

Public Risk Communications in Disaster Recovery:  
Results from a Biological Decontamination Experiment

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## Public Risk Communications in Disaster Recovery: Results from a Biological Decontamination Experiment

**Abstract:** This article examines the data collected in the United States from a panel of 43 Federal, state, and local emergency response professionals and public officials who participated in an experiment to determine which media and content make it more likely that risk communications will be absorbed and trusted by target audiences. While participant responses indicated that the use of targeted communications and social media would be beneficial in building public and inter-agency trust, many state and local agencies are not prepared to utilize them. Homeland security planners at the Federal level may be conversant in lessons learned from major incidents, but this is not necessarily the case at the state and local level.

In 2001, the 9/11 and Amerithrax attacks marked the beginning of a new era of public awareness that terrorist attacks have the potential to cause significant environmental and public health hazards. In both cases, the potential risks continued well after the events themselves and required extensive public risk communication efforts about hazard levels. A number of these efforts were relatively unsuccessful in gaining public confidence that remediation was effective, prompt, and equitable. (Guillemin, 2005; Henry and Jones, 2012) In particular, Amerithrax “demonstrated weaknesses in how public health emergencies and bioterrorism are communicated to the public.” (Davis and Ringel, in Maurer, 2009: 320)

With subsequent attacks, such as the mailing of ricin to the Federal offices in 2004 and 2013, and numerous other unsuccessful plots, it is prudent to plan public risk communications strategies for use in disasters that require environmental remediation and cleanup efforts. Terrorists are attention-seeking actors with limited resources who select prominent and symbolic targets. (Hoffman, 1999) Therefore there must not only be counterterrorism plans to protect significant political, economic, and cultural venues anywhere in the country, but risk communication strategies should also account for a range of audience demographics and consider how to reach them most effectively.

This article examines the responses of a panel of 43 Federal, state, and local emergency response professionals and public officials in the United States to a six-month-long scenario simulating both the initial response and remediation phases of a major bioterrorist attack. The results, which hold similar implications for Australia and other countries as well, indicate significant differences in response readiness and public communications approaches across different agencies, and suggest that not all state and local agencies are prepared to implement the emergency risk communications best practices recommended by their Federal counterparts. Conversely, it indicates that Federal agencies should not consider their “best practices” in community risk informatics to necessarily be a one-size-fits-all approach that is applicable to traditionally under-served and rural communities.

## **21<sup>st</sup> Century Risk Communications**

While obtaining accurate remediation data poses a challenge in many cleanup efforts, there are greater impediments to providing information about acceptable risk levels to local officials and to the public. “Emergency risk communication ... needs to be an interactive process. Successful communication should not only satisfy the public that they have been adequately informed within the limits of available knowledge, but also improve officials’ available information.” (Davis and Ringel, in Maurer, 2009: 319)

Best practices derived from case studies indicate that communicating a range of potential actions that builds a sense of efficacy and self-empowerment is critical to reducing anxiety and eliciting responsiveness among the public. These can include providing individuals with guidelines so that they can determine for themselves what is safe to eat or even simply suggesting flying the flag as a reassurance and an expression of determination to overcome obstacles. (Veil, Buehner, and Palenchar, 2011).

### *Operational Value of Confidence-Building*

Accurate risk communication with the public is also often impeded by the tendency of lay people, including political leaders, and experts to view the nature of technical cleanup problems differently, and for lay people to therefore rely upon “affect heuristics” of fear when information is not presented to them in an understandable form. Instead, “Further research suggests that the public do not believe that the actions of the authorities responsible for providing protection against the consequences of many risks and disasters are adequate, and many individuals have little faith in the information they receive” (Rogers et. al., 2007).

This effect is particularly pronounced among a number of demographic groups, particularly racial minorities, non-English speakers such as undocumented workers, and rural populations. “Many jurisdictions are still poorly equipped to communicate in multiple languages and lack established relationships with key community leaders and groups.” (Davis and Ringel, in Maurer, 2009: 320) However, socio-economic status (SES) alone is not a determinant of whether disaster risk communication messages are believed by recipients. During the 2001 anthrax incident, even policymakers and Federal government employees also experienced diminished levels of trust in government response when presented with conflicting or unverified information (North et al, 2005).

Other studies indicate that while the public responds positively to the provision of information, the source of information must be familiar and reliable in order to create trust and credibility. Additionally, “the fact that a communication attempt worked with one social group does not ensure that it will work with another, and communicators must ensure that they concentrate on local relationships” (Rogers et. al., 2007). Individuals trust within-group communications more than they do messages directed at them by outsiders. “Individuals are members of organizations and groups whose social ties, resources, communication links, and

leadership structures might be used to facilitate a better and more coordinated response after a terrorist attack” (Glass and Schoch-Spana, 2002).

### *Incorporating Social Media*

In specially targeting particular groups for messages “the best communication channels will often use social networks instead of formal mass media.” (Maurer and O’Hare, in Maurer, 2009) In 2010, a Pew survey found that one-third of all Americans used some form of social media, and in 2012, Facebook was the most viewed website in the United States, demonstrating its value as a communications tool and offering an effective means for receiving real-time feedback from a significant (although not necessarily representative) section of the population. A 2009 survey conducted by the Red Cross found that 75 percent of respondents said that they would use social media in public emergencies, although the fact that the survey was conducted online might have skewed the results. (Kavanaugh et. al, 2011)

Many public safety officials also clearly recognize the potential benefits of social media use, and agencies such as the Centers for Disease Control (CDC) and Federal Emergency Management Agency (FEMA) now regularly produce reports advising best practices from lessons learned in emergency risk communication since 9/11. These range from technical tips on how to get optimal results from particular social media platforms to broader recommendations on how to communicate to audiences with diverse levels of education and cultural norms (CDC, 2002; 2012).

While some Federal agencies are posting videos on YouTube and encouraging employees to blog and use social media for work purposes, many government agencies are having difficulty in determining just what types of information to include, and how to build genuinely interactive communications across diverse platforms. (Hrdinová, Helbig, and Stollar Peters, 2010) Williams, Williams, and Burton (2012), in relating their experience in

community resource management following the 2011 Joplin, Missouri, tornado, argue that agencies should only attempt to use social media for public communications during and after disasters if the agencies are prepared to devote adequate resources to the endeavor, including the involvement of agency supervisors for effective and accurate messaging. They also note how uniquely labor-intensive public engagement through social media must be to succeed.

Responsible use of social media in the wake of a disaster is, therefore, not as easy as the click of a mouse. To begin with, the constant interactions required by the use of social media in the disaster response context means that “government may have to triage its audiences by deciding which groups see themselves as high risk and/or are most likely to spread resistance and anger if they are ignored” (Maurer and O’Hare, in Maurer, 2009).

Social media does not necessarily address the problem of lack of equity in disaster response because these forms of media do not reach all demographics equally. In addition to the fact that social media have been adopted far more widely by under-40s than senior citizens, their use largely depends on access to computers, or at least personal smart phones and tablets, and therefore the “digital divide” could continue to be a factor along lines of socio-economic status (SES). Interestingly, however, SES appears to have a significant impact on which social media people use, with the most highly educated and affluent preferring LinkedIn and Facebook, while those without a college education use MySpace. Meanwhile, minority groups in the United States tend to use social media at higher rates relative to population size, possibly reflecting a younger demographic skew, particularly among Hispanics (Veil, Buehner, and Palenchar, 2011).

In addition to the clear potential for failing to reach traditionally under-served communities, even the best risk communication practices also often fail to take into account the fact that the majority of the population will not be relying on tweets from government

agencies as their primary source of information in an emergency. Most Americans continue to get their news from traditional media sources, and news organizations, for the most part, rely on journalists rather than public officials for the bulk of their on-air, print and online content. (Nacos, Bloch-Elkon, and Shapiro, 2011) Therefore, even while agencies may seek to communicate their messages directly to the public, they should expect and develop strategies to address the fact that during and after disasters, most of the significant information that the public receives will still have been filtered through traditional media, and that they do not have full control over messaging . This underscores and highlights the importance of prior working relationships between governmental agencies and media organizations.

### **Risk Communications Experiment**

In 2011-2012, the Pueblo City/County Health Department (PCCHD) and the Colorado State University-Pueblo Center for the Study of Homeland Security conducted a study of effective risk communication practices during the remediation phase of an intentional biological agent release. Volunteer participants read simulated newspaper or television news website articles describing containment and remediation efforts following multiple bioterrorist attacks, as well as potential related environmental threats to public safety over a six month period. This timeframe both mirrored the cleanup of the 2001 anthrax attacks from incident to final reoccupation of contaminated space (Daschle and D'Orso, 2003), and also permitted a longitudinal study of participant attitudes.

#### *Study Design*

Participants, drawn from various government agencies in the state of Colorado, were asked to read and respond to a series of mock news items describing a bioterrorist attack in

Pueblo, Colorado and the subsequent remediation and recovery efforts. One significant constraint in data collection, unanticipated at the time we submitted our study proposal, was a Federal regulation preventing the use of scripted questions in a funded study that had not first been made available for public comment for one year in the Federal Register. As this proved impractical, we decided instead to simply present participants with the simulated media report and instruct them to reply with how they would behave if the events were real. Subsequently, when several participants requested further clarification, we sent all of them a notice clarifying that we were particularly interested in their perception of the risk levels related to the events being described in the scenario.

Some participants responded by roleplaying, providing highly detailed accounts or even mock press releases describing what they and their agencies would do in those circumstances. Other participants continued to believe that they were expected to comment on the messages themselves as risk communication vehicles. Although they were labeled as newspaper stories, these respondents critiqued them as being ineffective press releases in terms of ability to present a controlled message to the public, or even rewrote their syntax. The feedback session was therefore particularly useful in clarifying participant views of the exercise.

We emailed the 17 risk communication messages to participants and instructed them to reply directly to the sender. In a few instances, individuals either intentionally or accidentally replied to the entire distribution list, but otherwise, so far as we are aware, participants did not communicate with each other during the course of the study in any way that would have influenced their responses.

#### *Participant Recruitment and Data Collection*

43 volunteer participants received the risk communications in Phase 1, representing a number of Federal, state, and local agencies across Colorado. These included the offices of a United States senator, the lieutenant governor, the Centers for Disease Control, a chamber leader in the state legislature, the state departments of agriculture, health, and the attorney general, county boards of health, fire departments, municipal water works, local school districts, and non-governmental organizations contracted to provide social services to disadvantaged populations.

Initially, we asked 60 public officials with public safety responsibilities to participate. Among the 43 who agreed, only half actually responded to the risk communications messages, with an average participation rate of 25 percent responding to any given message. 34 participants attended the feedback session one week after receiving the final message in the scenario.

While Pueblo is the home of the organizations conducting the study, it was also selected because of the unique demographics of the region. As noted, a number of prior studies of public risk communications indicate that minorities do not expect to receive equitable treatment during crisis responses, that rural populations are similarly unprepared to trust government messages, and that low socio-economic status and immigrant populations are particularly difficult to contact. The Pueblo area community combines all of these features in a relatively isolated city whose population is over 40 percent Latino and with approximately twenty percent living below the poverty level. Thus if risk communications can be made more effective under relatively difficult messaging conditions in Pueblo, they would likely also be successful when used elsewhere.

### *Scenario*

The scenario presented participants with simulated mass media reports because that is how the public, and probably many public officials and public safety officers, would receive most of their information about risk levels during an extended remediation (Nacos, Bloch-Elkon, and Shapiro, 2011). Participants received 17 risk messages sent over the six month period, with multiple messages during the first week, as there would be the most public interest and media attention immediately after the discovery of bioterrorism, and then one message sent every two weeks updating the progress of remediation and the public health/criminal investigations.

Information was presented in real time continuously for the six month period (i.e. on the 100<sup>th</sup> day of the study, the information would describe the scenario 100 days after the attacks, with the next message detailing what had occurred over the intervening two weeks). Inaccurate or incomplete information was presented, particularly in the beginning, to reflect the uncertainty and confusion that would occur in a real event and to model the difficulty in regaining public trust after unintentionally providing contradictory information based on the best available evidence at the time.

In this scenario, in mid-September, several individuals become ill or die from different forms of anthrax infections, and it soon becomes clear that all of them had visited Lake Pueblo State Park over Labor Day weekend. Witnesses provide reports of a man dumping barrels of liquid into the reservoir and around its recreation areas, and the municipal water works confirms the presence of spores adhering to pipes. At the same time, cattle throughout Colorado begin to sicken. While anthrax is initially suspected, the diagnosis is Foot and Mouth Disease (FMD), the result of a virus absent from the United States for decades. All of the initially afflicted cattle had been shown at the Colorado State Fair, which was also in Pueblo over Labor Day weekend.

Anthrax has left an indelible mark on the public consciousness since 2001 and is sought by would-be bioterrorists. It is widely recognized to be potentially the hardest agent to clean up because its spores are extremely resistant (Franco and Bouri, 2010). Other agents are also easily spread in both indoor and outdoor venues that would be time-consuming and costly to decontaminate to a zero standard. Another such agent is foot and mouth disease (FMD). While it does not affect humans, FMD is still a resistant agent capable of having a significant economic impact: In 2003, the importation of a single pig from Hong Kong infected with FMD caused both the loss of \$19 billion to the Taiwanese pork industry in destroyed stocks and also public confidence despite numerous governmental assurances of acceptable risk (Preston, 2009). While presumably unintentional, this incident provides a lesson that pathogens do not have to affect humans directly to present cleanup uncertainties and risk communication difficulties.

In the six months that follow in the scenario, the reservoir grounds and the city water supply are superchlorinated to eliminate the possibility of further anthrax outbreaks, and the fairgrounds are treated with sulphamic acid. Media reports relate public concerns including health effects from the remediation agents, a perceived slow pace of cleanup, economic pressures to reopen contaminated sites quickly, and whether the public will be willing to return to the affected areas.

## **Findings**

### *Limited Use of Social Media by Local Public Safety Agencies*

Although one goal of the study was to seek evidence of how social media can be used to deliver more effective risk communications to the public, the participants (emergency

response professionals and public officials) all indicated that they would receive risk communications by email in an actual emergency. Some, such as City of Pueblo employees, informed us that their workplace computers have firewalls that prevent them from accessing Facebook and other forms of social media. They therefore all declined to be included in social media message groups or to receive communications by fax or other traditional direct means, so it was not possible to test whether medium had any impact on message reception.

As became clear during the feedback session held following the study, not all public safety officers are familiar with recent social media developments, or else do not find them relevant to their job roles. One participant asked PCCHD representatives whether they have a website and whether it is used for emergency communications. Other participants said that while their agencies use Twitter, it is something that they do not personally understand and instead “leave to” their public affairs staff.

Furthermore, only 21 of the 43 participants had Facebook accounts themselves (in their own names at least) at the time of the study (2011-2012), although some of the others had profiles on other social media sites such as LinkedIn. Of those who had Facebook accounts and made the information available, the median number of Friends per user was 127, comparable to the global average of 130 reported by Facebook in 2011. (CDC, 2012: 8) However, the mean number of Friends among participants was 218 because some, mostly serving in high profile public offices, had several hundred or more.

The fact that local government public communications using social media would be inaccessible to other local government employees behind workplace firewalls or because they do not use the technology for personal uses demonstrate a current lack of awareness of and strategic planning for how the applications can be used in public communications for agency purposes. Therefore, despite the strategies and best practices offered in numerous

publications by Federal agencies for the use of social media in public risk communications, it seems that many government agencies have not been implementing these recommendations and would not be prepared to act upon them in the event of a disaster.

### *Risk Perceptions among Government Officials*

Organizational priorities appeared to shape participant identification of risks. Bureaucratic decision-making modeling presumes that “where you sit determines where you stand”, and this was observable in the responses. (Allison, 1971) Representatives of police and sheriff’s departments noted that they would be concerned with protecting medication supplies and preventing riots and traffic accidents caused by fleeing residents, while the representative from the state veterinary agency believed that it was imperative to educate the public about the lack of risk to their health posed by FMD-infected meat and thereby protect the cattle industry from economic collapse.

There was little variation between participants in the emergency management sector in terms of their own perceptions of risk and requests for safety measures. All participants supported using the highest levels of chlorination available to eliminate the threat of *B. anthracis* spores in the water supply, even if it meant effectively shutting down the municipal water system for days by flushing it with swimming pool levels of chlorination to kill 99.99% of bacteria spores. Although initially only two, and later “several”, contaminated pipes are discovered in the metropolitan water system, and even though health officials state that “the concentration of spores detected is unlikely to produce illness in humans”, no respondents indicated support for leaving the water supply untreated. Only one participant favored increasing chlorination to the degree that it would kill 97 percent of spores while keeping the water potable throughout. However, two weeks later, with angry public demonstrations described in the next message, he shifted positions, noting that “My response would be to

support the decision to treat the water, but also to try to alleviate public concerns for their health and safety.”

The clear preference among respondents was for efforts to reduce residual risk to zero, even if they were described as extremely disruptive such as making the city water supply unfit for any uses for a week. Again, despite the information presented that the water supply was considered to be acceptably safe, one public health officer stated that she “would be boiling my water just to be safe with the spores”; another said “‘...remain calm and the public is not at risk.’ Yeah right!” And a third public safety official stated that even the maximum superchlorination available would not be fully reassuring “because I do not want to be the one who gets anthrax from the 0.1% that was not killed in the water.”

With the strongest possible course of remediation completed, the scenario then shifted to decontaminating the site of the release of FMD. In this instance, the biological agent harms hoofed livestock but not humans, and the contaminated area was localized to the state fairgrounds. Participants were therefore confronted with what was essentially an economic threat and one that, unlike with *B. anthracis* in the city water supply, was a voluntary risk. In fact, with the fairgrounds quarantined and no direct threats to human health, the only imperative to act quickly in the scenario came from the local business community and from national agribusiness interests, both of which argued for the need to rebuild confidence as quickly as possible.

Participants, however, reacted negatively to pressures to remediate and reopen the fairgrounds as quickly as possible, describing them as “selfish” or motivated by economic self-interest. This would appear to indicate that getting “back to normal” as quickly as possible is not as important to building trust in cleanup efforts as believing that remediation has been conducted as thoroughly as possible. The remediation described in the scenario was

a process offered by a commercial service that was particularly long, intensive, and expensive, but designed to eliminate any spots where the FMD virus might survive. Still, measures such as treating the fairgrounds with acid, burning all contaminated facilities, and keeping the liquid decontaminant stored on site for months elicited few objections from participants. So for both biological agents, whether they had lethal effects on humans or no direct effects at all, emergency response and governmental professionals clearly preferred a zero-risk standard after decontamination, regardless of costs or inconveniences.

However, there were dissenters when it came to other measures associated with preventing the spread of FMD. One participant stated, two weeks into the scenario, that “so much time has passed” that she would not be inclined to follow FMD containment warnings, despite the risk communications stating that the virus could remain viable in the environment for a month. Other participants stated, both in their responses and in the feedback session, that they believed that the public would not heed FMD containment efforts and would avoid decontamination measures on major highways to save driving time. While one participant noted that she would be “leery” about eating any beef, others believed that the public would attempt to sell infected livestock or meat on the black market.

### *Emotive Response*

One artifact of the responses was that they became more positive in tone as the scenario progressed. While it may be that participants were simply more comfortable with the exercise over its six month course, there appeared to be a noticeable shift in emotive responses. Some participants regularly used feeling words, describing themselves as “alarmed” or “somewhat panicked” when presented with information detailing a new or unanticipated risk in the scenario. The perception that there was “no end in sight” or else that there was “closure” at different stages was present in these responses as well. Other emotive responses indicated general senses of insecurity related to the scenario events, including non-

specific statements that “security should be increased” whenever there was information presented about technical difficulties in remediation, and a self-reported sense of “anxiety” over the economic dislocation described.

In addition to participants who described themselves as “happy” as risk levels dropped during the cleanup period, others who initially offered frequent criticisms of the fictional public response described in the scenario or our approach to the exercise also offered more positive feedback as risk levels diminished. (e.g. One participant who initially offered frequent criticisms and noted of early messages that they “raised my stress level about my safety” later sent responses that messages “read very well”. Others who were initially critical said later scenario installments were “the best risk communication yet” or the “best message to date”) even when they contained little actionable information.

These responses suggest that, even among emergency response professionals, there might be value in including positive information to maintain morale. This does not mean offering the most optimistic forecasts, but rather including some message about progress being made or other reassuring information that indicates that the problem will ultimately be resolved successfully. While an honesty as best policy approach since 2001 has led to many recommendations of telling the public the unvarnished truth (particularly “we simply don’t know”), this small sample indicates that there is also value in creating legitimate hopefulness to maintain cooperation. It is also in line with previous best practice reports recommending creating feelings of empowerment and efficacy in the public.

### *Public Communications Strategies*

Participants made a number of suggestions related to communications methods and strategies in their emailed responses to the scenario installments. Although one agency head said that she did not expect to be reachable by email during an emergency and would instead

communicate through jurisdictional chains of command, other participants recommended intensive public outreach efforts using new media, with some describing themselves as the person in their agency who would lead the communications efforts. Suggestions included establishing information hotlines and websites, using “social media” to tell the public what was being accomplished, hiring professional public relations firms, and meeting frequently with editorial boards to influence coverage.

On the question of the content of effective public communications, however, there was some division between those who wanted to allay public concerns by appearing to be as engaged as possible in dialogue, and those who had less patience for such efforts. Comments in the latter category included dealing with criticism by reiterating that “Plans are in place with scheduled events and deadlines. Public has to be patient and cooperative”, or else dismissing protests and noting that “you are always going to get activists...” One expected that a segment of the public will always believe that remediation measures are overkill. Another participant believed that if their agency were seen as “the opposition to activists, it will damage our credibility,” and that they would instead attempt to “just put out neutral information.” Others wanted more active engagement with public discontent, including sending representatives to protest group meetings and providing them with fact sheets.

Continuing with the idea that public involvement should entail empowerment, one NGO leader stated one week into the exercise that “my only complaint so far is that very little is being asked of the public, other than remain calm.” However, he did not provide any recommendations for productive public engagement other than to distribute a list of specific precautions.

Other participants, however, expressed a lack of confidence in the public, with one public official claiming that after one month no one would be willing to return to

contaminated sites, and later arguing that travelers would be unwilling to stop off the interstate to fuel their cars in the town even after remediation. Another argued for a rapid return of the appearance of normalcy, despite not supporting efforts to open the contaminated sites as quickly as possible, and criticized the use of “freebies” to lure the public back to those places, although this strategy was supported by a number of the participants at the feedback session.

### *Jurisdictional Differences Impact Readiness*

Perhaps the most notable finding of Phase 1 of the study is the evidence that emergency management personnel should not be assumed to be uniformly prepared to respond to all aspects of a significant bioterrorist attack. While perhaps homeland security planners at the Federal and state levels are conversant in lessons learned from major terrorist attacks over the past two decades, evidently not all personnel across relevant agencies are.

Feedback session responses that were particularly surprising from participants who had just completed a six-month-long bioterrorism simulation included “What’s FMD?”, “What’s Cipro?”, and the succinct “I don’t know what most of this means.” While one participant insisted that the scenario did not go beyond the scale of anything that her local governmental agency had encountered previously, another stated “Some of this stuff went over my head when I was reading it and if I was scared, I’d be like I don’t want to read this. I would lose a great deal of understanding of some of that stuff.” Others said, perhaps jokingly, that they would prefer to switch to another career than deal with events described in the scenario. In other cases, discussions turned to lengthy explorations of parochial concerns over how staffing patterns and comp time would be addressed given the overtime requirements that the scenario would create.

Therefore, while representatives of local and state government agencies expressed the view during their feedback sessions that they bear the responsibility of representing community needs to Federal remediation and investigation agencies, it is not clear that they are as prepared to implement the recommendations of Federal agencies in their communities. This is not to say that they are ineffective at their jobs, but rather that the “lessons” of Amerithrax and other terrorist attacks may not have disseminated as widely as those involved in homeland security policymaking at the national level might presume.

In fact, there was a clear presumption by participants that they would be sidelined by Federal officials regardless of jurisdictional authority (e.g. “the CDC would take over and say ‘you’re gone’”). There appeared to be a readiness on the part of local officials to acquiesce to state or federal “experts” based on some idea that they are “higher” in the bureaucratic pecking order and that they therefore represent greater authority. Some participants expressed that they did not understand why certain steps were being taken in decontamination, but that they assumed that Federal agencies knew what they were doing. Possibly this assumption that authority will be surrendered leads local government personnel to forgo engaging with developments in emergency response planning.

Some participants went so far as to express that they would be “scared” by the involvement of Federal agencies, particularly those related to counter-terrorism. Although multiple participants inquired about the (unreported) declaration of a state of emergency in the scenario that could avail them of Federal disaster benefits, it was clear that many were otherwise apprehensive of receiving assistance. One participant said “I don’t think it would be local anymore. I think it would be more ‘you live in this community, but we have people coming from outside our community to really tell us what they’re going to do now’, and is that something that our community would accept? I think they would because they’d be so afraid.”

However, participants also stated that local agencies must be advocates for their community in such a situation. They argued that, while decisions are being made at the national level, local agencies know the public, are trusted more by the public, and are charged with representing community interests.

Yet it was also clear that there was a lack of interagency understanding of missions and jurisdictions at the local level as well. The focus on clarifying jurisdictional issues in the discussions indicates that there may be a need for state and local emergency response personnel to participate in joint response activities and trainings with other agencies to achieve a more sophisticated and complete appreciation of interagency incident command practice and structure. If this is true in Pueblo, where there have been decades of interagency exercise opportunities related to a potential disaster involving national chemical weapons stockpile facility, it may be even more true in communities where there is no such tradition.

#### *Public Communication Strategies*

Participant predictions about public behavior unsurprisingly mirrored their own reactions to the scenario, particularly in risk aversion: As one noted, “even if you tell people that the odds are a million to one against getting sick, they will still want to take extra precautions.” However, some believed that segments of the public would not be responsive to safety warnings at any point, not even boiling drinking water when advised to do so. Several participants argued that it is necessary for public safety professionals to model behavior for the public, and to express confidence in the science behind risk level decisions. While multiple participants voiced support for drawing the public back to decontaminated sites by providing incentives such as free concert tickets, they also indicated that they believed that ultimately the most effective form of risk reassurance would be for public officials and recognized emergency response leaders to lead by demonstrating the acceptability of current

risk levels through drinking water from a cleanup site or bringing their own family there for a picnic.

However, some safety measures sparked distrust among participants. Two expressed the view that they believe that posting armed guards at cleanup sites makes it appear as if the agencies involved are “hiding something”. Similarly, another participant asked generally “In terms of those federal officials, are they demanding the toughest decontamination because the science actually warrants it? Or is it just to gain some political points?” Another stated that what the public perceives to be overkill (remedies they believe to be unnecessary) will cause the public to believe that all decontamination safety protocols are “just for show.”

Some participants, referring to the risk communications during the FMD portion of the scenario, expressed the view that financial risk would matter to some members of the public more than what they might believe to be the low probability of exposure to a pathogen. Participants raised issues including compensation for culled animals, and the potential for black market sales of contaminated meat to immigrant communities that would be less likely to have full exposure to local media alerts. In this vein, what would appear to be non-compliance due to lack of attention paid to warnings could instead be a rational cost-benefit calculation to disregard risk communications. Arguably, providing financial guarantees to those affected might reduce the incentives for such behavior.

Participants also expect that public tolerance of risk communication will be finite. Most expected that the public would lose interest in risk communications during the one to three month range, overloaded by information and impatience, and that important information therefore could only be communicated at the outset. One expected to lose public support when all remediation had not been completed by Day 43. Another remarked that the public would be “burned out” and expecting to use the fairgrounds again by Day 99 of the scenario.

Others argued for providing maps, perhaps regularly updated, that showed the public which areas remained contaminated and which had been successfully remediated.

There continued to be disagreement about how much public education and outreach would be necessary. Some participants advocated for multiple daily press availability at least during the initial stages of a crisis. Another suggested using market research to determine education levels and science awareness among the public and then crafting multiple messages in response. Many participants had low expectations of public ability to understand the information that they would read in media reports.

Although most of the communications messages participants read were 500 words long, or only half as long as the average headline story in the local newspaper, one argued that “They’re not going to read this volume; they need three bullet points.” Others suggested that it would be necessary to explain terms such as “decontamination”, or that the public would best be served by quantified expressions of increased risk. (i.e. the numerical odds of contracting anthrax in various situations.)

In terms of answering critical public campaigns or protests, some participants suggested pre-emptive public education campaigns to reduce associated “behavioral health issues.” Others suggested bringing in leaders of protest groups for personal meetings with agency heads to discuss the science behind treatment plans. A minority dissented, with one dismissing potential protests against remediation efforts with “Ask them what they want to do? Die from anthrax?”

### *Cultural Factors*

A number of respondents also highlighted the unique challenges for Federal and even state agencies in working with rural populations, which past studies have indicated are less

receptive to what they view as external interventions. (Maurer, 2009) This particular exercise was based in, and the scenario set in, the area surrounding the city of Pueblo in southern Colorado. Some of the participants in the exercise came from state agencies in Denver, a two hour drive away, to join the feedback session, and heard one local public safety officer describe the city: “It has about 156,000 people, but it’s like Mayberry RFD. Everybody kind of knows everybody here.” This geographic and social isolation impact community interactions with Federal agencies every bit as much as do the cultures of some inner-urban neighborhoods, which other studies show are also less likely to trust that governmental responses will benefit them equitably. (Meredith et al, 2007)

Beyond Pueblo, extending to the Great Plains and to the Rocky Mountains, are smaller and more remote communities whose representatives also participated in this study. The following interaction encapsulates the difficulty in attempting to deploy pre-scripted risk communication or electronic forms of social media:

Granted, I know out there in the field, there is some difficulty with some people trusting. I mean, it goes back to the attitude, you know, “I’m from the government and I’m here to help you” and people saying “Yeah, there’s the gate, you know, just leave me alone.”

So the more rural a community [is], you’re thinking that attitude is [more prevalent]?

Yeah.

They kind of fend for themselves?

Well, we tend to do that. A lot of times things happen out there and we’re helping ourselves taking care of it before anybody ever gets out there. I mean, it’s a three hour trip out there – it takes time. Communication is the same way. Not everybody listens to the radio all the time, not everybody listens to the TV all the time, so they don’t know....getting the information to the people out there is pretty critical.

Is it word of mouth out there?

It can be. Coffee shops, you know. And the other part of it is, even if you get information, coffee shop chatter trumps a lot of really good information.... we're going to have people that just talk. They won't call anybody, they'll just take the word of mouth as gospel and it won't matter what we say... a lot of our local papers are weekly papers, so if that's what they're reading, by the time they read it, this thing's a week into it.

On the positive side, residents of remote and rural areas are more familiar with assisting themselves and each other in emergencies. Most emergency services like fire and medical response are provided by volunteers from the community. The potential for social media to be valuable in building trust is evident in these circumstances, even if the social media involved are phone trees rather than Facebook. In fact, one participant worried that "people who do not read a lot for work" (do not have white collar jobs) would lack the sophistication to fact check information found on the internet if they attempted to begin using it heavily during a crisis.

## **Recommendations**

The data from our study indicates that, a dozen years after the major terrorist attacks of 2001, divisions between and within agencies at various levels of government would continue to impede effective public risk communications at the local level. Inter-agency operability and an understanding of significant elements of the bioterrorism threat remain elusive across state and local government agencies that are not concerned with homeland security issues as part of their regular activities.

Policymakers appear in this study to assimilate information through "satisficing" available information (Simon, 1956) retrieved through the "garbage can model" of organizational decision-making (Cohen, March, and Olsen, 1972). This is to say, as might be expected without advance planning in a crisis situation, that they will use readily available information to make sufficient judgments, and any available technology without a thorough

crisis plan in place, under the assumption that an agency with a higher level of authority or technical expertise will assume responsibility for any cleanup and attendant risk communications. However, this exercise also demonstrates that participants believe that an organized initial response is the best way to reach the public and to build its trust.

The data suggests that it would be helpful to ensure that compilation reports of best practices are actively disseminated to local government agency heads and public information officers. Suggestions about market research and similar detailed planning will only be valuable if they are conducted when there is no looming threat and not once a biological attack has already occurred.

As far as the substance of public communications is concerned, participants stated in emails and at the feedback session that they wanted to receive specific information about what they could do to protect their families or help their communities, and suggesting efforts to foster a feeling of efficacy is also in-line with the recommendations of previous studies. This is not to suggest that risk communications should “put the best spin on things” or to include the most optimistic range estimates. Rather, the data indicates that response personnel (and presumably public) morale and cooperation might be best maintained by providing simple, specific suggestions for “what you can do.”

Finally, there is the concern about how much detail should be included in risk communication messages, as there is a division between audiences who want as much information available as possible, and those who want the minimal information necessary to avoid harm or being overwhelmed by data. By the time the response is focused on remediation, attention deficit and information fatigue will likely be a real problem.

Overall, despite both the increased attention across various levels of government to disaster response capabilities since 9/11, Amerithrax, and Hurricane Katrina, and the

potential for innovative public risk communications strategies afforded by new media, this study indicates that these changes should not be assumed to be uniformly widespread. Just as any group is only as fast as its slowest member, those who have the responsibility for public safety and communications in emergencies must be prepared to factor these differences in outlook and capabilities into their contingency planning.

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