- Secretary or Clerk
- Pharmacist or Nurse
- Dispatcher

12) **A “Pretty Poison” is**

- A blue mouthwash
- A cleaner that looks like fruit juice
- Bug spray
- BOTH, A CLEANER THAT LOOKS LIKE FRUIT JUICE AND BUG SPRAY**
- All of the above

13) **If you thought a child swallowed rat poison, you would first**

- Go to the Emergency Room
- Call the poison center
- Make him/her throw up
- Call 911

For each of the following questions, please check the answer(s) that most describes your household:

14) **Do you have the Poison Center’s number posted where it can be easily seen?**

- Yes
- No
- Don’t know

15) **Is the place where you keep medicines in your home (Check all that apply)**

- In the open/visible
- Out of sight/not visible
- Don’t know
- Never keep any (skip to question 18)

16) **Is the place where you keep medicines in your home (Check all that apply)**

- Below shoulder height
- Above shoulder height
- Don’t know

17) **Is the place where you keep bleach in your home (Check all that apply)**

- In the open/visible
- Out of sight/not visible
- Don’t know
- Never keep any (skip to question 20)

18) **Is the place where you keep bleach in your home (Check all that apply)**

- Below shoulder height
- Above shoulder height
- Don’t know

- 19) **Is the place where you keep drain cleaner in your home***(Check all that apply)*
 In the open/visible Out of sight/not visible Don't know Never keep any *(skip to question*
- 20) **Is the place you keep drain cleaner in your home***(Check all that apply)*
 Below shoulder height Above shoulder height Don't know
- 21) **Do you ever keep a cleaning product, gasoline, oil, etc., in something other than the original container it came in?**
 Yes No Don't know
- 22) **Do you ever have children under 6 years of age visiting or living in your home?**
 Yes No *(skip to question 26)* Don't know
- 23) **How often do children visiting or living with you wash their hands before eating?**
 Always Most of the time Sometimes Never

Thank you very much for completing this survey.



Appendix GInsert date

Dear (Name),

Several weeks ago you took part in an educational program entitled “*Be Poison Smart!*®”, which we hope provided you with some new and beneficial information regarding poison prevention. Hopefully, this program was a fun and helpful experience for you. Your participation in this study is so important to the research being done!

If you remember from your program, you filled out a survey that asked you some information about poison prevention. At the end of the presentation we said we would send you a follow up survey 4 weeks later. This letter is to ask that you fill out the follow up questionnaire that we have provided. Once you send in your completed survey, we will send you a 30 minute phone card as a token of our appreciation for your taking time to participate in our study. We have enclosed a self addressed stamped envelope for your convenience so that you can simply drop off the completed survey in the mailbox without any further hassle.

Please remember that confidentiality is being maintained throughout this study, and your name will not be connected to your survey at any point. We will be matching the pre-survey with the post-survey by ID number only. Your participation is voluntary and you can choose to withdraw from the study at any time.

We eagerly await your completed questionnaire and thank you in advance for your cooperation with this study. If you have any questions or concerns you may contact Dr. Polivka at 614-292-4902.

Thank you for time,

Dr. Barbara Polivka,
Principal Investigator
Polivka.1@osu.edu

Melissa Eckert, Student Nurse, OSU
Senior Honors Nursing Student
Eckert.52@osu.edu

Appendix HInsert date

Dear (Name)

Several weeks ago you took part in an educational program entitled “*Be Poison Smart!*®”, which we hope gave you some new and beneficial information regarding poison prevention. Hopefully, this program was a fun and helpful experience for you.

If you remember from your program, you filled out a survey that asked you some basic information about poison prevention. At the end of the presentation we said we would mail you a post-survey 4 weeks later. This letter is simply a reminder that your post-survey should arrive any day. If you choose to complete the survey and send it back, to you we will mail you a 30 minute phone card for your cooperation. Your participation is voluntary and you may choose to withdraw at any time. We hope you choose to complete the survey and return it to us. If you have any questions or concerns, please contact Dr. Polivka at 614-292-4902.

We appreciate your time,

Dr. Barb Polivka
Principle Investigator
Polivka.1@osu.edu

Melissa Eckert, Student Nurse, OSU
Senior Honors Nursing Student
Eckert.52@osu.edu

Appendix I

Insert date

Dear caregiver

Several weeks ago you took part in an educational program entitled “*Be Poison Smart!*®”. Recently we mailed you a post-survey for you to complete. If you have not already done so, we are asking that you complete this survey and mail it back to us. If you choose to do so, you will be mailed a 30 minute phone card for your time. If you have mailed us your completed survey, we want to thank you and let you know that your phone card is on the way. If you have not received your survey in the mail or you have any questions, please contact Dr. Polivka at 614-292-4902. Your participation is greatly appreciated!

Thank you so much,

Dr. Barbara Polivka
Principal Investigator
Polivka.1@osu.edu

Melissa Eckert, Student Nurse, OSU
Senior Honors Nursing Student
Eckert.52@osu.edu

Appendix J

(Office use only) ID# _____

Date: _____ Site: _____

Do You Know How to *Be Poison Smart!*[®] ?

For each of the following 10 questions, please check whether you think the sentence is TRUE or FALSE:

1. The human body needs a small amount of lead for good nutrition.	<input type="checkbox"/> True	<input type="checkbox"/> False
2. Children over 6 years of age usually understand that there is a difference between medicine and candy.	<input type="checkbox"/> True	<input type="checkbox"/> False
3. If a child swallows lamp oil, make him/her throw up right away.	<input type="checkbox"/> True	<input type="checkbox"/> False
4. By putting vitamins on a high shelf, they are safe from a toddler.	<input type="checkbox"/> True	<input type="checkbox"/> False
5. Children’s protective services must be notified when a poisoning involves a child.	<input type="checkbox"/> True	<input type="checkbox"/> False
6. Gasoline can be safely stored on a garage shelf.	<input type="checkbox"/> True	<input type="checkbox"/> False
7. Dish soap would be harmful when swallowed by a child.	<input type="checkbox"/> True	<input type="checkbox"/> False
8. Children with lead poisoning usually don’t look sick.	<input type="checkbox"/> True	<input type="checkbox"/> False
9. Medicine bottles with child-proof caps are not safe.	<input type="checkbox"/> True	<input type="checkbox"/> False
10. You should check your home for poisons two times a year.	<input type="checkbox"/> True	<input type="checkbox"/> False

For each of the next 3 questions, please check the ONE answer you think is correct:

11) **When you call the emergency number for the Poison Center, who will answer?**

- Volunteer
- Secretary or Clerk
- Pharmacist or Nurse
- Dispatcher

12) **A “Pretty Poison” is**

- A blue mouthwash
- A cleaner that looks like fruit juice
- Bug spray
- Both, a cleaner that looks like fruit juice and bug spray
- All of the above

13) **If you thought a child swallowed rat poison, you would first**

- Go to the Emergency Room
- Call the poison center
- Make him/her throw up
- Call 911

For each of the following questions, please check the answer(s) that most describes your household:

14) **Do you have the Poison Center’s number posted where it can be easily seen?**

- Yes
- No
- Don’t know

15) **Is the place where you keep medicines in your home (Check all that apply)**

- In the open/visible
- Out of sight/not visible
- Don’t know
- Never keep any (skip to question 18)

16) **Is the place where you keep medicines in your home (Check all that apply)**

- Below shoulder height
- Above shoulder height
- Don’t know

17) **Is the place where you keep bleach in your home (Check all that apply)**

- In the open/visible
- Out of sight/not visible
- Don’t know
- Never keep any (skip to question 20)

18) **Is the place where you keep bleach in your home (Check all that apply)**

- Below shoulder height
- Above shoulder height
- Don’t know

19) **Is the place where you keep drain cleaner in your home (Check all that apply)**

- In the open/visible
- Out of sight/not visible
- Don’t know
- Never keep any (skip to question 20)

20) **Is the place you keep drain cleaner in your home (Check all that apply)**

- Below shoulder height
- Above shoulder height
- Don’t know

21) **Do you ever keep a cleaning product, gasoline, oil, etc., in something other than the original container it came in?**

