

Organizational Learning in a High-Risk Environment: Responding to an Anthrax Outbreak

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Abstract

The National Center for Food Protection and Defense, a Department of Homeland Security-sponsored Center of Excellence, identified and endorses 10 best practices for risk and crisis communication. The best practices model is designed to aid organizations of all types in preparing for and learning from crisis events. This analysis applied the best practices model to a case study of an anthrax outbreak that fostered a full-blown crisis response. This study analyzes the learning experience of the crisis cohort group that responded to the crisis. The researchers contend that by evaluating a crisis situation using best practices as a benchmarking procedure, problems within the system and new strategies can be identified.

So What?

Evaluating best practices allows an organization to learn from failures and crises by establishing alternative strategies. This case study can serve not only as an example of how to use the best practices in risk and crisis communication in a postcrisis review, but also as a vicarious learning tool for how to plan an effective crisis response.

Following the 9/11 terrorist attacks, the belief that terrorism only happens “over there” changed dramatically. The Department of Homeland Security (DHS) was established and other government agencies were restructured in order to confront an array of threats, including nuclear activity, suicide bombers, biological weapons, and attacks on the nation’s communication systems (Wilcox & Cameron, 2006). Reallocating funds to guard against specific threats of terrorism, DHS created Centers of Excellence to “bring together leading experts and researchers to conduct multidisciplinary research and education for homeland security solutions”

(Department of Homeland Security [DHS], 2008, ¶ 1). One of these centers, the National Center for Food Protection and Defense (NCFPD), was established to address “the vulnerability of the nation’s food system to attack through intentional contamination with biological or chemical agents” (National Center for Food Protection and Defense [NCFPD], 2008a, ¶ 1). The risk communication sector of the NCFPD was assigned the task of establishing best practices for “active engagement of multiple audiences in effective risk communications prior to, during and after potentially catastrophic food bioterrorism incidents” (NCFPD, 2008b, ¶1).

Drawing primarily on the work of Vincent Covello (1992; 2003), Peter Sandman (1993), Matthew Seeger (2006), and Barbara Reynolds (2002) at the Centers for Disease Control, and on research conducted by the Risk and Crisis Communication Project (a network of risk and crisis communication scholars), the best practices were developed through a series of case studies involving crisis and risk communication that included anecdotal observations, experience in crisis response, and media analysis (Seeger). An expert panel at the NCFPD then reviewed, critiqued, adjusted, and refined the practices to a final version of the nine best practices which, since this study was conducted, has expanded to include a 10th best practice (Seeger). The nine best practices at the time of this study were classified into strategic planning (planning pre-event logistics, coordinating networks, accepting uncertainty), proactive strategies (forming partnerships, listening to public concern, being open and honest), and strategic response (being accessible to the media, communicating compassion, providing self-efficacy) (Figure). The 10th practice incorporates all strategies in the form of recommending continuous evaluation and updating of crisis plans through process approaches and policy development.

This study was part of an ongoing effort to extend and refine the DHS-NCFPD best practices model. Researchers investigated the potential for the best practices model to foster benchmarks for learning from crisis situations. Specifically, the best practices model was used to guide the postcrisis review of a bovine anthrax outbreak mitigated by the Biosurveillance Working Group, a unified cohort of veterinarians, Extension agents, and university researchers.

This study introduces the best practices model as a resource for organizational learning and crisis planning and demonstrates how the model can be used to evaluate crisis planning and response efforts.

Learning Through Crisis

Organizational crisis is defined as “a specific, unexpected, and nonroutine event or series of events that create high levels of uncertainty and



Figure. The best practices in risk communication developed for NCFPD.

threat or perceived threat to an organization's high priority goals" (Seeger, Sellnow, & Ulmer, 1998, p. 233). Despite its typically negative connotation, a crisis can also be characterized as an unexpected turning point in an organization that can have a negative or positive outcome (Fink, 1986; Gottschalk, 1993; Lerbinger, 1997; Mitroff, 1988; Ray, 1999; Seeger et al., 1998; Seeger et al., 2003; Sellnow, 1993).

As an unplanned opportunity, crisis can be viewed as a trigger point to a valuable organizational learning process (Murphy, 1996). Through the natural system of renewal, crisis can effectively purge system elements that are outdated and inappropriate and create new and unexpected opportunities for an organization (Seeger et al., 2003). This natural process has been described as an awakening. "The things we fear most in organizations—disruptions, confusion, chaos—need not be interpreted as signs that we are about to be destroyed. Instead, these conditions are necessary to awaken creativity" (Wheatley, 1999, p. 21). For some

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organizations, crisis is less a gentle awakening and more a lightning bolt as it shocks organizational systems out of complacency. By acting as a stimulus for improving the organization and by legitimizing the need for transformation, crisis prepares members of an organization for change by reducing resistance and thereby heightening consideration of alternate strategies (Lerbinger, 1997). Huber (1991) notes that “[a]n entity learns if, through its processing of information, the range of its potential behaviors is changed” (p. 88) and argues that the more an organization changes as a result of an event, the more the organization has learned.

Simply put, organizational learning is a process of detecting and correcting errors (Argyris, 1982). Learning occurs when errors are identified, shared, and analyzed. This learning experience is then used by the organization to enact changes in standard operating procedures (Popper & Lipshitz, 2000). Senge (1990) posits that organizations should adapt in response to difficulties by using feedback to “change the thinking that produced the problem in the first place” (p. 95). Prototypical learning occurs during postproject reviews in which the organization reviews a process or event to determine what procedures were successful and what procedures need to be corrected (Carroll, 1995; Di Bella, Nevis, & Gould, 1996). This review process can, and often does, involve comparing an organization’s actions against what are considered the best practices for the given context (Seeger, 2006).

Best practices as a mechanism for learning.

The identification of best practices has been associated with benchmarking (Kyro, 2004), whereby organizations seek to identify and replicate best practices of other organizations (Camp, 1989; Compton, 1992; Zairi, 1998). When used strategically, this comparison of best practices can offer optimal organizational procedures. However, if they are not continuously evaluated and improved, best practices can become outdated and detrimental (Bergman, Yassine, & Roemer, 2004). Using best practices in risk communication in a postcrisis evaluation not only tests the usefulness of the model, but also provides a learning experience and helps organizations determine how to improve future planning and response efforts.

Case studies examining failure are abundant in crisis communication literature (Baum & Oliver, 1992; Brinson & Benoit, 1999; Dacin, 1997; Englehardt, Sallot, & Springston, 2001; Hearit, 1995; Ice, 1991; Massey, 2001; Ruef & Scott, 1998; Seeger et al., 1998). By using best practices in risk communication to examine a case, organizations can evaluate their crisis response strategies as well as any pre-event procedures that may have led to the crisis.

The Anthrax Case

In October 2004, a livestock producer in Dunn County, North Dakota, discovered two head of cattle had died in his pasture. Multiple breakdowns in communication and procedure delayed the confirmation of the cause of death as anthrax. In the 2 weeks following the initial deaths—amidst confusion, contamination concerns, and confidentiality leaks—the producer lost a total of 15 head of cattle (Rafferty & Donovan, 2004), which is the equivalent of almost \$20,000 (United States Department of Agriculture, 2006).

Anthrax is endemic in North Dakota, and the number of confirmed cases each year ranges from a couple to a couple hundred depending on the moisture levels in the ground. However, the deaths occurred in a region with no previously reported cases of anthrax. In addition, anthrax is rarely reported in the cooler months of the year. After consulting a veterinarian from the local research Extension center, the producer initially suspected a nutrition-related problem. Cattle continued to die even after being removed from the pasture. The following week, the producer called additional veterinarians and a university researcher who worked with Extension. Anthrax was then discussed as a potential cause. Because the producer was informed that the diagnostic lab would not run blood tests over the weekend, he waited until the following week to take in samples. No treatment was administered while awaiting confirmation.

The producer, concerned for his family's safety, turned to the Internet for information over the weekend. Post-9/11 reports of the anthrax terrorist attacks flooded his search results. Having no familiarity with bovine anthrax, the producer did not allow his daughter to leave the house for fear she might contract anthrax from the contaminated cattle. That same weekend, the rumor that anthrax was discovered in Dunn County had already reached an Extension meeting in a county on the other side of the state.

The state veterinarian was first notified following the Extension meeting—a full 2 weeks after the first cases were discovered. The next day, the diagnostic lab ran the blood samples and confirmed that the cattle had anthrax. The dead cattle were burned and buried, and the remaining cattle in the herd were treated. The anthrax outbreak had been contained, but the Biosurveillance Working Group responsible for the crisis response recognized there was a breakdown in communication and protocol that delayed the response.

Methods

While much of the literature dealing with crisis and organizational learning is geared toward corporations, by defining an organization as a unified cohort of decision-makers, the literature can be applied to

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universities, government agencies, and in this case, veterinarians, Extension agents, and university researchers brought together by a common goal. The Biosurveillance Working Group was established as part of a USDA Federal Relations Grant to review crisis-level livestock diseases with the stated goals of enhancing diagnostic capabilities, efficiently locating and working livestock, supporting field investigations, and improving communication.

During a Biosurveillance Working Group meeting at the USDA Animal and Plant Health Inspection Service (APHIS) office in Bismarck the following April, researchers with the NCFPD used the best practices in risk communication to guide an exploratory analysis of the anthrax case. The method was naturalistic (Lincoln & Guba, 1985) in that the researchers adopted “strategies that parallel how people act in the course of daily life” (Taylor & Bogdan, 1998, p.8). Because postproject reviews in which the organization evaluates an event to determine the effectiveness of its procedures are common in the field (Caroll, 1995; Di Bella et al., 1996), participants could feel comfortable revealing work-related information (Taylor & Bogdan).

Participants

Most participants were selected based on their involvement with the Biosurveillance Working Group. They included three Extension agents, three university researchers, three veterinarians from the state office, two veterinarians from USDA-APHIS, and one representative from Manitoba Agriculture and Food. While not a member of the Biosurveillance Working Group, the representative from Manitoba Agriculture and Food was invited to provide insight as to how anthrax cases are handled across the border. All members of the group were present either in person or via teleconference. Participation in the discussion was voluntary and the decision to participate in the study did not affect the standing of the participants in the Biosurveillance Working Group. If individuals decided not to participate, they were free to withdraw consent and discontinue participation at any time. Those participating in the discussion signed an informed consent form allowing the procedure to be recorded and studied. Permission to collect data was obtained from the relevant institutional review board.

Interview Guide

An interview guide was used to assure all aspects of the model would be discussed (Kvale, 1996). Moderators used open-ended questions that did not inhibit the participants from divulging more information than what was requested. Questions were based on the best practices in risk communication (Seeger, 2006). As each practice was introduced, the participants were asked

to relate what they had or had not done in the anthrax case that correlated with the practice. Additional inquiry was made when necessary to encourage clarification and elaboration (Spradley, 1979).

Procedures for Data Collection and Analysis

Thematic analysis techniques were used to analyze recurring themes within the data (Strauss & Corbin, 1990). The best practices in risk communication developed by NCFPD were used as the criterion-referenced, or anchored, material (Boyatzis, 1998). To analyze the data, researchers first followed Lincoln and Guba's (1985) recommendation to create a schema in notes while moderating the discussion. While the themes naturally followed the model guiding the discussion, the researchers noted each time comments reverted to a previously discussed practice. Next, away from the interview environment, verbatim transcripts and notes were carefully and repeatedly reviewed for themes relating to best practices other than those being discussed at that time so as to determine relationships among the themes (Glaser & Strauss, 1967). The transcripts and notes were then reviewed for barriers to the best practices. In each segment, the researchers looked for negative comments referencing the practice. For example, if participants listed reasons why they could not have adhered to that particular practice in the anthrax case, those reasons constituted a barrier to accepting that practice. Lastly, to ensure the reliability of this process, a research assistant analyzed the notes and 20% of the transcripts to determine if the same relationships and barriers were found in the data. The researchers and the assistant agreed upon each occurrence of the themes in the sample data.

Results

The discussion followed the order depicted by the DHS-NCFPD model (Figure). The findings indicate the Biosurveillance Working Group recognized the presence of the best practices in risk communication. As each practice was introduced, the participants were able to relate what they had or had not done in the anthrax case with regard to each practice. Discussion time was evenly distributed among the three broad categories of strategic planning, proactive strategies, and strategic responses. The discussion regarding strategic planning was more holistic in that as the participants discussed planning pre-event logistics, coordinating networks, and accepting uncertainty, they consistently referred to the other categories, demonstrating the connectivity of the three practices. While references were made to other practices throughout the discussion, the connectivity of the practices was not as prominent as it was during strategic planning discussions.

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Accepting uncertainty, listening to public concern, and being accessible to the media were not initially seen as priorities for the test group. Discussion regarding the presence of uncertainty was followed by discussion about how to remove uncertainty from the process. The discussion pointed to uncertainty as a barrier in the flow of communication for the Biosurveillance Working Group. Listening to public concern and being accessible to the media were discussed secondarily in that the most essential task at hand was dealing with the outbreak rather than what people were saying about the outbreak. The other practices were discussed without negative comments.

Throughout the discussion, three themes emerged as barriers to the best practices in risk communication: a) lack of education on the process of disease mitigation, b) ambiguity in the acceptable communication protocol, and c) fear of repercussions based on action or inaction following a trigger point. While other barriers were discussed, including short response time and geographical distance, these barriers were not seen as surmountable by adhering to best practices or enhanced communication protocols and are therefore outside the realm of this study.

Pre-Event Logistics

In discussing pre-event logistics, participants sought to determine the trigger point to activate disease mitigation procedures. Discussion revealed that individuals within the mitigation network recognized different triggers, depending on experience with a particular disease in a geographic location. Participants did not agree on a single trigger point and recognized a need for education on determining trigger points in enacting the mitigation process. A veterinarian commented about why a producer might not contact a veterinarian when needed: "That would probably be lack of awareness of what may be going on in the area or lack of awareness of what the symptoms are." Participants described Extension agents as essential to the education system that ensures producers are aware of potential diseases in the area. However, the Extension agents participating in the discussion stated they were unaware of the trigger points.

A major barrier identified in establishing a predetermined trigger point was that there was no protocol to follow in the case of a disease outbreak, and if a protocol did exist, those involved in the mitigation process were not aware of it. A university researcher commented:

That was one question we asked of the Extension director, and his response was, you give us a protocol to follow, and that's what the agents will do.... If we had the same trigger points that we just listed here, and that went into a protocol to Extension agents, whether they

were nutritionists, Extensionists, or veterinarians, or whatever, that might help.

As the discussion progressed, the state veterinarian produced a book of statutes explaining which diseases should be reported to state and federal veterinarians; however, the participants stated that they were unaware of the statutes.

Coordinating Networks

Participants associated the coordination of networks with establishing pre-event logistics. Participants felt that the communication protocol in the disease mitigation process was ambiguous, in that multiple routes of communication could be taken from the producer to the state veterinarian, including routes through local veterinarians, free veterinarians, multiple individuals within Extension services, and technicians at the diagnostic lab. Because some producers in remote areas do not have a veterinarian within a 150-mile radius, multiple people may be contacted and crucial time may be lost before a disease is diagnosed. The participants viewed the multiple communication routes as a barrier to mitigating the disease quickly. A university researcher commented, "They [the veterinarians] may be, oftentimes, a long ways away. Therefore, you get more people in that, just by necessity, there are more people that get involved and muddy up the chain." In assessing this particular anthrax case, another university researcher stated:

I don't think there was any flow. I think it was just a haphazard combination of people being visited..... I'm not trying to be negative, I'm just saying, I think that compilation of contacts is not in an organized manner.

The producer must start the mitigation process by following one of the routes of communication within the established networks. However, the participants were concerned that fear might inhibit producers from reporting a disease. A veterinarian said:

I was just going to say, maybe, when we are talking about other things that might inhibit people from reporting previously, and I think fear might be part of that, too; in that, what if there is something truly going on here and the federal government comes along and kills all my cows because I have a highly contagious disease?

Just as fear might prevent the producer from contacting a veterinarian, so too may fear affect whether or not a veterinarian acts in the event of a potentially dangerous disease. A veterinarian said, "We've never required that the lab confirm it [a field diagnosis]; we went ahead and quarantined

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and recommended vaccinating.” Without lab verification of a disease, the producer may experience undue expenses if the veterinarian makes an incorrect field diagnosis. At the same time, a correct field diagnosis can save crucial time that would have been spent waiting for lab results. If, however, the veterinarian does not report a disease because he or she is uncertain of the severity of the situation, he or she may face repercussions. A veterinarian commented, “There, again, this is like developing something like the best management processes so that you end up being the one responsible for not having reported something.” While the participants agreed that a veterinarian must accept uncertainty at some level to determine when to report a disease, they viewed this practice as an unfortunate byproduct of a crisis.

Accepting Uncertainty

The participants also recognized uncertainty as a potential trigger point. A university researcher stated, “To me, maybe a trigger point is when you’ve got producers, the veterinarian, or anyone else involved uncertain as to what the next thing to do is. They should contact someone to help them with making that decision.” Uncertainty was also seen as a barrier in the flow of communication for the Biosurveillance Working Group by providing multiple routes of communication from the producer to the state veterinarian. One veterinarian commented that the multiple routes of communication they encourage to ease the flow of information actually increase the uncertainty in the communication process. Regardless of the Biosurveillance Working Group’s dislike for uncertainty in strategic planning, the participants did recognize that most crises inherently involve uncertainty.

Forming Partnerships

It was evident that the many different individuals involved in the process between the time the producer discovered the situation and the time word reached the state veterinarian (such as local veterinarians, veterinarian medical officers, and Extension agents) were essential in gathering the information required for mitigation. Because the producer may be unsure of the process and may be apprehensive about what could happen if a communicable disease were to be found in the herd, he or she may feel more comfortable working with local sources rather than involving the state veterinarian. When asked if a producer would contact the state veterinarian, the state veterinarian’s answer was, “It is very unlikely. Clients who call do not tell you everything. They are fearful of what might happen. I just refer them back to their local vet.” The participants agreed that without the

partnerships between individuals who the producer deems trustworthy and the state veterinarian's office, some diseases would go unreported. Once a disease has been confirmed, however, there is direct communication from the state veterinarian's office to the local veterinarian and producer. The state veterinarian said, "Rather than reporting it down through the masses and turning it into gossip, you pull it up, and then there is a decision there." The participants stated that everything is urgent to the producer, so having a short communication route helps reduce unwarranted concern.

Listening to Public Concern

The Biosurveillance Working Group did not initially consider listening to public concern to be part of its role in mitigating a disease outbreak. A veterinarian said, "Our decisions are probably not influenced by public concern because we are just doing what we know needs to be done." When it was discovered that the previously discussed producer would not allow his daughter to leave the house because he was afraid she might contract anthrax, the discussion turned to how the Biosurveillance Working Group can strengthen partnerships with public health services to provide information as to whether or not bovine diseases can infect humans. The participants expressed concern that by providing that sort of information, they would overstep their bounds and take on the role of caring for the producer's health, when their actual role is to care for the animals.

Being Open and Honest

While the participants all agreed there is no reason to hide information, the fear of inciting panic caused some to question how much to say. A university researcher commented:

It was a fear of mine in this particular case; surely, you don't want to cause panic out there. Because, do we know what panic in this particular case we're talking about? I know it went through my mind Sunday evening when I heard about it. I don't want people to panic because of the fact that we have a case here.

A veterinarian said, "You've either reported too much, in somebody's mind, or you've reported too little, and a lot of that, there again, has to do with the level of what you know about the situation." The participants became even more guarded when the media were asking questions.

Being Accessible to the Media

The participants viewed the media as a resource for disseminating essential information. A veterinarian said, "We have a responsibility to the health system to let people know immediately...quarantine or to stop

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rumors.” However, in the anthrax case, the story was not released to the media until the middle of November. In the article, the state veterinarian said she chose not to publicize the information right away in order to avoid an unnecessary scare. Being accessible to the media was not considered a priority. A veterinarian said:

Really, it is more important that you are spending all your time and effort on communicating to people you need to and not on press releases. And we’re trying to delegate that within our department so that we don’t talk to and visit with the media on the phone, and have a preplanned press release for review.

According to the Biosurveillance Working Group, the media usually want a local twist, so they contact local veterinarians or Extension agents instead of using comments from the state office. Extension agents commented that there is no guarantee media calls will be returned. No guidelines are in place for who should and should not speak to the media; however, at the time of the meeting, they had not experienced any bad publicity due to individuals responding to reporters.

Communicating Compassion

After discussing the case of the producer who feared for the safety of his family, the discussion on communicating compassion was very short. The Biosurveillance Working Group understood it was a very difficult time for the producer in question. An Extension agent stated, “These people are suffering. They didn’t necessarily bring this upon themselves. It’s a misfortune.” Neighbors are often concerned about their own well-being. The participants said they try to educate neighbors to alleviate their concerns; however, the outcome is not always positive. A veterinarian said, “It doesn’t always go the way you want, because once you give the information, you can’t control it. . . . They [the neighbors] called meetings; they had several town hall-like meetings.”

The representative from Manitoba Agriculture and Food experienced a worse scenario in another case:

It went so far as people with connected farms were not welcome to come to church. If you ever needed to go to church...when your property is populated with whatever animal disease, that’s a time when you need your church community the worst. And they were not welcome at church, and neighbors would phone up and disinvite their children to things like birthday parties because they’re farmers.

Considering the potential repercussions associated with reporting a livestock disease, the Biosurveillance Working Group indicated that it

understood why so many producers are afraid to initiate the call to start the mitigation process. The participants saw communicating compassion as an essential role, though it may not be one they are qualified to play.

Providing Self-Efficacy

The Biosurveillance Working Group discussed how giving producers something meaningful to do can help alleviate some of the fears brought on by a disease. In this anthrax case, participants found that it was best to allow the producer to communicate with neighbors as a form of self-efficacy, thereby reducing concern and backlash from neighbors and providing a learning opportunity for the surrounding ranching community. An Extension agent said, "The producer went from wanting to hide the fact that they were buying penicillin, to calling neighbors as they got more comfortable with what was happening and knew more about it." Other procedures, including cleaning and disinfecting, vaccinating, and coordinating records, were discussed. The participants also recognized how surrounding producers stepped up disease mitigation efforts, including using radio frequency identification (RFID) tags to track cattle. An Extension agent said:

Some of the producers are resisting traceability with RFIDs and those kinds of things, and this particular producer said to me, he said, after you've explained this to me, if you need somebody to speak up for the fact that we need to do a better job with RFIDs, he said, I'll be more than willing to do it. Because, he said, that's evidence that we need to be able to follow them [the cattle].

Continuously Evaluating and Updating Crisis Plans

The remainder of the discussion centered on how the Biosurveillance Working Group was going to proceed in updating the mitigation process. Suggestions were made to create a communication flow chart and a set of best practices specific to the Biosurveillance Working Group. A veterinarian commented, "I think we have a list of good ideas and possibilities we might do differently next time and prepare for it." Other suggestions included educational meetings organized by Extension agents to help alleviate uncertainty and fear. Though the best practice of continuously evaluating and updating crisis plans was not part of the discussion, the Biosurveillance Working Group embraced this practice, as was evident in the group's willingness to evaluate the crisis in order to improve its processes.

Discussion

Although the best practices in risk communication established at the time of the meeting were all discussed in this case, participants did not

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view accepting uncertainty as a best practice and did not initially view listening to public concern and being accessible to the media as priorities. The Biosurveillance Working Group repeatedly discussed how to remove uncertainty from the process and pointed to the practice as a barrier in the flow of communication. The group also determined the most essential task at hand was dealing with the outbreak, rather than dealing with what people were saying about the outbreak. Seeger (2006) contends that accepting some level of uncertainty is critical, as warnings are often needed before the full nature of the harm is known. "Organizations must demonstrate respect, concern, commitment, and aligned interests with the concerned publics" (Heath, 2006, p. 246). The state veterinarian specifically cited not wanting to create a scare as the reason why she waited to report the case to the media, but withholding information from the public actually decreases the probability that it will respond appropriately (Sandman & Lanard, 2004). Venette (2006) notes that many of the best practices are counterintuitive: "When pressure to present accurate, timely information is high, the tendencies to guard information, over-reassure the public, and deny responsibility often increase" (p. 230).

Three themes emerged as barriers to the best practices: a) lack of education on the process of disease mitigation, b) ambiguity in the acceptable communication protocol, and c) fear of repercussions based on action or inaction following a trigger point. Seeger (2006) notes, "...if information about a crisis is not shared openly by the organization engaged in the crisis, the public will obtain information from other sources" (p. 239). Sandman (2006) stresses the importance of acknowledging fear in risk and crisis: "If the crisis itself arouses fear—as it often does—the job of the crisis communicator is to help us bear our fear, and to guide the choice of precautionary actions our fear motivates" (p. 258). To address the barriers identified in the discussion and standardize communication (Bergman et al., 2004; Cohen & Sproull, 1996), the Biosurveillance Working Group intends to create a communication flow chart and a set of best practices specific to the disease mitigation process.

The Biosurveillance Working Group took part in a prototypical postproject review to determine what procedures were successful and what procedures needed to be corrected (Carroll, 1995; Di Bella et al., 1996). The discussion of the anthrax case acted as a stimulus for change (Huber, 1991; Lerbinger, 1997; Seeger et al., 2003), and the participants were strategically adaptive in learning from the failures illuminated by the discussion (Argyris, 1982; Senge, 1990; Sitkin, 1996).

Conclusions

Evaluating best practices allows an organization to learn from failures and crises by establishing alternative strategies and thereby potentially preventing future crises. When used strategically, best practices can offer optimal organizational procedures. This study suggests that the DHS-NCFPD best practices for risk communication offer a means for organizations to engage in a thoughtful and thorough postcrisis evaluation of their communication. In doing so, a crisis event can serve as a turning point, as it did for the Biosurveillance Working Group. Organizations from all genres can make use of this best practices model to facilitate positive change in response to crises.

For agriculture educators and communicators, this case study can serve not only as an example of how to use the best practices model in a postcrisis review, but also as a vicarious learning tool for veterinarians and Extension agents. We cannot assume all veterinarians, Extension agents, and university researchers understand the necessity of accepting uncertainty, listening to public concern, and being accessible to the media based on this case. Potential barriers to adhering to the best practices in risk communication have now been identified. This case demonstrates that communication is essential in disease mitigation and can be used to support education and research collaboration with veterinary and Extension services.

To prevent livestock markets around the world from plummeting due to naturally occurring livestock disease outbreaks and the potential of agroterrorist attacks, organizations within the high-risk industry of agriculture need to examine disease mitigation processes. And as our world continues to become more uncertain and complicated, other organizations should embrace the opportunities to learn by assessing past cases and the experiences of similar organizations. By evaluating a crisis using best practices as a benchmarking procedure, an organization can not only determine problems within the system, but also identify strategies that do not align with established recommendations.

Keywords

crisis communication, risk communication, organizational learning

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