Examining the Effects of Including the Public in Emergency Preparedness Drills in Building Trust in Local Emergency Plans

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Meredith Gaskins Allen

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Abstract

Examining the Effects of Including the Public in Emergency Preparedness Drills in Building Trust in Local Emergency Plans

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Dr. Augusta Villanueva

This dissertation examined the effects of participation in a local preparedness drill in Bucks County, Pennsylvania (The Drill) on participants' level of trust and confidence in government preparedness activities. Mayer, Davis, and Schoorman's (1995) model of trust provides the study's theoretical framework. In addition, in response to the Department of Homeland Security's call to include vulnerable populations (e.g., racial minorities) in emergency preparedness planning, this dissertation examined the emergency preparedness needs of African American and Latino communities in Bucks County through individual interviews with community leaders from African American and Latino communities. A secondary analysis of a telephone survey of 316 Drill participants and 17 individual interviews with members of African American and Latino communities was conducted. This dissertation tested whether Drill participants who reported that government had the ability to run it properly were more likely to become confident in government planning activities than those who did not. A secondary aim of this dissertation was designed to help identify those Bucks County subpopulations not participating in preparedness activities. This dissertation also aimed to incorporate information reported by local community leaders who did not find that current outreach and advertisement methods are reaching their communities. Results suggested that those who reported that the government had the ability to run the mass clinic during The Drill were more likely to become confident in the role of the public

sector than those who did not think the clinic was run properly. In addition, results showed the importance of relationship building between local government and community members as a means of adequately preparing for an emergency.

Chapter 1: Introduction and Problem Statement

The tragic events of September 11, 2001 and the ensuing anthrax attacks have highlighted the need for public health preparedness in the United States. The federal government has issued numerous pieces of legislation, including the Public Health Security and Bioterrorism Act of 2002 to fund public health preparedness in state and local governments (Hearne, 2005). Due to security concerns on the part of the U.S. government, public health preparedness planning has used the expert policy analysis approach in which decision making and planning power resides in the hands of a few "experts." The lack of public participation has led to the marginalization of the public due to questions of policy legitimacy and responsiveness. This lack of legitimacy and responsiveness has, in turn, created a mistrustful public likely to be uncooperative in an emergency (Barnes, 2005). In a study of trust and fear, Parks and Hulbert found that in situations where fear is a factor, people are more cooperative with those whom they trust (Parks, 1995). Although "the quintessential role of government is to protect its citizens from harm" (Comfort, 2005, p.336), the current planning methodologies utilized by government have resulted in social exclusion of the public from policymaking. Thus, the exclusion of the public has undermined governmental planning efforts, in part, by creating an increasingly vulnerable and uncooperative population.

The American public has had little if any role in the design of government preparedness plans and policy. For example, a Center for the Advancement of Collaborative Strategies in Health at the New York Academy of Medicine study estimated that three quarters of the population of the United States is unaware of any

government plans to handle or mitigate outbreaks or dirty bombs. The study is based on information gathered from a variety of sources such as community discussion groups, private sector planners, and results from a national telephone survey. The study's report estimated that approximately 3% of the American population knows a "great deal" about the preparedness planning activities of government (local, state, and federal) and community agencies (Lasker, 2004). The same study also found that 44% of Americans think that planners do not know about their concerns and the information they would want during an emergency, leading to the finding that 47% of the population is not confident that they would receive the help needed in such an instance (Lasker, 2004). Another study that surveyed 1,052 American adults determined that only 42% of Americans believed that the United States is prepared for a terror attack, a reduction of 16% since Hurricanes Katrina and Rita, suggesting that not only is public confidence in the preparedness of government low, but that it is declining (Redlener, 2005). All levels of government rely on the assumption that the public will follow instructions and cooperate during an emergency. However, this study has shown that due to a lack of trust and confidence from the public, government assumptions may be incorrect (Lasker, 2004 and Redlener, 2005). To improve cooperation during an emergency, studies such as the *Follow-Up 2005: Where America Stands on Terrorism Study* (Redlener, 2005) recommend that government officials find ways to increase trust in government through increasing public confidence and knowledge about preparedness planning.

Community inclusion is essential in establishing trust and confidence in government preparedness efforts. Public trust can influence how the public responds to emergency plans and emergency responders during an emergency; however, trust can

only be earned by government through community outreach and inclusion before an actual emergency (Covello, 2001). To understand how government officials can better work with the public prior to an actual emergency, this dissertation explored the effects of community involvement in a preparedness drill and participants' overall sense of confidence in government planning for their safety during a disaster.

While the primary aim of this dissertation sought to explore the effects of community involvement in a preparedness activity on participants' confidence in government preparedness planning, a secondary purpose was to help identify subpopulations not participating in preparedness activities. Public health planners attempt to provide an inclusive plan responsive "to groups whose needs are not fully addressed by traditional service providers, or who feel they cannot comfortably or safely access and use the standard resources offered in disaster preparedness, relief, and recovery" (Pennsylvania Department of Health, 2007). In the aftermath of Hurricane Katrina, the need for special planning for vulnerable and often marginalized populations has become even more self evident.

Local governments have been challenged by the U.S. Department of Homeland Security to identify and specifically plan how to reach out to those populations that did not or could not present at preparedness drills to ensure that they can be reached in an actual emergency (Chertoff, 2006). U.S. Secretary of Homeland Security Michael Chertoff stated on June 30, 2006 at the Emergency Management and Disability and Aging Populations Conference that "we need to recognize that people with disabilities, their families, and the organizations that serve them have to be partners in the process of emergency planning (Chertoff, 2006)." Along with Homeland Security's recognition of

vulnerable populations, a recent article in *Public Health Reports* highlights the need for additional drills and exercises focused on the needs of vulnerable populations (Wingate, 2007). These drills and exercises cannot be done until vulnerable populations are properly identified and engaged in the preparedness process. Consequently, this dissertation identified two subpopulations not represented in The Drill and developed recommendations on how to involve them in the future.

Emergency Preparedness and Public Health

The public health infrastructure of the United States has eroded particularly since the 1980s and, principally, from a "lack of funding, focus, and national attention" (Frist, 2002, p.119). There has been a decrease in the number of laboratories and workforce capabilities which, in turn, have diminished the ability of professionals to collect and analyze data, conduct disease surveillance, and design interventions on behalf of communities (Frist, 2002). Not only had the public health system been "chronically under-funded for the past several decades [but the] infrastructure had greatly deteriorated" (Hearne, 2005, p.1). The anthrax attacks of 2001 served as a wake-up call for public health and medical professionals, the American public, and legislative bodies by demonstrating that the nation's public health system was not equipped to rapidly and effectively respond to a bioterrorism attack whether small or large in scale (Frist, 2002).

To help the nation rebuild its public health infrastructure to respond adequately to any terrorist attack, Congress passed the Public Health Security and Bioterrorism Act of 2002, signed into law by President Bush on June 12, 2002. The Act (P.L. 107-188) was created to help increase readiness in all levels of government (local, state, and federal) by:

> Improve[ing] public health capacity; (2) upgrade[ing] health professionals' ability to recognize and treat disease caused by bioterrorism; (3) speed[ing] the development of new vaccines and other countermeasures; (4) improve[ing] protections for our [the nations'] water and food supplies; and (5) track[ing] and regulat[ing] the use of dangerous pathogens within the United States (Frist, 2002, p. 121).

In response to the need to bolster the nation's public health infrastructure, federal funding for bioterrorism preparedness skyrocketed from $500 million in 2001 to $2.9 billion in 2002 (McHugh, 2004). In 2005 alone, Pennsylvania received slightly over $50 million in bioterrorism funding with $30 million worth of funding allocated to state and local jurisdictions through the Centers for Disease Control and Prevention (CDC), and $19 million distributed to hospitals through the Health Resources and Services Administration (HRSA) (Hearne, 2005). State and local jurisdictions are responsible for the health and welfare of their citizens including the planning for and response to any bioterrorist or chemical attack and/or health emergency. State and local jurisdictions prepare for health emergencies with the help of federal funding, policymaking, and resources. However, little if any information is ever conveyed to the public (Hearne, 2005). This lack of communication has contributed to a decline of public trust and confidence (Barnes, 2005). One of the goals of this dissertation was to test whether by including the public in a preparedness drill, the decline in public trust and confidence could be reversed.

One situation for which all levels of government plan for is a large-scale health emergency such as a pandemic or biological/chemical release in which local jurisdictions would be required to distribute large medicines, vaccines, or medical equipment to their entire population quickly. One federal program aimed at helping local jurisdictions accomplish that task is the Cities Readiness Initiative (CRI). The CRI program is designed to increase preparedness throughout all levels of government (federal, state, and local) and to help governments form a "consistent nationwide approach to prepare for, respond to, and recover from a large scale public health emergency" (CDC, 2004b, para.2). Moreover, this program will allow for compilation of the plans from different levels of government to form a single consistent plan.

The CRI program provides aid to cities and their metropolitan statistical area (surrounding localities) to increase their ability to deliver medicines and/or medical supplies to their citizens during an emergency. The CRI was launched in 2004 by The U.S. Department of Health and Human Services in 21 cities across the United States (CDC, 2004). The program uses the scenario of aerosolized anthrax release as a worst case event to help planners prepare for such an eventuality. To limit illness and death from the release of aerosolized anthrax, the entire exposed population must be given an antibiotic (usually doxycycline) within 48 hours. CRI objectives include:

- Building the capacity to provide the entire city population antibiotics within 48 hours;
- Creating and instituting emergency communication strategies and systems to reach the public during an emergency;

- Developing and sustaining working relationships with other emergency responders (i.e., fire and police departments);
- Exploring antibiotic delivery mechanisms (e.g., the United States Postal Service); and
- Providing for and ensuring safety of the medications, medical supplies, and professionals aiding in the response (Hearne, 2005).

The City of Philadelphia, Pennsylvania is among 21 cities that received funding from the CRI. In 2004, Philadelphia received approximately $1.3 million dollars (CDC, 2004) and initiated planning within the immediate five-county region in the Commonwealth's Southeastern region including Chester County, Philadelphia County, Delaware County, Montgomery County, and Bucks County along with counties in other neighboring states. The mentioned five-county region's planners regularly meet to plan and develop mechanisms to carry out CRI's goals.

Despite the influx of funding (i.e., CRI funding) for preparedness initiatives and the continuous efforts of government preparedness planners, the public does not have trust and/or confidence in the planning that has taken place, in part because they may be unaware that any planning has occurred as they have not been included in any planning processes (Lasker, 2004). Risk communication by all levels government has failed to inform the public about the steps needed to become prepared as well as the steps government and other agencies have taken to plan for the public's safety. The public has a perception that the public sector has not done enough to prepare and that government officials are "dishonest at times" (Wray, 2006, p 67), in part because the public was not

involved. To combat the idea that the public sector has not done enough to prepare for emergencies and to assist local agencies in gaining the public's trust and confidence, some preparedness advocates have suggested the public's inclusion in preparedness drills to showcase government planning activities while promoting full disclosure (Wray, 2006). A study by Wray (2006) found that the distrust in government's ability to respond to an emergency or bioterrorism attack is, in part, due to past experiences. In addition, Wray (2006) found that people were more likely to trust local government officials, in part, due to the perception that they are more dedicated than state and federal government officials. Pursuant to these findings, this dissertation tested how a positive experience in a local preparedness drill can affect a participant's level of confidence and trust in their local government.

Trust, Confidence, and Cooperation in Emergencies

Trust plays a large role in the decision-making process and level of compliance of individuals during an emergency. Two recent studies have shown that the more confident the public is in the plans that the government has in place, the more likely individuals are to follow the instructions of emergency workers (Lasker, 2004; Redlener, 2006). The Redefining Readiness Study found that many Americans would not automatically follow government-issued instructions during an emergency because they would like more information before making a decision regarding their best plan of action during one (Lasker, 2004). Most Americans cite at least one reason for not evacuating if ordered to do so by the federal government, with almost half (42%) of respondents stating that they would not do so because of a lack of confidence in those who ordered the evacuation (Redlener, 2006). In addition, part of the American public is worried that government

would tell them to do something that is incorrect in the event of a biological outbreak or attack, resulting in a number of people being afraid to go to a mass vaccination site (Lasker, 2004). Thus, lack of trust in government has the potential to seriously harm the public during an emergency. This dissertation tested whether by involving local communities in preparedness drills, government planners could begin building a trusting relationship with the public they serve.

Community Involvement in Preparedness: The Bucks County Pandemic Influenza Drill

This dissertation involved participants in a local health department-run preparedness drill conducted by the Bucks County Department of Health to comply with the objectives of the CRI funding. The traditional method of dispensing and/or vaccination was the POD (Point of Dispensing) method, which was used in The Drill. In this case, public health agencies identify a location that can accommodate large numbers of people, that is easily accessible, and that is organized into a functional clinic setting (Lindner, 2006). PODs are not hospitals or treatment centers; symptomatic and/or ill individuals are not permitted into POD facilities. They would be transported to hospitals or other medical facilities. Residents exposed to a given disease or substance, and who are not symptomatic or ill, would be able to quickly receive medication and/or vaccination for themselves and their families at the POD.

While many communities have staged preparedness exercises, none have reported on the effects of participating in a drill and exposure to public health preparedness plans experienced by those who participated in one (Blank 2003; Giovachino, 2005; Pine, 2003). In order to help the public feel safe, a study by Jenkin (2006), suggested that

governments begin to involve residents in the planning process as well as educate them that plans exist as a way of building a trusting relationship. Therefore, it is incumbent upon government officials to begin building trust with those they serve. Without trust, instructions issued during an emergency will often become discounted by residents, leading to increased injury and chaos (Jenkin, 2006). While it is often difficult to share preparedness information and specifics about planning, risk communication research shows that information must be shared with the public when possible to build confidence in government planning (Wray, 2006). Not only should specific instructions be shared, but explanations for those instructions should also be given ahead of time (Jenkin, 2006). By exposing the public to preparedness planning and fostering a relationship, governments may be able to increase trust and confidence along with starting a dialogue with the community to begin understanding their concerns and fears. Ignoring public concerns and/or discounting them as irrational creates hostility and mistrust between the public and government meant to protect them (Hance, 1988). This dissertation assessed a method by which community residents can be involved in preparedness planning which may increase their level of trust and confidence in government planners.

Research Aims

This dissertation study examined how personal experience in a preparedness drill affects participants' level of confidence and trust in government preparedness activities aimed to keep them and their families' safe in the event of a disaster. This study hypothesized that by participating in the preparedness drill, the public's overall confidence and trust in their government's preparedness activities would increase, which studies have shown results in a more informed, calm, and cooperative population in an

actual emergency (Lasker, 2004). This hypothesis was based on the general theoretical model of trust developed by Mayer, Davis, and Schoorman (1995). Specifically, this dissertation tested how the general model put forth by Mayer, Davis, and Schoorman could be modified to show how participation in a preparedness drill can affect mediator variables which, in turn, affect the public's level of trust and confidence thereby leading to increased levels of cooperation with government planners in an emergency as demonstrated by Lasker (2004).

In addition, this study also aimed to identify subpopulations of the Bucks County community that did not participate in The Drill. To truly involve the community and increase trust and confidence, planners must not only reach out to those who participate in such efforts, but also must begin to reach out to those who did not. By reaching out to informants in two communities that did not participate, this dissertation advanced recommendations on how to best identify and engage specific subgroups in future community preparedness drills.

Research Significance

All state and local jurisdictions have been directed to prepare for a wide range of emergencies including bioterrorism attacks (CDC, 2004b). While many plans have been written and exercised, it is rare that local health departments document the effects these exercises have on community participants. For example, After Action Reports (AARs) and analysis of preparedness drills often focus on how many people were able to receive medication (through-put), or how fast a site could be set-up. In this specific instance, this dissertation focused on how these drills can affect trust levels in local emergency plans among community participants. The documentation developed as a part of this

dissertation may serve as a model for other local health departments to not only measure set-up times and through-put, but also assess the effect that drills have on community members' attitudes. In addition, this dissertation may serve as a guide for other local government planners to specifically identify subgroups in the population not participating in preparedness activities. These populations may be overlooked in emergencies. However, if government planners make specific outreach efforts informed by the community itself, sustainable relationships can be formed to ensure ongoing communication during an emergency.

Chapter 2: Literature Review

Vulnerable Populations and Emergency Planning

Former U.S. Secretary of Homeland Security Michael Chertoff stated in 2006, "As we look back on the impact of hurricanes Katrina and Rita, we know a disproportionate number of the fatalities were people above the age of 65 and people with disabilities who were unable to evacuate quickly" (Chertoff, 2006). VanderVeen (2006) proposes that some of the federal government's challenges in responding to hurricanes Katrina and Rita were due to the difficulty of locating and identifying vulnerable populations, non-English speakers, racial and ethnic minorities, economically disadvantaged groups, those with limited mobility, and the medically fragile. One local government official stated that: "It's hard to quantify who you haven't been in touch with if you don't know someone's there" (Chertoff, 2006). Former Secretary Chertoff advocated that local planners reach out to vulnerable populations in their communities to ensure that everyone is a part of preparedness planning (Chertoff, 2006). In the event that outreach efforts are advanced in a traditional manner (i.e., newspaper ads and websites), vulnerable populations may likely continue to be missed by planners and thus become more disproportionately affected by disasters.

Although many government agencies such as local public health departments and emergency management agencies may attempt to reach traditional vulnerable populations (i.e., the elderly, low income, or physically disabled), there may be other subgroups during an emergency that may become vulnerable (i.e., those without cars during an ordered evacuation, or those with limited English proficiency when medical information

is disseminated through English speaking news channels). The Drill from which this study's participants were selected, utilized traditional communication and dissemination methods. Through the development of this dissertation research, Bucks County Health Department staff were able to identify who presented at The Drill, the population that would have received medication during an emergency, as well as those that did not present and, therefore, needed to be reached through alternative methods of communication or planning to ensure their receipt of medication during an emergency.

Hurricane Katrina: A Case Study in Disproportionate Disaster Implications for Vulnerable Populations

Hurricane Katrina hit the coast of New Orleans, Louisiana on August 29th, 2005 (Cordasco, 2007). On the night of the 29th and during the day of the 30th, the levees in New Orleans were breached which allowed water to flood approximately 80% of the city (Cordasco, 2007). Although evacuation orders were issued by local emergency management authorities, over 100,000 residents did not evacuate before the hurricane made landfall (Cordasco, 2007). Many residents of New Orleans who "chose" to stay in the face of the storm had no means of transportation, no way to protect their property, and often did not have insurance to cover any losses (Atkins, 2005). In a study of 680 randomly selected adults evacuated after Hurricane Katrina, 34% stated that they were unable to do so themselves because of a lack of a car or other means of transportation (Brodie, Weltzien, Altman, Blendon, & Benson, 2006). The same study reported that 12% were physically unable to leave or were responsible for the care of someone who was unable to leave. Of the evacuees interviewed, 61% stated that they felt as if

government officials did not care about "people like them" (Brodie et al, 2006, p. 1405) as a result of their experiences during Hurricane Katrina.

Another study reporting the responses of evacuees during Hurricane Katrina stated that a lack of trust in authorities was partially responsible for the absence of compliance with emergency management evacuation orders (Cordasco, 2007). The study reported that "prior to the hurricane, 72% of New Orleans residents were of minority race or ethnicity, as well as the fact that there is a long history of minority groups in the United States distrusting the medical and public health leadership" (Cordasco, 2007, p. 277). Cordasco (2007) further states a specific historical example which has bred mistrust among the minority residents of New Orleans:

> In 1927, The Great Mississippi Flood was threatening to destroy New Orleans, including its crucial downtown regional financial institutions. To avert the threat and, in part, to stabilize the financial markets, it was decided to perform a controlled break of the New Orleans levees, thereby selectively flooding poor areas and saving financial institutions. (p. 277)

The poorer minority residents of New Orleans had a feeling of mistrust and expressed feeling a "lack of truthfulness and sincerity" (Cordasco, 2007, p. 279) in the actions of emergency management officials. Those residents of New Orleans able to evacuate stated that feelings of mistrust in emergency management officials influenced their decisions to evacuate or not, or when to do so.

Ana-Marie Jones, executive director of Collaborating Agencies Responding to Disasters, an organization designed to help and train local community groups respond to

emergencies especially among vulnerable populations in Alameda County California, stated at a conference on Emergency Management and Disability and Aging Populations held in June of 2007:

> The messages given out through government and traditional sources are very much written for American, healthy middle-class people. Very little information is geared toward people who don't fall into that category... The whole idea of everyone in the country being told to buy kits, have a plan, and get training is fine only for people who have money and access. But for everybody else, that message is pretty close to useless... It's the fact that we tend to put out a singular message---just a single message---saying, 'Do A-B-C,' without any true awareness about how different messages are interpreted by different populations. In disasters, this has huge implications (as cited in VanderVeen, 2007, Everyone at the Table section, para.2).

Jones and other speakers at the same conference stressed the importance of the need for increased planning for and with vulnerable populations, beginning with outreach and their identification (VanderVeen, 2007). Accordingly, a key goal of this dissertation was to identify the subpopulations that did not present at The Drill.

Reaching Out to Vulnerable Populations

The National Organization on Disability (N.O.D) began an Emergency Preparedness Initiative after the attacks of September 11, 2001 after realizing that individuals with disabilities could be disproportionately impacted by a disaster and, therefore, needed to be considered and involved in preparedness planning. The N.O.D.

issued a number of recommendations to help planning agencies ensure that they were addressing the needs of vulnerable populations. Their first recommendation was to "identify those in the community who might have special needs" (Davis, 2005, p. 12). Therefore, this dissertation aimed to help Bucks County planners take a first step in ensuring that the special needs of vulnerable populations are met by identifying those vulnerable subgroups that did not participate in The Drill.

Communication in Emergencies

Communication with the public is an essential element in any disaster response. The role of government is to provide updates of the situation along with recommendations to help keep people safe. Currently, websites are often used as a communication forum by an agency and/or government to post information for the public at-large. As Greenberger (2007) states "under the Centers for Disease Control and Prevention (CDC) 'Get Informed' section for 'Individuals and Family Planning' of the Pandemic Flu website, the first place listed for acquiring reliable, accurate, and timely information is a website address" (p. 292). Greenberger contends that many planners make the assumption that everyone has access to the Internet, which is incorrect. Although findings from the 2000 U.S. Census, indicated that 62% of American households had one or more computer (U.S. Census Bureau, 2005), computer ownership is not distributed evenly across age and racial lines. For example, only 35% of households of those 65 years of age or older had a computer, but only 45% of African American or Hispanic households had one (U.S. Census Bureau, 2005). Among those who had a computer in their home, not everyone had internet access; only 45% of American households have internet access (U.S. Census Bureau, 2005). While the

internet can be a powerful media to disseminate information, many Americans do not have access to it and thus will need to receive information through other modes of communication. Government planners will therefore need to have a variety of dissemination methods when communicating with the public at-large. Not only do most vulnerable populations have little if any access to the internet; power outages during an emergency may make accessing it near impossible. Therefore, while there is a need to develop alternate methods of communication, planners will also have to develop strategies responsive to the needs of all members of the community, inclusive of the poor, elderly, or non-English speakers.

Moreover, different groups within a community may need different methods of communication during an emergency. Thus, this dissertation aimed to illustrate the need for implementing additional communication strategies to reach subgroups in the populations – African American and Latinos – who specifically did not participate in The Drill. For example, in predominately African American communities planners may need to establish a relationship with local churches to help communicate emergency information (Eisenman, Cordasco, Asch, Golden, & Glick, 2007). By working with clergy leadership within a community where a social network already exists, those who initially lack trust in government may respond more positively to information communicated by their own members (Eisenman et al, 2007). If community planners can reach these subpopulations by tapping into their social networks and involving them in preparedness drills, planners may be able to increase their level of trust in government and, therefore, increase their cooperativeness in an actual emergency.

While the Bucks County Department of Health advertised The Drill through their website, radio, and television, these methods may be inadequate for reaching certain subgroups such as racial minorities and non-English speaking families. By examining which segments of the Bucks County population presented at The Drill and which did not, alternative communication strategies may be developed to reach those subgroups that are difficult to reach within Bucks County. To this end, this dissertation gathered key community leaders who are either members of, are trusted by, or work with the identified subgroups within Bucks County as a way of generating specific recommendations likely to enhance their participation in the future.

Once an agency has identified the populations within their community that may become more vulnerable during a disaster, government agencies such as the U.S. Department of Health and Human Services (Vander Veen, 2006) recommend that efforts be made to customize messages and materials to specific groups (i.e. alternative languages, Braille, etc.) in conjunction with educational campaigns (Vander Veen, 2006). While agencies can plan to take into account individuals' specific vulnerabilities and/or disabilities, it is important for people with disabilities to have a realistic idea of what plans have been made and how their needs have been addressed in those plans (Davis, 2005).

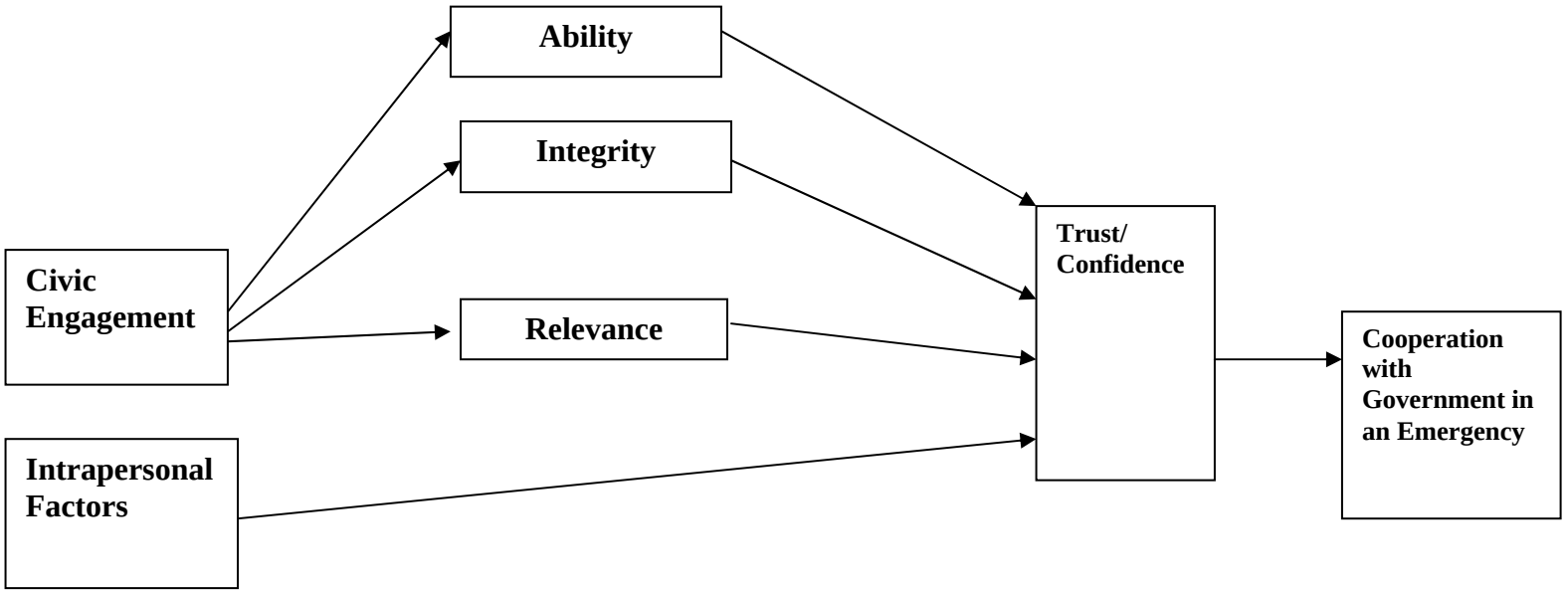
Civic Engagement, Trust, and Cooperation

Figure 1 below, depicts the proposed relationship between civic engagement, intrapersonal factors, and the factors of trustworthiness that lead to trust and confidence. According to Lasker (2004), the development of trust and confidence can lead a person to become more cooperative with government in an actual emergency. Mayer, Davis, and

Schoorman's theoretical model of trust involving two parties (1995) provided a useful framework for this dissertation. According to this model, there are several factors associated with the trustor (the trusting party) and the trustee (the party to be trusted) that influence the development of trust and resulting outcomes, in this case cooperation. The intrapersonal characteristics of the trustor (i.e. past life experiences, developmental background, and cultural influences) can affect the development of trust in the relationship between the parties (Mayer, 1995). Additionally, Jones and George (1998) have noted that trust is affected by the "outcome of the interactions of people's values, attitudes, and moods and emotions" (p.532). When two parties are aiming to establish a trusting relationship, each party may arrive at the relationship with different abilities and levels of trust.

There are three main factors that Mayer and colleagues (1995) set forth as "factors of perceived trustworthiness" (p.717) or factors that can lead to trust: ability, benevolence, and integrity. For the purpose of this dissertation, the Mayer et al. model was modified to depict how a government can begin to build trust with the public by fostering participation in a preparedness drill. Each of the variables in the model and revisions to the Mayer model has been discussed in detail in following sections.

Figure 1: Revised Model of Trust



Trust

Because trust is a complex feeling rather than a tangible object easily measured or defined, scholars have found it difficult to agree on a common definition (Hosmer, 1995). Mayer and colleagues (1995) define trust as

> the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party (p. 712).

Hosmer's (1995) review of the organizational theory literature identified five key aspects that scholars include in their definitions of trust; all of which are present in Mayer's aforementioned definition. Hosmer (1995) first posits that the trusting individual (trustor) generally expects the best from the individual being trusted (trustee). That is, trust is a positive expectation from one individual to another. Second, Hosmer contends that trust occurs when vulnerability exists; one individual is vulnerable to the actions and ensuing outcomes of another individual. Third, Hosmer advances that a trustor usually enters into the trusting relationship with the trustee voluntarily, and that a trusting relationship is formed when the perceived benefit of cooperation between the parties is better than the result action of either party alone (Hosmer, 1995). Fourth, Hosmer also contends that trust is non-enforceable; it cannot be mandated. Finally, Hosmer explains that trust is often coupled with a duty to protect others. Thus, trust ensues when there is a feeling of duty to protect the other party, or at least to ensure that no harm is done. Trust is also often associated with risk. While trust is not inclusive of

risk taking or participating in a risky behavior itself, it is inherently a willingness to take a chance on another person and/or their actions (Mayer, 1995).

In preparedness planning, the government asks that the public trust its representatives to make appropriate decisions in an emergency. Mayer's (1995) model of trust suggests that in order to have an effective response from the public at-large in an emergency, both the public and government must enter into a trusting relationship. The public is vulnerable to the actions, decisions, and preparations by government, and they are also unable to completely monitor its actions. In order to enter into a trusting relationship with government, the public will need to believe that the public sector is performing the necessary actions to prepare for any eventuality. Not only must government perform the actions necessary (i.e., have the ability), but its officials must demonstrate that their actions are acceptable and fair to the public at-large (i.e., uphold the integrity of what the public expects), as well as ensure that these have the public's best interests in mind (i.e., beneficence).

Trust and Confidence

Luhmann (2000) has argued that the concepts of trust and confidence should be differentiated because although both "refer to expectations which may lapse into disappointments" (p. 96), they differ in terms of perception. Every day, people make expectations about events in everyday life assuming things will turn out positively, neglecting the possibility of disappointment. Luhmann (2000) uses an example that people expect or have confidence that "cars will not break down or suddenly leave the street and hit you on your Sunday afternoon walk" (p. 96). If people considered the alternative that cars may suddenly drive off the road and strike them, they would not be

able to walk outside. Although the alternative (cars breaking down or hitting a pedestrian) is remote, in order to live a normal life most people choose not to live in a constant state of uncertainty. Trust comes into play when a person can avoid entering into a situation of risk. For example, an individual can choose to give a hired contactor a key to his/her house or not. If the person chooses to give the contractor a key, he/she has trust and expects not to be disappointed. Alternatives such as being home to supervise the contractor's actions while working may have been considered. Luhmann (2000) argues that if one considers the alternatives to a given situation, one is acknowledging trust. On the other hand, if one does not consider the alternatives, one is acknowledging confidence.

In the specific case of public health emergency planning, especially in mass prophylaxis, the public sector is the only entity equipped to provide the necessary medications and/or vaccines. Although there is an alternative -- doing nothing at home and falling ill -- no other viable options exist for obtaining medication and/or vaccine. Thus, the lack of alternatives in this example of preparedness planning minimizes the distinction between confidence and trust. Without viable alternatives for an individual to consider and remain healthy, the line between confidence and trust is blurred. Most people will not consider the alternative of not receiving medication as a true alternative, and will need to be confident in government, whereas those few who consider not receiving medication and/or vaccine as an option will need to trust the government. Thus, Luhmann's distinction between trust and confidence is not applicable to this dissertation's focus on preparedness planning. Accordingly, for the purpose of this dissertation research, no distinction between trust and confidence was made.

Intrapersonal Factors of Trust

As the model proposed in Figure 1 suggests, trust is not only influenced by the specific experiences people have with those they are aiming to trust, but it is influenced by each individual's prior feelings and beliefs amassed throughout life. Each person has a distinctive value system guiding her/his behavior as well as her/his reactions to experiences throughout life. In fact, one's value system is used to help one distinguish between positive and negative feelings, situations, and impressions (Jones & George, 1998). Each individual arrives to a relationship with a distinct idea of what is desirable and what is not; therefore, the same event may foster a feeling of trust in some individuals but not in others because of their established value system. While this dissertation tested how participating in a local emergency preparedness can affect participants' level of trust, there are some internal factors that are not determined or affected by participation.

Individuals' personal attitudes (i.e., lenses through which people develop thoughts and feelings about others) also affect their ability to trust others (Jones & George, 1998). These attitudes, which result from "past experience, knowledge, and interactions" (Jones & George, 1998, p. 533), can affect how they relate to and eventually form trusting relationships with others. Values are beliefs upon which a person measures their experiences. Based upon one's personal views, individuals view experiences as either positive or negative. The combination of personal values and attitudes creates the lenses through which people experience events. This dissertation tested how individual experience in a preparedness drill can affect one's level of trust in government planning. While participation in a drill may affect an individual's level of trust, the same

experience may not have the same effect on all participants as their differing values and attitudes may change the way in which The Drill experience impacted each of them individually.

Feelings and moods can also affect the formation of trust between two parties (Jones & George, 1998). During the initial formation of a relationship, one party may experience a negative feeling about the other. This negative feeling can have an adverse effect on the formation of a trusting relationship, even though there may not be a distinct reason for the negative feeling (Jones & George, 1998). Individuals experience ups and downs throughout life that lead to positive and negative moods. An individual's particular mood during the formation of a relationship may affect whether or not he or she perceives the other party as trustworthy or not (Jones & George, 1998).

Factors of Trustworthiness

According to the model of trust advanced by Mayer and colleagues (1995), ability is the first factor influencing a trustor's propensity to rely on the trustee. Mayer, Davis, and Schoorman (1995) define ability as a "group of skills, competencies, and characteristics enabling a party to have influence within some specific domain" (p. 717). The trustee must have a set of competencies to complete the task that the trustor expects him/her to complete. This definition implies that ability is situational and task-specific, rather than applying to an individual or an agency as a whole. In this dissertation, the ability in question was whether the government had the ability (competencies) to run mass prophylaxis clinics. Wang and Van Wart (2007) suggest that trust could be strengthened when the public has a chance to positively interact with governmental officials, and that trust can be strengthened even when the government does not perform

perfectly. This dissertation tested the possibility that The Drill, even with its shortcomings, had the potential to foster a positive view of government's ability running mass clinics established to dispense flu vaccinations and, therefore, have a favorable impact on their development of trust in government.

The next factor influencing trust is integrity, which in this case means that the trustee follows a set of principles that is acceptable to the trustor (Mayer, Davis, & Schoorman, 1995). If the trustor does not feel that the way in which the trustee acts is acceptable, it is less likely that the trustee will be credible.

This dissertation research consisted of secondary analysis based on responses provided by participants in The Drill, a case study of a mass vaccination clinic in Bucks County, Pennsylvania conducted in 2006. The Drill distributed vaccine differently than many people are accustomed to. Although the distribution method used was somewhat different, the method in which participants received their vaccinations still needed to be acceptable to them. There were also many changes in the way The Drill participants received shots as new methods were tested that provided an opportunity to assess their experiences and feelings. In this sense, Drill participants were also uniquely poised to potentially have an increased level of trust in government.

The final factor of trustworthiness in the Mayer et al. (1995) model is benevolence, which Mayer, Davis, and Schoorman define as the "extent to which a trustee is believed to want to do good to the trustor" (p. 718). Benevolence implies the formation of a relationship between trustee and trustor. In the context of the present research, benevolence is relevant in the sense that there is a relationship between the public and government and the presumption that the latter inherently possesses good

intentions and motives toward the public it serves. Jones, James, and Bruni (1975) argue that the development of confidence and trust is influenced by leadership behaviors that imply a very personal and involved relationship between a leader and its followers. The development of the relationship between the trustor and the trustee allows the trustee to be responsive to the needs of the trustor. Although benevolence implies that the trustee will act in a beneficial manner towards the trustor, it is also important that the trustor deems the trustee's actions to be necessary and important. To feel that the trustee is aiming to "do good" towards the trustor, the trustor must believe that the action is of some importance and/or relevant to his/her life (Mayer, Davis, & Schoorman, 1995). Therefore, this dissertation also assessed the extent to which Drill participants viewed preparedness planning and activities conducted by Bucks County health officials as being relevant to their lives. According to the model presented, the higher the degree of relevance an individual feels towards an activity -- in this instance -- a preparedness drill, the more trusting he/she is likely to be of it, as well as about those conducting it.

Government, Civic Engagement and Trust

Public trust in the United States government by Americans has fluctuated and has often been influenced by events throughout its history. In the late 1950s and early 1960s, public trust and confidence in government was high, which may have been a result of a strong economy and strong presidential leadership (Parker, 2004). There has been a general declining trend of trust and confidence in government since the early 1960s, precipitated by an extremely low point in trust in 1974 in response to the Watergate scandal (Parker, 2004). While there was a definitive decline in public trust associated with Watergate (a decline from 53% of the public who trusted the government in 1972 to

36% in 1974), a declining pattern of public trust had already begun to form possibly associated with the events of the 1960s (e.g., racial unrest related to the Civil Rights Movement, the declining support for the Vietnam War) (Parker, 2004).

Throughout the 1970s, the United States suffered an economic slowdown that coincided with a further decline of public trust in its government leading to a finding in 1980 that "a mere 25% of Americans said that they could trust the government in Washington to do what is right just about always or most of the time" (Parker, 2004, p. 3). Public trust in government recovered somewhat in the early 1980s, and by 1984, 44% of Americans reported trust in the federal government (Parker, 2004). This upsurge in public confidence ended with the Iran-Contra scandal, and public confidence continued to decline throughout the early 1990s often attributed to public scandals and partisan politics (Parker, 2004).

Following the attacks of September 11, 2001, public trust in government reached new heights, when according to a Gallup/CNN/USA *Today* poll conducted in October 2001, 60% of Americans expressed trust in government (Parker, 2004). The increase in trust and confidence reported by the public regarding the government after September 11, 2001 has not been sustained. As previously stated, a 2006 study determined that only 42% of Americans believe that the United States is prepared for a terror attack, a reduction of 16% since Hurricanes Katrina and Rita, suggesting that not only is public confidence in the preparedness by the U.S. government low, but that it is further declining (Redlener, 2006).

Although there are many reasons for this decline in public confidence in government, Wang and Van Wart (2007) noted that many strategies to reverse it involve

programs and/or policies aimed at increasing the public's participation in civic affairs. Several studies have shown that increasing public participation in civic activities leads to an increase in public trust (Boeckmann & Tyler, 2002; Wang & VanWart, 2007) as well as an increased understanding of the issues at stake. Wang and VanWart (2007) emphasize that public participation leads to trust through many different factors such as information sharing and responsive improvement of services. Although there seems to be a consensus that increasing participation can increase the public's trust and confidence level, this dissertation tested how three factors which lead to trust can be affected by participation in a local preparedness drill conducted in Bucks County.

Trust and Cooperation

Research on the link between trust and cooperation has shown that when trust was high, individuals were more cooperative than in situations where there was a low level of trust (De Cremer, Snyder, & DeWitte, 2001). The same authors contend that in order to be viewed as a trustworthy authority, a government must be responsive to the needs and wants of the community that it governs (DeCremer & Tyler, 2007). If the community feels as if its government is responsive to its expressed needs and wants in a transparent way, it is more willing to cooperate in a majority of situations (De Cremer & Tyler, 2007). De Cremer and Tyler's (2007) study of the effects of trust and procedural fairness on cooperation with authorities using both lab and field studies further found that trust in and the appearance of fairness (i.e., acceptability of an action and/or method to the public) by the authority determined people's level of cooperative behavior. However, the same authors also found that the appearance of fairness had the greatest effect on cooperation only in situations where trust in the authority was high. The authors

recommended that authorities promote cooperation among the public by enhancing the perception that governmental agencies operate with fairness. In the context of this study, in order to enhance the perception of fairness, government planners can increase the transparency of preparedness planning by involving the public in planning activities such as drills. This dissertation tested how public inclusion in preparedness drills can affect participants' levels of trust in the plans developed by Bucks County health officials.

Trust has been shown to have an effect on cooperation (DeCremer & Tyler, 2007; Parks & Hulbert, 1995) in addition to other situational attributes and feelings that may also affect the relationship between trust and cooperation. Parks and Hulbert (1995) conducted an experiment to determine how the introduction of fear into a situation can affect the influence trust exerts on cooperation among college students in a payoff matrix game where students played two types of games: public goods and resource dilemma. A public goods game involves a "limitless entity that can be used by the entire group" (Parks & Hulbert, 1995, p. 719). Although the game requires group members to contribute to an entity, the use of one is not restricted to those who contributed (i.e., a person can use a resource and not pay for it as is the case, for example, with public radio, or a person could pay for a resource but not receive any because it was depleted by others) (Parks & Hulbert, 1995).

In a resource dilemma game, an entity to which all group members have access to is periodically replenished. In this type of game, a resource may be depleted before it is replenished depending upon its usage by group members (such as an office candy dish, from which all can take but only one person refills weekly) (Parks & Hulbert, 1995). In both of the noted situations, if the group members trust and cooperate with each other,

they will be able to prolong the availability of resources and all will benefit. However, without trust and cooperation the resources will be depleted and everyone will lose.

Parks and Hulbert's (1995) results showed that when fear was added to the game, those with higher levels of trust were more likely to cooperate than those reporting lower levels. The authors concluded that the level of trust reported by one party towards another only influences cooperative behavior when there is an atmosphere of fear. Mayer's (1995) definition of trust includes the "willingness of a party to be *vulnerable* to the actions of another party" (p. 712), suggesting that there is some risk and/or fear that results in feelings of vulnerability by one party. In the case of public health preparedness, cooperation by the public will be needed during an emergency in which the public at-large will be likely experiencing some level of fear and/or vulnerability. In light of Parks and Hulbert's study, government emergency planners would be able to influence the public's level of cooperation during an emergency by incorporating strategies with the potential to increase trust in the public at-large towards government. Accordingly, this study investigated how the inclusion of the public in a government-sponsored preparedness drill affected the level of participants' trust and confidence regarding government's role. Thus, if the government could help increase drill participants' level of trust and confidence in the public sector, it could also likely increase their cooperation during an actual emergency.

Emergency Preparedness, Trust, and Cooperation

The literature on emergency preparedness suggests that during any emergency it is imperative that public trust and cooperation with government workers helps mitigate the effects of a disaster (Covello, 2001; Jenkin, 2006; Lasker, 2004; Redlener, 2005).

Although a government will typically issue instructions and information to the public during an emergency, if the public mistrusts the agency communicating information, it is more likely to ignore its instructions (Jenkin, 2006). When there is a lack of trust, information that could be essential to the public is often discounted. Therefore, it is essential for government workers to build trust with the public, especially since public trust in government has declined in recent times (Jenkin, 2006). Not only should government aim to build trust with the public, but also aim to issue specific actionable information regarding preparedness plans and emergency response whenever possible (Jenkin, 2006). Thus, this dissertation examined the impact of allowing the public to participate in emergency drills in which they received specific information about how they were to receive medication and/or vaccination during an emergency and throughout the process on their level of trust. Jenkin also suggests that it is important that the public's priorities and concerns be taken seriously. By seeking feedback after their participation in The Drill, respondents expressed their concerns and priorities. Prior to this dissertation research, many local health departments and other government planning agencies did not provide an opportunity for drill participants to comment on their experiences. Following Jenkin's (2006) research relative to seeking feedback from the public regarding preparedness drills, this dissertation examined the effects of participants' experience on their level of confidence in local government's responsiveness to an emergency.

The data for this dissertation were collected through a survey of The Drill's participants who consented to be contacted. It should be understood that the Bucks County Department of Health initiated the mentioned survey. The following research

questions derived from the mentioned Bucks County Department of Health survey were critical for developing this dissertation:

1. Does public participation in a preparedness drill have an effect on the public's level of trust in government planning?
2. Can the creation of a demographic profile of drill participants identify subgroups of the population that did not participate in The Drill, thereby identifying those that need additional cluster-specific outreach by local government?

Moreover, this dissertation tested how the general model advanced by Mayer, Davis, and Schoorman could be modified to show how participation in a preparedness drill can affect mediator variables which, in turn, affect the public's level of trust and confidence thereby leading to increased levels of cooperation with government planners in an emergency as demonstrated by Lasker (2004). In addition, this study also aimed to identify subpopulations of the Bucks County community that did not participate in The Drill. By reaching out to a sample of key influentials in two communities that did not participate, this study developed a set of recommendations on how to most optimally identify and engage hard-to-reach subgroups in future community preparedness drills.

Chapter 3: Methods

Participants

A total of 3,348 people (0.55%), of the estimated 612, 210 Bucks County residents, participated in The Drill on November 18, 2006. The average participant's age (mean) was 53 (SD 19.1), with ages ranging between eight to 93 years old. Fourteen pregnant women participated. Moreover, a total of 2,231 participants (66.7% of all participants), 18 years of age or older authorized BCDH to contact them for further information about their response to The Drill. Children less than 18 years of age were excluded from this study because most of those 18 years of age or younger are subject to preparedness decisions of their parents and/or guardians. In addition, a random sample of 600 participants derived from the 2,231 who authorized further contact was surveyed for the purpose of this dissertation's research.

There were two factors contributing to the decision to use a sample size of 600 participants. First, the sample's size is consistent with sampling estimates derived from survey studies assessing psychological and other responses collected from residents of New York City after the September 11, 2001 attack (Chen, 2003; DeLisi, 2003; Laugharne, 2007; Schlenger, 2002; Vlahov, 2002). Each of these studies involved taking a survey of a sample of individuals affected by the terrorist attacks of September 11, 2001. In the nine studies reported upon, sampling estimates ranged from 555 to 2,752 participants, with a reported average sample size of 1,642. Second, the sample size of 600 reflects the actual number of consenting participants as well as the resources of

BCDH. Based on its in-house resources, BCDH could only accommodate such a sample size.

Bucks County is centrally located in southeastern Pennsylvania; a mere 26 miles from Philadelphia, 75 miles south of New York City, and 158 miles north of Washington D.C. According to the U.S. Census Bureau (2005), Bucks County has an estimated population of 612,210 people with a relatively equal distribution of males (49.5%) and females (50.5%). The county is largely White (91.1%) with few African Americans (3.2%), American Indian or Alaska Native (0.1%), Asians (3.1%), Native Hawaiian and Other Pacific Islanders (0.1%). The median age of county residents is 40; however, its elderly population is large (75,890 residents are 65 years of age and older). Along with the elderly population, Bucks County has other vulnerable populations. Approximately 12% of the population report disability status and 7.2% are foreign born. In fact, there are many languages spoken in Bucks County, and approximately 10% of people over the age of five speak a language other than English at home.

Measures

Drill Participant Survey. Due to the paucity in the scientific literature exploring community involvement in public health preparedness planning, there were no standard surveys to draw from to assess community residents' involvement in prior drills. A survey was developed by employees of the BCDH, and a draft was forwarded to local experts (i.e., representatives of the Delaware Valley Healthcare Council) for their review and suggestions. After modifications were made by BCDH employees, a 30-item survey was developed inclusive of questions about participants' demographic characteristics, experiences during The Drill, concerns during a potential emergency, level of personal

preparedness, along with their responses and recommendations regarding future government preparedness planning (Appendix A). This telephone survey was administered by employees of BCDH between May and October of 2007.

Variable Formation. The dependent variable, change in confidence, was derived from two questions on the survey. Participants were asked if they were confident prior to the Drill, and then were also asked if they were confident after The Drill. The new variable, change in confidence, was created. Those who had a change in confidence were not confident prior to The Drill, but reported they were confident after The Drill. Those who did not have a change in confidence reported that they were confident before The Drill, and remained so after The Drill, or that they were not confident prior to The Drill and remained so after The Drill.

The first factor of trustworthiness examined was integrity, the acceptability of The Drill's experience by its participants. Survey questions in this category were related to how participants experienced The Drill (Appendix B). A total of seven yes/no questions were asked regarding integrity. Each "yes" answer contributed one point to the overall integrity response which ranged from 0 (no integrity) to 7 (highest level of integrity).

Table 1: Frequency Analysis of Integrity Variable

Integrity	***Number of Responses***	***Percentage***
6 (low)	3	0.9%
7	5	1.6%
8	5	1.6%
9	51	16.1%
10	243	76.9%
11 (high)	8	2.5%

As the responses were not distributed evenly, a new dichotomous variable for integrity was constructed and was used in all analyses.

Table 2: Frequency Analysis of New Dichotomous Variable Integrity

Integrity	***Number of Responses***	***Percentage***
No Integrity	64	20.3%
Integrity	251	79.6%

To determine whether participation in The Drill affected respondents' view of its relevance, the second factor of trustworthiness, a number of yes/no questions were asked. The first question asked respondents if they thought that Bucks County could be affected by a large-scale disaster. If a participant did not believe that Bucks County could be affected by a large-scale disaster, then it was evident that preparedness activities were not relevant to him/her. If the participant truly believed that an emergency could not or would not occur in Bucks County, any government-sponsored preparedness activity had no personal meaning and, therefore, would not have any impact on his/her level of trust in government. The survey also asked respondents whether they would be willing to participate in local government preparedness planning, and whether they would be interested in volunteering to aid county officials plan future activities. If a participant was willing to give his/her own time to help the county prepare for and conduct these activities in the future, he/she must have viewed these as worthwhile and possibly considered them relevant to his/her life. If one does not believe that preparedness activities are relevant, one will most likely not volunteer to help county officials. Finally, respondents were asked whether participating in The Drill made them reflect about their

own level of personal preparedness. If a participant had taken time to reflect upon his/her own level of preparedness, he/she most likely felt as if the preparedness drill was personally relevant. If a participant expressed that The Drill was a relevant activity for BCHD to sponsor, he/she may begin to examine his/her level of preparedness in the event of an actual emergency. A total of four yes/no questions were asked regarding relevance. Each "yes" answer contributed one point to the overall relevance response which ranged from 0 (no relevance) to 4 (highest level of relevance).

Table 3: Frequency Analysis of Relevance Variable

Relevance	***Number of Responses***	***Percentage***
0 (low)	3	0.9%
1	37	11.7%
2	69	21.8%
3	103	32.6%
4 (high)	100	31.6%

As the responses were not distributed evenly, a new dichotomous variable for relevance was constructed and was used in all analyses.

Table 4: Frequency Analysis of New Dichotomous Relevance Variable

Relevance	***Number of Responses***	***Percentage***
No Relevance	109	34.5%
Relevance	203	64.2%

The third factor of trustworthiness which can affect participants' trust and confidence levels is "ability" which, in this case, involved their overall impression of the mass clinic

and government preparedness activities prior to The Drill (Appendix B). The "ability" measure aimed to determine whether participants felt that the public sector had the ability to operate the mass clinic where they were immunized. The first question attempted to ascertain participants' view of their overall experience at the time of The Drill. The question asked whether participants felt that The Drill alleviated any of their preparedness concerns. If indeed their concerns were alleviated, it was assumed that The Drill functioned properly and that BCHD had shown the "ability" to properly set-up and run mass prophylaxis clinics. The next group of questions concerned the government's "ability" to properly communicate and advertise The Drill and other preparedness activities. The first question regarding communication was whether prior to The Drill they were aware of any of the county's preparedness activities. The next question concerned whether they knew that the mass clinic was part of Bucks County Emergency Preparedness Planning. If the public was properly aware of preparedness activities, it could be assumed that government was demonstrating its ability to properly communicate planning activities and instructions. The government must not only be able to properly run mass prophylaxis clinics, but also inform residents about their existence and location in the event of an emergency. Government's ability to properly communicate with the public regarding the availability of mass prophylaxis clinics would be a large part of the success of any public sector response, independent of the proper functioning of mass prophylaxis sites during an actual emergency.). Each "yes" answer contributed one point to the overall ability response which ranged from 0 (no ability) to 3 (highest level of ability).

Table 5: Frequency Analysis of Ability Variable

Ability	*Number of Responses*	*Percentage*
0 (low)	33	10.4%
1	84	26.6%
2	146	46.2%
3 (high)	36	11.4%

A new dichotomous variable "ability" was therefore constructed from responses to three questions asking participants about their experience as listed above. The lower the score, the less likely participants felt the county was prepared to operate a mass vaccination clinic.

Table 6: Frequency Analysis of New Dichotomous Ability Variable

Ability	*Number of Responses*	*Percentage*
No Ability	117	37.0%
Ability	182	57.6%

Finally, to measure the impact of intrapersonal factors that may affect trust and confidence levels, demographic information including age, gender, disability status, educational level, race, and language spoken at home, initially requested from respondents, were used. Participants were also asked questions regarding their own levels of preparedness. Intrapersonal factors such as whether they had a family/personal emergency/disaster plan for themselves, food supplies for three days in their home, and

whether they thought that planning for a disaster is the best way to reduce its negative impact, were added to the model.

Protection of Human Subjects

Drexel University's Internal Review Board approved this study on May 9, 2007 under its Exempt Category 4. Accordingly, the BCDH provided de-identified data for this study. Completed surveys along with any identifying information were housed at the BCDH. Survey responses and the last three digits of participants' zip codes were also provided for analysis within the context of this study.

Procedures

The survey was administered between May and October of 2007 by employees of the BCDH. A total of 317 participants completed the survey resulting in a response rate of 53% (20% refused participation, 3% listed a wrong telephone number, and 23% were non-responsive). A total of 600 drill participants were randomly selected from respondents who authorized further contact. Additionally, BCDH employees were trained on the survey's administration, and subsequently administered one practice survey to a fellow employee prior to its implementation. The first call placed to the selected participants was made during a work week in May 2007, between the hours of 9 am and 4:30 pm. In instances when a call went unanswered, subsequent calls followed for a maximum of seven calls on different days of the week. If no response resulted thereafter, the number was recorded as "non- responsive." Follow-up attempts were made by calling each unanswered number during a given week, in both the daytime and evening hours as well as on weekends.

Descriptive Analysis

Descriptive analyses of demographic characteristics of the 316 study participants were conducted. Additionally, frequency distribution of gender, disability status, educational level, race, and language spoken at home was presented.

Quantitative Analysis

*Trust and Confidence***.** In this study, the first research question concerning how participation in a government preparedness drill can affect participants' level of trust and confidence in government planning was answered using logistic regression. Logistic regression produces a model in which the independent variables (both categorical and continuous) are able to predict the outcome of a binary (dichotomous) dependent variable. The Hosmer & Lemeshow test was used to assess the goodness of fit of the model.

The dependent variable under study is whether or not Drill participants felt more confident after their participation in it. Other factors included in the regression analysis were survey questions related to three factors of trustworthiness (ability, integrity, and relevance), and the intrapersonal factors previously described. Missing data were excluded from the analysis.

Participants who indicated they were confident prior to The Drill were excluded from this analysis as they were unable to become more confident. In addition, only one participant indicated that he/she was confident prior to The Drill and became not confident after it and was therefore excluded from the analysis. Each of the proposed variables for the model (ability, integrity, relevance, age, gender, disability status, educational level, race, language spoken at home, existence of a personal disaster plan,

food supplies for three days or more, and whether respondents thought planning was the best way to mitigate disaster effects) were explored through a descriptive analysis.

Disability status, measure of integrity (one of the factors of trust), race, foreign born, whether people thought planning was the best way to mitigate disaster effects, and language spoken at home were all dropped from future analyses because there were insufficient respondents distributed across the different responses. For example, there was only one American Indian in the sample, so using race with such a small sample size was unwarranted. Therefore, these categories were excluded.

Bivariate analyses were run with each of the remaining variables (ability, relevance, age, gender, educational level, existence of a personal disaster plan, and food supplies for three days or more) and the dependent variable (change in confidence level). Logistic regression was used to explore the predictive ability of the factors related to trustworthiness which, within the context of The Drill, enhanced participants' confidence in government preparedness planning. In addition, logistic regression was used to explore not only the predictive ability of factors related to trustworthiness in changing participants' confidence level, but also the predictive ability of participants' level of confidence after The Drill regardless of prior attitude.

Identification of Vulnerable Populations

The second question this study examined was whether the creation of a drill participant profile can help identify subgroups within the population that did not participate, and who may need additional assistance in the form of community outreach by local government. This study created a profile of the catchment area for each drill site, and compared these data with that of The Drill's participants to explore the different

distributions of demographic data derived from the U.S. Census Bureau for its catchment area. BCDH's intent was to not only provide its constituents the opportunity to receive a free flu shot to all, but also wanted to ensure that all subgroups within its population were aware of the method used to distribute prophylaxis in the event of an actual emergency. BCDH officials know from prior experience that not all segments of its eligible population are aware of drills it sponsors. BCDH posits that Drill participants were different from its general county population because only traditional methods of communication were used to advertise it. Furthermore, BCDH made no special efforts to reach out to different subgroups within the county that are historically underserved (i.e., African Americans and Latino communities). Identifying differences between those who participated and the county at-large population brought to light those groups not reached by BCDH's advertisement and outreach efforts.

To further aid BCDH in identifying vulnerable populations, descriptive analysis was conducted through the use of different survey questions (see Appendix C).

Qualitative Analyses

Semi Structured Interviews. Key informant interviews were conducted with local leaders active within the Bucks County health and human services agencies network as well as those serving specifically the African American and Latino communities within Bucks County. Through referrals and recommendations, a total of 17 key informants were identified and interviewed. These stakeholders represented a variety of different agencies including the Doylestown Free Clinic, No Longer Bound, Girl Scouts of America, local schools, the Weed and Seed Project, Young Women's Christian Association (YWCA), the Latino Alliance, Planned Parenthood, Entourage, and the National Association for the

Advancement of Colored People (NAACP) (see Appendix D for descriptions of each agency). The goal of these interviews was to elicit suggestions about how to better reach and engage African American and Latino populations that did not participate in The Drill. The interviews also aimed to query these key informants about how to best identify and engage Bucks County residents who are members of specific subpopulations so as to ensure the likelihood of their inclusion in future community preparedness drills. Interviews were conducted with individuals except when a group interview was requested by leaders and key informants within specific organizations due to time constraints (please see Appendix E for interview questions).

Interviews were tape-recorded and lasted approximately 45 to 60 minutes in length. Each interview was transcribed, and common themes and suggestions were extracted and clustered thematically. Themes consistently mentioned and recommendations and proposals regarding how to enhance participation of the mentioned subgroups in county-sponsored preparedness activities were identified. This feedback was the basis for developing a set of recommendations to assist government relative to engaging historically marginalized minority populations.

Chapter 4: Results

This study examined how a specific local preparedness drill in Bucks County, Pennsylvania can affect participants' level of confidence and trust in government preparedness activities. In addition, this study also identified specific county subpopulations that did not participate in The Drill. In an attempt to reach out to the missed populations, key informant interviews were also conducted with local community leaders representing organizations and agencies specifically committed to serving the populations that did not participate in The Drill. Based upon the responses provided by these local leaders, recommendations and suggestions on how to reach out to, specifically, African American and Latino populations were created.

Descriptive Analyses

Table 7 below, presents the demographic characteristics of study participants (N = 316). There were more women (60.1%) in the study sample than men (39.9%). The sample consisted of mostly older individuals with 48.4% of them being 60 years of age or older. The study sample consisted of 24 (7.6%) people who self-identified as having a disability. The sample's population was predominately well educated; 53.3% had attended or earned a college degree, while only 100 (32.0%) of them stopped their education upon completion of high school or before. The sample's population was also largely White (94.0%) and native born (97.2%), with most respondents speaking only English at home (97.8%).

Table 7: Demographic Profile of Study Participants

Demographic Characteristics		**N=316**
Age	20-39 Years	12.7% (40)
	40-59 Years	38.6% (122)
	60 +	48.4% (153)
Gender	Male	39.9% (126)
	Female	60.1% (190)
Disability	Yes	7.6% (24)
	No	92.1% (291)
Educational Level	High School Education or less	31.6 (100)
	College Education (some college, associates, or bachelors degree)	53.5% (169)
	Graduate Degree	12.3% (39)
Race	White	94.0% (297)
	African American	0.9% (3)
	Am. Indian	0.3% (1)
	Asian	0.6% (2)
	Native Hawaiian	0.3% (1)
	Other	0.6% (2)
Foreign Born	Yes	2.8% (9)
	No	97.2% (307)
Language at Home	English alone	97.8% (309)
	Other	2.2% (7)

Identification of Vulnerable Populations

In order to identify the populations that did not participate in The Drill, profiles were created to discern the make-up of the population that could have participated in it. Catchment area profiles were developed from demographic census information for each site's zip code in addition to each adjoining zip code (Pennridge =11 zip codes, Council Rock= 7 zip codes and Levittown =6 zip codes). See Appendix F for catchment areas and sample population demographic characteristics.

All three sites linked to The Drill drew an older, more female, non-disabled, highly educated, White, English-speaking population than is representative of its respective catchment area. Although these sites were intended to provide services for their entire catchment area, the two populations – those participating in The Drill and the county at-large population -- differed markedly in their demographic profiles. The Pennridge catchment area did, however, draw a representative foreign-born population (4.8% for the catchment area compared to 4.7% for the actual site).

To assess some of the transportation difficulties experienced by Drill participants as well as to whether they felt transportation may have impeded others they knew from participating in The Drill, a descriptive analysis was conducted based on survey questions related to transportation (see Table 8 for results).

Table 8: Descriptive Results for Transportation Related Survey Questions

Survey Question	*No*	*Yes*
Did you have trouble getting to the facility?	304 (96.2%)	12 (3.8%)
Would you be able to get to a POD in an emergency?	5 (1.6%)	310 (98.1%)
Are you worried about someone you know not being able to get to a POD in an emergency?	246 (77.8%)	70 (22.2%)
Would you be comfortable having a representative pick up medication for you?	146 (46.3%)	164 (51.9%)

Most of The Drill's participants reported that they did not have trouble getting to the site (96.2%). However, there were a few (3.8%) who did have difficulty. Among those who had difficulty, 50% reported there was a lack of signage, and 41.7% reported that the address was unclear. When asked if they would be able to get to a POD in an emergency, only 1.6% stated that they would not be able to do so, suggesting that some of those who had trouble reaching a site might be able to reach a POD in an actual emergency. Approximately a quarter (22.2%) of the sample's population stated that they were worried about someone they knew not being able to reach a POD in the event of an emergency. In an effort to reduce the number of people who would have to reach a POD in an emergency, an individual could be designated to pick-up medication for more than

just his/her own family, and thus assist those faced with transportation difficulties. However, only 51.9% of the sample stated that they would feel comfortable having someone else retrieving their medication.

Trust, Integrity, Relevance, and Confidence Analysis

A total of 212 (67.1%) of the sample population reported a change in their confidence level in Bucks County preparedness plans, becoming more confident in the planning after their Drill experience. Those who reported they were confident prior to The Drill were excluded. Each of the proposed variables for the model (ability, integrity, relevance, age, gender, disability status, educational level, race, language spoken at home, existence of a personal disaster plan, food supplies for three days or more, and whether they thought planning was the best way to mitigate disaster effects) were explored through a frequency analysis.

Disability status, measure of integrity, race, foreign born status, whether people thought planning was the best way to mitigate disaster effects and language spoken at home were all excluded from future analysis as there were not enough respondents distributed across the different responses. Only 6.8% of the sample's population stated they had a disability; there was only one American Indian individual participant; only 1.5% of the sample spoke another language at home; and only 2.3% of the sample's population stated that planning was not the best way to mitigate disaster effects. Using these variables with such small size categories was unwarranted and, therefore, these categories were excluded.

One of the variables of the model, integrity, also had a sample size that was too small, and there was little variability across the measures in that all respondents reported

the same information. The variable, integrity, was therefore excluded from further analysis.

Predicting changes in confidence. Participants answered survey questions regarding whether they felt confident prior to The Drill and whether they felt confident thereafter. Only participants who reported that they were not confident initially (n = 251) are included in these analyses, since those who were confident at baseline were not able to change to greater confidence. All analyses in this section use change to "confident" after participating in The Drill, versus remaining non-confident as the dependent variable.

Bivariate analyses were run with each of the potential predictors (ability, relevance, age, gender, educational level, existence of a personal disaster plan, and food supplies for three days or more), and the dependent variable (change in confidence level) as all values were categorical cross-tabulations resulting in χ^2 statistics and p-values (see Table 9).

Table 9: Associations between Factors of Trustworthiness and Personal Characteristics with a Change in Confidence Level after The Drill*

Variable		*Remained Not Confident After The Drill*	*Became Confident After Drill*	*Test Statistic*
Ability	**No**	**42 (39.6)**	**64 (60.4%)**	**χ^2= 44.65****
	Yes	**8 (5.5%)**	**137 (94.5%)**	
Relevance	No	22 (22.2%)	77 (77.8%)	χ^2= 0.771
	Yes	29 (17.8%)	134 (82.2%)	
Age	<60 years	31 (22.2%)	110 (78.0%)	χ^2= 0.743
	60+ Years	51 (17.7%)	102 (82.3%)	
Education	High School or less	16 (18.8%)	69 (81.2%)	χ^2= 0.291
	Some College or Higher Education	38 (21.7%)	137 (78.3%)	
Personal Plan	No	35 (20.6%)	135 (79.4%)	χ^2= .240
	Yes	17 (18.1%)	77 (81.9%)	
Emergency	No	6 (30.0%)	14 (70.0%)	χ^2= 1.428
Supplies	Yes	46 (18.9%)	197 (81.1%)	
Gender	Male	19 (18.8%)	82 (81.2%)	χ^2= .233
	Female	35 (21.2%)	130 (78.8%)	

*Only participants who indicated that they were not confident prior to The Drill were included in the above analysis.

**p-value <0.05

Ability was the only variable that was significantly (significance level of $p < .05$) related to a change in confidence after The Drill, (ability $p < .01$). This variable was included in the logistic regression model because of its significance in the context of the bivariate analysis. Relevance was also included in the logistic regression model despite the non-significant bivariate analysis results due to its importance in the development of the model of trust. In addition to ability and relevance, demographic variables (age, educational level, and gender) remained in the model as control variables. The results for the logistic regression model, excluding participants who were confident prior to The Drill, are presented in Table 10, below. This analysis suggests that ability was the only significant predictor of increased confidence in government after participating in The Drill.

Table 10: Predictors of Change in Confidence Level after The Drill: Logistic Regression Results*

Independent Variables	β	*SE*	e^{β}
Relevance	-0.48	0.39	0.62
Gender	-0.27	0.39	0.76
Education	-0.1	0.39	0.99
Age	0.45	0.40	1.57
Ability	**2.62**	**0.45****	**13.80**
Constant	0.59	0.54	1.80

*Only participants who indicated that they were not confident prior to The Drill were included in the above analysis.

**p-value <0.01

The model including relevance, gender, education, age, and ability as independent variables was significant with a p-value of .001. The Hosmer and Lemeshow Test did not indicate any violation of the model's assumptions. There was one significant independent variable in the model: ability (p-value <0.01). The model suggested that among participants initially not confident, those reporting that government had the ability to run mass clinics during The Drill were 13.8 times more likely to become more confident in it than those who reported the mass clinic was run improperly.

The model correctly classified 96% of those who changed from not being confident to being confident after The Drill. However, the model only correctly classified 21% of those who did not become confident. The cut off value used was 0.5, meaning that if the respondent was estimated to have at least a 50% chance of becoming confident, the model classified them as being confident. It should be noted that this model is not a model for prediction. However, it does have some explanatory value. There are other factors which will influence a person's change from not being confident to becoming confident.

Predicting final confident/not confident status. To further explore how factors of trustworthiness predict confidence in government, a logistic regression analysis was used including all study participants to determine the factors' predictive value in determining participants' final confidence level after The Drill, regardless of whether there was a change or not. Results of the model are presented in Table 11, below.

Table 11: Absolute Confidence Level after The Drill by Independent Variables Including All Participants: Logistic Regression Results

Independent Variables	β	SE	e^{β}
Relevance	-.087	0.38	0.92
Gender	0.01	0.38	1.01
Education	0.17	0.42	1.19
Age	0.41	0.4	1.51
Ability	**2.51**	**0.45***	**12.3**
Constant	0.46	0.53	1.58

*p –value <0.01

There was one significant independent variable in the model: ability. The model suggested that those who reported that government had the ability to run the mass clinic during The Drill were 12.3 times more likely to be confident in the public sector after their experience than those who reported it was incapable of doing so. These results are similar to those of the previous regression analysis, suggesting that perceived governmental ability is a strong predictor of public confidence.

Qualitative Findings

Community Leader Interviews. Semi-structured interviews were conducted with 17 key leaders serving the African American and Latino communities in Bucks County, Pennsylvania. These key stakeholders were promised confidentiality, so individual names are not reported. However, the agencies they represent are listed (see Appendix D for agency descriptions). Salient themes that were identified in more than one interview were clustered for purposes of analysis, and are presented as part of this dissertation's findings.

Emergency Preparedness and Daily Survival. The community leaders who were interviewed consistently stated that they did not believe that their agencies' constituencies -- whether African American or Latino -- were prepared for emergencies, regardless of their type or scope. Many of them stated that they believed that their clients were consumed with daily aspects of survival, and were therefore unable to think about preparing for the unknown. One practitioner from the Free Clinic of Doylestown stated:

> They are really like the people who got caught in [Hurricane] Katrina. They don't read the paper. They don't have access to money to barely get here [Doylestown Free Clinic]. I mean, we [Doylestown Free Clinic Staff] have started to do off-site clinics so that we can get closer to where they live. They have very little awareness of health prevention. …We started doing a medical clinic during some of their [Quakertown Food Pantry] food pantry hours…They [Quakertown Food Pantry] have some people that drive to the food pantry to get food, and run out of gas in the parking lot and can't get home. [They have people] who walk to the food pantry two to three miles just to get food …who don't have electricity and people think Bucks County is affluent…; not necessarily.

Echoing the point that ethnic minority communities are often preoccupied with daily survival, another practitioner from the Doylestown Free Clinic stated "so many

things have happened in the last couple of years, 9/11, Katrina…all these big disasters and they are like, 'it's too much for me to think about. I deal with it when it comes'."

Awareness of Local Emergency Preparedness. In addition to believing that communities they serve were not prepared for emergencies, agency representatives reported that their constituencies were unaware of Bucks County's planning activities, including recent Pandemic Flu drills. However, only some of these agencies' staff and community leaders who are either employed by a health care system or are health professionals themselves were aware of BCHD's clinics. When asked about the clinics' existence, a nurse working with the NAACP stated: "No, and that is what is trippin' me out!" She asked whether BCHD advertised its clinics. When told about newspaper, radio, and web advertisements, she stated: "I don't really read the paper, because I feel it is totally one-sided, so I choose not to purchase it." Other agency representatives interviewed also relayed a lack of connection to local mainstream media. Representatives from the Latino Alliance and the YWCA stated that they didn't watch much "American television," but rather gained their news and information from Spanish television stations such as Telemundo and Univision, and Spanish newspapers such as *Al Dia*.

While BCDH advertised in local newspapers in an effort to publicize The Drill, community leaders stated that not all clients (African American or Latino) read mainstream local newspapers. There are three predominant local newspapers in Bucks County; however, to reach wider segments of the community, representatives from both the NAACP and the Latino Alliance recommended that BCDH advertise in small community papers, including those printed in Spanish.

Barriers to Participation. While the information regarding The Drill did not reach the African American and Latino communities in Bucks County, each agency representative was asked whether he/she thought that their constituents would have participated in it had they known about it. Representatives identified numerous barriers their communities may come across before participating in it. One such barrier is fear, due to the lack of legal immigration status, police presence, or misinformation. A representative from the YWCA stated:

> The main concern that these people might have is that if they go to some place where [a] government agency is…they might be afraid of being questioned, their citizenship, where they come from, things like that. There is a lot of scare going on. There were two situations where Immigration and Custom Enforcement (ICE) came in and took people out of work, so people are more scared to go [to] certain agencies or government type things.

To help people become more comfortable with preparedness activities, Latino and the African American community representatives recommended that BCDH provide more opportunities for minority group participation. They also suggested that community members might feel more comfortable participating in groups rather than doing so as individuals. For example, if the Latino Alliance organized transportation to The Drill, people would be more willing to participate because they would not only be provided with transportation from a trusted

source, but might also feel comfortable participating with those whom they know. The NAACP representative echoed this point, noting:

> if someone is shy, they aren't going to want to come to a group where they don't know [anyone]. And no one wants to feel that way, where they feel dumb, so I think if you go as a group and everyone is going together then you got that support.

This same representative also suggested that social support is an especially important factor in promoting group participation across minority communities.

Community advocates from the Latino Alliance and the School District stated that another impediment is the language/literacy barrier. They expressed that all preparedness information must be made available in Spanish as well as in English. The School District representative stated, "There are very low literacy levels even in Spanish. I have found that a lot. There are varying levels. Written may not still get it done as far as getting information out." She indicated that she primarily depended on word-of-mouth when disseminating important information, and always relied on trustworthy sources within the community to relay it.

Other barriers mentioned by community leaders and agencies' representatives were the lack of trust and misconceptions regarding government as well as within the African American community itself. For example, the NAACP representative said:

> There is a lot of misconception with the idea…do African Americans want to know or [is it that] they don't care…? They will eventually trust you, it will come. I think that the barrier sometimes is trust too…people are

> being misrepresented, there are stereotypes…if someone has to get youth and family services, that is traumatic, but I am sure that they have some proactiveness about it. But they don't see that; they just see they are taking my kids away.

The same representative added that there are misconceptions in the African American community about government and vice versa. She perceived that within the African American community there is a lack of trust in government, and that even within this community there is a perception that the public sector is uncaring. This is due, in part, to the inadequacy government responsiveness relative to events such as Hurricane Katrina. The lack of trust the African American community has towards government may erroneously lead public sector officials to interpret community inaction as meaning disinterest; however, the African American community may not follow emergency instructions due to a lack of trust, as opposed to a lack of interest.

While realizing the numerous present barriers that prevented many African Americans and Latinos from participating in The Drill and other emergency preparedness activities, agency representatives acknowledged their importance once they were made aware. Although the responses about extant barriers crossed all racial and ethnic lines (i.e., lack of information, and an inability to be prepared), recommendations from community leaders and agencies' representatives on how to most effectively link with hard-to-reach populations differed among African Americans and Latinos. To most effectively reach the African American population, the majority of agencies'

representatives serving this group suggested that any messages should be first disseminated to clergy in predominantly African American churches. One representative from the NAACP stated that "in [the Black] community, the church is the base…you know, going to churches, so they [church leaders] could distribute it [information] out".

The Latino population in Bucks County appears to be much more centrally organized than the African American population. Throughout the interviews with different community leaders, three agencies' representatives and/or community leaders were consistently mentioned as being critical in terms of engaging this community: The Latino Alliance, the YWCA, and Michelle Isaac (a local English as a Second Language Program community worker). The agencies predominantly serving the Latino population appear to be more connected with each other than is the case among those serving African Americans. For example, a community worker serving the Latino community explained why it is helpful for school district messages to be routed to her prior to their dissemination within the Latino population. She said:

> …personal contact is very important. Like I used to just give a number out, and say call them for whatever [call a person for assistance in registration or other services]. And I have gotten more and more of an impression that you need a personal connection. So I will say that this is the name of the person there, and she is a really good person. I mean, even just people who call for registration; some just call, but several times, a lot of times, someone calls for them [another individual familiar with the community worker will call to obtain information for someone who is not yet familiar with the community worker]…so I think that culturally, there

> is that need to have a personal [relationship]…if someone came out and did a little presentation and they knew the person, I think that would have more success even than just a flyer in Spanish. It seems like they need to have that kinda trust, I guess.

The same community worker added that she is trusted in the Latino community. She went on to say that even if the information from BCDH was available in Spanish, many members of the community that she serves would still not trust it. However, if the information were to include an introduction from her, it is likely that BCDH would have greater success reaching Latinos. In both the African American and Latino community, lack of trust in government has become a barrier to utilizing public services (such as school programs), and not only emergency preparedness. Community workers from both Latino and African American community service agencies expressed that if government agencies want to reach the African American and Latino populations, BCHD must partner with a person that is trusted in these communities; someone with whom the people in the community are familiar and trust. African American community representatives recommended outreach through the churches; however, Latino community representatives recommended outreach through their agencies' community workers.

Agencies' representatives of the Latino community also noted that word-of-mouth dissemination of information was the best method of advertisement. A community worker from the Latino Alliance stated, "We have been asking for a

long time: 'How do you hear about us?' And more than 95% of it is word-of-mouth. People who are coming to your programs are the ones telling other people about it.

In order to reach further into the Latino population and involve others, community workers have found that they must first build a trusting relationship with those clients who first attended their programs and utilized services. Once individuals felt comfortable, they would begin to bring their friends and families to the agencies.

Despite the different recommended agencies (churches or community agencies) that can best reach the African American or Latino population, one proposal was universal: begin to form a relationship with the community prior to an event by relying on organizations and agencies already serving the desired population. A community worker from the Latino Alliance noted that:

> Because there is already a relationship developed between the client and the agency or the church or the school, so what you want to do is, I hate to use this word, but exploit that relationship to get the information out to them rather than just say: "Look, department of health is putting this on." As soon as they see it is Department of Health, they are like Bucks County Department of Health…government related…no!"

The same representative recommended that BCDH co-host emergency preparedness programs with other trusted agencies, such as the Latino Alliance. BCDH could disseminate emergency preparedness information to the community

by participating in community events hosted by trusted community agencies. Information presented at these events could then become more credible to the Latino population. A representative from the NAACP stated that BCDH should begin to participate in community fairs and local events to become a familiar face within the community. By participating in trusted events, BCDH could begin to form a relationship prior to an emergency. A community worker from the Latino Alliance affirmed, "You want to start to build the trust before an emergency happens, so it is not like all of a sudden they are taking a chance and trusting the Department of Health…to begin to assimilate yourself into the community."

The lack of trust in government was exemplified when the same individual suggested that "instead of maybe like if you do a flyer, the Department of Health should be really-small underneath and have it advertised through someone else…kind of like a bait and switch." The idea here is that ethnic minority communities' lack of trust in government is so sizeable and overwhelming that public sector involvement should be minimized until a trusting bond is formed.

Chapter 5: Discussion

This dissertation focused on the effect of a local preparedness drill in Bucks County, Pennsylvania on participants' level of confidence and trust in government emergency preparedness activities. In addition, this study also identified subpopulations within Bucks County that did not participate in The Drill. In an attempt to include two of these identified subpopulations (African Americans and Latinos), key informant interviews were conducted with stakeholders to gain a better understanding of preparedness levels in the communities, and to elicit recommendations about how to best reach out to and ensure these subpopulations' inclusion in future preparedness drills.

The study's results demonstrate that people who reported that government had the ability to manage the mass clinic during The Drill were more likely to become confident in the role of the public sector than those who did not agree it was run properly. In addition to the quantitative survey results, interviews with key community leaders revealed that African American and Latino populations in Bucks County appear to be unprepared for emergencies, largely due to the difficulties of everyday life, such as providing food for their families and securing a roof over their heads. However, government agencies in general and, BCDH in particular, have also not made an effort to reach out and include African American and Latino populations in emergency planning. Preparing communities for emergencies needs to be done in partnership; both the community and government agencies must understand and cooperate with each other to fully prepare the community for an actual emergency. Community leaders also stated that the current preparedness advertisement and dissemination methodologies are not

effectively reaching their populations, and provided suggestions for different ways to advertise in the future such as working in partnership with Spanish language newspapers, participating in information sessions hosted by trusted community agencies, and forming relationships with key community leaders who can serve as honest brokers. Most importantly, community leaders stressed the importance of forming a relationship with the African American and Latino communities prior to an actual emergency by using agencies and groups already serving these populations. This discussion will further elaborate on the findings of this dissertation within the context of extant research.

Trust, Integrity, Relevance, and Confidence Findings

This study hypothesized that by participating in The Drill, the public's overall confidence and trust in government preparedness activities would increase resulting in a more educated, calm, and cooperative population in an actual emergency. By modifying Mayer's preexisting (1995) model of development of trust, this dissertation aimed to show that by engaging the public and soliciting their input in a preparedness drill there is an opportunity for the public sector to affect people's perception of the following issues:

1. Does the government have the ability (or competency) to run a mass prophylaxis clinic? (Ability)
2. Is the way in which the drill's participants will receive their vaccinations at the mass clinic acceptable to them? (Integrity)
3. Are preparedness activities relevant and, therefore, important to the participants' lives? (Relevance)

Analyses suggested that ability was the only significant predictor of increased confidence in government after participating in The Drill. Relevance was not a

significant predictor of increased confidence, suggesting that while people may or may not think that their lives could be affected by an emergency it does not affect and/or predict how their confidence level could be increased by participating in a local drill. Integrity was removed from the analysis due to small sample size and lack of variability; therefore, its potential effect could not be explored.

This study also suggested that The Drill's participants who did not express confidence prior to it, and who reported that government had the ability to implement it (i.e., were aware that the mass clinics were a part of the county's preparedness planning, had some of their concerns allayed as a result of it, and were already aware of some of the county's planning activities) were 13.8 times more likely to become more confident in government than those who did not feel as if BCHD had the ability to run the mass clinic. By participating in The Drill, those who reported the county had the ability to manage it were able to see and experience for themselves that indeed the public sector has the ability to implement mass clinic plans in uneventful times. It was not just conjecture or simply a plan template, but government exhibited the capacity to manage mass clinics. Therefore, participants' level of confidence in government's ability to prepare for emergencies was enhanced. Lasker (2004) found that the public has little or no trust in government planning, primarily because the public at-large often is unaware of any planning. The research conducted as part of this dissertation has demonstrated that including the public at-large in a preparedness drill can enhance both confidence and trust in government. Lasker (2004) and Redlener (2006) both suggested that a lack of public confidence in government would hinder emergency responses. Moreover, Wray's (2006) recommendations relative to the public's inclusion in preparedness drills as evidence of

government's planning activities, lends credence to this dissertation's findings that public confidence in government response to an emergency can be increased. Consistent with other studies such as Redlener's (2006), these findings further suggest that by increasing public confidence, the public will be more likely to follow instructions issued by emergency responders and cooperate.

Community Leader Interviews

After conducting 17 interviews with key informants from local agencies serving African American and Latino communities in Bucks County, it became clear that emergency preparedness planning was not high on their communities' priority list due to many other economic and societal hardships they face daily. Visible efforts to reach out and include populations that are often underserved also can influence public perception about government's ability to be of service to them and to other vulnerable populations in an actual emergency. This will therefore also increase their levels of confidence and trust in the public sector's preparedness planning activities leading to a more cooperative Bucks County population.

In the wake of Hurricane Katrina and the resulting distrust of government experienced by many racial/ethnic minority and lower income groups, government agencies have undertaken initiatives designed to reach out to vulnerable populations prior to an actual emergency (Cordasco, 2007). If a relationship is formed prior to an emergency, information disseminated during the course of one can be made to be linguistically and culturally appropriate, and can be channeled through trusted local community agencies. In the case of Hurricane Katrina victims, numerous residents of New Orleans did not follow evacuation instructions issued by the local emergency

management authorities because they perceived a "lack of truthfulness and sincerity" on government's part (Cordasco, 2007, p. 279). Had a prior relationship been formed and sustained, the mistrust in government may have been overcome. Public health and emergency agencies have undertaken various strategies to better reach and communicate with vulnerable populations. These include the development of electronic lists inclusive of community service agencies that would allow government agencies to rapidly distribute information and recommendations to local organizations. Information regarding emergencies can be distributed by community based organizations that constitute trusted community resources (ASTHO, 2008).

Upon review of the vulnerable population profile analysis conducted within the context of this dissertation, it also became clear that the county's traditional outreach methods of advertising in mainstream local media and posting information on its website was either not reaching the African American and Latino populations, or that there were additional barriers including fear, language, lack of trust, and misconceptions preventing them from participating. After Hurricane Katrina cast a light on the need for all levels of government to launch specific efforts aimed at engaging vulnerable populations in preparedness planning, the definition of vulnerable populations was widened. Traditionally, people who were elderly, disabled, and young were considered vulnerable; however, since experiencing the tragic events derived from Hurricane Katrina many other populations have also been identified as vulnerable. These include ethnic and racial minorities, those lacking transportation, and individuals with limited or no English proficiency (PA Dept of Health, 2007). For example, findings derived from this dissertation suggest that approximately one-quarter of respondents expressed concern

about someone they knew being unable to reach a POD in an actual emergency. Additionally, slightly less than one-half of the respondents reported being comfortable with someone else picking up their medication in an actual emergency. Findings such as these suggest that government planners will need to explore alternative methods for ensuring access to medication by vulnerable populations lacking adequate transportation. These findings also stress the importance of including the public in preparedness plans that require special attention. While many government planners contend that having someone else pick up medication for a non-mobile individual is viable, half of those sampled within the context of this dissertation did not share that view.

It has been recommended by many agencies ranging from the U.S. Department of Homeland Security (Chertoff, 2006) to the National Organization on Disability (Davis, 2005), that government personnel involved in preparedness planning need to take into account the special needs and specific circumstances of vulnerable populations (Davis, 2005, VanderVeen, 2006). Emergency planners therefore need to begin designing emergency response plans that are culturally and linguistically appropriate. As Ms. Jones, Executive Director of Collaborating Agencies Responding to Disasters stated, "Messages given through government and traditional sources are very much written for American, healthy middle-class people" (as cited in VanderVeen , 2007, Everyone at the Table, section, para 2) rather than low income, racial and ethnic minority groups, or for non-English speakers. Emergency planners must begin to plan with an eye towards the increasing multicultural landscape prevalent in the United States. These must be responsive for peoples of different cultures, languages, and customs, among others, the ill, disabled, and/or homebound as well as the poor. By designing plans and

disseminating information in culturally and linguistically appropriate context, it is likely that most audiences can be reached and that they will willingly engage in preparedness activities.

The Office of Minority Health within the U.S. Department of Health and Human Services has developed national standards for culturally and linguistically appropriate services (CLAS), which were informed by researchers, policymakers, healthcare organizations and consumers. CLAS standards were derived in an attempt to eliminate health disparities. The same approach can be taken locally to ensure that emergency plans are culturally and linguistically appropriate. This process begins by reaching out to vulnerable populations to learn and understand the assets and needs of individuals and their caretakers. By including representatives of the vulnerable populations in the planning of and response to emergencies, government can ensure that those populations are able to take advantage of all available emergency services.

In addition, government officials must reflect both cultural as well as linguistic responsiveness in serving diverse populations. Government planners must ensure that in an emergency, information is communicated in a way that is easily understood by both native and non-native English speakers. Betancourt and colleagues (2003) conclude that these structural barriers and complex systems preventing low socioeconomic groups from accessing healthcare services also inhibit individuals from accessing medical services. For example, "the lack of interpreter services or culturally and linguistically appropriate health education materials is associated with patient dissatisfaction, poor comprehension and compliance, and ineffective or lower quality care" (Betancourt, 2003). Government must therefore ensure that emergency information provided to the public is developed at

an appropriate literacy level, or makes use of pictograms to ensure language and literacy levels are not barriers to accessing emergency services.

The first recommendation derived from this dissertation's research is for government to reach out to community leaders and agencies already serving vulnerable populations. To reach out, government planners can start to meet regularly with community leaders and agencies' staff to form a relationship. By forming and maintaining relationships, government planners can provide emergency preparedness information to community agencies that will, in turn, provide it to its constituents. In addition, as a result of these relationships, agencies can request additional information about other health-related matters government planners can provide. Community leaders stated that vulnerable communities often mistrust government because of past experiences characterized by neglect, insensitivity, and unresponsiveness.

To begin involving communities in preparedness planning, government planners have to become a part of their community and earn residents' trust. Leaders expressed that in order to gain their trust and confidence; one must first become a part of it. Extant community agencies' staff will be able to serve as a bridge into the community. In order to become a part of their community, government planners must first listen to the community agency workers as well as members of the community. Planners must meet regularly with community agencies' staff, not only to discuss emergency preparedness but also to provide health information the community may be interested in. Planners can begin to form relationships with community organizations by listening to and understanding the priorities identified by the community without advocating their own emergency preparedness agenda. By listening to the concerns of everyday people,

government planners can also become a resource for information and a portal into other government services important to the community.

In the process of becoming part of the community, government planners will need to invest time to become more accessible to community members. By becoming a familiar face at local events and meetings, government planners may begin to counteract the fear some community members have regarding government. One representative from the NAACP recommended that planners begin to participate in community fairs and community events. She suggested that participation at these events can help make government representatives more accessible and personable. By providing non-emergency information requested by the community (e.g., diabetes information) and by becoming a familiar face, local emergency planners can begin forming relationships with community agencies' staff in addition to community members. By being presented to the community by a trusted source, leaders stated that their community would be more willing to listen to the preparedness messages and also participate in its activities.

The second recommendation derived from this dissertation's research is to widen government's current methods of mass communication, including alternative ways of reaching the public. Government agencies often advertise in mainstream newspapers, local public service radio stations, and on the internet. However, these modalities often do not reach specific subgroups of the populations, especially those with low English proficiency as well as individuals who are often mistrustful of government.

Due to the level of distrust reported by the public, government planners need to explore alternate methods of communication inclusive of trusted community resources. A representative from the Latino Alliance suggested that the BCDH publicize

events/information to her, and that she would then disseminate the information to her community. She stated that if she were to recommend to community members that they participate in preparedness activities, they would be more likely to do so than if they initially received the information from government. By using community agencies as the distributors of information, local government planners can validate that the information will be disseminated by a trusted source. Using a modality that the community is accustomed to may also ensure they receive and act on the appropriate information. In addition, these community agencies communicate with their constituencies regularly, and know which modalities, such as phone trees and newsletters, are appropriate and under what circumstances. The agencies can ensure that the emergency preparedness information is understandable, and can consult with government planners to make appropriate changes to reflect cultural and linguistic appropriateness. Community leaders suggested that government officials need to develop information in other languages spoken in local communities they seek to serve as well as to advertise in smaller local newspapers, not only the larger county-wide media. Representatives from two Latino service agencies stated that many residents read their local community newspapers distributed for free at grocery stores, and that they do not rely on mainstream sources.

In addition, African American community leaders in Bucks County suggested that government ought to consider collaborating with local social and religious organizations. African American churches have historically played a key role in many aspects of African American life (Taylor, 1987). Therefore, the public sector ought to consider partnering with religious clergy and their congregations as a means of distributing preparedness messages more effectively, and thus genuinely engaging the African

American population (Taylor, 1987). Taylor has posited that Black churches' high degree of impact may be attributable to their position as one of the only large societal institutions "primarily built, financed, and controlled by Blacks" (Taylor, 1987, p. 124). Taylor's research with African Americans demonstrated that most perceived the church as a "source of unity" and a "community gathering place" (Taylor, 1987, p. 133). In addition, the African American church functions not only as a religious base, but as a place for education and socializing within the community. It has also been shown that participation in the African American church has led to improvement of health status of some African Americans (Aaron, 2003). Many African American community leaders in Bucks County also stated that the church is the foundation of this local African American community, and that while everyone does not attend church, most know someone who does. The church pastor is often a trusted source, so by providing clergy with preparedness information, those who may be mistrustful of government may heed the message more than if it were communicated by a government employee. By using trusted social organizations such as food pantries, girl scouts, or school resources, the preparedness message may receive more attention than if it was directly publicized by government.

This research has suggested that by being inclusive of residents' input in a government preparedness drill, government planners can increase the level of confidence experienced by participants who reported a positive experience at mass clinic sites. This positive interaction with government may not only provide participants with the knowledge that the public sector can effectively run a mass immunization clinic, but also enable the public to be confident that government can handle emergency response

incidents; a fact that they may not have previously viewed as being personally relevant. While the engagement aspect of including the public in The Drill did not make participants more interested in becoming a part of its planning, it did serve to increase their level of confidence in government's ability to undertake such an emergency response.

The proposed model of trust tested posits that civic engagement can affect a person's perception of ability and their feelings of integrity and relevance, and that these can therefore lead to an increased level of trust and confidence in government (see figure 1). According to Lasker (2004), the development of trust and confidence can lead a person to become more cooperative with government in an actual emergency. The revised model of trust tested as part of this dissertation provides a method for local government emergency planners to positively effect change in the public's confidence and trust level, by allowing participation in the design and implementation of a local emergency preparedness drill. This dissertation's research further demonstrated that the public's inclusion in a drill in which government exhibited the "ability" to implement and manage a mass clinic led to an increase in participants' level of confidence regarding government's competency in preparedness. The revised model of trust tested as part of this dissertation exemplifies why involving the public in a local preparedness drill is important. In addition, these findings demonstrate how this involvement can lead to increased levels of public cooperation during an actual emergency.

Representatives from subpopulations that did not present at The Drill, such as the Latino and African American populations in Bucks County, appear to view the topic of preparedness as something not directly relevant to them or their communities' lives. To

help form and maintain a trusting relationship between populations that are skeptical and/or fearful of government who do not view emergency preparedness as being relevant to them or their lives, and who also struggle with providing the basics to their families, government planners should aim for their participation and engagement in emergency preparedness drills. Their participation in activities such as The Drill should aim to make these populations more trusting of preparedness plans by experiencing how an emergency clinic can operate.

This dissertation's research also demonstrated a relationship between participation, ability, and formation of trust. Specifically, participants who reported that government had the ability to effectively run a mass immunization clinic, such as The Drill, had more trust and confidence in its preparedness planning ability. Demonstration of an effectively run clinic allowed participants to experience how it would run, and alleviated some of their prior preparedness concerns which, in turn, allowed them to develop more trust in government.

Strengths and Limitations of the Study

One of this study's strengths was the utilization of both quantitative and qualitative methods to gain a better understanding of how participation in a local drill can affect the confidence reported by participants regarding local government planners. This study also provides a better understanding regarding why certain subgroups within the Bucks County population are not participating in preparedness drills. Moreover, this study not only points to the need to implement different community outreach methods, such as partnering with local community based organizations with strong links to particularly vulnerable groups, but also provides concrete recommendations for local

government planners in order to engage marginalized African American and Latino minorities in local preparedness drills.

This study was subject to several limitations. The largest limitation of this dissertation was that the study's survey was designed by local health department personnel without any tests for reliability or validity. This dissertation was designed using the previously extant data derived from the survey's administration. The administered survey was not a well established tool; it was developed to provide BCDH information about its participants and the opinions of Drill participants. Other local preparedness planners reviewed the survey questions and concurred regarding their inclusion.

The administered survey was conducted seven months after The Drill, which could lead to information bias or recall error. Participants were asked questions about how they felt after The Drill; their answers may have been skewed with such a long lapse between The Drill and the survey's administration. The length of the recall period, time between the event and the survey, can affect memory. Two types of memory error may occur; a person may not remember the event, or they may remember the event differently than it occurred (Clarke, 2008). In this research, many participants may have had trouble remembering the specifics of the event (The Drill); however, the survey asked people their feelings about The Drill, and not its specific aspects or details. Researchers have also suggested that recall techniques such as using event history calendars, timelines, or other memory clues can help decrease memory error (VanderVaart, 2002). This study used the flu season and dates, in addition to site locations, to help participants remember The Drill. In addition to time and location clues, there is only one large vaccination event

in the county annually, the uniqueness of the event, time, and location clues should have helped to limit the amount of memory error experienced by participants.

Additionally, there may have been participation bias. Participation bias can occur when there are differences between those who are eligible and participate, and those who are eligible for the study and who refuse (Crosby, 2006). There is no available information as to why those who refused (20% refusal rate) did not want to participate in the study. Those individuals who did not participate may have not become confident more often than those who did participate, leading to an exaggerated result. Participants also may have been more interested in emergency preparedness than the average resident, and participated in the activity only because it was a drill, or the participants may have only done so because they wanted a free flu shot. This suggests that research participants may have been more health conscious or older than people who did not participate in The Drill. Approximately 9% of the total number of participants was interviewed. This is a relatively small sample size that did not allow for a complete test of the model. Certain variables (integrity) were excluded from the analysis due to the lack of variability in participant responses.

Key informant interviews with local community group leaders were conducted to identify strategies in order to effectively engage the Latino and African American populations. However, only those sections of the Latino and African American population served by these agencies are represented in this research. The population of Latinos and African Americans who utilize these agencies may be different than those who do not.

Conclusions

Previous studies have demonstrated that community inclusion is an important factor in establishing trust and confidence in government (Barnes, 2005; Covello, 2001; Jenkin, 2006). This dissertation's research has shown that by participating in local government preparedness drills, participants can increase their level of confidence in government preparedness planning. An increase in confidence has been shown in prior research (Lasker, 2004; Redlener, 2006) to lead to a more cooperative public during an actual emergency, something that is essential for successful emergency response. In order to ensure that everyone has the ability to participate in local government preparedness drills, planners need to take special steps to include all subpopulations within a community, not only those who have connectivity to the internet and who use traditional means of communication. Moreover, it is also incumbent that vulnerable populations receive the information necessary for survival during an emergency, such as evacuation instructions and how to receive prophylaxis. By reaching out to local community leaders committed to serving vulnerable populations, local government will more likely begin to include and engage them in local preparedness drills, as well as learn how to effectively reach them during an emergency.

Additionally, appropriate dissemination of information and instructions is likely to make marginalized populations less vulnerable during an actual emergency. Through the formation and maintenance of a trusting relationship between local government, community agencies, and the populations they serve, linguistically and culturally appropriate messaging and emergency processes can be developed. The process of relationship building may also help local planners better understand the barriers that

many community members face (e.g., transportation or immigration concerns) as well as increase the community's understanding of the role of local government. Through relationship building, both local government and the community can gain a realistic view of each other's response capabilities and resources, thereby creating realistic emergency plans and procedures. While there is a need for government to keep some aspects of emergency preparedness planning confidential in order to save lives during an actual emergency (e.g., location of mass clinic sites), local communities must know what to expect and trust those doing the planning on their behalf. This research suggests that the inclusion of all residents -- both ethnic majority and minority populations -- in preparedness planning by local government may not only lead to a more comprehensive plan and response, but to a better informed and prepared community as a whole during an actual emergency.

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Appendix A: Community Participant Telephone Survey

Hello my name is _____, and I am working with the Bucks County Department of Health. On November 18, 2006, you participated in the Bucks County Pandemic Drill at Pennridge Central Middle School, Council Rock South High School, or the Levittown Drive-thru. As a part of the preparedness efforts of the county, I would like to ask you a few questions about your experience at The Drill and about some concerns you may have about a real emergency. I will also need to ask a few demographic questions (such as your age, household income level, and race) to help the Department of Health create a picture of who participated in the Drill and who did not. The Department of Health would like to ensure that all subsections of the population receive important information about emergency preparedness.

Your name and address information will remain confidential, your answers will be complied with other respondents. If you are interested in learning about the results of the survey, please do not hesitate to call Meredith Allen at 215-340-8479 for further information. If at any time you feel uncomfortable answering any of the questions, please let me know and we will stop the survey. The survey should only take 10 minutes, would you be willing to participate in the survey?

YOU CAN"T PREDICT BUT YOU CAN PREPARE

Age:

- □ 9-19
- □ 20-29
- □ 30-39
- □ 40-49
- □ 50-59
- □ 60-64
- □ 65+

Gender: □ Male □ Female

Disability: □ Yes □ No

Education Level

- □ <9th Grade
- □ 9-12th Grade
- □ H.S. Graduate
- □ Some College
- □ Assoc. Degree
- □ Bach. Degree
- □ Graduate Degree

Race

- □ White Alone
- □ African American Alone
- □ Am. Ind. Alaska Nat. Alone
- □Asian Alone
- □ Nat. Hawaiian or Pac. Islander Alone
- □ Other Alone
- □ 2 or More

Foreign Born

- □ Yes
- □ No

Vehicle Available

- □ Yes
- □ No

Language at Home

- □ English Only
- □ Other

Household Income:

- □ <10,000
- □ 10,000-14,999
- □ 15,000-24,999
- □ 25,000-34,999
- □ 35,000-49,999
- □ 50,000-74,999
- □ 75,000-99,999
- □ >100,000

Zip Code:

_____

Drill Experience

1. How did you become aware of the Pandemic Flu Drill?

□ Newspaper Ads □ From friends/family

□ Radio □ Other

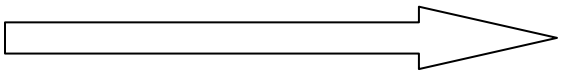
□ County Website

2. Did you know the clinic was a part of Bucks County Emergency Preparedness Planning?

□ Yes □ No

3. How would you rate your satisfaction with your overall experience that day?

1 2 3 4 5

Dissatisfied  Very Satisfied

4. Did you attend a POD or the Drive-thru clinic?

□ POD □ Drive thru

5. Were your questions answered?

□ Yes □ No

If no, did this make you uncomfortable receiving your injection?

□ Yes □ No

6. Did you have enough time with the medical staff?

□ Yes □ No

If no, did this make you uncomfortable receiving your injection?

□ Yes □ No

7. Did you feel comfortable receiving medication from someone who was not your primary doctor?

□ Yes □ No

8. Were the instructions presented to you clear?

□ Yes □ No

If no, did this make you uncomfortable receiving your injection?
□ Yes □ No

6. Did you have any trouble getting to the facility?

□ Yes □ No

If yes: Was your trouble because of any of the following reasons:

□ Lack of transportation □ Address unclear

□ Lack of signage □ Traffic problem

During an Emergency

- In an emergency would you feel comfortable receiving preventative medication or vaccine using the POD or Drive-thru method?

  □ Yes □ No

- During an emergency would you follow government instructions which affected your daily life such as staying home from work and/or reporting to a POD to receive medication?
  □ Yes □ No

- In a real emergency would you be able to get to a POD?

  □ Yes □ No

  If No, why would you be unable to come to a POD? _____

- Would you feel comfortable having a designated representative from your neighborhood pick up your medication?

  □ Yes □ No

- In an emergency are you worried about someone you know not being able to get to a POD?

  □ Yes □ No

  If yes, why?_____

Community Concerns

1. What is your biggest concern during an emergency?

___ Personal Safety ___ Evacuation Procedures

___ Reaching my loved ones ___ School Safety

___ Insufficient supplies (food, water) ___ Exposure to ill people

___ Insufficient medical care

2. What is your biggest concern about going to a POD during a real emergency?

___ Knowing where to go ___Transportation to the site

___ Crowds once arriving at the POD ___ Personal Safety

___ Confusion upon arrival ___ Exposure to ill people

___ Running out of medication and/or vaccine

3. Did The Drill alleviate any of your preparedness concerns?

□ Yes □ No

Personal Preparedness

1. Did participating in The Drill make you think about your personal preparedness?

□ Yes □ No

2. Do you have a family/personal emergency/disaster plan?

□ Yes □ No

3. Do you have emergency supplies and food for everyone in your household to last at least 3 days at home?

□ Yes □ No

4. Do you believe that planning for a disaster is the best way to reduce the negative impact of a disaster?

□ Yes □ No

Government Planning and Confidence

1. Before this drill were you aware of the County's Preparedness activities?

□ Yes □ No

2. Before The Drill, were you confident in Bucks County's preparedness planning?
□ Yes □ No

3. Do you feel confident in the County's plans now?
□ Yes □ No

4. Would you consider volunteering to aid the county at these clinics in the future?

□ Yes □ No

5. Do you believe that Bucks County could be affected by a large scale disaster?

□ Yes □ No

6. Who do you believe is responsible for your health and safety during an emergency?

□ Local County Government □ Federal Government □ State Government

□ Township Government □ Yourself

7. If you could decide, who would you put in charge of preparing for your health and safety during an emergency?

□ Local County Government □ Federal Government □ State Government

□ Township Government □ Yourself

8. If your local government held planning meetings, would you be interested in helping your community plan for large scale emergencies?

□ Yes □ No

9. Do you feel confident in the plans in place (at all levels of government) that you and your family will be safe during a disaster?
□ Yes □ No

Appendix B: Factors of Trustworthiness and Associated Survey Questions

Factor of Trustworthiness	*Survey Question*	*Responses*
Ability	• Did you know the clinic was a part of Bucks County Emergency Preparedness Planning?	• Yes/No
	• Did the drill alleviate any of your preparedness concerns	• Yes/No
	• Before the drill were you aware of the County's Preparedness activities?	• Yes/No
Integrity		
	• How would you rate your satisfaction with your overall experience that day?	• Likert Scale (1-5)
	• Were your questions answered?	• Yes/No
	• Did you have enough time with medical staff?	• Yes/No
	• Did you feel comfortable receiving medication from someone who was not your primary doctor?	• Yes/No
	• Were the instructions presented to you clear?	• Yes/No
	• Did you have any trouble getting to the facility?	• Yes/No
	• In an emergency would you feel comfortable receiving medication or vaccine using the POD or Drive-thru method?	• Yes/No
Relevance	• Did participating in the drill make you think about your personal preparedness?	• Yes/No
	• Would you consider volunteering to aid the County at these clinics in the future?	• Yes/No
	• Do you believe that Bucks County could be affected by a large scale disaster?	• Yes/No
	• If your local government held planning meetings, would you be interested in helping your community plan for large scale emergencies?	• Yes/No

Appendix C: Vulnerable Population Survey Questions

Vulnerable Population Survey Questions:

Survey Question	***Responses***
Did you have trouble getting to the facility?	Reasons: lack of transportation, lack of signage, address unclear, and traffic problems
In a real emergency would you be able to get to a POD?	Reasons why not:____
Would you feel comfortable having a designated representative from your neighborhood pick up your medication?	Yes/No
In an emergency are you worried about someone you know not being able to get to a POD?	Reasons why:____

Appendix D: Community Agency Descriptions

Free Clinic of Doylestown

The Free Clinic of Doylestown was founded in 1993 initially as a part of the Doylestown Hospital; however in 1997 the Clinic became a private not-for-profit organization. The Clinic serves low-income un-or underinsured adults and children in the Doylestown Community. In its history, the clinic has had over 26,000 patient visits providing services for over 6,200 people. There is no cost to patients; however, there are eligibility requirements for services. In January of 2002, the Clinic opened its first dental program utilizing the services of volunteer dentists. In addition to medical and dental care, the Clinic assists patients in enrolling in programs such as the Children's Health Insurance Program (CHIP), Medicaid, legal assistance, and housing assistance (Ann Silverman, 2008).

Representatives from the Clinic described their target population as 40% Spanish speaking, approximately 1-2% African American, and other minorities. They also stated that the bulk of their population was between the ages of 25 and 60.

Entourage

Entourage is an arts program which provides dance classes for children who live in the Weed and Seed Community. The program aims to promote unity and a violence free activity.

Girl Scouts of America

The Girl Scouts of America was founded in 1912 and has grown in size from an initial 18 members to approximately 3.7 million members in the United States today. The Girls Scouts of America is an organization dedicated to girls. The program aims to provide girls with an accepting environment in which they can develop "leadership, strong values, social conscience, and conviction about their own potential and self-worth." (Girl Scouts, 2008)

Latino Alliance

The Latino Alliance is a social service agency that provides translation, interpretation, prevention, and case management services. As the agency's representative stated, "we basically help the Latino Community. We focus on helping the Latino community with whatever they may need".

Centennial School District ESL Program (English as a Second Language)

There are four schools in the Centennial School District which have English as a Second Language (ESL) programs. The agency's community worker described her position as "primarily a support within the ESL Program... to support the Latino population...I do a lot of translating for them at all kinds of levels, from special education meetings to parent teacher or kinda any type of school communication." She also stated that: "we also do

other community stuff; we do a yearly community agency night, and we bring in different interpreters to try to get out services that might be appealing to our new immigrant-families".

The National Association for the Advancement of Colored People (NAACP)

The mission of the NAACP is "to ensure the political, educational, social, and economic equality of rights of all persons and to eliminate racial hatred and racial discrimination" (NAACP, 2008).

In Bucks County, the Health Committee of the Local Chapter of the NAACP aims to reach out to those who are suffering due to health disparities and who have limited access to healthcare.

No Longer Bound

No Longer Bound began in 1985 as the Minority Communities Coordinating Council, a community based prevention services agency aimed at enhancing community empowerment. In 1990, after changing its name to No Longer Bound, the agency turned its focus from drug and alcohol abuse problems (including crime, destruction of the family, poverty, and anti-social behavior) to programs focused on low-income women, children and families (No Longer Bound, nd).

Planned Parenthood Federation of America

Planned Parenthood aims to provide reproductive and other health care services along with working to preserve reproductive rights. In addition they aim to provide educational programs focusing on the "individual and societal implications of human sexuality" (Planned Parenthood, 2008).

Weed and Seed Project

Weed and Seed is a federally funded project which uses a multiagency approach to community reinvigoration through crime prevention and community reinvestment. The Weed and Seed strategy is based upon four principles: collaboration, coordination, community participation, and leveraging of resources. In addition to the law enforcement task forces aimed at reducing crime, numerous human service agencies aim to improve the overall community for residents. Each site is required to establish a "safe haven", a community center where youth and adult services are offered. The program focuses on "economic development, employment opportunities for residents, and improvements to the housing stock and physical environment of the neighborhood" (Office of Justice Programs, 2008).

YWCA

The mission of the YWCA in Bucks County is "to eliminate racism, empower women and work for peace, justice, freedom and dignity for all people. The YWCA provides a

wide and comprehensive array of educational programming to disadvantaged and vulnerable populations of Bucks County directly in their own neighborhoods and schools." (YWCA, 2008).

Appendix E: Semi-Structured Interview Questions

1. Could you please briefly describe your organization's main mission and the population which you serve?
2. Do you believe your target community is adequately prepared for emergencies?
3. Are you aware of any of Bucks County's Emergency Planning activities and/or plans?
4. Do you believe that your target community is aware of any of the County's Planning activities?
5. On November 16, 2006 and October 27, 2007 Bucks County held Pandemic Influenza Drills in which the County opened mass clinics to distribute free vaccine to residents of Bucks County to help County employees and community volunteers prepare for an emergency in which they would need to distribute medication and/or vaccine to the entire population of Bucks County. Were you aware of either of the Drills that took place?
    a. If so, how were you made aware of the Drills?
6. Based on the demographic profile of the people who participated in The Drill, the population your organization serves was underrepresented. Do you believe that the community your organization serves is aware of either of the Drills?
7. Why do you believe that the population your organization serves did not participate in the Drill?
8. Do you believe that the population your organization serves is concerned about emergency preparedness?

9. What do you think are your community's largest concerns regarding emergency preparedness?
10. Do you feel as if your community trusts the government in planning for their safety in emergencies?
11. How would you recommend that the Bucks County Department of Health reaches out to your community to include them in Emergency Preparedness training?
12. What are the biggest barriers that your community faces both in preparing for emergencies and also in participating in governmental preparedness activities?
13. What are the best methods of communication that you have found to be successful in reaching the population that your organization serves?
14. Would you recommend any specific actions to the Bucks County Department of Health to begin to involve and include the population that your organization serves in Emergency Preparedness?

Appendix F: Catchment areas and Sample Population Demographic Characteristics

Levittown Area Catchment and Levittown Sample Population Demographic Characteristics

		Levittown Catchment Area	**Levittown Site**
Age	> 65 years	85.9%	66.4%
	65 +	14.1%	33.6%
Gender	Male	48.6%	39.0%
	Female	51.4%	61.0%
Disability	Yes	18.7%	11.0%
	No	81.3%	89.0%
Educational Level	9th Grade	3.6%	0%
	9-12 Grade	14.0%	2.1%
	High School	45.2%	36.6%
	Some College	18.4%	12.0%
	Assoc. Degree	6.4%	0.7%
	Bach. Degree	8.5%	40.1%
	Graduate Degree	3.9%	8.5%
Race	White	87.7%	95.7%
	African American	7.0%	1.4%
	Am. Indian	0.2%	0%
	Asian	2.0%	0.7%
	Native Hawaiian	0.03%	0.7%
	Other	1.6%	1.4%
	2 or more	1.6%	0%
Foreign Born	Yes	4.9%	2.7%
	No	95.1%	97.3%
Language at Home	English alone	85.7%	98.6%
	Other	8.0%	1.4%

Council Rock South Area Catchment and Council Rock Sample Population Demographic Characteristics

		Council Rock Catchment Area	**Council Rock Site**
Age	> 65 years	87.5%	72.1%
	65 +	12.5%	27.8%
Gender	Male	49.2%	41.2%
	Female	51.3%	58.8%
Disability	Yes	12.5%	4.1%
	No	87.5%	95.9%
Educational Level	9th Grade	2.0%	0%
	9-12 Grade	7.3%	1.1%
	High School	30.6%	28.0%
	Some College	18.5%	6.5%
	Assoc. Degree	6.8%	5.4%
	Bach. Degree	22.0%	44.1%
	Graduate Degree	12.7%	15.1%
Race	White	94.4%	99.0%
	African American	2.0%	1.0%
	Am. Indian	0.07%	0%
	Asian	2.0%	0%
	Native Hawaiian	0.02%	0%
	Other	0.7%	0%
	2 or more	0.8%	0%
Foreign Born	Yes	6%	99.0%
	No	93.0%	1.0%
Language at Home	English alone	70.4%	96.9%
	Other	9.1%	3.1%

Pennridge Area Catchment and Pennridge Sample Population Demographic Characteristics

		Pennridge Catchment Area	**Pennridge Rock Site**
Age	> 65 years	88.2%	63.5%
	65 +	11.8%	36.5%
Gender	Male	49.3%	40.6%
	Female	50.7%	59.4%
Disability	Yes	11.3%	93.8%
	No	84.9%	6.3%
Educational Level	9^{th} Grade	2.4%	1.6%
	9-12 Grade	5.6%	1.6%
	High School	24.1%	21.9%
	Some College	15.7%	9.4%
	Assoc. Degree	5.7%	6.3%
	Bach. Degree	21.0%	40.6%
	Graduate Degree	12.0%	18.8%
Race	White	94.8%	98.4%
	African American	1.4%	0%
	Am. Indian	0.13%	1.6%
	Asian	2.4%	0%
	Native Hawaiian	0.03%	0%
	Other	0.41%	0%
	2 or more	0.85%	0%
Foreign Born	Yes	4.8%	4.7%
	No	95.2%	95.3%
Language at Home	English alone	86.5%	98.4%
	Other	6.6%	1.6%