Published in final edited form as:

J Emerg Nurs. 2009 June ; 35(3): 186–274. doi:10.1016/j.jen.2008.02.015.

An Examination of Adherence Strategies and Challenges in Poison Control Communication

Lee Ellington, PhD[Associate Professor],

College of Nursing, University of Utah, Salt Lake City, UT.

Lisa Kennedy Sheldon, PhD, APRN[Doctoral Candidate],

College of Nursing, University of Utah, Salt Lake City, UT.

Sonia Matwin, PhD[Doctoral Candidate],

Department of Psychology, University of Utah, Salt Lake City, UT.

Jackie A. Smith, PhD[Associate Professor],

College of Nursing, University of Utah, Salt Lake City, UT.

Mollie Merkley Poynton, PhD, MSN, APRN[Associate Professor],

College of Nursing, University of Utah, Salt Lake City, UT.

Barbara Insley Crouch, PharmD, MSPH[Utah Poison Control Center Director, Professor],
and

Department of Pharmacotherapy, University of Utah, Salt Lake City, UT.

E. Martin Caravati, MD, MPH[Utah Poison Control Center Medical Director, Professor]

Department of Pharmacotherapy, University of Utah, Salt Lake City, UT.

Abstract

Introduction—The principal objective of this study was to characterize how nurses and pharmacists at a poison control center (PCC) determine the likelihood of caller adherence to a health care facility referral.

Methods—A focus group was conducted with 6 nurses and 4 pharmacists from a regional PCC. Content analysis was used to determine themes within the discussion. All participants were certified as specialists in poison information (SPIs).

Results—Four themes were identified: (1) SPIs' generation of informal "likelihood-of-adherence" assessments as to whether a caller will follow the recommendation to go to a health care facility, (2) SPI communication strategies used to promote adherence, (3) behavior of SPIs during periods of high call volume, and (4) communication training for PCC staff members.

Discussion—This pilot study provides insights in SPIs' current assessment and communication, particularly those related to promoting caller adherence to recommendations.

More than 4 million poisoning episodes occur in the United States annually, with hospitalization occurring in 300,000 cases.¹ Death due to poisoning is now the second leading cause of injury-related deaths.¹ Most cases of poisoning and exposure to toxins are handled by triage nurses in emergency departments and specialists in poison information (SPIs), most of whom are nurses, working in poison control centers (PCCs). These critical services are dependent on accurate and rapid communication by nurses and SPIs to assess

the exposure, determine the necessary treatment, and promote caller adherence to the recommendations. A study from 1 PCC resulted in sequelae in 31% of children and 46% of adults who did not comply with recommendations.²

During calls, emergency nurses and SPIs quickly assess the likelihood of toxicity and the potential for adverse medical outcomes due to poisonings. Their role is critical to achieving optimal health outcomes by triaging those individuals who can be managed onsite and referring those who may need further evaluation and treatment to a health care facility (e.g., emergency department or health care provider). In 2004 approximately 50,000 callers failed to follow the recommendations of nurses and SPIs to pursue further evaluation and treatment.² Nonadherence to recommendations has the potential to increase the health risks of the exposed patient, as well as the costs of health care resources. Increasingly there is a need for evidence to guide clinical practice, including communication strategies used during telephone triage. This focus group explored communication during calls related to toxic exposures in order to characterize effective strategies used by experienced clinicians.

Role of Communication and Adherence

Adherence to health care provider recommendations is one patient outcome that has been examined theoretically and scientifically. Patient-provider communication is an essential component of most theoretic models of adherence. Research suggests that many of the reasons patients fail to follow treatment recommendations may be addressed with effective communication.³ Generally, the common reasons for nonadherence include patient beliefs regarding the recommendation, barriers to completing the recommendation, and lack of social support. Specific provider communication skills that have been linked to improved adherence include the following:

- Clarity and brevity in explanation
- Asking and answering questions
- Asking opinions
- Avoiding medical jargon
- Suggesting ways to perform the recommended action
- Making statements reflecting partnership and trust building⁴⁻⁹

Most evidence regarding communication strategies has been limited to the area of physician-patient communication.¹⁰ However, there is increasing evidence from other health care professions such as nursing regarding the role of communication on adherence. In our previous research,¹¹ we used a reliable and valid health communication coding system¹² to characterize PCC calls and examine how specific communication patterns linked to documented caller outcomes. We found that SPIs' partnership-building statements ("We'll work on this together" or "Let's make a plan that works for you") were associated with caller adherence to health care facility referrals.¹¹ It is important to explore how health care providers who interact with patients over the phone deliver recommendations to callers and promote adherence to recommendations after toxic exposures.

Communication for Telephone Health Care

Telephone health care is among the most rapidly growing clinical practice areas. However, little evidence exists regarding communication strategies that promote caller adherence to provider recommendations, especially within a brief crisis telephone call. There is an increasing need for research on telephone health care to better inform nurses of how to optimally communicate recommendations to callers.¹³ For example, even though it has been

shown that medical advice can be safely given over the telephone, some uncertainty remains about how it should be done.^{14,15} Telephone information at PCCs requires efficient assessment and targeted recommendations that promote adherence to SPI recommendations. Effective handling of calls also reduces the burden on health care resources by decreasing the utilization of unnecessary medical services.

Given that there is little research on poison control communication, a focus group was conducted with nurses and pharmacists who are employed as SPIs at the Utah PCC. The primary objective of the study was to characterize how they communicate with callers who are advised to pursue further evaluation and/or treatment. In addition, the focus group methodology provided a more general sense of how SPIs perceive specific communication issues in their clinical work. By use of methods consistent with those of Morgan et al,¹⁶ a focus group was conducted, and the study was approved by the institutional review board at a Western university. The study was conducted at a PCC that has one of the highest rates of calls per population of any poison center in the country.

The focus group was held during a regular staff meeting, and no supervisors or directors were present. Ten of the eleven SPIs employed at the time of the study attended the 1.5-hour session. The one SPI who did not attend was just ending a night shift and chose not to stay for the session. The participants had varied lengths of poison control experience, ranging from 10 months to 13 years. The group consisted of 5 registered nurses, 4 of whom had a bachelor's degree; 1 nurse practitioner; 3 pharmacists with doctorates in pharmacology; and 1 pharmacist with a baccalaureate degree. The group consisted of 4 men and 6 women, and all were white and non-Hispanic. All participants were informed of the current research objectives and were provided with an explanation of how the information from the focus group would be used. The group was facilitated by an experienced moderator from the College of Nursing, and the principal investigator served as the recorder.

On the basis of a review of the literature and clinical experience, the research team selected topic areas and created a script for the focus group (Table). (Please contact the first author for further details regarding the focus group dialogue.) The moderator began the discussion by exploring staff perceptions about typical call scenarios, communication during calls, and factors influencing staff decision making. Whereas the questions from the script were used to initiate discussion, the moderator followed relevant tangents that arose during the group discussion. The recorder took notes regarding group processes including nonverbal communication. The group dialogue was recorded via audiotape and transcribed with all identifiers removed before analysis. Content analysis was used to determine themes within the discussion by use of the transcription and the moderator's notes.

Analysis of the focus group transcripts revealed 4 themes related to communication during calls related to toxic exposures and caller adherence: (1) informal assessment of "likelihood of adherence," (2) communication strategies used to promote adherence, (3) issues and communication strategies during incidences of high call volume (e.g., surge), and (4) an identified need for more communication training.

Theme 1: Likelihood-of-Adherence Assessment

SPIs described making a rapid, informal, likelihood-of-adherence assessment based on caller and exposure characteristics. For purposes of this study, the moderator focused on the most serious calls to PCCs—typically those callers who are referred for further evaluation (e.g., emergency department). Adherence was defined as callers who followed recommendations to pursue further evaluation and/or treatment from a health care provider or at a health care facility.

You can tell if they're yanking your chain or if they're not going in. You just kind of get a feeling for it. And then you call [the emergency department], and sure enough, they never show up. And you can predict it. You have a high sense of predictability on those cases after awhile.

The focus group participants identified specific call or caller characteristics that indicated an increased likelihood of callers not adhering to recommendations for further evaluation and/or treatment: (1) cases of intentional self-harm, (2) calls related to the use of recreational drugs and/or overdose, (3) callers with impaired cognitive judgment and decision-making abilities (e.g., elderly or those in drug-induced states), (4) callers who expressed concern about finances or insurance, and (5) callers who feared legal consequences or embarrassment. In addition, SPIs noted that they assessed middle-of-the-night callers, teenagers, and elderly persons as being more likely to be resistant to recommendations for further care.

Theme 2: Communication Strategies Used to Promote Adherence

When talking with callers regarding toxic exposures, SPIs advised callers to seek further evaluation and treatment based on 2 key factors: assessment of the potential severity of the exposure and clinical and legal parameters of their professional role (e.g., all self-harm cases are referred to a health care facility). The manner SPIs communicated their recommendations to seek further evaluation was based on their informal likelihood-of-adherence assessment described in theme 1. They also identified numerous communication strategies that they commonly used to motivate callers to heed recommendations, including reassurance, directiveness, repetition, and conveying the seriousness of potential consequences. For example, SPIs in the focus group described “first-line” communication strategies such as calming and reassuring the caller. At the same time, they noted that in cases in which callers became increasingly resistant, they repeated their recommendations, resorted to more forceful or emotion-laden communication, and used a combination of multiple communication strategies.

... [T]he first thing you need to do is calm them. Some people are extremely frazzled and they won't hear you unless you calm them.... And state the facts but also calm them into listening to you and then taking care of either the person or themselves.

If you tell somebody what could happen if ... [you are] not treated, but [you] will be okay if you do the proper treatment. Then that encourages them. They know the potential complications if they don't do anything. But then you can reassure them that they're going to be okay if they do follow through with the proper treatment. Then they're more motivated to do what you tell them to do.

The SPIs described their frustration and feelings of futility with callers who are hesitant to follow their recommendations. From the discussion, it was evident that their frustration and impatience may be apparent to the caller, and that this may inadvertently lead to reduced effectiveness in their communication.

Theme 3: Communication Strategies During High Call Volume—“Surge Strategies”

SPIs described periods of high call volume, or “surge,” as particularly challenging. Periods of surge included when call volume exceeded their ability to respond immediately (i.e., when multiple calls are “on hold”) or impacted their ability to respond adequately during a call (i.e., when they cannot obtain the necessary information such as information on toxic doses of a substance). They noted that relatively brief periods of surge occurred on a daily

basis, and these times of surge are stressful and may impact patient care. When multiple calls are lined up in the queue (“on hold”), the specific severity of exposure for each waiting caller is not known, and time may be an important factor affecting the patient's outcome. SPIs indicated that the pressure and stress that they experience during these times decreases their ability to effectively communicate, as well as their ability to follow up on calls and complete documentation. Specifically, SPIs indicated that during surge, they shorten the length of their calls, ask more direct questions, give more succinct recommendations, skip less necessary information, and at times, interrupt and talk over the callers to “cut to the chase.” One SPI noted that “psychosocial needs go out the window.”

“... [Y]ou just do the best you can. But you do get shorter. Your communication definitely changes.”

Theme 4: Communication Training

When asked about their training and preparation, the staff expressed satisfaction with (1) preparation in developing a technical knowledge base in toxicology, (2) skills learned to rapidly access multiple resources regarding a wide range of exposures, and (3) computer training to access databases regarding toxic exposures. The SPIs expressed a need for further training in communication skills. They indicated that they would like to learn multiple strategies to work with different call scenarios and specific techniques to promote adherence. Communication training that included improving interpretation of caller nonverbal cues expressed via the telephone such as silence and skills in efficiency and effectiveness were seen as critical. Several concurred that “...we need to learn all these and how to do it in 2 minutes.”

We get training on different substances and here's how to use a computer, but really when you're talking to someone who's freaking out or someone who's, you know, telling you their story ... it would be nice to know some skills to help us out.

How do I deal with this critical patient versus evasive patient who won't give me information...? Or is it tough love in this situation or am I empathetic? I mean, I don't know how to handle these different people.

Discussion

This focus group provided insight into how SPIs communicate with callers regarding cases of toxic exposure. The group members, the majority of whom were nurses, shared a wide variety of communication strategies that they used to promote adherence, particularly in cases that require further evaluation and treatment. The participants also detailed their need for further training in advanced communication skills with specific attention to efficient communication during periods of high call volume (surge) and strategies for talking with callers who are resistant to recommendations.

On the basis of call and caller characteristics, SPIs quickly form an opinion about whether the caller is likely to adhere to their recommendations—Likelihood-of-Adherence assessment. These characteristics showed substantial overlap with findings from 2 previous PCC studies that identified factors associated with nonadherence: waiting for symptoms to develop, finances, transportation, self-harm, fear of publicity, and embarrassment.^{17,18} The Likelihood-of-Adherence assessment described by the group is consistent with current evidence.

The focus group findings suggest that SPIs use a wide variety of communication strategies to promote adherence, including reassurance, directiveness, repetition, and conveyance of the seriousness of potential consequences. Interestingly, SPIs did not specifically identify

rapport or partnership building as a technique to promote adherence, although attempts to calm and reassure a caller are likely to serve a similar function. In more general health communication research^{8,19,20} and in our own research of listening and coding PCC calls, we found that SPI relationship-building statements (e.g., partnering statements) were positively associated with caller adherence.¹¹ The discipline of nursing has long subscribed to the health care approach of working together with the patient and family to achieve mutually set goals—sometimes called relationship-centered care.²¹ However, the lack of physical cues and the crisis nature inherent in much of SPI work may lead many of these health care professionals to prioritize rapid, efficient, succinct communication while failing to simultaneously incorporate relationship-building strategies to achieve patient outcomes.

SPIs described becoming frustrated when they detected that callers may not follow their advice and believed their negative feelings are sometimes evident to callers. Previous research indicates that negative communication by health care providers is associated with less patient adherence and decreased satisfaction with care.⁸ When SPI communication becomes more negative either to promote adherence or to move quickly through the call during surge, it may actually decrease adherence and caller receptivity to recommendations. In addition, during times of surge, SPIs are less likely to address “psychosocial needs,” decreasing their ability to “partner” with the caller, a known strategy for promoting adherence. The findings from this focus group suggest that nurses and pharmacists who work in emergency settings could use further support at 2 specific times: (1) during times of surge and (2) when talking with callers who are unlikely to follow recommendations. Furthermore, with the limited existing evidence base on communication strategies for effective telephone triage, the results of this study provide an initial step toward the development of guidelines for improving PCC nurse/pharmacist communication. Hopefully, these strategies will increase caller adherence to telephone triage recommendations and improve patient outcomes after toxic exposures.

Implications for Emergency Nursing

SPIs refer the most serious callers to emergency departments. Once the recommendation has been made, the PCC nurse or pharmacist calls the emergency department to inform the staff of the specific recommendation and the potential toxic issues of the incoming patient. After the caller arrives, the emergency nurses and doctors typically work in collaboration with the PCC staff to provide the best care possible for the patient and to help the PCC document caller health outcomes. The PCC staff are highly trained in clinical toxicology and are a resource to emergency departments across the nation for issues related to poisonings and toxic exposures. Collaboration between staff in emergency departments and PCCs is vital to patient health and efficient use of precious emergency health care resources.

On the basis of the focus group findings, the PCC nurses and pharmacists are adequately trained in the technical aspects of clinical toxicology and are well supported by available resources for prognostic decision making (e.g., toxicology databases and medical backup). Where evidence, training, and support are lacking is in the provision of training regarding specific communication strategies to promote adherence to recommendations for further treatment. Although this is a need in telephone health care in general, it is particularly necessary in PCC telephone calls, where prompt assessment and treatment are vital to attaining optimal patient outcomes. Although more research is needed in this area, telephone health care providers such as SPIs can increase awareness of their communication style and seek additional training opportunities to learn communication strategies to improve caller adherence to recommendations. In addition, they need to advocate for further clinical and administrative support during periods of high call volume when communication may suffer and adherence rates may fall.

Acknowledgments

We wish to acknowledge the University of Utah College of Nursing Research Committee for sponsoring this project. In addition, we want to thank the participating SPIs for so generously sharing their time and insights with us.

REFERENCES

1. Committee on Poison Prevention and Control, Board on Health Promotion and Disease Prevention, Institute of Medicine of the National Academies. Forging a poison prevention and control system. The National Academies Press; Washington, DC: 2004.
2. Watson WA, Litovitz TL, Rodgers GC Jr, Klein-Schwartz W, Reid N, Youniss J, et al. 2004 annual report of the American Association of Poison Control Centers Toxic Exposure Surveillance System. *Am J Emerg Med*. 2005; 23:589–666. [PubMed: 16140178]
3. DiMatteo MR. Future directions in research on consumer-provider communication and adherence to cancer prevention and treatment. *Patient Educ Couns*. 2003; 50:23–6. [PubMed: 12767580]
4. Leventhal H, Cameron L. Behavioral theories and the problem of compliance. *Patient Educ Couns*. 1987; 10:117–38.
5. Ockene IS, Hayman LL, Pasternak RC, Schron E, Dunbar-Jacob J. Task force #4—adherence issues and behavior changes: achieving a long-term solution. 33rd Bethesda Conference. *J Am Coll Cardiol*. 2002; 40:630–40. [PubMed: 12204492]
6. DiMatteo MR, Sherbourne CD, Hays RD, Ordway L, Kravitz RL, McGlynn EA, et al. Physicians' characteristics influence patients' adherence to medical treatment: results from the Medical Outcomes Study. *Health Psychol*. 1993; 12:93–102. [PubMed: 8500445]
7. Garrity TF. Medical compliance and the clinician-patient relationship: a review. *Soc Sci Med [E]*. 1981; 15:215–22.
8. Hall JA, Roter DL, Katz NR. Meta-analysis of correlates of provider behavior in medical encounters. *Med Care*. 1988; 26:657–75. [PubMed: 3292851]
9. Jenkins VA, Fallowfield LJ, Souhami A, Sawtell M. How do doctors explain randomised clinical trials to their patients? *Eur J Cancer*. 1999; 35:1187–93. [PubMed: 10615228]
10. Alexander, SC.; Sleath, B.; Golin, CE.; Kalinowski, CT. Provider-patient communication and treatment adherence.. In: Bosworth, HB.; Oddone, EZ.; Weinberger, M., editors. *Patient treatment adherence: concepts, interventions, and measurement*. Lawrence Erlbaum Associates; Mahwah (NJ): 2006. p. 329-72.
11. Ellington L, Matwin S, Jasti S, Williamson J, Crouch B, Caravati M, et al. Poison control center communication and impact on caller adherence. *Clin Toxicol (Phila)*. 2008; 46:105–9. [PubMed: 18259957]
12. Roter, D. [May 30, 2008] RIAS manual. 2002. Available from: URL: <http://www.rias.org/manual>.
13. Rutenber CD. What do we really KNOW about telephone triage? *J Emerg Nurs*. 2000; 26:76–8. [PubMed: 10657806]
14. Wachter DA, Brillman JC, Lewis J, Sapien RE. Pediatric telephone triage protocols: standardized decisionmaking or a false sense of security? *Ann Emerg Med*. 1999; 33:388–94. [PubMed: 10092715]
15. Salk ED, Schriger DL, Hubbell KA, Schwartz BL. Effect of visual cues, vital signs, and protocols on triage: a prospective randomized crossover trial. *Ann Emerg Med*. 1998; 32:655–64. [PubMed: 9832660]
16. Morgan, DL.; Krueger, RA.; King, JA. *The focus group kit*. Vol. 1-6. Sage Publications; Thousand Oaks (CA): 1998.
17. Watts M, Fountain JS, Reith D, Schep L. Compliance with poisons center referral advice and implications for toxicovigilance. *J Toxicol Clin Toxicol*. 2004; 42:603–10. [PubMed: 15462152]
18. Wezorek CM, Dean BS, Krenzelok EP. Factors influencing non-compliance with poison center recommendations. *Vet Hum Toxicol*. 1992; 34:151–3. [PubMed: 1509677]
19. Roter DL, Hall JA. Studies of doctor-patient interaction. *Annu Rev Public Health*. 1989; 10:163–80. [PubMed: 2655629]

20. Sbarbaro JA. The patient-physician relationship: compliance revisited. *Ann Allergy*. 1990; 64:325–31. [PubMed: 2181893]
21. Beach MC, Inui T. The Relationship-Centered Care Research Network. Relationship-centered care. A constructive reframing. *J Gen Intern Med*. 2006; 21(Suppl 1):S3–8. [PubMed: 16405707]

TABLE

Focus group questions

1. When you think about decisions you make in your job, what comes to mind?
2. What are your most challenging decisions?
3. What would a typical call be like for you?
4. What is your most difficult call?
5. What kind of things do you do or say to try to motivate people to follow up with what you say?
6. Are there particular circumstances where you feel they are less likely to follow your recommendations?
7. What do you think are some of the reasons that people refuse your recommendations?
8. Do you use different types of strategies depending on the seriousness of the call?
9. What makes your job harder?
10. What kind of training or education would make your job better?