

# Public Affairs in Health

A PEER-REVIEWED ELECTRONIC JOURNAL FOR COMMUNICATORS WORKING TO IMPROVE PUBLIC HEALTH.

VOLUME 1 ISSUE 01



# Public Affairs in Health

A PEER-REVIEWED ELECTRONIC JOURNAL FOR COMMUNICATORS WORKING TO IMPROVE PUBLIC HEALTH.

## TABLE OF CONTENTS

First Word .....	3
Health Disparity/Equity: Operationalizing Terms of Use .....	4
The Virtual Joint Information Center: A Technological Tool for Emergency Communication .....	7
Leveraging the Power of the Faith-based Community and its Critical Communication Role during Public Health Emergencies .....	12
Crisis and Emergency Risk Communication: Bandura's Social Cognitive Theory and Pandemic Influenza Response .....	14
M.P.H. (Milestones in Public Health) .....	24



# First Word

Welcome to the first issue of *Public Affairs in Health (PAH)*. The specificity of the title of our new journal is deliberate. The discipline of public affairs covers a wide spectrum of government agencies, businesses, and organizations. This journal focuses on the work of the public affairs specialist in the field of public health. We recognize, however, that the position description for the latter is not universal and tasks and responsibilities vary depending on the mission and goals of the respective group that has oversight. But, the expected outcome for the work of these individuals is the same — effective communication. From managing crises to annual immunization drives, the public affairs specialist in public health must craft the right health message, for the right audience, at the right time, via the right delivery mechanism.

*PAH* focuses on the practitioner — how did the theory, idea, or hypothesis *actually* work in real-life, in real-time? *PAH* will highlight these activities and achievements in the categories of: “Best Practices,” “Original Research,” “Milestones in Public Health (M.P.H.)”, and “Essays.”

Despite the admirable work accomplished by these communication professionals, many of them still do not have a “seat” at the table when decisions are being made during a crisis or the early planning stages of a major public health initiative. This oversight may be due to the fact that: 1) public affairs specialists often don’t document their own work; and 2) while other public health disciplines have legitimate or implied leadership credentials, the role of the public affairs specialist is seen as supplementary or incidental. The lofty goal of *PAH* is to help correct the misconception that their role is secondary to the success of a public health campaign or event.

Finally, rest assured that we won’t “shoot the messenger!” Whether good news or bad news, we look forward to reading and sharing your stories from the field.

Sharon KD Hoskins, MPH  
*Managing Editor*



# Health Disparity/Equity: Operationalizing Terms of Use

*Doresa A. Jennings PhD, M. ED*

## Abstract

This paper proposes the need for and the opportunities of operationalizing terms normally found when evaluating and reporting results of public health practices that deal with health disparity/equity. The purpose of this paper is to put forth a framework in an effort to garner consensus in the use of terms often seen in the evaluation of programs with a focus on health disparity/equity, especially within the area of health communications. The terms dealt with in this paper are: fairness, health equity, health disparity, underserved populations, health access, and health outcome.

## Introduction

According to the White House (2009), President Obama supports legislation to encourage research that will examine gender and health disparities. A focus on the issue of health disparities in research should increase in the very near future. It is also reasonable to guess there may be health disparities/health equity reporting requirements for organizations that receive federal, state, and/or local dollars for health research and services. With the increased focus in these areas, it is the author's desire to propose a standardization and operationalization of terms commonly associated with this very important area of research. This is especially true in health communications, a public health area often noted for its work in health disparities and health equity (Thomas, 2005).

If we begin to see in health communication a resurgence of articles and study results focusing on health disparity and associated topics, it will be much easier to interpret, utilize, and expand on the knowledge if there is an agreement on the meanings associated with and the parameters defined by those terms. To start with, defined consensus on the operationalization of terms within public health communications could be a useful start to this endeavor. While consensus is never easy (and in some ways, limited by time), it can make the research of the area of concentration more impactful and make the specific research more meaningful to the broader field of public health.

The terms this paper will be focus on are: fairness, health equity, health disparity, underserved populations, healthcare access, and health outcome. These particular terms were chosen due to their frequency of use in research proposals, journal articles, and official releases from public health organizations, especially in health communication(s). Without agreement on terms, it can undermine data results and reduce confidence in analysis. Lack of confidence in analysis can cause a hindrance in the ability to help intended audiences. One reason the operationalization of

terms of use is so important in health communications is the nature in which results are disseminated and utilized. The very nature of health communications brings with it a broad distribution of the research it produces, from historical professional public health audiences and clinicians, to release of information to the general public from press releases, various print and television media, websites, and even blogs. Messages have the potential to reach such a wide array of audiences that ensuring the messages are encoded with the proper terms and generate appropriate decoding are key.

## Terms and Their Use

**Fairness** — when the concept of “equity” is examined and put forward, a common term recently used in the media as well as federal and other governmental entities is that of fairness. While the term fairness can be seen in releases of data from public health organizations throughout the world, it is not always fully defined in a measurable way. One aspect not always defined is the fairness of what? Are we looking at the fairness of the opportunity to have health care choices or the fairness of the actual health outcome? According to Webster's Dictionary (2008), fairness is defined as being free from bias, dishonesty, or injustice. However, something can, in fact, be free from bias and still not meet the criteria often being examined in the public health area. It is proposed in this paper that when the term “fairness” is often utilized by public health organizations, especially in the establishment of new public health rules, programs, or policies to promote health outcomes in for specific groups or populations, a more appropriate term of distributive justice would probably best be utilized. Distributive justice deals with what is “fair” or “right” with respect to the allocation of goods in a society which, for our intents and purposes, would be health care (Phelps, 1987).

According to the Standard Encyclopedia of Philosophy (2007), principles of distributive justice are normative principles designed to guide the allocation of the benefits and burdens of economic activity. In the public health, the economic activity would be those funds designated specifically for the relief of health inequity seen in various populations. Taking the conversation away from “fairness” in terms of equal distribution of resources, to that of distributive justice more rightly shows the funding of activities whose purpose is to expressly deal with an unequal burden of disease and/or lower health status.

**Health Equity** — a situation in which, regardless of individual behavior, individuals have access to equal opportunities for positive health outcomes. Oftentimes, this term is used when a more appropriate term of “health inequity” is meant. According to the Center for Health Equity (2009) health inequities are a subset of health

inequalities or disparities involving circumstances that may be controlled by a policy, system, or institution so that the disparity is avoidable. In other words, health inequity is a situation in which, regardless of individual behavior, an individual would not have access to positive health outcomes than can be reasonably expected given their situation.

An example of health inequity would be an environment in which access to a high quality hospital or clinic is not available within a reasonable distance. Another example would be an environment in which access to high quality, healthy foods is not available within a reasonable distance. Examining the concept of health equity when evaluating public health programs or policies, the author proposes using the term health equity when explaining how on par health outcomes are across groups and health inequity when examining the differences between groups.

**Health Disparity** — a situation in which health outcomes are unequal and the divide can be made by factors such as race, socioeconomic status, or location (Carter-Pokras and Baquet, 2002). While we would expect to find differences in health outcomes amongst individuals – when these differences can be traced to an individual’s race, socioeconomic status, or location – we must begin to examine if this is an illogically occurring health disparity. For instance, obesity is seen in greater numbers for individuals, regardless of race, of lower socioeconomic status. Due to the fact that this is an illogical divide (as many individuals of varying socioeconomic status theoretically should have access to the same foods, health messages, doctors, etc.) The question that needs to be examined is “why” we find greater obesity in certain segments of the population, thereby uncovering a health disparity needing to be addressed. The author proposes that the health disparity be defined in terms of the measurable health issue rather than a general demographic term. Utilizing this health term will allow the intervention to be more easily evaluated for effectiveness and generalized to appropriate demographic populations.

**Underserved Populations** —generally “groups” that have less access to healthcare than their comparative numbers in the general population would expect. These groups often consist of: low-income individuals, uninsured persons, immigrants, racial and ethnic minorities, and the elderly. The author proposes using this term when the group can be easily defined and readily compared to a larger population. The author also proposes defining “underserved” in measurable terms so that health communication interventions can be evaluated on their effectiveness of closing this service gap.

**Healthcare Access** — the amount of opportunity a person has to access healthcare and other health needs (like prescription and over-the-counter medications). Healthcare access is not limited to having health care facilities in the area, but whether or not individuals can actually attain the services of those facilities. However, there are some situations where facilities are not within the reach of certain populations.

**Health Outcome** — the outcome one would expect for a given condition given proper health treatment (AcademyHealth, 2004). The reason this concept is often reviewed when looking at disparities in public health is because we often see health outcomes not expected for certain groups. We would not normally expect to see a difference in outcomes to health treatments of individuals statistically traced to socioeconomic status. However, differences in health are seen throughout the U. S. and that can be traced to socioeconomic status. Health outcome helps us to closely examine what is the “expected” health result versus what is the “observed” health result (O’Donnell, n.d.).

## Defining Populations

Another proposed area for making evaluations more understandable and useful for a variety of public health audiences is that of more defined populations. Often times broad populations are defined with one title including such groups as: minorities, women, and low socioeconomic status. The author proposes that it would be useful to be clear in terms of what individuals are included in the terms being used. When referring to “minority,” does this include all nonwhite individuals or specifically African-Americans and Hispanics? It is also important to determine specifically who is included in the population. Is a researcher dealing with all African-Americans or only those African-Americans that fall within a specific socioeconomic status? It is equally important to be clear on who is “not” included in the defined population as it is to be clear on those that will be examined.

One way of gaining consensus in population definitions would be the utilization of already established demographic groupings. Some well noted organizations with clearly defined demographic groupings include: the United States Census Bureau, the United Nations, and the U.S. State Department. Utilizing an already established demographic groupings chart will allow for a more cohesive understanding of the data being presented. This consensus is particularly useful when evaluating the results of public health campaigns for wider dissemination.

## Parameters

One thing the individual researcher must be conscious of in the area of health equity research is that of parameters. Many of our definitions deal with populations groups (i.e. minorities, low socioeconomic status, etc.). While defined populations have been common in research for hundreds of years, our demographic terms can encompass a wide range of individuals whose individual experiences vary widely. We can also enter situations in which individuals fall within several of our chosen populations, which can begin to hinder our analysis efforts. For instance, at what point (if any) would socioeconomic status play a larger role in health outcome than ethnic/racial status? We also encounter individuals who fall within our chosen populations on one factor (i.e. racial/ethnic status), but within our control group in another factor. This can lead us, again, to have

interpretation issues with our data. For instance, would an African-American with a multimillion dollar net worth have health outcomes more similar to the group labeled “minorities” or the group labeled “higher socioeconomic status?” What about a Caucasian male living well below the poverty line? When establishing our population groups for study, we want to be cognizant to set our parameters to clearly include those groups who are truly targeted for the public health intervention or health communication campaign message. The first benefit the setting of proper parameters would have is not diluting our groups to the point of covering up true impact of our campaigns (i.e. setting the parameter of low-income minorities as opposed to too broad minority category). Parameters allow us to focus our results so that those who wish to duplicate our success or avoid our failures can have a more defined scope from which to concentrate. With limited dollars available for public health interventions, scoping succinct groups will give us more efficient campaigns to produce and implement.

We have seen throughout the field of public health that very successful programs in one area can have considerably less success when trying to be implemented on a broader scale. Having more focused parameters will help organizations make better decisions on where programs may have the greatest impact.

## Conclusion

The goal of this paper was to help start the conversation on ways to operationalize and standardize terms when evaluating public health programs that focus on health equity/health disparity. The intent of this paper is not to set the standards to be applied across the field of public health, rather as a call for researchers to stringently apply the use of terms and parameters to their research. By having congruence of terms, published work can be more readily acted upon by others in the field of public health. Consistency of terminology allows limited dollars to be more efficiently utilized by not duplicating mistakes and also promotes better analysis of the data. Health communications is a field of public health that is increasing in size and impact, so having consensus on terms will do us all a great service. The more meaningful we make our terms in the health communications, the more widespread our work can be utilized, even outside of our field. In the past five to ten years, the importance of health communications to overall public health activities has become more evident and making our research available to the widest possible audience will ensure our most successful programs have the ability to be implemented on the widest possible and appropriate level. Having very well defined and meaningful terms will be a great start to this important process. Will there be risks to our field if there is a move to more consensus based terms of use in our research? Yes. The biggest reason is that many of these terms are “legacy” terms, meaning they have been used so often that can have meanings (although diverse) already associated with them. However, clearly defining the terms, thereby making them understandable to persons within and outside of health communications, can help to overcome this risk.

## Corresponding Author

Dr. Doresa Jennings works as a Health Communication Specialist/Issues Manager at CDC. She has a PhD in Communication Studies with research experience and interest in health communication, intercultural/inter-racial communication, and organizational change. Dr. Jennings can be reached at 404.498.6415 / AZV6@CDC.GOV.

## References

- AcademyHealth. (2004). Health Outcomes Core Library Project. The National Information Center on Health Services Research and Healthcare Technology, National Library of Medicine.
- Carter-Pokras, O., & Baquet, C. (2004). What is a health disparity? Public Health Reports, v. 117, (pp. 426-434).
- Hegtvedt, K. A., Markovsky, B. (1995), “Justice and Injustice”, in Cook, Karen S.; Fine, Gary Alan; House, James S., Sociological Perspectives on Social Psychology (1 ed.), Boston, MA: Allyn & Bacon, 1994, pp. 257-280.
- Konow, J. (2003): “Which is the fairest one of all?: A positive analysis of justice theories,” Journal of Economic Literature, vol. 41, no. 4, (pp. 1188-1239).
- Leventhal, G. S., Karuza, J., Fry, W. R. (1980), “Beyond Fairness: A Theory of Allocation Preferences”, in Mikula, Gerald, Justice and Social Interaction: Experimental and Theoretical Contributions from Psychological Research, New York, NY: Plenum, pp. 167-218.
- O'Donnell, O., van Doorslaer, E., Wagstaff, A., Lindelow, M. (n.d.) Analyzing Health Equity Using Household Survey Date: A guide to techniques and their implementation. World Bank Institute.
- Phelps, E. S. (1987): “Distributive Justice”, The New Palgrave: A Dictionary of Economics, v. 1, pp. 886-88.
- Silow-Carrol, S., Alteras, T., Stepnick, L. (2006). Patient-Centered Care for Underserved Populations: Definitions and Best Practices. The W. K. Kellogg Foundation.
- Tackling Health Inequities Through Public Health Practice: A handbook for action. (2006). Richard Hofrichter (Ed.). The National Association of County & City Health Officials and The Ingham County Health Department. Stanford Encyclopedia of Philosophy. (2007). <http://plato.stanford.edu/entries/justice-distributive/>. Accessed on March 20, 2009.
- The Center for Health Equity. (2009). <http://www.louisvilleky.gov/Health/equity/>. Accessed March 5, 2009.
- Thomas, S. B., Fine, M. J., Ibrahim, S. A. (2004). Health Disparities: The Importance of Culture and Health Communication. American Journal of Public Health 94/12 (pp. 2050)



# The Virtual Joint Information Center: A Technological Tool for Emergency Communication

Bret M. Atkins, M.A.

## Abstract

As audiences and information needs become more specific, so must the tools used to meet the needs of those audiences. One example is how government agencies and other response organizations create and utilize specific products and methods to share information with the news media. Another tool, used primarily during crises for information retrieval, processing, and release is the joint information center, or JIC. This paper presents information on how the current utilizations of JICs, frequently conducted within the confines of a physical or corporeal location, may be improved upon with the supplement of or replacement with an electronic method of operational communication called a virtual joint information center, or V-JIC.

## Introduction

As audiences and information needs become more specific, so must the tools used to meet the needs of those audiences. One example is how government agencies and other response organizations create and utilize specific products and methods to share information with the news media, such as the news release, the interview, and the news conference. These methods have long been used during no crisis times as well as during public health emergencies. Reporters have come to expect this manner of information flow and incorporate it into their news production procedures. Another tool, about three decades old and used primarily during crises, has been added for information retrieval, processing, and release – the joint information center, or JIC. This paper presents information on how the current utilizations of JICs, frequently conducted within the confines of a physical or corporeal location, may be improved upon with the supplement of or replacement with an electronic method of operational communication called a virtual joint information center, or V-JIC.

## Joint Information Center

The Incident Command System (ICS) describes a public information officer (PIO) as a crucial task position within the command staff, and describes a JIC as a useful tool for the PIO (U. S. Department of Homeland Security, 2004). ICS formed in the 1970s following devastating wildfires in California, and the JIC concept began “around the time of the eruption of Mount St. Helens” (AudienceCentral, 2007, para. 1). The volcano exploded in March 1980.

Academic research about the use of a JIC is quite sparse. Table 1 shows the number of articles written during the past twelve years found in academic databases using the terms “risk communication,” “crisis communication,” and “joint information center.” These terms are commonly used by governmental agencies practitioners who create the aforementioned news products regarding events in which their organizations are involved. The search used the EBSCO service for an inquiry within the databases shown. The parameters requested all peer-reviewed material from January 1997 to early 2009; the search was not limited to full-text results. While the search undoubtedly did not capture all articles, it does reflect the abundance of risk communication scholarship and the paucity of research on joint information centers.

A JIC is defined by the federal government as “a facility established to coordinate all incident-related public information activities. It is the central point of contact for all news media at the scene of the incident” (U. S. Department of Homeland Security, 2004, p. 37). JICs are where information is gathered, verified and used to produce news products, and released to the media and other stakeholders.

Term	Risk communication	Crisis communication	Joint information center
Number of articles containing term	2,094	731	1

*Databases queried were Academic Search Premier, Business Source Premier, CINAHL Plus with Full Text, Communication & Mass Media Complete, Education Research Complete, ERIC, Military & Government Collection, PsycARTICLES, PsycINFO, SocINDEX with Full Text.*

Other tasks accomplished in the JIC include: (a) monitoring news coverage to ensure accurate information is being disseminated and received properly, while correcting incorrect information about the emergency response that appears in the news media; (b) managing news conferences and press operations for disaster area tours; (c) providing basic facilities to assist the news media in disseminating information to the public and to credential media representatives; (d) providing all stakeholders directly or indirectly affected by the emergency with access to timely and accurate information about response, recovery, and mitigation activities and their limitations; and (e) ensuring government communication resources are managed effectively and duplication of effort by departments is minimized (U.S. Department of Homeland Security, 2005, p. 3).

## Corporeal Joint Information Center

Not surprisingly, communications personnel at JICs make use of relevant equipment such as computers, telephones, fax machines, and two-way radios. Despite the time-savings available when using these electronic tools, the corporeal nature of the JIC creates limitations of available space and response time, according to Marc Mullen, Vice President of PIER Systems, a provider of electronic-based V-JICs. The selection and preparation of the physical facility can cause significant delays in producing and releasing crucial information. There is yet to be any incident where people were ready for it; where they had the (JIC) room ready. Unless it's a dedicated communications center; then people still have to drive to it. The place for a V-JIC comes when you have to respond – when you get to any major or sudden event (M. Mullen, personal communication, April 10, 2007).

The V-JIC, as defined by the U. S. Department of Homeland Security, is an electronic substitute when a “physical co-location is not possible” (U. S. Department of Homeland Security, 2008, p. 72) and may include secure (password-protected) Web sites, e-mail, telephone conference calls, or two-way radio communication.

If providing information more rapidly is more likely to occur when using a V-JIC, why are there not more systems in place? Certainly cost is a factor in adopting any technology, but the reasons are likely more complex. There is an abundance of research on the adoption of new ideas or technologies called diffusion of innovations that may provide insight and avenues for disseminating V-JICs more broadly.

## Diffusion of Innovations

Diffusion of innovations is a stalwart model of how ideas, products, systems, and technologies are dispersed and accepted or rejected. Since its beginning more than 40 years ago, the more than 5,000 related research studies make it among the top social science frameworks developed (Haider & Kreps, 2004; Singhal, 2005). Its chief designer, the late Everett Rogers, defined diffusion as “the process in which an innovation is communicated through certain channels over time among the members of a social system” (Rogers, 1995, p. 5) and an innovation as “an idea, practice, or object that is perceived as new by an individual or other unit of adoption” (1995, p. 12). Rogers identified and typified groups by how quickly they adopt an innovation. Ranging from fastest adoption to slowest, the groups are innovators, early adopters, early majority adopters, late majority adopters, and laggards (McAnany, 1984).

Research is mixed regarding the adoption of Web-based tools – Prandelli and colleagues found only gradual use of Web-based collaborative tools (2006, p. 125) in their study of five manufacturing and retail industries. There is evidence to suggest the diffusion model is applicable to study the public sector (Frederickson, Johnson, & Wood, 2004), and more specific research on public health entities finds that various characteristics of the group itself factor

into how quickly it embraces an innovation (Rivera & Rogers, 2006). Not surprisingly, management is found to play a crucial role in adoption as well (Peansupap & Walker, 2006).

## Virtual Joint Information Center (V-JIC)

While technological limitations have until relatively recently confined the structure of a JIC to a physical location, advances in computer hardware and software, the Internet and access to it, and a rethinking of JICs and message production have enabled the inception of the electronic-only V-JIC.

The internet and the accompanying improvements in the capability of computer systems to create, distribute, and receive information have together created new methods of knowledge transfer and new opportunities for those wishing to utilize them. As organizations adopt more technology, the comfort level with technology increases, ideally followed by changes in administrative rules, and finally, changes in behavior.

But as Prandelli and colleagues discovered (2006, p. 125), the adoption rate is slower than technically feasible because of human and organizational delays and limitations. Using the federal government as an example, after computers and Internet connections made telecommuting (i.e., working from a remote location) technically feasible, legislation was enacted in 2000 to allow the practice, (Office of Personnel Management, n.d., p. 1) but nearly a decade later, the number of executive-branch federal employees telecommuting is still less than 8% (Office of Personnel Management, 2008, p. 2).

The lack of scholarly research about V-JICs in and of itself is not surprising. The concept is relatively new; the structure is temporary (used almost exclusively for infrequent crises), the number of users is small – most likely just a few hundreds of communications professionals, and a V-JIC is a “behind the scenes” tool, similar to an operational status board or e-mail.

By viewing the concept of V-JICs as another form of virtual community, similar to electronic forums and online social networks, however, more studies do surface. Hsiu-Fen (2006) found that trust in the structure of a virtual community and the organization operating it was positively linked to the amount of use by the community. Other studies found that electronic interaction and increased information sharing are linked (Sharpton & Jhaveri, 2006), online work within an electronic community structure can lead to improved work offline (Graff, 2006), and how the site is designed and who designs it may affect how well users can accomplish tasks on the site (Faiola & Matei, 2005).

Ideally, a V-JIC system should be able to allow staff to conduct all tasks they would be able to in a physical JIC. This would include gathering, confirming, and vetting information and using it to produce or distribute information products to response partners. To do these tasks, the V-JIC system must, at a minimum, contain a method of transmitting, receiving, and storing written products.



## *Examples of V-JIC systems*

One of the early commercial V-JIC systems, the Public Information Emergency Response or PIER Systems, was developed by Gerald Baron. Baron's public relations firm represented the company Olympic Pipeline in 1999 when a massive gasoline spill ignited and killed three people (Baron and Company, n.d.; McClary, 2003). PIER Systems was developed based on his experiences providing information during the emergency.

Preparing for a potential hazard triggered the development of a second V-JIC system. The Umatilla, Oregon facility of the federal Chemical Stockpile Emergency Preparedness Program (CSEPP) is one of several in the country with the mission to safely store, disarm, and destroy stockpiles of chemical weapons. The staff created an electronic status board and Smart Book (Umatilla County Emergency Management 2005; Umatilla Joint Information Center, 2007) with hyperlinks to information crucial to the agency and its stakeholders in the event of a chemical leak, spill, or explosion.

Third, Oregon's state health department has developed its own V-JIC platform. The system was designed for use by response partners, not the media or Internet public, and thus is password protected (Oregon Department of Human Services, 2007). A brief demonstration tour in early 2007 showed a robust site with varying levels of security (i.e., system administrators could limit access to only users responding to a specific incident) and easy-to-use features to post and retrieve information about an incident (C. Holmgren, personal conversation, February 16, 2007). The system has been used for exercises and real-world events, and serves as the central resource for vetted information, thus minimizing inconsistent messages (C. Holmgren, personal conversation, April 13, 2009).

The three previously mentioned systems are designed to be specifically crisis-oriented V-JICs. However, the Stargazer system, created by the nonprofit Stargazer Foundation, offers certain social contact applications free of charge to individuals, families, and small nonprofits (Stargazer Foundation, 2007). For government agencies and other entities that wish to utilize the JIC features of the Web-based communication system, a nominal fee is charged.

In addition, new social networking products and systems are on the forefront of Internet technology. Web sites such as Facebook, LinkedIn, and Ning are used by families, friends, and professional associates to share information (e.g., messages, images, files); these same functionalities are found on proprietary V-JIC systems.

A sixth system is perhaps the least costly and easiest to establish and adopt for agencies or organizations. It is not a discrete V-JIC, but the use of various electronic components such as the computer; Internet connectivity; e-mail; an intranet or Internet repository for files, such as Microsoft's SharePoint© system; an online, real-time, instant messaging program such as AOL Instant Messenger; and a telephone or two-way radio. For the purposes of this paper, this system will be referred to as a fractional V-JIC.

## *Case study of V-JICs*

One may better understand the various functions and usefulness of a V-JIC through an examination of their use. The following section describes events using the fractional V-JIC titled, "Gastrointestinal illness outbreak – Ohio – 2004."

In summer 2004, the Ohio Department of Health (ODH) along with staff from other local health departments in the state, the Ohio Environmental Protection Agency, and staff from the Centers for Disease Control and Prevention (CDC) assisted the Ottawa County Health Department in their investigation of 1,450 cases of gastrointestinal illnesses in visitors to and residents of South Bass Island, located in Lake Erie, just offshore from Port Clinton, Ohio.

At the time, this was the second-largest waterborne infectious disease outbreak in the nation. The investigation determined the likely cause to be widespread groundwater contamination due to failing septic systems, the particular geologic features of the island, and heavy use of water and septic systems because of large numbers of visitors during the height of the tourist season.

Staff from ODH's Office of Public Affairs activated a physical JIC in the Ottawa County Courthouse, about 2 miles from the county health department – the command center for the incident. At the JIC, the public communication efforts served to provide information to the media, residents, visitors on the island, elected officials, response partners, and other interested parties. The methods used combined typical features of a physical JIC (i.e., staff gathering at a single location to produce news products) with electronic elements (i.e., using existing office electronic methods to gather, confirm, use, share, and disseminate information). This configuration, without a specific V-JIC platform, fits the term fractional V-JIC.

The JIC was activated for eleven days and responded to more than 2,100 inquiries from media and those calling into the public information line. Because ODH had adequate staffing and technical capability to establish an information line call center at its headquarters, it was decided to conduct that portion of the public information operation there, rather than at or near the physical JIC (about a 2-hour drive away).

Updated information for the information line staff (and other response partners) was produced at the JIC and distributed by e-mail each morning. Later in the day, metrics about the number of calls received at the information line center were sent to the JIC and incorporated into other material, such as Web site updates, fact sheets, and activity reports.

Media monitoring is another typical function at a JIC. Because this outbreak received a great deal of media interest and inquiries, a robust monitoring operation was necessary. Rather than set up televisions and radios in or near the JIC, staff at ODH headquarters coordinated a multi-city effort to monitor the media. Nearly all TV news coverage came from two cities — Toledo to the west

and Cleveland to the east. The ODH media monitoring coordinator requested the public information officer (PIO) from each city to monitor the news coverage in their community and forward a written report via e-mail. The coordinator from ODH combined those reports with additional examples from news Web sites into a single daily report and sent that report via e-mail to the JIC.

In an effort to provide adequate information about the progress and process of the public health and environmental investigations into what was making people ill, information was posted on the ODH Web site, and links to the content were provided to response partners for linking from their sites. The news products generated included news releases, fact sheets, and at the conclusion, a series of summary reports from the various agencies involved in the event.

## Conclusion

Not surprisingly, the recommendation from any vendor producing a V-JIC software system is to purchase a V-JIC software system. More impartially speaking, however, several agencies small and large from the local to the federal level of government have bought or created their own V-JIC systems used for communication responses. The creation of a national advisory group would allow greater investigation into the current state of technology being used. The agencies involved should be those that typically have an active role in crisis response. This would include, but not be limited to, public health, emergency management, hospitals, law enforcement, and fire departments. The advisory group can also capture best practices from organizations utilizing a V-JIC system. The need for organizations to be able to respond actively with their own information quickly is crucial, and efforts to do so may be made more productive through the use of a virtual joint information center.

## Corresponding Author

Bret Atkins is a public information officer with the Ohio Department of Health. Mr. Atkins has written various crisis communications plans for the state and is the author of two joint information center exercises. He can be reached at: (614) 644-8562, [Bret.Atkins@odh.ohio.gov](mailto:Bret.Atkins@odh.ohio.gov)

## References

AudienceCentral. (2007). Glossary. Retrieved from <http://www.audiencecentral.com/external/?objectId=20450>

Baron and Company. (n.d.). Welcome. Retrieved from [http://baronpr.com/?page\\_id=6](http://baronpr.com/?page_id=6)

Centers for Disease Control and Prevention. (2007). What Is Epi Info? Retrieved from <http://www.cdc.gov/epiinfo/>

Faiola, A., & Matei, S. A. (2005). Cultural Cognitive Style and Web Design: Beyond a Behavioral Inquiry into Computer-Mediated Communication [Electronic Version].

*Journal of Computer-Mediated Communication*, 11, 375-394. Retrieved from Communication & Mass Media Complete.

Frederickson, H. G., Johnson, G. A., & Wood, C. (2004). The Changing Structure of American Cities: A Study of the Diffusion of Innovation [Electronic Version]. *Public Administration Review*, 64, 320-330. Retrieved from Business Source Premier.

Graff, M. (2006). The Importance of Online Community in Student Academic Performance [Electronic Version]. *Electronic Journal of e-Learning*, 4, 127-131. Retrieved from Education Research Complete.

Haider, M., & Kreps, G. L. (2004). Forty years of diffusion of innovations: Utility and value in public health [Electronic Version]. *Journal of Health Communication*, 9, 3-11. Retrieved from Academic Search Premier.

Hsiu-Fen, L. (2006). Understanding Behavioral Intention to Participate in Virtual Communities [Electronic Version]. *CyberPsychology & Behavior*, 9, 540-547. Retrieved from Academic Search Premier.

McAnany, E. G. (1984). The diffusion of innovation: why does it endure? [Electronic Version]. *Critical Studies in Mass Communication*, 1, 439-442. Retrieved from Academic Search Premier.

McClary, D. C. (2003). Olympic Pipe Line accident in Bellingham kills three youths on June 10, 1999. Retrieved from [http://www.historylink.org/essays/output.cfm?file\\_id=5468](http://www.historylink.org/essays/output.cfm?file_id=5468)

Oregon Department of Human Services. (2007). PIO Portal/Virtual JIC/PHEP Login Retrieved from [https://www.oregonhan.org/login/login.cfm?\\_page=piojic](https://www.oregonhan.org/login/login.cfm?_page=piojic)

Peansupap, V., & Walker, D. H. T. (2006). Innovation diffusion at the implementation stage of a construction project: a case study of information communication technology [Electronic Version]. *Construction Management & Economics*, 24, 321-332. Retrieved from Business Source Premier.

Prandelli, E., Verona, G., & Raccagni, D. (2006). Diffusion of Web-Based Product Innovation [Electronic Version]. *California Management Review*, 48, 109-135. Retrieved from Business Source Premier.

Rivera, M. A., & Rogers, E. M. (2006). Innovation Diffusion, Network Features, and Cultural Communication Variables [Electronic Version]. *Problems & Perspectives in Management*, 126-135. Retrieved from Business Source Premier.

Rogers, E. M. (1995). *Diffusion of Innovations*. New York: Simon & Schuster.

Samuelson, R. J. (2007). Long live the news business. *Newsweek*, 149, 40.

Sharpton, T. J., & Jhaveri, A. A. (2006). Leveraging the Knowledge of Our Peers: Online Communities Hold the Promise to Enhance Scientific Research [Electronic Version]. *PLoS Biology*, 4, e199. Retrieved from Academic Search Premier.

Singhal, A. (2005). Forum: The life and work of Everett Rogers - some personal reflections. *Journal of Health Communication*, 10, 285-288.

Stargazer Foundation. (2007). Full List of What's Here. Retrieved from <http://workplace.stargazer.org/lwp/workplace/whatshere-full>

U.S. Department of Homeland Security. (2004). *National Incident Management System*. Retrieved from [http://www.fema.gov/pdf/emergency/nims/nims\\_doc\\_full.pdf](http://www.fema.gov/pdf/emergency/nims/nims_doc_full.pdf)

U.S. Department of Homeland Security. (2005). Crisis Communications Planning: Establishing Joint Information Centers. Retrieved from <https://www.llis.dhs.gov>.

U.S. Department of Homeland Security. (n.d.). Welcome to the HSEEP Web site. Retrieved from <https://hseep.dhs.gov/>

U.S. Department of Justice. (2002). Crisis Information Management Software (CIMS): Feature Comparison Report. Retrieved from <http://www.ncjrs.gov/pdffiles1/nij/197065.pdf>

Umatilla County Emergency Management (2005). Oregon CSEPP: Chemical Stockpile Emergency Preparedness Program 2005 Annual report. Retrieved from [http://www.ucem.us/pressreleases/06Releases/2005\\_ORCSEPP\\_Annual\\_Report.pdf](http://www.ucem.us/pressreleases/06Releases/2005_ORCSEPP_Annual_Report.pdf)

Umatilla Joint Information Center. (2007). Smartbook. Retrieved from <http://www.csepp.net/jic/>



# Leveraging the Power of the Faith-based Community and its Critical Communication Role during Public Health Emergencies

*John P. Philbin, Ph.D., APR and Nichole M. Urban, MPH, CHES*

## Abstract

Faith-based leaders are trusted and can serve an integral role in delivering critical health information, especially during times when victims, responders, and observers may question the credibility of communication from other sources. Faith-based community leaders are key partners in preparing for, responding to, and recovering from disasters—because they are trusted. Considering the decline in public confidence in government and industrial institutions, public affairs officers should integrate risk communication principles and faith-based leaders into their strategic communication plans.

The New York State Department of Health (NYSDOH) conducted several risk communication workshops to establish and enhance relationships among faith communities. These workshops had the following purposes: (1) Train faith community and health department representatives in risk communication practices and principles; (2) Offer an opportunity for the two groups to discuss ways to collaborate on public health emergency preparedness and response; and (3) Provide an opportunity to network.

## Introduction

When communication is discussed in the context of health departments and other emergency services organizations, most often it is associated with interoperability challenges of the technology. However, there is a “human” element to communication that can have profound psychological, emotional, physiological, and behavioral consequences on how affected populations and observers prepare, respond, and recover from disasters.

A growing body of empirically-based research from risk communication reveals there are principles of risk communication that can enhance our ability to make more effective decisions, communicate more clearly, and be understood more easily. So, why aren’t we integrating them more into our public health emergency communication efforts?

As a science-based approach, risk communication research reveals that there are proven methodologies to improve the likelihood that critical information will be received by those who are involved in high stress, high concern or controversial situations. Risk communication principles may be successfully applied to create positive outcomes. For example, understanding that people process information in “chunks” according to the research, leaders can develop and organize communication in a manner that

improves the chances that messages will be received and accepted by recipients.

Additionally, communication during high stress situations demands attention to three principle attributes: compassion, conviction, and optimism.

## Important Role for Faith-Based Community Leaders

The New York State Department of Health (NYSDOH), in its continuing efforts to better prepare their response to emergency situations, has invested in risk communication workshops to establish and enhance relationships among faith communities. NYSDOH understands the communication challenges regarding public health preparedness are great; however, by leveraging the credibility, integrity, and trust enjoyed by faith-based leaders, NYSDOH is taking advantage of fundamental attributes that facilitate the delivery of emergency information to significant portions of our communities. Faith-based leaders are trusted and can serve an integral role in delivering critical health information, especially during times when disaster victims, first responders, and observers may question the credibility of communication emerging from non-faith-based sources.

In 2007, to aid in developing partnerships between health departments and their local faith communities, NYSDOH, with the Consortium for Risk and Crisis Communication, offered free risk communication workshops throughout the state. These workshops had the following purposes: (1) Train faith community and health department representatives in risk communication practices and principles; (2) Offer an opportunity for the two groups to discuss ways to collaborate on public health emergency preparedness and response; and (3) Provide an opportunity to network together.

More recently, NYSDOH continued this important work by conducting additional risk communication workshops throughout the state. There was an emphasis on mass-fatality messaging and acquiring feedback from participants on how to respond to a lack of capacity at medical facilities and inadequate medical equipment such as ventilators, which is likely to emerge as an issue during a pandemic. These workshops sought to improve participants’ risk communication skills and address the following psychosocial impacts of disasters, which included: (1) Risk and protective factors; (2) Stages of response and recovery; (3) Intervention strategies; (4) Individual and collective preparedness and recovery; and (5) Issues of special populations.

The workshops focused primarily on faith-based leaders; however, attendance was complemented with staff from local health departments, social work agencies, and non-governmental organizations (NGOs). The training centered on understanding best practices in risk and crisis communications, psychosocial principles and practices, and employing these techniques in high stress situations, especially given the high probability of mass-fatality that may accompany a public health emergency or disaster.

By using a science-based, critical body of knowledge that has enormous potential benefits to communities that will play important roles in response and recovery, NYSDOH is enabling communities that can serve vital communication facilitation roles in preparing for, responding to, and recovering from disasters.

### **Best Practices for Faith Leaders Communicating during Public Health Emergencies**

Most individuals who have experience in incident management or as first responders understand the imperative to establish pre-need relationships with others who will arrive in support of a disaster operation. What many experienced professionals in this environment do not fully understand or appreciate is how communication must change to account for the resulting stress. Risk communication principles can have immediate and long-term positive effects on our ability to prepare for, respond to, and recover from disasters. The empirical data from the research used in these workshops support this. The fact is that communication under normal circumstances is different than communication during times of stress. Disaster victims, as well as those who are responding, process information differently; therefore, it is important to communicate in a manner that will increase the likelihood that the information will be received and understood by recipients.

Workshop participants were nearly unanimous in their assessments and observations that the risk communication information they received during the eight-hour training was very valuable and they intended to employ the tools and techniques when they returned to their communities. The research suggests that the key components of early intervention with respect to mental health should focus on securing basic needs, providing psychological first aid, conducting needs assessments, monitoring the rescue and recovery environment, providing outreach and information, delivering technical assistance, consultation, and training, fostering resilience and recovery; conducting triage and referral, and providing treatment.

#### **The most frequently asked questions of faith leaders during a disaster or crisis**

- Why did God let this happen?
- Why me?
- Why not me?
- Is there a God?
- Has God abandoned us?
- Is God punishing us?
- How do I/we get through this?
- How do I/we know if God is listening?
- How can we forgive those who have done this?

Of considerable importance for the participants of these workshops, however, is the special role that faith leaders serve in assisting the communities affected by disasters (See Box “The Most Frequently Asked Questions of Faith Leaders during a Disaster or Crisis”).

Although there is research that reveals the “77 Most Frequently Questions Asked by Journalists During an Emergency or Crisis,” (Hyer & Covello, 2005) which can aid in preparing responses in advance of disasters, additional research would affirm and provide more frequently asked questions of faith leaders. Workshop participants believed there was significant value in preparing responses to these questions in advance based on risk communication principles.

### **Conclusion**

Faith-based community leaders can play an important role in preparing for, responding to, and recovering from disasters—because they are trusted. When combined with the decline in public confidence in institutions, such as the government and industry, public affairs officers should consider more formally integrating risk communication principles and faith-based leaders into their strategic communication plans.

### **Corresponding Authors**

Dr. John “Pat” Philbin recently served as FEMA’s Director of External Affairs and the Coast Guard’s Chief of Public Affairs. He is currently President of Strategic Communication Solutions, LLC and Senior Associate with PIER Systems, Inc. Dr. Philbin can be reached at (703) 819-0457 / Philbin.john@gmail.com.

Nichole M. Urban is a senior health education specialist and project manager with the Oak Ridge Institute for Science and Education. Ms. Urban can be reached at (865) 241-1321 / Nichole.Urban@orise.orau.gov.

### **References**

Hyer, Randall N., Covello, Vincent T. (2005) *Effective Media Communication During Public Health Emergencies*. Geneva, Switzerland: World Health Organization, pp. 2-3.



# Crisis and Emergency Risk Communication: Bandura's Social Cognitive Theory and Pandemic Influenza Response

Barbara Reynolds, PhD

## Abstract

Albert Bandura's social cognitive theory stresses the importance of observational learning and the concept of self-efficacy (Grohol, 2004). One's self-efficacy, or one's confidence in one's ability to perform, stems from four sources: personal physical and emotional states, mastery experiences, vicarious experiences, and social persuasion. Public health can apply social cognitive theory to help protect communities during a severe influenza pandemic. The effort to build or raise personal and group efficacy is worthwhile because a severe pandemic will touch nearly every person and community for an extended length of time. To save lives and the societal infrastructure, any advantage offered by social cognitive theory to ensure individuals and entire communities believe their use of NPI strategies are valuable and that they have the ability to take recommended actions is worthwhile. Knowledge alone is not enough; knowledge must be combined with self- and group efficacy for people and groups to engage in successful health behaviors. Social cognitive theory is foundational to the CDC's crisis and emergency risk communication (CERC) framework and should be considered when communicating about NPIs.

## Introduction

*Editor's Note: Since this paper was written and accepted for publication, the public health community has recognized a novel influenza type A/H1N1 virus as causing illness and death among humans. The novel H1N1 flu virus is being confirmed as causing illness among humans in nations around the globe, and The World Health Organization has moved to Phase 5 of the global pandemic plan. The CDC has cautioned that, while planning for the possibility that avian influenza H5N1 would emerge as a pandemic influenza strain, other influenza viruses with the potential to cause an influenza pandemic could emerge. With that understanding, the preparation for H5N1 or any potential pandemic virus is critically relevant today as community mitigation measures are being instituted and recommended.*

The world is preparing for the next pandemic of influenza (CDC, 2007). If the next pandemic is as severe as the 1918 pandemic, the Centers for Disease Control and Prevention (CDC) estimates that approximately 2 million Americans could die. Concern is heightened because the H5N1 avian influenza virus circulating now and causing deaths among humans and birds is highly virulent. The H5N1 virus does not yet meet the criteria to be declared a pandemic strain. For an influenza virus to qualify, it must be novel (i.e., the

human population has no immunity to it through earlier exposures), virulent, and easily transmitted from person to person. At present, the H5N1 virus is not easily transmitted from person to person (DHHS, 2008). A pandemic influenza vaccine can not be manufactured in pandemic quantities until the pandemic influenza strain emerges. This leaves public health officials with the quandary of how to protect people from the influenza virus during the early phase of a pandemic when vaccine and antivirals will be in extremely short supply. The answer at this time is the implementation of nonpharmaceutical interventions or NPIs (Bell, 2006; Stohr, 2005).

The NPIs currently under consideration require changes in individual and community behaviors. The goals of the NPI behaviors are to limit the spread of the pandemic, reduce illness and deaths, and lessen the impact on societal infrastructures such as reducing workplace absenteeism and numbers of hospitalizations. CDC has identified the following four pandemic mitigation interventions: isolation of ill people in their home or the hospital; voluntary home quarantine of non-ill family members for at least 4 days (i.e., two transmission periods) when a household member is presumed ill with pandemic influenza; dismissing students from school attendance and closing child care programs; and social distancing to reduce contact among adults (e.g., cancel large public gatherings and telecommute to work). Retrospective studies of behaviors by individuals and U.S. cities during the 1918 pandemic suggested that this approach would achieve the stated goals. For this strategy to be effective in a severe pandemic, individuals and communities would have to adopt these behaviors early once the virus arrived in their community and be willing to sustain them for possibly as long as twelve weeks. Therefore, for this plan to be a viable option, individuals and entire communities must believe the program is effective and that they can meet its requirements.

Albert Bandura's social cognitive theory may be an important psychological approach to public communication about NPI behaviors in a severe influenza pandemic. However, in relationship to the implementation of NPI strategies, the theory raises questions regarding cognitive aspects of learning, societal influences on individual behavior, individual and group efficacy, and the variability in behavioral responses for individuals when experiencing high emotional distress. This paper describes mechanisms of the social cognitive theory and suggests those most appropriate for use within the crisis and emergency risk communication framework as it relates to the use of NPIs in pandemic response.

## Cognitive Goal-Seeking, Social Cognitive Theory, and Efficacy

Social psychology uses approaches of inquiry from three disciplines: behaviorism, Gestalt, and cognitive psychology. Social psychologist Kurt Lewin described this interaction and espoused that there is a relationship between individual desires and situational opportunities (J. Feist & G.J. Feist, 2002).

### *Cognition and Goal-seeking*

Cognitive psychology has provided social psychologists important concepts to describe mental activity related to perceptions and learning (Solso, 2001). A broad area of cognitive psychological research which also can inform NPI implementation strategies is how people develop and then work to achieve goals. For example, Chartrand and Bargh (1996) (as reported in Moskowitz, 2005, p. 398) suggested that priming, or the implicit activation of goals, is possible and that the goal desire could be triggered in a future context after being primed in the preconscious. This concept suggests that before a pandemic arrives, health officials could engage in education and persuasive appeals to boost the public's ability to change their pandemic behaviors. Selecting goals and the persistence applied to reaching the goal depends on how appropriate the goal is in a given context (Moskowitz, 2005). For example, an inappropriate goal would be to have no contact with other people during a pandemic (i.e., eighteen to twenty-four months). There are, however, approach-related negative affects that can interfere with goal-seeking efforts (Carver & Scheier, 2005). When people fail and believe further effort is futile, their negative emotions (e.g., frustration, anger, sadness, and despondency) can be precursors of giving up.

### *Social Cognitive Theory*

People will not change unless they believe change is important and they have the confidence that they are able to change (Miller & Rollnick, 2002). However, there are mindsets such as pessimism and chronic self-doubt that can threaten confidence and thwart behavior change. Social psychologist Albert Bandura developed the social cognitive theory to explain social and individual influences on behavior and the degree of effort and persistence people will put forth in pursuing an objective, especially under difficulty (Bandura, 1997). Importantly, social cognitive theory recognizes human agency in that humans can intentionally make things happen. It also recognizes that personality is molded in part by one's environment. Social cognitive theory takes a step away from behaviorism by exploring personal influence within environmental forces and the application of forethought. In other words, "people set goals for themselves, anticipate the likely consequences of prospective action, and select and create courses of action likely to produce desired outcomes and avoid detrimental ones" (Bandura, 2001b, p. 7). A hallmark of social cognitive theory is the recognition of human plasticity or functional consciousness and the purposive use of information.

### *Self-efficacy*

Central to social cognitive theory is the concept of self-efficacy, or one's belief that one can execute a behavior that will produce a desired outcome (Bandura, 2001a). Self-efficacy influences what actions people attempt along with the degree of effort they put forth, the amount of time they will invest, and their persistence when faced with setbacks. People with high self-efficacy will choose more difficult tasks and put forth more time and effort in the face of obstacles. Efficacy is about confidence, not outcome expectations (Bandura, 1997). In fact, even in the face of disconfirming evidence, once a person feels confident about their ability to perform a task, their confidence level tends to be stable (Carver & Scheier, 2005). In contrast, people with low self-efficacy do not believe they are capable of consequential behavior. High self-efficacy predicts higher achievement, better health, and greater socialization (Schwarzer, 1998). There are four main sources of personal efficacy: physical and emotional states, observational learning, mastery experiences, and social persuasion. Within all four sources, the individual will cognitively process information about oneself and the environment. In studies related to positive health behaviors, Rimal (2001) found that knowledge combined with self-efficacy predicted successful behavior. However, knowledge of the desired behavior alone was not enough to predict successful behavior.

### *Physical and emotional states*

Physical and emotional states influence efficacy. Typically, strong emotions such as great stress, severe anxiety, and intense fear will lower performance. Interestingly, people may increase performance if they understand the fearful emotional state is realistic for the context. For example, a combat soldier facing a lethal enemy chemical attack may feel intense fear but still don a protective mask faster than when feeling less anxious during a non-lethal training attack. Fear and anxiety are two separate emotions (Craig, Brown, & Baum, 2000). Fear is a realistic, adaptive, and time-limited response that is usually not anticipated, where as anxiety is generally less adaptive, not-time specific, anticipated, and less realistic. Nonetheless, they both are alert signals that warn of danger. Fear triggers fight or flight. In contrast, anxiety primes fight or flight but does not engage it. The less agency or control a person perceives they have in a situation, the more anxious they may feel and their performance will suffer. Negative self-beliefs generate worry, avoidance goals, and negative emotion which can lead to self-handicapping and ever increasing anxiety (Zeidner & Matthews, 2005). The fight or flight response can be debilitated by chronic anxiety and increasing danger to self and others if performance declines.

### *Mastery experiences.*

Mastery experiences are the most influential of the four sources of self-efficacy (Bandura, 1997). Generally, a past successful performance raises self-efficacy: "I skied a black diamond before so I can do it again." Past failures typically lower self-efficacy: "I wiped out on the black diamond

so I can't ski that run." However, there are six aspects of mastery experience that correlate with those general rules: the more difficult the task, the more a successful experience will raise self-efficacy; tasks successfully done alone raise self-efficacy higher than if one had help; self-efficacy is lowered more if failure comes after having put forth one's best effort; failure during strong emotional states is not as debilitating to self-efficacy; failure before mastering a task is more detrimental to self-efficacy; and, after mastery, an occasional failure is not as detrimental to self-efficacy. Importantly, failures may be task specific and not affect general self-efficacy (Smith, Kass, Rotunda, & Schneider, 2006). Smith et al. found in their experiment, which induced failure in a group (i.e., presented unsolvable anagrams), failure significantly lowered task-specific efficacy compared with the control group, but the failed group maintained their general self-efficacy in comparison with the control group. Bandura (1997) suggested that efficacy expectations involve generality (i.e., some experiences are generalized and others are limited to a task), strength (i.e., one persists if expectations of mastery are strong), and magnitude (i.e., level of task difficulty). However, self-efficacy is for the most part task specific.

#### *Observational learning.*

While not as influential as mastery experiences, observational learning or social modeling is a source of self-efficacy. Most people learn through observation and not experience—which could be laborious at best and harmful at worst. Observational learning depends on whether one is attuned to the observed behavior, the degree of arousal in the observer, the ability for the person to retain what he or she has observed, and one's degree of motivation to learn (Rimal, 2001). When an individual observes a person of equal ability achieve success, the individual's self-efficacy goes up; but, it will go down if they observe the person failing. For example, if a peer fails his statistical exam, the observing individual's self-efficacy could be lowered. People perceived as dissimilar will not affect self-efficacy. Of note, people in adverse situations can model prosocial behavior to help others succeed. "Seeing people in similar circumstances succeed by perseverant effort in the face of difficulties raises observers' beliefs in their personal and collective efficacy" (Bandura, 2003, p. 171). Efficacy beliefs influence resilience to adversity and the amount of stress or depression people may feel in coping with highly demanding environments. Self-efficacy beliefs, including empathetic and social self-efficacy beliefs, have a pivotal role in prosocial self-regulating behaviors. People will adopt an observed behavior if they value the results and if the model is perceived as similar to them and admired. This is often reflected in the influence of television commercials.

#### *Social persuasion.*

Although social persuasion is not a strong source of individual or collective efficacy, research does show that efficacy can be raised or lowered through persuasion (Bandura, 1997). In response to disease outbreaks or major disasters, Hall et al. (2003) noted that effective risk communication to the public can reduce negative

psychological responses. However, for persuasion to occur, the individual must believe the person and the source are credible, and the people being persuaded must be able to carry out the activity. For example, someone in the line of a tornado can not be persuaded to "go to the basement" if the person lives in a mobile home without a basement. The persuader's status and authority can increase the likelihood that they can raise specific task efficacy in others. In addition, persuasion is more likely to work if it's combined with past successful mastery experiences related to the current desired behavior. For example, people can be more easily persuaded by the county emergency manager to evacuate before a hurricane if they had done so successfully in the past. A cautionary note arises about persuasion in high stress or fear-inducing situations. While demand/suggestion is effective in less fearful situations, because the conditioned fear response can be so strong, persuasion will produce only weak and temporary effects if individuals are highly fearful (Bandura, 2003).

#### *Group efficacy*

Social cognitive theory also explores collective or group agency in that people can share a "belief in their collective power to produce desired results" (Bandura, 2001a, p. 14). The collective belief that the group can be successful defines group potency (Hecht, Allen, Klammer, & Kelly, 2002). People often pool their resources, knowledge, and mutual support to solve problems. Hecht et al. found a "strong positive relation between potency and performance" (p. 149). This was particularly important when the group faced complex tasks that required the efforts of every group member. Also, improving group performance may be better realized through promoting high group efficacy more so than by attaining high group goal commitment.

#### *Self-efficacy, culture, gender, and age*

The concept of efficacy among diverse cultures is supported by cross-cultural research (Bandura, 2001a; Lindley, 2006; Schwarzer, 1998). Efficacy is better expressed when systems for success are oriented to culturally supported social arrangements. For example, people acculturated to be individualistic in their efficacy beliefs will feel most efficacious in individually oriented systems. There are differences in levels of self-efficacy among ethnic groups. Euro-Americans were found to maintain higher self-efficacy in the face of career-related barriers than did ethnic minorities (Lindley, 2006). Interestingly, persuasion was as important as performance experiences in predicting math self-efficacy among African-American students, suggesting a deficit in positive social persuasion in this domain. Socioeconomic status also influences personal efficacy (Fernandez-Ballesteros, Diez-Nicolas, Caprara, Barbaranelli, & Bandura, 2002). Those with socioeconomic advantages and, therefore, more resources and access to support structures are likely to have greater self-efficacy. The advantaged are also more likely to exhibit collective social efficacy. In contrast, the economically disadvantaged, including entire neighborhoods, may exhibit learned helplessness resulting in deficits in motivation and cognitive processes such as pessimism (Uomoto,



1986). They may be more depressed, anxious, and hostile. Helplessness evolves from prior experiences and lack of perceived control. Ohmer and Beck (2006) found that in poor communities greater participation in neighborhood organizations increased organizational collective efficacy but still did not increase neighborhood collective efficacy.

In addition to culture and socioeconomic status, gender and age influence personal efficacy (Fernandez-Ballesteros et al., 2002). Men are more likely than women to believe they can solve social problems such as terrorism and economic crises. Also, younger people have greater efficacy than older people related to solving social problems. Women are equally confident in their ability to manage life circumstances such as work, health, and family relationships. For task-specific self-efficacy, men have an advantage in areas where they have more experience. For example, in math-related tasks, women's self-efficacy was raised to the level of men's self-efficacy after specific success experiences with math (Lindley, 2006). Women's self-efficacy was affected more than men from both success and failure experiences. Therefore, an individual's task-specific efficacy may depend on the degree of experience in a particular domain, which may be limited because of different socialized life experiences.

There are also cultural differences in the inclination to behave prosocially (Caprara & Steca, 2005). Bandura (2001a) warned that changes in society (e.g., complex technologies and social fragmentation) may undermine collective efficacy. "Pluralism is taking the form of militant factionalism . . . thus [societies] are becoming more diverse and harder to unite around a national vision or purpose" (p. 18).

## **Social Cognitive Theory Applied to a Pandemic Public Health Mitigation Strategy Using CERC**

Social cognitive theory combines social context and human agency to explain and predict individual and group behavior. Pandemic influenza presents a threatening situational context for people everywhere. People fear and avoid threatening situations if they assess their coping skills as inadequate (Carver & Scheier, 2005). This suggests that people may be susceptible to maladaptive behaviors to compensate for their perceived lack of control and inadequate coping skills during a pandemic. Therefore, an effective pandemic influenza communication strategy requires careful consideration of the threatening context of pandemics and the psychological repercussions of an ill-prepared public. After all, enacting the four NPI mitigation behaviors can be difficult.

High self-efficacy is protective and has been shown to increase people's chances of survival during disasters (Hall et al., 2003; Reissman et al., 2004). Self-efficacy is a hallmark of social cognitive theory and has four recognized sources: physical and emotional states, mastery experiences, observational learning, and social persuasion. Health officials offer four nonpharmaceutical mitigation behaviors that individuals and communities are expected

to take to reduce the burden of the pandemic. These interventions can be explored in relation to the four sources of self-efficacy. An important question is whether self-efficacy can be raised among people to improve adherence to the behaviors, and which of the four sources may be most effective for each pandemic influenza mitigation behavior or NPI.

### *Physical and Emotional States*

Anxiety lowers performance which can lower self-efficacy. Uncertainty provokes anxiety (Seeger et al., 2003) and a pandemic will be fraught with uncertainty. Therefore, officials should attempt to reduce anxiety when possible. Giving people things to do in a crisis that restores their sense of control reduces anxiety (Reissman et al., 2004; Sandman & Lanard, 2004). The challenge is to ensure that people have the ability to take the recommended steps. Therefore, officials must explore potential societal and individual barriers to success and remove them when possible. Officials should then compile those steps that are more universally possible and ask people to do them first so they gain mastery experiences before asking them to take more difficult steps. For example, ask them to check on their employer's sick-leave policy for a pandemic before asking them to plan to stay home 4 days each time a member of the household becomes ill. To reduce anxiety, people should be told early in planning what will be expected of them (Aspinwall, 2005). Emotional states should be considered for all four NPIs because the situational context is so frightening. Likely, anxiety would be most disruptive for efficacy beliefs about NPIs involving extended child care and quarantine because of the logistical challenges.

### *Mastery Experiences*

The most reliable road to task-specific self-efficacy is mastery experiences (Bandura, 1997). The NPIs that can be practiced in advance in incremental steps should be. For example, communities who would be expected to dismiss students from school for 12 weeks could practice during shorter durations how to maintain studies for students outside the classroom (e.g., homework assignments posted on the Internet or by automated calls to homes). While mass isolation can't be practiced effectively in advance, voluntary home quarantine, school dismissals, and adult social distancing (e.g., increased telecommuting in the workplace) could be. Mastery experiences before the pandemic would be useful to raise efficacy around school and daycare dismissals, voluntary quarantine, and adult social distancing. Mastery would be important in raising efficacy for all four NPIs at the start of the pandemic. However, public campaigns must ensure that people, including the vulnerable, can master incremental steps. Of the four sources to raise self-efficacy among people in high emotional distress, mastery experience would be most effective because it is the most consistent of the sources, and action steps restore control and reduce situational anxiety (Bandura, 1997; Smith et al., 2006).

### *Observational Learning*

An important source of observational learning would be to share evidence and tell stories about how the NPIs, enacted early in the outbreak by communities, saved lives during the 1918 pandemic. In addition, some individuals and communities will plan early on how to employ NPIs in a pandemic. Their successes should be collected and widely shared so people see how others are overcoming barriers. Because peer success raises self-efficacy, it is important that examples used are representative of diverse groups, including those populations that may be most vulnerable (e.g., those in poor communities). During the pandemic, admired community members can model the appropriate behaviors (e.g., staying home from work if a family member is ill). Observational learning would be useful during the pre-pandemic phase to reinforce the demonstrable NPIs. During a pandemic, observational learning would be most helpful for voluntary quarantine, school dismissals, and adult social distancing behaviors because these are more public behaviors where modeling of the behavior could be acknowledged. Observational learning would be less useful for the NPI of isolating the ill because it is a private health-care behavior.

### *Social Persuasion*

Social persuasion is a weak efficacy source and the weakest source to help raise self-efficacy related to NPIs, especially if people are fearful. If persuasion is used, the demand/suggestion must come from a credible source and source credibility may vary among diverse groups. Of note, most national public health campaigns rely almost solely on social persuasion to change behavior (Hall et al., 2003). This strategy should be reexamined. However, Bandura (1997) noted that sources of self-efficacy can be combined, so social persuasion should not be completely abandoned and instead added to other sources. After all, people differ in their efficacy expectations despite experiencing the same mastery experiences, suggesting a variability in cognitive processing and multiple determinants of self-efficacy (Wheeler, 2005).

Because NPI mitigation behaviors involve community-level actions, group efficacy is also important and efforts to raise efficacy related to NPI behaviors should also include community organizations. There is much variability in efficacy levels for diverse groups and communities (Walsh, 2006). Officials should assess community efficacy and put forth more effort in communities that may have the lowest levels of group efficacy, such as poor neighborhoods. In addition, men and women enjoy high self-efficacy in different domains. Officials should engage both men and women in the community to reinforce efficacy related to all four NPI behaviors. For example, women may have higher efficacy in relationship to NPIs that occur in the home (e.g., voluntary quarantine) while men may have higher efficacy related to social change such as canceling large public gatherings. However, social fragmentation may make any appeals for NPIs from the national level less effective. Therefore, the national plan should be tailored to be implemented at the community level and should recognize

diverse groups and their unique barriers to building efficacy and the ability to enact the NPIs.

### **Crisis and Emergency Risk Communication and Social Cognitive Theory**

An open and empathetic communication style that engenders the population's trust is the most effective communication style when a response official is attempting to galvanize the population to take a positive action or refrain from a harmful act during a crisis (Seeger et al., 2003; Wray & Jupka, 2004). To respond to communication failures during public health emergencies including the introduction of West Nile in the United States and the anthrax incident of 2001, CDC developed and adopted the integrative model of crisis and emergency risk communication (CERC) (Reynolds et al., 2002). Seeger et al. (2008) noted that CDC, after these failures, believed that risk communication alone could not provide the necessary communication approach for major public health crises. As noted by Seeger and Reynolds (2008), society today faces "threats that are dynamic, global, and becoming increasingly prominent. . . . A successful component of successful management [of these threats] is a more sophisticated, dynamic, and comprehensive approach to communication (p. 18).

The CERC model, based on experiential understanding and selected theories, offers a phased approach to planning and response, and encompasses the urgency of disaster communication with the need to communicate risks and benefits to stakeholders and the public (Reynolds et al., 2002; Reynolds & Seeger, 2005; Veil, Reynolds, Sellnow & Seeger, 2008). Reynolds et al. (2002) defined CERC as: . . . the effort by concerned experts to provide information to allow an individual, stakeholder, or an entire community to make the best possible decisions about their well-being within nearly impossible time constraints and help people ultimately to accept the imperfect nature of choices during the crisis (p. 6).

The CERC model emphasizes a participatory approach to communication and considers the social, psychological, and physical nature of the crisis context and proposes how to reduce harm to individuals and communities through communication. By focusing on the participatory nature of a crisis and encouraging action to aid in understanding, CERC also invoked the theories of sense making and cognitive learning. In addition, CERC offers the following six guiding principles for institutions or groups with official crisis response roles (Reynolds et al., 2002; Reynolds, 2004; Reynolds, 2006):

1. Be first. If the information is yours to provide by organizational authority—do so as soon as possible. If you can't—then explain how you are working to get it.
2. Be right. Give facts in increments. Tell people what you know when you know it, tell them what you don't know, and tell them if you will know relevant information later.

3. Be credible. Tell the truth. Do not withhold to avoid embarrassment or the possible “panic” that rarely happens. Uncertainty is worse than not knowing—rumors are more damaging than hard truths.
4. Express empathy. Acknowledge in words what people are feeling—it builds trust.
5. Promote action. Give people relevant things to do. It calms anxiety and helps restore order.
6. Show respect. Explain and empower decision making even when troublesome decisions must be communicated.

Seeger, Reynolds, and Sellnow (2008) noted CERC’s success in identifying preparedness and response activities for pandemic influenza and noted, “another area of success for the CERC model is its comprehensive view of risk and crisis. . . [and] addressing the complexity of audiences in risk and crisis situations” (p. 505), including often overlooked aspects such as empathy, self-efficacy, and uncertainty-reduction. While each of the six basic principles makes a critical contribution to successful communication to the public in a crisis, the principle to promote action is especially important when considering the need for the public to engage in non-pharmaceutical interventions during a pandemic. While CERC extols the value of promoting action, it is the social cognitive theory that gives communication professionals the elements to promote action in the most efficacious way for individuals and communities. How self-efficacy is developed and strengthened is a necessary step in ensuring that calls to action are more likely to be judged actionable by an anxious population. Each NPI should be matched to the appropriate ways to strengthened efficacy and selected based on contextual awareness of the population’s predispositions, level of fear, and resources.

## Conclusion

Bandura has asserted that self-efficacy is a unifying mechanism that explains common pathways to adaptive coping behaviors (1997). Since Bandura proposed self-efficacy and social learning theory in 1977, a body of work has reinforced their utility in understanding behavior change, especially as it relates to approach-avoidance. Public health communication professionals who incorporate CERC principles in their messaging have a means to ensure they are applying social cognitive theory effectively to help protect communities during a severe influenza pandemic. The effort to build or raise personal and group efficacy is worthwhile because a severe pandemic will touch every person and community at some level for an extended length of time. Any advantage offered by social cognitive theory and CERC to ensure individuals and entire communities believe recommended NPI strategies are effective and that they can take recommended actions is merited because they may save lives. Knowledge alone is not enough: knowledge must be combined with self- and group efficacy for people and groups to engage in successful health behaviors (Rimal, 2001).

## Corresponding Author

At CDC since 1991, Dr. Reynolds’ communication expertise has been used in the planning or response to pandemic influenza, vaccine safety, emerging disease outbreaks and bioterrorism. Internationally, she has acted as a crisis communication consultant on health issues for France, Hong Kong, Australia, Canada, former Soviet Union nations, NATO and the World Health Organization.

Dr. Reynolds is the author of the 2002 book *Crisis and Emergency Risk Communication* and CDC’s Crisis and Emergency Risk Communication course, which is now taught in universities and other settings nationwide and internationally. In 2004, she launched a version of the Crisis and Emergency Risk Communication course for leaders. Her research and writings are focused on emergency risk communication best practices, integrating models of communication for public health, and building community hardiness in the face of disaster. In the past, Dr. Reynolds served as a senior press officer specializing in infectious diseases and vaccine safety issues, working with national and international investigative and science reporters. She is also an adjunct assistant professor at Tulane University.

Dr. Reynolds can be reached at 404.639.0575 / [breynolds@cdc.gov](mailto:breynolds@cdc.gov)

## References

- American Red Cross (2004). *Terrorism—preparing for the unexpected*. Retrieved April 17, 2007, from [http://www.redcross.org/services/disaster/0,1082,0\\_589\\_00.html](http://www.redcross.org/services/disaster/0,1082,0_589_00.html).
- American Educational Research Association, American Psychological Association, & National Council on Measurement Education. (1999). *Standards for educational and psychological testing*. Washington, D.C.: American Educational Research Association.
- American Psychological Association, (2002). *Ethical principles of psychologists and code of conduct*. Retrieved April 27, 2007, from <http://www.apa.org/ethics/code2002.html>.
- Anderson, C., & Galinsky, A.D. (2006). Power, optimism, and risk-taking. *European Journal of Social Psychology*, 36, 511-536.
- Aspinwall, L.G. (2005). The psychology of future-oriented thinking: From achievement to proactive coping, adaptation, and aging. *Motivation and Emotion*, 29(4), 203-235.
- Azar, B. (n.d.) *Be careful of how you define intelligence: Robert Sternberg of Yale explores the cultural underpinnings of intelligence*. Retrieved April 18, 2007, from <http://www.psych.utoronto.ca/~reingold/courses/intelligence/cache/define.html>.

- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: Freeman.
- Bandura, A. (2001a). Social cognitive theory: An agentic perspective. *Annual Review of Psychology*, 52, 1-26.
- Bandura, A. (2001b). Social cognitive theory of mass communication. In J. Bryant, & D. Zillman (Eds.). *Media effects: Advances in theory and research* (2nd ed., pp.121-153). Hillsdale, NJ: Lawrence Erlbaum.
- Bandura, A. (2002a). Selective moral disengagement in the exercise of moral agency. *Journal of Moral Education*, 31(2), 101-119.
- Bandura, A. (2002b). Social cognitive theory in cultural context. *Applied Psychology: An International Review*, 51(2), 269-290.
- Bandura, A. (2003). On the psychosocial impact and mechanisms of spiritual modeling. *The International Journal for the Psychology of Religion*, 13(3), 167-173.
- Bandura, A. (2005). The primacy of self-regulation in health promotion. *Applied Psychology: An International Review*, 54(2), 245-254.
- Bandura, A., Caprara, G.V., Barbaranelli, C., Gerbino, M., & Pastorelli, C. (2003). Role of affective self regulatory efficacy in diverse sphere of psychosocial functioning. *Child Development*, 74(3), 769-782.
- Bell, D. M. (2006). Non-pharmaceutical interventions for pandemic influenza, national and community measures. *Journal of Emerging Infectious Diseases*, 12(1), 88-94
- Benjamin, G., Clarke, E., Day, T., & Hamburg, M. (2003). Leading during times of trouble: A roundtable discussion of recent terror events. *Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science*, 1(2), 67-75.
- Bonanno, G.A. (2004). Loss, trauma, and human resilience: Have we underestimated the human capacity to thrive after extremely aversive events? *American Psychologist*, 59(1), 20-28.
- Brashers, D.E. (2001). Communication and uncertainty management. *Journal of Communications*, 51(3), 477-497.
- Broderick, P.C. & Blewitt, P. (2003). *The life span: human development for helping professionals*. Upper Saddle River, NJ: Merrill Prentice Hall.
- Caprara, G.V., & Steca, P. (2005). Self-efficacy beliefs as determinants of prosocial behavior conducive to life satisfaction across ages. *Journal of Social and Clinical Psychology*, 24(2), 191-217.
- Caprara, G.V., & Steca, P. (2007). Prosocial agency: The contribution of values and self-efficacy beliefs to prosocial behavior across ages. *Journal of Social and Clinical Psychology*, 26(2), 218-239.
- Carver, C.S., & Scheier, M.F. (2005). Engagement, disengagement, coping, and catastrophe. In A.J. Elliot & C.S. Dweck (Eds.). *Handbook of competence and motivation* (pp. 527-547). New York: The Guilford Press.
- Centers for Disease Control and Prevention. (2004). *Crisis and emergency-risk communication: By leaders for leaders* [DVD-2]. Atlanta, GA: Author.
- Centers for Disease Control and Prevention. (2006). *Bioterrorism overview*. Retrieved April 30, 2007 from <http://www.bt.cdc.gov/bioterrorism/>.
- Centers for Disease Control and Prevention. (2007). Interim pre-pandemic planning guidance: Community strategy for pandemic influenza mitigation in the United States. Atlanta, GA: Author.
- Chess, C., Calia, J., & O'Neill, K.M. (2004). Communication triage: An anthrax case study. *Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science*, 2(2), 106-111.
- Chlopan, B.E., McCain, M.L., Carbonell, J.L., & Hagen, R.L. (1985). Empathy: Review of available measures. *Journal of Personality and Social Psychology*, 48(3), 635-653.
- Clarke, C.E., & Chess, C. (2006). False alarms, real challenges: One university's communication response to the 2001 anthrax crisis. *Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science*, 4(1), 74-83.
- Cohen, R.J., & Swerdlik, M.E. (2002). *Psychological testing and assessment: An introduction to tests and measurement* (5<sup>th</sup> ed.). New York: McGraw-Hill Companies, Inc.
- Cooper, L. (1932). *The rhetoric of Aristotle*. Englewood Cliffs, NH: Prentice Hall, Inc.
- Craig, K.J., Brown, K.J., & Baum, A. (2000). *Environmental factors in the etiology of anxiety*. Retrieved July 23, 2006, from <http://www/acnp.org/g4/GN401000127/CH125.html>.
- DiGiovanni, C., Conley, J., Chiu, S., & Zaborski, J. (2004). Factors influencing compliance with quarantine in Toronto during the 2003 SARS outbreak. *Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science*, 2(4), 265-272.
- Eisenman, D.P., Wold, C., Setodji, C., Hickey, S., Lee, B., & Stein, B.D. (2004). Will public health's response to terrorism be fair? Racial/ethnic variations in perceived fairness during a bioterrorist event. *Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science*, 2(3), 146-156.

- Fernandez-Ballesteros, R., Diez-Nicolas, J., Caprara, G.V., Barbaranelli, C., & Bandura, A. (2002). Determinants and structural relation of personal efficacy to collective efficacy. *Applied Psychology: An International Review*, 51(1), 107-125.
- Feist J. & Feist, G.J. (2002). *Theories of personality* (5<sup>th</sup> ed.). Boston: McGraw-Hill.
- Fischer, H.W. (1998). *Response to disaster: Fact, versus fiction & its perpetuation*. New York: University Press of America.
- Fischhoff, B., Gonzalez, R.M., Small, D.A., & Lerner, J.S. (2003). Evaluating the success of terror risk communication. *Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science*, 1(4), 255-258.
- Glanz, K., Rimer, B.K., & Lewis, F.M. (2002). *Health behavior and health education: Theory, research and practice*. San Francisco: Wiley & Sons.
- Guerin, B. (2003). Language use as social strategy: A review and an analytic framework for the social sciences. *Review of General Psychology*, 7(3), 251-298.
- Hall, M.J., Norwood, A.E., Ursano, R.J., & Fullerton, C.S. (2003). The psychological impacts of bioterrorism. *Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science*, 1(2), 139-144.
- Hart, R.P., & Burks, D.M. (1972). Rhetorical sensitivity and social interaction. *Speech Monograph*, 39(2), 75-91.
- Hart, R.P., Carlson, R.E., & Eadie, W.F. (1980). Attitudes toward communication and the assessment of rhetorical sensitivity. *Communication Monographs*, 47, 3-22.
- Hecht, T.D., Allen, N.J., Klammer, J.D., & Kelly, E.C. (2002). Group beliefs, ability, and performance: The potency of group potency. *Group Dynamics, Theory, Research, and Practice*, 6(2), 143-152.
- Hesselbein, F. (Fall, 2002). Crisis Management: A leadership imperative. *Leader to Leader*, 26. Retrieved August 13, 2004, from <http://www.121li.org/leaderbooks/121/fall2002/fh.html>.
- Hidi, S., & Renninger, K.A. (2006). The four-phase model of interest development. *Educational Psychologist*, 41(2), 111-127.
- Hill, D. (2003). Why they buy. *Across the Board*, 40(6), 27-33.
- Houser-Marko, L., & Sheldon, K.M. (2006). Motivating behavioral persistence: The self-as-doer construct. *Personality and Social Psychology Bulletin*, 32(8), 1037-1049.
- Hoyt, C.L., Murphy, S.E., Halverson, S.K., & Watson, C.B. (2003). Group leadership: Efficacy and effectiveness. *Group Dynamics: Theory, Research, and Practice*, 7(4), 259-274.
- Hunt, M. (1994). *The story of psychology*. New York: Anchor Books.
- Johnson, R. B. (1997). Examining the validity structure of qualitative research. *Education*, 118(2), 282 -292.
- Joung, W., Hesketh, B., & Neal, A. (2006). Using “war stories” to train for adaptive performance: Is it better to learn from error or success? *Applied Psychology: An International Review*, 55(2), 282-302.
- Kavanaugh, A.L., Reese, D.D., Carroll, J.M, & Rosson, M.B. (2005). Weak ties in networked communities. *The Information Society*, 21, 119-131.
- Landy, F.J., & Conte, J.M. (2004). *Work in the 21<sup>st</sup> century: An introduction to industrial and organizational psychology*. New York: McGraw-Hill.
- Leavitt, J.W. (2003). Public resistance or cooperation? A tale of smallpox in two cities. *Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science*, 1(3), 185-192.
- Leedy, P.D., & Ormrod, J.E. (2005). *Practical research: Planning and design* (8<sup>th</sup> ed). Upper Saddle River, NJ: Pearson Prentice Hall.
- Lindley, L.D. (2006). The paradox of self-efficacy: Research with diverse populations. *Journal of Career Assessment*, 14(1), 143-160.
- Littlejohn, S.W. (1999). *Theories of human communication* (6<sup>th</sup> ed.). Albuquerque, NM: Wadsworth Publishing.
- Lloyd, A., & Hansen, J. (2003). Philosophical foundations of professional ethics. In O’Donohue & K. Ferguson (Eds.). *Handbook of professional ethics for psychologists: Issues, questions, and controversies* (pp. 17-33). Thousand Oaks, CA: Sage Publications.
- Marcus, L.J., Down, B.C., & Henderson, J.M. (2006). Meta-leadership and national emergency preparedness: A model to build government connectivity. *Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science*, 4(2), 128-134.
- Masood, S.A., Dani, S.S., Burns, N.D., & Backhouse, C.J. (2006). Transformational leadership and organizational culture: The situational strength perspective. *Journal of Engineering Manufacture*, 220, 941-949.
- McDermott, R. (2002). Experimental methods in political science. *Annual Review of Political Science*, 5, 31-61.

- McGough, M., Frank, L.L., Tipton, S., Tinker, T.L., & Vaughan, E. (2005). Communicating the risks of bioterrorism and other emergencies in a diverse society: A case study of special populations in North Dakota. *Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science*, 3(3), 235-245.
- Miller, W.R., & Rollnick, S. (2002). *Motivational Interviewing: Preparing people for change (2<sup>nd</sup> ed.)*. New York: The Guilford Press.
- Mitroff, I.I. (2004). *Crisis leadership: Planning for the unthinkable*. Brookfield, CT: Rothstein Associates Inc.
- Moskal, B.M., & Leydens, J.A. (2000). Scoring rubric development: Validity and reliability. *Practical Assessment, Research, & Evaluation*, 7(10). Retrieved April 16, 2007, from <http://PAREonline.net/getvn.asp?v=7&n=10>.
- Moskowitz, G.B. (2005). *Social cognition: Understanding self and others*. New York: The Guilford Press.
- Norris, F.H., & Alegria, M. (2006). Promoting disaster recovery in ethnic-minority individuals and communities. In E.C. Ritchie, P.J. Watson, & M.J. Friedman (Eds). *Interventions following mass violence and disasters*. New York: The Guilford Press.
- Norris, R. (2002). Communication and power in early modern England: A new model. *Journal of Communication Management*, 6(4), 340-350.
- Ohmer, M., & Beck, E. (2006). Citizen participation in neighborhood organizations in poor communities and its relationship to neighborhood and organizational collective efficacy. *Journal of Sociology and Social Welfare*, 33(1), 179-202.
- Quinn, S.C., Thomas, T., & McAllister, C. (2005). Postal worker's perspectives on communication during the anthrax attack. *Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science*, 3(3), 207-215.
- Reardon, R., & Moore, D.J. (1996). The greater memorability of self-generated versus externally presented information. *Psychology & Marketing*, 13(3), 305-320.
- Reissman, D.B., Klomp, R.W., Kent, A.T., & Pfefferbaum, B. (2004). Exploring psychological resilience in the face of terrorism. *Psychiatric Annals*, 33(8), 627-632.
- Reynolds, B. (2004). *Crisis and emergency risk communication: By leaders for leaders*. Atlanta, GA: Centers for Disease Control and Prevention.
- Reynolds, B. (2006). Response to best practices. *Journal of Applied Communication Research*, 34(3), 249-252.
- Reynolds, B. & Quinn, S. (2008). Effective communication during an influenza pandemic: The value of using a crisis and emergency risk communication framework. *Journal of Health Promotion Practice*, 9S(4), 18S-25S.
- Reynolds, B., Deitch, S., & Schieber, R. (2006). *Crisis and emergency risk communication: Pandemic influenza*. Atlanta, GA: Centers for Disease Control and Prevention.
- Reynolds, B., Galdo, J., & Sokler, L. (2002). *Crisis and emergency risk communication*. Atlanta, GA: Centers for Disease Control and Prevention.
- Reynolds, B., & Seeger, M. (2005). *Crisis and emergency risk communication as an integrative model*. *Journal of Health Communication*, 10(1), 43-55.
- Rimal, R.N. (2001). Longitudinal influences of knowledge and self-efficacy on exercise behavior: Tests of a mutual reinforcement model. *Journal of Health Psychology*, 6(1), 31-46.
- Rudner, L.M. (1994). Questions to ask when evaluating tests. *Practical Assessment, Research & Evaluation*, 4(2). Retrieved April 16, 2007, from <http://PAREonline.asp?v=4&n=2>.
- Rymarchyk, G.K. (n.d.). *Validity*. Retrieved April 16, 2007, from <http://www.socialresearchmethods.net/tutorial/Rymarchk/rymar2.htm>.
- Sandman, P., & Lanard, J. (2004). *Misleading toward the truth: The U.S. Department of Agriculture mishandles mad cow risk communication*. Retrieved April 23, 2007, from <http://www.psandman.com/col/madcow.htm>.
- Sapolsky, R.M. (2007). Stress, stress-related disease, and emotional regulation. In J.J. Gross (Ed.), *Handbook of emotion regulation* (pp. 606-615). New York: The Guilford Press.
- Schwarzer, R. (1998). *General perceived self-efficacy in 14 cultures*. Retrieved April 23, 2007, from [http://web.fu-berlin.de/gesund/publicat/ehps\\_cd/health/world14.htm](http://web.fu-berlin.de/gesund/publicat/ehps_cd/health/world14.htm).
- Seeger, M.W. (2006). Best practices in crisis communication: An expert panel process. *Journal of Applied Communication Research*, 34(3), 232-244.
- Seeger, M. W., & Reynolds, B. (2008). Crisis communication and the public health: Integrative approaches and new imperatives. In M. W. Seeger & T. L. Sellnow (Eds.), *Crisis communication and the public health* (pp. 3-22). Cresskill, NJ: Hampton Press, Inc.
- Seeger, M. W., Reynolds, B., & Sellnow, T. L. (2008). Crisis and emergency risk communication in health contexts: Applying the CDC model. In R. Heath & D. O'Hair (Eds.), *Handbook of Crisis and Risk Communication*. New York: Routledge. Retrieved January 28, 2009 from <http://www.routledgebusiness.com/books/Handbook-of-Risk-and-Crisis-Communication-isbn9780805857771>.

- Seeger, M.W., Sellnow, T.L., Ulmer, R.R. (2003). *Communication and organizational crisis*. Westport, CT: Praeger.
- Slovic, P., Peters, E., Finucane, M.L., & MacGregor, D.G. (2005). Affect, risk, and decision making. *Health Psychology*, 24(4, Suppl.), S35-S40.
- Smith, E.J. (2006). The strength-based counseling model. *The Counseling Psychologist*, 34(1), 13-79.
- Smith, M.L., & Fey, P. (2000). Validity and accountability in high-stakes testing. *Journal of Teacher Education*, 51, 334-344.
- Smith, S.A., Kass, S.J., Rotunda, R.J., & Schneider, S.K. (2006). If at first you don't succeed: Effects of failure on general and task-specific self-efficacy and performance. *North American Journal of Psychology*, 8(1), 171-182.
- Solso, R.L. (2001). *Cognitive psychology* (6<sup>th</sup> ed.). Boston: Allyn and Bacon.
- Stohr, K. (2005). Avian influenza and pandemics--research needs and opportunities. *New England Journal of Medicine*, 352(4), 405-407.
- Sue, D.W. & Sue, D. (2003). *Counseling the culturally diverse: Theory and practice* (4<sup>th</sup> ed.). New York: John Wiley & Sons.
- Taylor-Clark, K., Blendon, R.J., Zaslavsky, A., & Benson, J. (2005). Confidence in crisis? Understanding trust in government and public attitudes toward mandatory state health powers. *Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science*, 3(2), 138-147.
- Trettin, L., & Mushan, C. (2000). Is trust a realistic goal of environmental risk communication? *Environment and Behavior*, 32(3), 410-426.
- Ulmer, R.R., Sellnow, T.L., & Seeger, M.W. (2007). *Effective crisis communication: Moving from crisis to opportunity*. Thousand Oaks, CA: Sage Publications, Inc.
- Uomoto, J.M. (1986). Examination of psychological distress in ethnic minorities from a learned helplessness framework. *Professional Psychology: Research and Practice*, 17(5), 448-453.
- U.S. Department of Health and Human Services (DHHS) (2008). *What are the concerns about avian influenza A (H5N1) outbreaks in Asia, Europe, the Near East, and Africa*. Retrieved January 2009 from <http://www.pandemicflu.gov/faq/avianinfluenza/1235-archive.html>.
- Van Vugt, M., & De Cremer, D. (1999). Leadership in social dilemmas: The effects of group identification on collective actions to provide public goods. *Journal of Personality and Social Psychology*, 76(4), 587-599.
- Veil, S., Reynolds, B., Sellnow, T. L., & Seeger, M. W. (2008). CERC as a theoretical framework for research and practice. *Health Promotion Practice* 9(4), 26S-34S.
- Visser, P.S., & Mirabile, R.R. (2004). Attitudes in the social context: The impact of social network composition on individual-level attitude strength. *Journal of Personality and Social Psychology*, 87(6), 779-795.
- Walsh, F. (2006). *Strengthening family resilience* (2<sup>nd</sup> ed.). New York: The Guilford Press.
- Watkins, M. (September, 30, 2002). Your crisis response plan: The ten effective elements. *Working Knowledge*. Retrieved April 23, 2007, from <http://hbswk.hbs.edu/item/3124.html>.
- Wheeler, L. (2005). Social comparison and self-evaluations of competence. In A.J. Elliot & C.S. Dweck (Eds.). *Handbook of competence and motivation* (pp. 566-578). New York: The Guilford Press.
- Working Group on "Governance Dilemmas" in Bioterrorism Response (2004). Leading during bioattacks and epidemics with the public's trust and help. *Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science*, 2(1), 25-40.
- Wray, R., & Jupka, K. (2004). What does the public want to know in the event of a terrorist attack using plague? *Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science*, 2(3), 208-215.
- Young, B.H., Ford, J., Ruzek, J.I., Friedman, M.J., & Gusman, F.D. (n.d.). *Disaster mental health services a guidebook for administrators and clinicians*. Retrieved April 19, 2007, from <http://www.ncptsd.org/publications/cq/v4/n2/masterdm.html>.
- Yukl, G. (2001). *Leadership in organizations* (5<sup>th</sup> ed.). Upper Saddle River, NJ: Prentice Hall, Inc.
- Zeidner, M., & Matthews, G. (2005). Evaluation anxiety: current theory and research. In A.J. Elliot & C.S. Dweck (Eds.). *Handbook of competence and motivation* (pp. 141-163). New York: The Guilford Press.



# M.P.H. (Milestones in Public Health)

## **Crisis and Risk Communication**

Launch date: 2002

Initially funded by the U.S. Department of Health and Human Services (DHHS), the Centers for Disease Control and Prevention's (CDC) Crisis and Emergency Risk Communication (CERC) course book and training was created in response to the 2001 anthrax attacks. Crisis communication research and practices had not evolved to address the demands and intricacies of a chaotic national emergency such as bioterrorism. CDC developed the concepts based on theories and practice and CERC has evolved into the accepted communication strategy for all types of disasters by practitioners and academics across the United States and internationally. Today, more than two dozen universities apply CERC principles in their public health or communication curriculum. New books on emergency planning routinely cite CERC and, by 2008, CERC was being widely discussed and supported in peer-reviewed literature. DHHS/CDC is credited with developing a new integrated model of crisis and risk communication. The positive impact of CERC principles has been demonstrated in local and national crisis events.







## ABOUT THE COVER

Transparency is more than a catch-phrase. For public health communicators, transparency is essential if our public health messages are to be accepted, trusted, and acted upon. Julian Herring, 3D Graphic Artist, (Contractor with Lockheed Martin) was tasked with designing a cover for this first issue of *Public Affairs in Health* that embodies the elements of visibility and public health in an interesting and compelling way.

The arm of Atlas (notice the “Go Green!” color) pulls back a veil to reveal the landscape of the Centers for Disease Control and Prevention, the world’s premier health agency. It is our hope that you will find this new CDC e-journal to be eye-opening, revealing, illuminating, and yes, — transparent.

— Sharon KD Hoskins, Managing Editor

## HOW TO SUBMIT

*Public Affairs in Health (PAH)* is a peer-reviewed electronic journal established to provide a forum for public affairs professionals working in public health to share study results and practical experience. The journal is published by Office of Enterprise Communication within the Centers for Disease Control and Prevention. *PAH* is published biannually in April and October. Articles published in *PAH* include editorials, essays, original research reports, best practices, milestones in public health (MPH), and announcements.

<http://www.cdc.gov/about/pah/pahAuthors.htm>

## MEET OUR EDITORS

Barbara Reynolds, PhD, *Co-Editor*  
Glen Nowak, PhD, *Co-Editor*