
The Use of Focus Groups to Plan Poison Prevention Education Programs for Low-Income Populations

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Children younger than 5 are at greatest risk for unintentional poisonings. Children in low-income situations are particularly vulnerable for exposures to potential poisons. Focus groups were conducted at a Women, Infants, and Children (WIC) program located in a large urban public hospital in New York City to gain information from low-income parents of young children about real and perceived barriers to calling the local poison control center, resources for poison prevention messages, and ideas about public awareness campaigns. All focus group members were low-income parents of young children. Most participants reported that they would call 911 in the event of a poisoning due to child welfare and self-efficacy issues. Health education theory using the social-cognitive theory provides a framework for developing future poison prevention programs to address identified issues with parents of young children.

Keywords: *poison control centers; focus groups; health education theory; low-income populations*

Although the number of fatalities due to poisoning has decreased dramatically during the past 30 years, unintentional poisoning remains a public health problem, particularly for young children. Last year, approximately two million exposures to potential poisons were reported to the American Association of Poison Control Centers, more than half involving children younger than 6 (Litovitz et al., 2002). Young children are most often the victims of unintentional poisonings due to a number of factors, including excessive hand-to-mouth activity, innate curiosity, lack of judgment, and the inability to read (Krenzelo, 1995).

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Crawling children tend to gain access to agents found close to the floor such as cleaners stored under the sink (Armstrong, Fow, & Veltri, 1983). Due to their natural inclination to explore, children are at highest risk for unintentional poisoning.

Low-income children are particularly vulnerable to the risks associated with unintentional poisoning exposures. Mull, Agran, Winn, and Anderson (1999) found that shared housing contributed to poisoning exposures. Families living together in one housing unit often leads to unsafe storage of medicines and chemicals due to lack of personal space. In addition, with many people sharing living quarters, it is difficult to control the ways in which individuals store dangerous products around children. Crowded living conditions are often major contributors to the risk of poisonings and other injuries in the home.

► **POISON CONTROL CENTERS**

Regional poison control centers provide free, confidential treatment advice regarding poisoning exposures 24 hours a day, 7 days a week. Telephone calls to poison centers' hotline numbers are answered by registered pharmacists and/or nurses certified in poison information. Exposures to cosmetics, pharmaceuticals, household cleaners, personal care items, and plants are common products involved in potential poisonings. Most often, the route of exposure is ingestion.

The New York City Poison Control Center (NYC PCC) was established in 1955 and is designated as a regional poison center by the American Association of Poison Control Centers. The NYC PCC serves the eight million

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residents of the five boroughs of New York City: Manhattan, Queens, the Bronx, Brooklyn, and Staten Island. In 2002, the NYC PCC hotline (800-222-1222, 212-POISONS, 212-VENENOS in Spanish) received approximately 70,000 calls, the majority of which originated from parents or caregivers, and more than 93% of poisoning exposures occurred in and around the home. The NYC PCC also handled calls from hospital emergency personnel, school nurses, and worksite exposures. Access to translators in more than 150 languages is available through the AT&T language line through which callers are connected through a three-person call between the poison information specialist and translator. Services for the hearing impaired are handled through a telecommunications device for the deaf (212-689-9014) (NYC Poison Control Center, 2003).

► WOMEN, INFANTS, AND CHILDREN (WIC) PROGRAMS

WIC is a federally funded nutrition program for low-income women who are pregnant or breastfeeding or have a child younger than 5 years. Income requirements for participation in WIC mandate that recipients earn less than 185% of the U.S. poverty income guidelines, currently \$30,433 for a family of four. The average monthly WIC participation was 7.4 million U.S. individuals. Of those, 51% (3.75 million) were children, 26% (1.9 million) were infants, and approximately 23% (1.7 million) were women (U.S. Department of Agriculture, 1999). The WIC program is an excellent forum for offering poison education programs to priority populations. Frank, Bianchi, and Barnes (1989) distributed 935 poison prevention kits to parents served by the WIC program.

► BACKGROUND

Education programs about poison center services, poison prevention, and poisoning management are offered nationally to populations at risk for unintentional poisonings. Parents or caregivers of children younger than 6 are often deemed the most critical group to reach with education programs to prevent unintentional exposures in young children and increase knowledge about services available from regional poison control centers. Studies that examined poison center education programs have been conducted across the country. Kelly et al. (1997) recommended that studies should explore real and perceived barriers to calling the poison center and that educational interventions should address these barriers and target those groups that do not use the poison center. Interviews with low-income women were conducted to examine factors related to poison prevention measures and to identify barriers to accessing services (Brannan, 1992). A number of authors identified low socioeconomic status as one factor that contributed to poison center access limitation (Lovejoy, Robertson, & Woolf, 1994). Using these

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findings, poison prevention programs can be developed that address barriers associated with not accessing poison centers by low-income caregivers of young children using a health education theory as an organizing framework.

A review of the literature produced few poison prevention programs that were based on health education theories. Brannan (1992) used the health belief model to formulate qualitative research design and individual interviews with low-income African American urban women examining issues related to unintentional poisoning exposures. Maroncelli, Herrington, and Miner (1982) used the PRECEDE health education planning model and the instructional design model to develop a framework for designing new poison education materials.

► METHODS

Bellevue Hospital Medical Center is a large, urban, public hospital that provides approximately 26,000 inpatient admissions, 370,000 ambulatory care visits, and 86,500 emergency department visits annually (Health and Hospitals Corporation, 2000) to an ethnically diverse population. Approval was received from the New York City Department of Health Institutional Review Board to conduct focus groups. The poison center conducted two focus groups at the Bellevue Hospital Medical Center WIC program in New York City.

The overarching goal of the focus groups was to gain insight into effective program issues for poison education strategies and public awareness campaigns targeted for low-income women with young children. The objectives of the focus groups were to (a) obtain information for planning poison education activities, (b) address real and perceived barriers to accessing poison control centers, and (c) obtain information for media activities. Two focus groups were held at Bellevue Hospital Medical Center's WIC site in November 1999. A convenience sample of volunteers for each group was recruited from those present in the waiting area at the WIC site. All were parents of children younger than 5 years who were enrolled in the WIC program. An incentive of \$10 per individual and lunch was provided for joining the focus

group. Each discussion lasted approximately 90 minutes and was held in a private classroom at the WIC site. Each participant completed a screening questionnaire to gather demographic data (see Table 1). Consent was obtained from the participants verbally and outlined on paper. The goal and objectives of the focus groups were explained to the participants at the beginning of the sessions.

Open-ended questions were presented during the focus groups to address the members' knowledge of the services provided by the NYC PCC, awareness of the poison center's telephone number, identified barriers to calling the NYC PCC, feedback about the current advertisement for the NYC PCC's public awareness campaign, and suggestions for future public service campaigns. After completion of each focus group, participants viewed a 15-minute poison prevention video. In addition, poison prevention literature and NYC PCC telephone stickers were distributed to the group.

► RESULTS

The age range of participants in Group 1 was 17 to 44 years old with a mean of 31 years. In Group 2, participants were between 22 and 34 years old with a mean of 27 years. Participants in both groups had between one and four children with a mean of two children. The ages of the participants' children ranged from 13 months to 26 years old (Group 1) and 13 months to 12 years (Group 2). Individuals in the two focus groups represented various areas of the poison center's region throughout New York City. None of the focus group participants reported ever previously calling the NYC PCC. Most (55%) had never even heard of the NYC PCC prior to the focus groups.

The following are themes that emerged from the group discussions that affect the planning of future poison education programs and public awareness campaigns.

Perceived Barriers to Calling the NYC PCC

When asked if they would call the NYC PCC if a poisoning occurred, many of the participants responded that they would be more likely to call 911 first. Examples of the responses were "I'm too nervous and I feel better if someone comes to the house," "I have more confidence in doctors," and "I'm not sure that I would be able to do the right thing."

Everson, Rondeau, Kendrick, and Garza (1993) found from a telephone survey that 44% of respondents reported that they would call 911 prior to calling the poison center. Kelly and Groff (2000) found similar findings during focus groups conducted with WIC

TABLE 1
 Screener Questionnaire

	<i>Group 1</i> (n = 12)		<i>Group 2</i> (n = 8)	
Ever heard of the NYC PCC	Yes (3)	No (9)	Yes (5)	No (2)
Ever called the NYC PCC	No (11)		No (8)	
Gender				
Female	12		7	
Male	0		1	
Range of participants' ages (mean)	17-44 (31)		22-34 (27)	
Range of number of children (mean)	1 to 4 (2)		1 to 3 (2)	
Range of ages of participants' children	13 months to 26 years		13 months to 12 years	
Borough of residence	Queens (5) Bronx (3) Brooklyn (2) Manhattan (2)		Queens (3) Brooklyn (4) Manhattan (1)	

members in which participants expressed a preference for contacting 911 prior to the poison center. Reasons included an easier number to remember, a faster way to get medical attention, and a more publicized number.

An unnecessary visit to the emergency department is both expensive and often traumatic for a child. Between 1992 and 1994, emergency department visits nationally due to medicinal and nonmedicinal poisoning cost an estimated \$120 million, including Medicaid payments of \$34 million (61% of costs). Child and adolescent emergency department visits nationally totaled 245,000 visits due to medicinal poisonings and 190,000 visits due to nonpharmaceutical poisoning exposures (Weiss, Mathers, Forjuoh, & Kinnane, 1997). In 2001, 75% of the calls to poison centers nationally could be handled in the home through implementation of instructions provided by the registered pharmacist or registered professional nurse (Litovitz et al., 2002).

Chafee-Bahamon and Lovejoy (1983) found that 95% of pediatric emergency department visits for poisonings were from persons who did not contact a poison center. Kelly et al. (1997) studied caretakers who failed to use the poison center after a child's unintentional poisoning exposure. Telephone surveys revealed that 46% of caretakers made no contact with the poison center prior to the emergency center visit. Of those, 68% had heard of the poison center yet failed to use it. Limited research exists regarding predictors of emergency department use among Medicaid and uninsured children (Polivka et al., 2000). This finding has implications for the planning of future poison prevention programs.

In addition, other barriers to calling the NYC PCC identified were as follows: "It's hard to talk on the phone when you have a screaming kid" and "I feel the city would blame me if something happened as a result and could take away my kids." Brannan (1992) and

Kelly and Groff (2000) also found in their qualitative research that low-income women cited fear of being accused of child abuse or neglect by government officials and reported to child protective agencies. This is an extremely important issue for health care providers and educators working with low-income populations. *The New York Times* reported (“Parents,” 2000) that there is “a longstanding lack of trust” with city child welfare agencies in many poor neighborhoods throughout New York City. Addressing trust is an important factor influencing the use of health services, particularly those run by the government.

Improving Access to PCC

Findings presented the need for more information about poison prevention. Parents identified the need for information about which household products are dangerous versus not dangerous. It has been estimated that the average consumer brings at least 400 potentially poisonous products into the home (Armstrong et al., 1983). The American Association of Poison Control Centers recommends education programs that focus on those household products that are likely to harm a child if unintentionally exposed (Litovitz & Manoguerra, 1992). It was clear from the responses that both groups would welcome additional literature of this nature. In addition, the new toll-free number (800-222-1222) was implemented to improve access by servicing the public through one number nationally.

Cabinet Safety Locks

Participants in both focus groups were asked if cabinet safety locks were used to deter children from accessing potential toxins in the home. In Group 1, 58% of individuals stated that cabinet safety locks were used in the home. In Group 2, only 38% of people stated that they had locks on cabinets. One participant stated that “products are kept on top of the refrigerator so the kids can’t get to them.” An additional statement was that “products were kept out of reach of children and they try to watch children as much as possible.” A program distributing poison prevention kits to families of children who experienced an unintentional poisoning exposure found that more parents in the intervention group reported use of slide locks on cabinets containing medicines or cleaners than those in the control group (59% versus 40%, respectively; Woolf, Saperstein, & Forjuoh, 1992). Continued programs distributing easy-to-use cabinet locks may increase compliance with home safety issues.

Best Providers to Disseminate Poison Prevention Messages

Both groups stated that pediatricians are the best health provider to disseminate poison prevention information. Participants stated that they view information

from the pediatrician as important. Research suggests that poison centers could extend their impact with pediatricians through counseling patients about poison centers and poison prevention (Chafee-Bahamon & Lovejoy, 1983). When asked who they would seek help from regarding poison information, 44% of mothers interviewed responded physicians, 31% stated hospitals and clinics, and 16% listed the local poison control center (Brannan, 1992). Findings from a program to distribute poison prevention information showed that pediatricians were effective at disseminating the materials to families (Frank et al., 1989).

Findings from the focus groups indicate that pediatricians are resourceful providers to disseminate poison prevention messages. The American Academy of Pediatrics has incorporated poison prevention into the Injury Prevention Program. The Injury Prevention Program provides guidelines for pediatricians to counsel parents and children about injury prevention specific to age group (American Academy of Pediatrics, 1999). Lovejoy et al. (1994) concluded correctly that “pediatricians and the American Academy of Pediatrics need to increase their local and national support of the poison control effort” (p. 223). Parents interviewed about issues related to childproofing the home often responded that pediatricians’ opinions about child safety were influential (Gielen & McDonald, 1997). Health educators working with injury or poison prevention issues should incorporate counseling by pediatricians into program planning, implementation, and evaluation.

NYC PCC Subway Advertisement

To heighten public awareness, a NYC PCC public service advertisement was displayed on the New York City subway system between August 1 and December 31, 1999 (see Figure 1). The ad was shown on 1,400 (20%) of total subway cars as a “Premium Square” situated above passenger seats at eye level. The ad was displayed on all subway lines that traveled throughout New York City.

Focus group members were asked if they remembered seeing the NYC PCC ad on the city subway system. In Group 1, four individuals (33%) remembered seeing the ad. One person stated, “I read it, but I didn’t take it seriously.” Another said, “People are likely to read the ad and move on.” In Group 2, most responded that they did not remember seeing the public service ad at all.

Future Public Awareness Campaigns

When asked about suggestions for future public awareness campaigns, both groups suggested that future public service advertisements be placed on bus lines rather than subways. Many parents with young children in New York City take the buses rather than the subways because it is difficult to transport a stroller down the

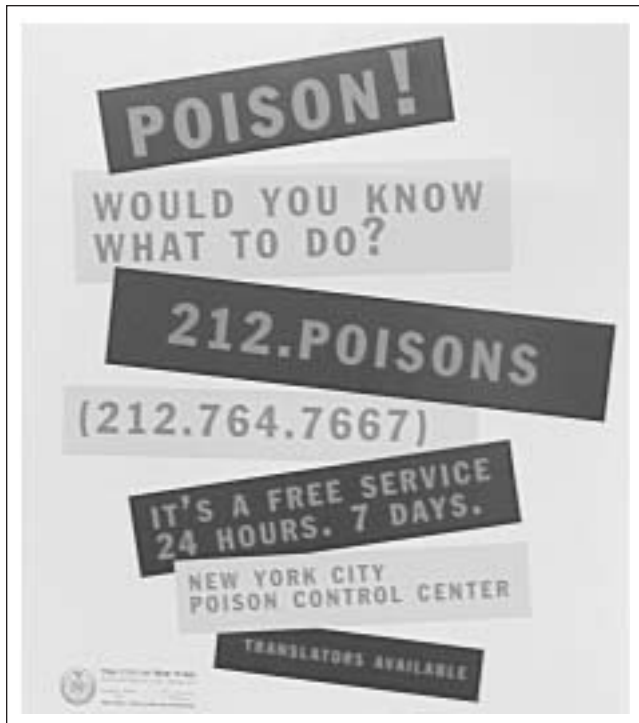


FIGURE 1 New York City Poison Control Center Public Service Advertisement

two or more flights of steps to the subway platforms. Other areas of placement suggestions included schools, hospitals, doctors' offices, WIC sites, banks, restaurants, and pharmacies. One respondent summed it up by saying, "Anywhere pregnant or new moms and kids were was the right place to post [poison prevention] information." Kelly and Groff (2000) also reported that strategies for placement of posters and pamphlets in locations visited by mothers were appropriate. Television and videos were also suggested as desirable ways to present information and reach family members. In addition, future public awareness campaigns should incorporate visuals with textual messages. One respondent stated that "people from other countries often don't know the word *poison* but would understand a picture of a household cleaner."

Nationally, many people may not understand English or may have trouble reading. An estimated 60 million adult Americans are functionally or marginally illiterate (Mrvos, Dean, & Krenzelo, 1993). Visual messages rather than textual may present poison prevention in a symbolic way. Individuals with reading levels below that of the third grade are at risk for poisoning; those adults are unable to understand product names, directions for use, cautions or warnings, and first aid instructions (Mrvos et al., 1993). Educational materials need to be developed addressing the needs of those with reading difficulty or English as a second language base. Visual messages may prove to be easier to comprehend and should be evaluated by health educators.

Public awareness campaigns should focus on national media such as television. Educational efforts in conjunction with media exposure ensure continual public awareness of the project (Frank et al., 1989). Television advertisements are expensive but offer an avenue to reach a large audience of people. In addition, news programs, talk shows, and entertainment all provide ways to reach people with public health messages.

► **PLANNING POISON PREVENTION PROGRAMS USING HEALTH EDUCATION THEORY**

Health education theory is useful for guiding the development of future education programs to prevent unintentional poisonings and provide management techniques for children. Based on the results of the WIC focus groups, social-cognitive theory (Bandura, 1986) is conducive to planning future poison education programs. Poison education programs should be geared toward addressing personal factors, environmental factors, and behavior in terms of self-efficacy. In the case of poison prevention and management, it is not only the preventive acts but also using the poison control center services appropriately.

The responses of the participants in the focus groups reinforce that knowledge is not sufficient to influence behavior. A number of the participants had the number for the poison center posted on their telephone (33% of Group 1 and 38% of Group 2), but none of the participants reported ever calling the poison control center. Personal factors including appropriate poison management and the assurance to perform techniques are necessary for parents. Education about NYC PCC services should be readily available for caregivers. Woolf, Lewander, Fillippone, and Lovejoy (1987) conducted a successful intervention in an emergency clinic. First aid measures for poisonings, keeping ipecac in the home, and the poison control center telephone number were explained to parents of children after a poisoning occurred.

Environment includes "all the factors that can affect a person's behavior but that are physically external to that person" (Baranowski, Perry, & Parcel, 1997, p. 158). Social and physical environments are both aspects of environment in social-cognitive theory. For poison prevention, changes in physical environment reflect poison-proofing measures in the home, such as cabinet locks, proper storage of food and nonfood items, and keeping poisons out of reach of children. Behavior applies to the frequency with which the act is enforced. Future poison prevention interventions should evaluate compliance with using safety locks for cabinets. When integrated into home safety programs, education and environmental modification efforts may prove to be effective (National Committee for Injury Prevention Control, 1989).

Baranowski et al. (1997) defined self-efficacy as "the confidence a person feels about performing a particular

activity, including confidence in overcoming the barriers to performing that behavior” (p. 164) Bandura (1986) stressed the importance of self-efficacy on influencing behavior. Parents in the focus groups expressed that their lack of self-confidence in handling a poisoning exposure at home increased the need for emergency medical services. This is a key issue identified for behavior change; when caregivers believe that they have the skills necessary to handle a child’s exposure with the poison specialists on the telephone, increased NYC PCC use may result. Poison prevention programs need to empower parents while acknowledging fears about child protective services. Role-playing scenarios may help parents to act out possible situations. “Repetition of the performance of a single task builds a person’s self-efficacy through changing the person’s performance expectations” (Baranowski et al., 1997, p. 164). Kelly and Groff’s (2000) findings also reinforced the importance of incorporating role-playing situations: “Real life scenarios showing how the poison center staff and mother would handle emergencies were suggested” (p. 202). Demonstrating calling the poison center along with questions that the poison specialists will ask will enhance self-efficacy skills and therefore affect behavior in terms of home management in the case of a possible exposure.

► DISCUSSION

A combination of communication venues is recommended for health promotion campaign efforts (Siegel & Doner, 1998). Community-based workshops, health fairs, and outreach efforts along with broader public awareness efforts are necessary to promote poison center awareness and poison prevention messages among parents and caregivers of children.

There were limitations to our focus group research. A convenience sample was used, so the opinions represent a small sample of 20 WIC recipients and may not reflect the broader ideas of the population. In addition, the author both facilitated the groups and took notes, which may have contributed to a subjectivity bias. Since the completion of our study, Kelly and Groff (2000) published results from focus groups conducted with women enrolled at an urban WIC center in Texas. These authors found similar results to our research conducted in New York City.

Despite these limitations, input from WIC participants identified barriers to calling poison control centers and ideas for public awareness campaigns that were not apparent prior to the focus groups. The findings from the focus groups are important for planning and implementing poison prevention programs.

► CONCLUSIONS

Health educators developing prevention programs must consider the members of the community they are trying to influence with an intervention. Focus groups

offer a valuable, inexpensive, and efficient method to accomplish this goal. Community-based programs for poison prevention have been proven to be effective to educate parents about potential toxins in the home and appropriate responses to poisoning exposures. Continued efforts to teach low-income families about the services provided and when to call poison control centers and self-efficacy skills in home management of poisoning exposures are important. In most situations, poison control centers offer a cost-effective alternative to emergency department visits. Future programs should incorporate the distribution of free cabinet safety locks to parents with poison information. Ongoing program evaluation helps determine the messages and programs that are successful and those to be changed to best meet the needs of the community to be reached.

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