THE DUQUESNE EMERGENCY PREPAREDNESS PROJECT: AN EXAMINATION OF EXISTING CITIZEN PREPAREDNESS GUIDES AND AN EXPLORATION OF COMMUNITY PERCEPTIONS AND EMERGENCY PREPAREDNESS NEEDS

by

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Vulnerable populations and communities lacking resources may be disproportionately affected in the event of a public health emergency. Preexisting social conditions among vulnerable populations including low socioeconomic status and poor educational systems, contribute to the vulnerability of communities in the face of disaster. The Duquesne City, Pennsylvania, community is a vulnerable population likely to be disproportionately affected in the event of an emergency. The primary objectives for the Duquesne Emergency Preparedness Project were to: 1) Examine the literacy level and assumptions underlying existing preparedness guides; 2) Define risk perceptions and understand information-seeking behaviors of residents in Duquesne, PA; 3) Better understand the challenges faced by low-resource populations in utilizing emergency preparedness materials and use this understanding to make recommendations for the development of educational preparedness materials and a community-based model for emergency preparedness.

The literacy level and assumptions underlying existing emergency preparedness educational guides were assessed and evaluated for their relevance for the Duquesne community. In order to make recommendations for the development of emergency preparedness educational materials relevant to low literacy and resource poor communities, the Project also investigated the risk perceptions and information seeking behaviors of Duquesne community members and

explored existing strengths, weaknesses and perceived individual and community emergency capabilities through focus group discussions and surveying. Study conclusions include: 1) People in Duquesne and surrounding areas do not view emergencies or disasters as impending high-risk events; 2) A serious communication disconnect exists between local officials, agencies and the public; and 3) Individuals are largely unfamiliar with existing citizen preparedness materials, perhaps because this information has not percolated into these communities, tends to focus on low-probability and abstract events, exceeds the literacy level of these populations and is not consistent with the needs of vulnerable populations.

A paucity of information on the emergency preparedness needs of low-resource populations exist in the literature and understanding these needs is essential for community-based public health preparedness. Conclusions of the Duquesne Emergency Preparedness Project reveal important insights about the emergency preparedness needs of vulnerable populations and have important implications for public health approaches to preparedness for low-resource communities.

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PREFACE

To me the process of working with communities is like learning to dance, stepping onto the dance floor and being swept off of my feet. At times the dance will be awkward and I may unintentionally step on the toes of others or have my toes stepped on, but I will continue to move forward and trust that my steps will become less rigid and surer over time. At all times my dance with communities will require flexibility; sometimes I will act as the person who is old with experience and be the leading partner while other times I will act as the young person wanting to learn and needing to be lead by the community.

Working with members of the Duquesne community for the Duquesne Emergency Preparedness Project was truly like learning to dance. At times the dance was awkward and poorly choreographed with toes on all sides being stepped on and at other times, the dance was elegant and I was swept off of my feet by the amazing people I had the opportunity to work with in Duquesne.

Dancing with Duquesne would not have been possible without the vision of Alison Robinson, PhD who recognized the need for the development of community-based models for emergency preparedness and community partner, Lori Rue of the Urban League of Greater Pittsburgh. Ms. Rue's passion and dedication to her community was inspiring and her guidance and insight on this project were integral to the project's success. I also want to express sincere

gratitude to the phone survey and focus group discussion participants in Duquesne, West Mifflin and McKeesport; without their willingness to participate, this project would not have been possible.

Thanks are also in order for Tammy Thomas, Coordinator of Community Programs in the Department of Behavioral and Community Health Sciences, who patiently listened and actively encouraged me to continue taking steps on to the dance floor despite the active resistance of my feet. Thanks to the faculty and staff of the Center for Public Health Preparedness, including Sam Stebbins, MD, MPH, Leslie Fink, Kurt Holliday, Jessica Kanzler and Kathi Traynor, who supported and trusted my coordination of the Duquesne Project. Special thanks are also in order to faculty advisor Ravi Sharma, PhD and phone surveyor Carol Morris of the University of Pittsburgh Institute for Evaluation Science in Community Health. In addition, I want to sincerely thank my thesis chair, Martha Ann Terry, PhD for her patient eyes, invaluable feedback, red pen and unfailing support. I am also thankful for the wisdom and feedback of my thesis committee, Patricia Documét, Ravi Sharma and Sam Stebbins; your comments and questions enabled and challenged me to take my thesis to a depth and breadth I previously did not think was possible.

Finally, dancing with Duquesne and with the pursuit of my Master of Public Health degree would not have been possible without the support of my husband, Todd Hoffman, my mom, Judy Delestienne, my brother, Evan Delestienne and the spirit of my Dad, Dale Delestienne. I am grateful for your listening ears, your words of encouragement, your reality checks, your senses of humor and ability to make me laugh and most of all, your unconditional love.

1.0 INTRODUCTION

A common phrase uttered in the field of emergency management and public health emergency preparedness is “all response is local,” and recent disasters including the Asian Tsunami (2004) as well as hurricanes Katrina and Rita (2005) illustrate the truth in this phrase. Immediately following an event and before outside aid can respond to a public health emergency, individuals and communities must be able to survive without outside assistance for approximately 72 hours (Mack, Spotts, Hayes, & Warner, 2006). Organizations and stakeholders involved in public health emergency preparedness include public health and health care systems as well as communities and individuals. Local preparedness and response is led by public health entities as well as emergency response structures (emergency management services); however, communities and individuals are essential partners in public health emergency preparedness and response (Nelson, Lurie, Zakowski, & Wasserman, 2007).

Following September 11, 2001, public health preparedness was added to the roles and responsibilities of the public health system (Lurie, Wasserman, & Nelson, 2006). Public health responsibilities in preparedness include strengthening disease surveillance and reporting structures; building relationships between and among public health entities, health care facilities, law enforcement, first responders and community organizations; adopting effective risk communication strategies; preparing and developing a competent and capable public health

workforce; and engaging in all-hazards public health preparedness and response activities (Lurie, 2006).

Despite preparedness and response being local and local public health leaders and structures playing integral roles in preparedness, many individuals and communities are not prepared for a public health emergency. In particular, communities lacking resources are especially vulnerable and often ill-prepared. The local nature of response and the expectation that individuals are able to care for themselves makes local level preparedness and outreach essential, including preparedness educational materials and training appropriate for individuals with limited resources and low literacy. The local nature of emergency planning and response also demands that individuals and communities be made aware that federal, state and local governments expects individuals to self-manage during the immediate aftermath of a disaster.

A paucity of information on the emergency preparedness needs of citizens exists (Chesser, Ablah, Hayley et al., 2006). Emergency preparedness literature largely focuses on the needs of public health and medical professionals but "in order to prepare the American public to respond to all types of emergencies, it is critical to assess the public's perceptions of emergency preparedness" (Chesser, Ablah, Hawley et al., 2006, p. 376). Not only has little research been conducted to understand the emergency preparedness needs of the general public, but also little research has explored community-based and local level approaches to emergency preparedness. Since all response is local, understanding individual and community perceptions about emergencies and emergency preparedness is essential to ultimately foster and build community-based emergency preparedness capacity.

The field of risk perception provides insight to understanding how individuals and communities perceive different risks, such as emergencies. In order to understand risk

perceptions, it is important to first define risk. According to Slovic and Weber (2002), risk has multiple meanings: "risk as a hazard, risk as probability, risk as consequence, risk as potential adversity or threat" (p. 4). For purposes of this paper, risk is defined as potential adversity or threat. The Risk Perception Model provides a theoretical basis for understanding factors that influence the risk perceptions of individuals. According to the model, 15 risk perception factors including, voluntariness, controllability, familiarity, equity, understanding, uncertainty, dread, reversibility, personal stake, and catastrophic potential, influence how individuals perceive and behave towards a given risk (Covello, Peters, Wojtecki, & Hyde, 2001). An individual's perception towards different hazards is heightened depending on risk perception factors at play. More specifically, involuntary, uncontrollable, inequitable, dreadful and irreversible risks, for instance, are perceived as having higher risk than voluntary, controlled, equitable, less dreadful and reversible risks. Risk perception factors are collectively referred to as outrage factors and an individual's risk perception results from a combination of hazard and outrage (Covello et al., 2001).

The local nature of preparedness and response, the documented disproportionate effect of public health emergencies on vulnerable populations, the unidentified preparedness needs of these populations and the theoretical underpinnings of risk perception provide a backdrop for the project described. This thesis reports on the author's assessment of the literacy level of existing preparedness guides as well as her research contributions to the Centers for Disease Control and Prevention-funded University of Pittsburgh Center for Public Health Preparedness "The Duquesne Project: Development of an Awareness and Training Model for Community-Wide Emergency Preparedness."

Through a cooperative grant, the University of Pittsburgh Center for Public Health Preparedness received CDC funding for "The Duquesne Project: Development of an Awareness and Training Model for Community-Wide Emergency Preparedness." The author was hired as a Center for Public Health Preparedness intern in January 2007. The emergency preparedness needs assessment portion of this thesis describes the first phase of the Center's project, which included conducting formative research and assessing the needs and perceptions of community members about emergencies via focus groups and a telephone survey. Subsequent stages of the Center's project will involve development of educational materials, creation of a community-wide emergency preparedness model and training community volunteers. Crucial to the success of the project is the Center for Public Health Preparedness' partnership with the Urban League of Greater Pittsburgh and more specifically the Duquesne State Health Improvement Plan (SHIP) Initiative and the Duquesne Community Mobilization Project, an Urban League-funded site in Duquesne. Lori Rue, facilitator of the Duquesne SHIP Initiative and director of the Duquesne Community Mobilization Project, serves as the community contact in Duquesne. Former health advocate of the Urban League of Greater Pittsburgh Alison Robinson, PhD, initially advocated for the project and conducted invaluable background research about Duquesne for the grant application, formation and early stages of the project. Before leaving in May of 2007, Dr. Robinson coordinated and guided the project. Samuel Stebbins, MD, MPH, Director of the Center for Public Health Preparedness, serves as the project's principal investigator and Ravi Sharma, PhD, Assistant Professor in the Department of Behavioral and Community Health Sciences serves as a faculty advisor for the project.

Dr. Robinson conceived the idea for the Duquesne project in part because Duquesne's community structure, resources, and location make it ideal for developing community-based

emergency planning models, and the goals of the Duquesne Project fall in line with the goals of SHIP (A. Robinson, personal communication, January 30, 2007). In addition, Drs. Alison Robinson and James Butler, PhD, Assistant Professor in the Department of Behavioral and Community Health Sciences, recognized that existing preparedness guides fail to "educate people on how to *collectively* perceive and therefore *collectively* respond to varying types of large-scale emergencies" (A. Robinson, personal communication, January 30, 2007). Dr. Robinson's perceived need for a community-based emergency preparedness plan in Duquesne resulted in the Center's Duquesne Project.

The author's research contributions to Center for Public Health Preparedness' Duquesne Project involved emergency preparedness needs assessment activities including developing the focus group discussion guide and telephone survey, facilitating the focus group discussions, transcribing and analyzing focus group discussions, and analyzing telephone survey results. These contributions to the Center's project would not have been possible without the guidance and invaluable assistance of Lori Rue, Samuel Stebbins, MD, MPH, and Ravi Sharma, PhD.

This thesis examines assumptions underlying existing preparedness guides, assesses the relevance of these guides to vulnerable populations and identifies gaps in materials currently available. The Duquesne Project itself explored the risk perceptions and information seeking behaviors of the Duquesne City community and will use the qualitative and quantitative information gathered to make recommendations for development of educational preparedness materials and a community-based model for emergency preparedness. By assessing perceived public health disaster threats, developing low-literacy level education materials that address the perceived threats identified, and training community members, the Duquesne Project strives to enhance community-wide preparedness. The project also aims to engage community members

so that in the event of a public health emergency Duquesne City residents will be more prepared to respond to a public health emergency.

1.1 RESEARCH QUESTIONS AND OBJECTIVES

The overarching research question guiding this thesis can be articulated as follows: are the emergency preparedness needs of vulnerable populations being met by existing public health emergency preparedness efforts? Multiple questions lie within the broader research question and in order to explore the overarching question, a two-pronged approach was utilized. The first effort of the project involved analyzing the literacy level of existing emergency preparedness guides. This analysis sought to explore three primary research questions:

1) Are the literacy levels of existing emergency preparedness guides appropriate for the literacy level of the general public?

2) What assumptions underlie existing preparedness guides?

3) Are these assumptions appropriate for vulnerable populations?

The second effort of the project involved understanding emergency preparedness needs of vulnerable populations. Focus group discussions with residents in Duquesne, Pennsylvania and a phone survey conducted among residents in Duquesne, West Mifflin and McKeesport, all in Southwestern Pennsylvania, aimed to gain an understanding of the emergency preparedness needs of one vulnerable population. The following research questions sought understand the needs of Duquesne and surrounding communities:

1. Is high risk associated with emergency or disaster events such as natural disasters, terrorism or disease outbreaks among residents of Duquesne and the Monongahela Valley?

2. Do individuals in Duquesne or the Monongahela Valley feel preparing for an emergency event is important? What prevents residents from planning and preparing for an emergency?

3. What implications do the challenges that face Duquesne and the Monongahela Valley have for emergency preparedness?

4. Who are trusted sources of information among Duquesne and Monongahela Valley residents?

5. Do residents in Duquesne or the Monongahela Valley feel their community is prepared for an emergency?

Stemming directly from the overarching research question and the underlying research questions, the primary objectives of this project were to: 1) Examine the literacy level and assumptions underlying existing federal, state and local preparedness guides; 2) Understand the needs of vulnerable populations, especially the risk perceptions and information-seeking behaviors of residents in Duquesne, PA; and 3) Better understand the challenges faced by low-resource populations in utilizing emergency preparedness and planning materials and use this understanding to make recommendations for the development of educational preparedness materials and a community-based model for emergency preparedness.

2.0 BACKGROUND

Knowledge, communication, coordination and collaboration are keys to community-wide preparedness in the face of a large-scale public health emergency. A comprehensive definition of a community is "a group of people with diverse characteristics who are linked by social ties, share common perspectives, and engage in joint action in geographical locations or settings" (MacQueen et al., 2001, p. 1929). Although the identity of a community can be defined on the basis of social ties, common perspectives or shared identity, for purposes of this project, the definition of community focuses on geographic location and proximity, "a collection of individuals who live within a geographic area that can be specified" (Baker and Goodman, 2003, p. 178).

Events of September 11, 2001, the dissemination of weapons-grade anthrax through the U.S. Postal Service in 2001, Hurricane Katrina in 2005 and the threat of pandemic influenza all have heightened awareness among Americans about the realities of terrorism, bioterrorism, natural disasters and emerging threats. Emergencies and disasters "threaten the health of populations, or affect the public health or health care systems' ability to provide essential services" (Trockman, Meit, & Stebbins, 2006, p. 6). In the wake of 9/11 and Katrina, the federal government is investing in strengthening preparedness capabilities of the U.S. so that in the event of subsequent attacks, natural disasters or emerging threats, our nation will be better able to respond. Although federal and state planning documents speak to the importance of citizen

engagement and local level preparedness, this emphasis did not result from an evidence base. Past natural disasters and emergency events anecdotally illustrate the utility and logic behind the emphasis on local level preparedness. For example: if an event occurs and an individual is required to shelter-in-place and that individual has supplies on hand with which to do so, the likelihood of that individual remaining inside and away from the given hazard is greater, which theoretically reduces her exposure to the hazard and associated negative health outcomes. Because disaster management plans at the city, county and state levels require communities and individuals to endure for 72 hours without outside assistance, community-wide preparedness and local engagement is essential for the health and safety of individuals (Mack et al., 2006).

Through the convening of a panel of experts from diverse fields, the RAND Corporation proposed a definition for a public health emergency preparedness in February 2007:

> Public health emergency preparedness (PHEP) is the capability of the public health and health care systems, communities, and individuals, to prevent, protect against, quickly respond to, and recover from health emergencies, particularly those whose scale, timing, or unpredictability threatens to overwhelm routine capabilities. Preparedness involves a coordinated and continuous process of planning and implementation that relies on measuring performance and taking corrective action (Nelson et al., 2007, p. S9).

RAND's proposed definition is broad, encompassing multiple stakeholders and calling for evaluations of planning and implemented actions. Although the definition of public health emergency preparedness focuses on large-scale events exceeding day-to-day capacity, all-hazards preparedness planning and activities are capable of improving the health, capacity and resilience of communities (Nelson et al., 2007). All-hazards approaches to preparedness do not focus on preparing for and responding to one event but rather any number of events. Comprehensive preparedness planning is capable of opening dialogue and building relationships among community members, nongovernmental organizations, businesses and informal and formal leadership in communities; the discussions and relationship building may ultimately help

to build community capacity. Although the definition of public health emergency preparedness is broadly defined, what constitutes a well-prepared community is not elucidated in the literature. In addition, the literature does not quantify or provide an evidence base or best practices for citizen engagement in preparedness. Lacking a definition of what constitutes a prepared community and lacking an evidence-base for the importance of citizen engagement points to the importance of understanding the preparedness needs of communities as well as creating evaluation tools for assessing these concepts.

Factors contributing to poor emergency response within a community include lack of understanding about possible emergencies and appropriate emergency response, absence of established channels of communication for information dissemination and lack of awareness of how to access needed resources. A community-based approach to a public health emergency requires the following: 1) Common understanding of what an emergency is and how to respond appropriately; 2) Cooperation throughout the community to collectively respond; 3) Collaboration within and between communities to share resources in a coordinated, timely manner; and 4) Coordinated, collective decision-making and leadership (A. Robinson, personal communication, January 30, 2007). While these are not required for the daily functioning of a community or for more common emergency situations within the community, such as fires, community mobilization and collective decision-making are required for the functioning of a community during a public health disaster.

Vulnerable populations and communities lacking resources may be disproportionately affected in the event of a public health emergency (Kayman & Ablorh-Odjidja, 2006). Characteristics of vulnerable populations include low socioeconomic status, poor educational systems, high rates of unemployment, limited access to medical services, and reliance on public

transportation contribute to the vulnerability of communities in the face of disaster (Kayman & Ablorh-Odjidja, 2006). Preparing vulnerable communities to respond to public health emergencies will increase community capacity by strengthening collaborations within the community and establishing channels of communication. In addition, community-based preparedness planning will help to educate community members about possible public health emergencies, appropriate responses to such emergencies and how to access needed resources. The ultimate goal of community-based preparedness is to reduce the disproportionate risk of negative health outcomes among vulnerable populations in the face of a public health emergency (Mack et al., 2006).

Emergency and citizen preparedness activities ultimately serve to increase the capacity of a community and protect the health of individuals and the community in an emergency or disaster situation. In preparing for emergencies, community health and capacity assessments involve understanding factors that affect the overall health and well-being of community members as well as identifying resources and capacity. Also important to community assessment in the context of public health emergencies is understanding the level of community preparedness, individual knowledge and perceptions of emergencies, and the information seeking behaviors of community members. A community assessment addressing these and other concepts related to emergency preparedness can inform program development, planning and implementation of preparedness educational materials and plans.

2.1 SOCIAL VULNERABILITY

Socioeconomic factors contributing to the vulnerability of populations can be quantified and visually represented using social vulnerability indices. Identifying hazards in a given geographic area or community is essential for effective emergency planning and not only includes physical features of an area but also social, economic and environmental attributes (NOAA Costal Services Center, 2006). The National Oceanic and Atmospheric Administration defines vulnerability as "the susceptibility of resources to negative impacts from hazard events;" therefore, understanding hazards is essential for understanding the vulnerabilities of different regions (NOAA Costal Services Center, 2006).

Assessing the vulnerabilities of communities is important for the planning and evaluation of emergency preparedness and disaster response plans and control measures. Conducting vulnerability assessments of communities reveals differences in community capacity for preparedness and response and where resources might be used most effectively to reduce pre-existing vulnerabilities (Hazards and Vulnerability Research Institute University of South Carolina, 2006). In addition, mapping vulnerabilities and analyzing their spatial distribution are useful tools for determining areas of differential recovery from disasters. Underlying tenets of vulnerability research include:

> The identification of conditions that make people or places vulnerable to extreme natural events…; the assumption that vulnerability is a social condition, a measure of societal resistance or resilience to hazards; and the integration of potential exposures and societal resilience with a specific focus on particular places or regions (Cutter, Boruff, & Shirley, 2003, pp. 242-243).

Conducting a vulnerability assessment of municipalities in Allegheny County, Pennsylvania, identified areas of greatest social vulnerability that could potentially benefit from community-based emergency preparedness education and planning. Geographic Information Systems (GIS)

software (ArcGIS) and spatial data analysis were used as tools to understand the social factors that contribute to the vulnerability of a given municipality. The social vulnerability assessment also identified unevenness in community capacity to prepare and respond to a disaster.

Though a comprehensive vulnerability assessment considers physical, environmental and social hazards or vulnerabilities, social vulnerabilities of municipalities in Allegheny County were of greatest interest and relevance to the Duquesne Project and to community-based emergency preparedness. The social vulnerability assessment performed for Allegheny County was based on the work of Susan Cutter, PhD at the University of South Carolina Hazards and Vulnerability Research Institute. Multiple factors contribute to the social vulnerability of an area (Cutter et al., 2003). In order to assess social vulnerabilities of municipal census tracts in Allegheny County, data were obtained from the U.S. Census Bureau Census 2000 American Fact Finder Summary File 3 (SF-3) detailed tables database (U.S. Census Bureau, 2000). Factors contributing to social vulnerabilities were operationalized into corresponding variables from the Census (Table 1).

Table 1. Operationalization of social vulnerability factors into corresponding 2000 U.S. Census Bureau variables for the social vulnerability index of municipalities in Allegheny County, Pennsylvania.

Social Vulnerability Factor	Census Variable(s) Corresponding to Social Vulnerability Factors
Age	Total population below the age of five and above the age of 65
Race	Total non-white population
Gender	Total Female Population
Special Needs Populations	Total disabled population
Non-English Speaking	Total population reporting speaking English "not well" or "not at all"
Educational Attainment	Total population with less than or equal to a high school education
Family Structure	Total Female head of households
Income	Total individuals, households and families below the poverty level
Housing	Total renter-occupied housing units
Employment	Total unemployed persons
Transportation	Total population with no car and individuals who rely on public transportation or "other means" (motorcycle, bicycle, walked) to travel to work
Use of Social Services	Total population that receives public assistance and supplemental social security income

Increased social vulnerability is associated with populations that lack resources including individuals with special needs and those of lower socioeconomic status, such as female head of households, individuals with limited education, living in poverty, unemployed, reliant on public transportation and dependent on social services (Cutter et al., 2003). Age extremes are associated with increased social vulnerability. Children and the elderly require increased care and the elderly may have mobility issues, which contribute to increased social vulnerability in these populations (Cutter et al., 2003). Nonwhite or minority populations have higher social vulnerability due in part to housing locations in more hazard prone areas and fewer resources (Cutter et al., 2003). Females are considered more socially vulnerable than males due to "sector-specific employment, lower wages, and family care responsibilities" (Cutter et al., 2003, p. 246). Non-English speaking segments of the population face cultural and language barriers which increases their social vulnerability.

In order to construct the social vulnerability index for Allegheny County, percentages for all social vulnerability variables by census tract were calculated. After calculating total percentages for each variable, the values were normalized into Z-scores using SPSS statistical software. After normalizing the values, the normalized values were aggregated to create a social vulnerability index for each municipal census tract where the higher the index value, the greater the social vulnerability of the municipal census tract (Figure 1).

The areas of highest social vulnerability in Allegheny County are represented by dark red in Figures 1 and 2. Multiple areas of social vulnerability exist in Allegheny County and many of the areas lie within the City of Pittsburgh. However, the social vulnerability index revealed the City of Duquesne as an area of highest social vulnerability (Figure 2). Areas of highest social vulnerability have decreased capacity, resilience, and resources to mitigate hazard events,

experience greater difficulty in recovering from disasters as compared to areas with fewer social vulnerabilities and should be targets for disaster response planning and emergency preparedness (Cutter, Boruff and Shirley, 2003; USCHVI, 2006). The social vulnerability index confirms the City of Duquesne as an area that is very likely to be disproportionately affected by a public health emergency or disaster event.

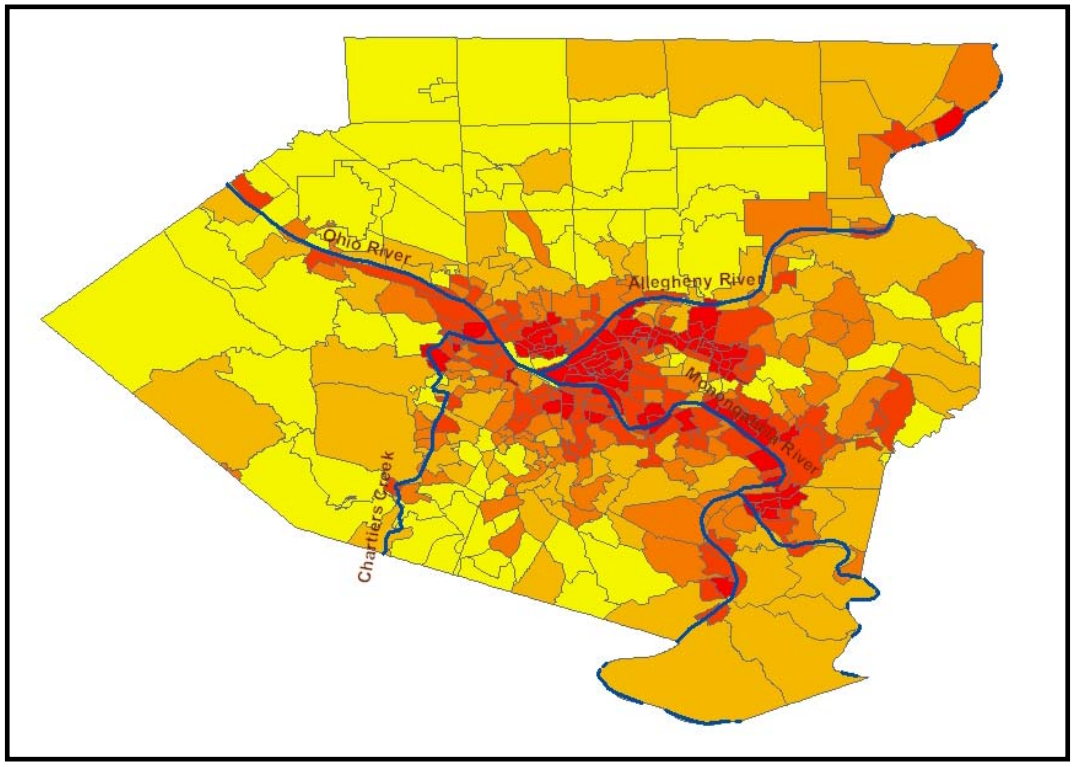

Figure 1. Social Vulnerability Index of Municipalities in Allegheny County where yellow represents the least socially vulnerable municipalities and red represents the most socially vulnerable municipalities.

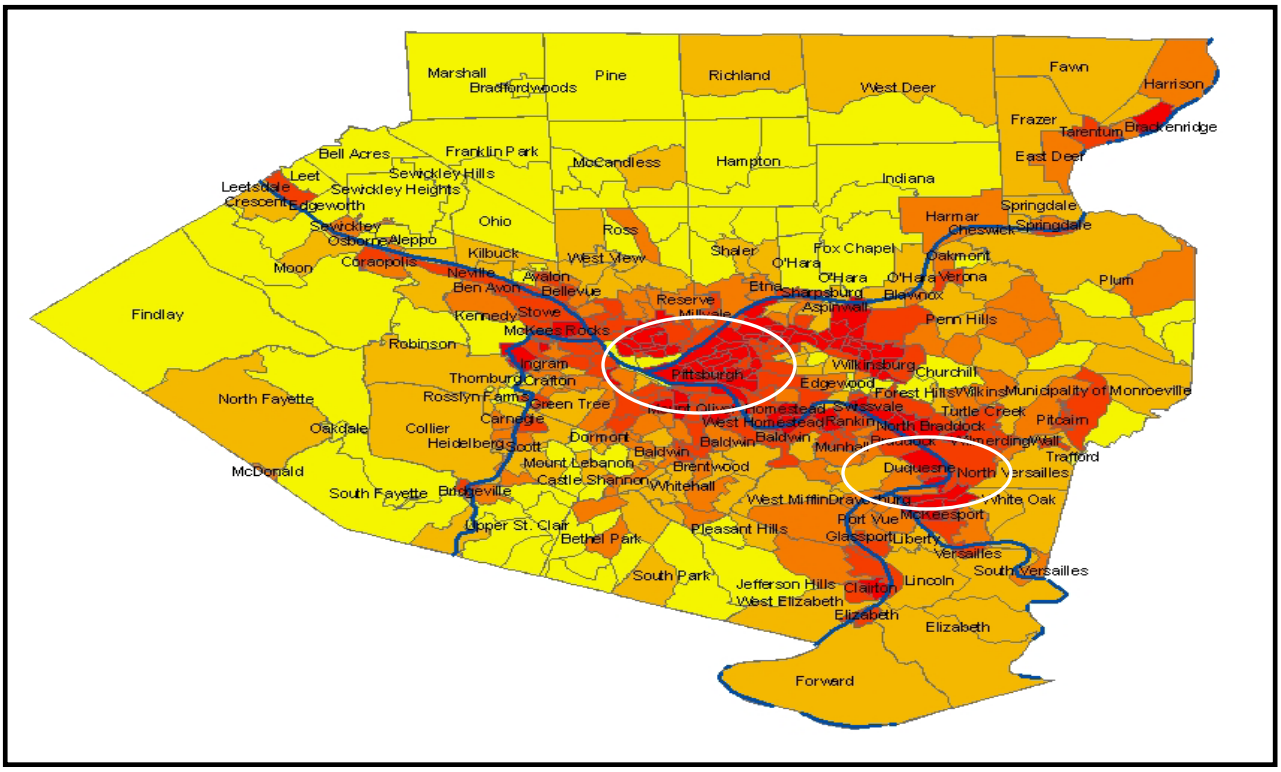

Figure 2. Social Vulnerability Index of Municipalities in Allegheny County where yellow represents the least socially vulnerable and red represents the most socially vulnerable municipalities. The City of Pittsburgh and the City of Duquesne have areas of high vulnerability (circled).

2.2 THE CITY OF DUQUESNE, PENNSYLVANIA

The focus of the needs assessment research activities for this project was the City of Duquesne; this section provides background information on the area.

2.2.1 History of the City of Duquesne

Duquesne City is located along the Monongahela River 13 miles southeast of Pittsburgh, Pennsylvania. Duquesne City was formerly home to the Duquesne Steel Works of the Carnegie

Steel Corporation, which later became the United States Steel Corporation. Like other cities along the Monongahela River, Duquesne was a steel mill city. In 1984 Duquesne Steel Works stopped production and three years later the mill closed its doors. When the steel industry collapsed, the Monongahela Valley, which includes Duquesne, lost approximately 75% of its population (Western Pennsylvania Brown Fields Center, 2007). Steel mills had served as the major employer in the Mon Valley and without this manufacturing and employment base, people left the area. The loss of both population and the manufacturing base resulted in multiple economically disadvantaged communities, including the City of Duquesne.

2.2.2 Current Profile of the City of Duquesne

Located in Allegheny County, Duquesne City is approximately two square miles and is surrounded by the municipalities of North Versailles, McKeesport, West Mifflin and North Braddock (Figure 3.). Approximately 7,332 people with a male to female ratio of 49% to 51% of whom 47.7% are African American live in Duquesne (US Census Bureau, 2000). As reported by the 2000 Census, Duquesne has slightly higher rates of unemployment and lower median household income levels than the national average (Duquesne unemployment rate: 6.2%; National average unemployment rate: 5.8%; Duquesne median household income: $19,776; National average median household income: $41,994). In addition, numbers of impoverished families and individuals in Duquesne are higher than national averages; 31.3% of families and 34.7% of individuals in Duquesne live below the poverty level as compared to 9.2% of families and 12.4% of individuals nationally. A lower number of adults in Duquesne have a high school diploma or GED (78.2%) as compared to 80.4% nationally.

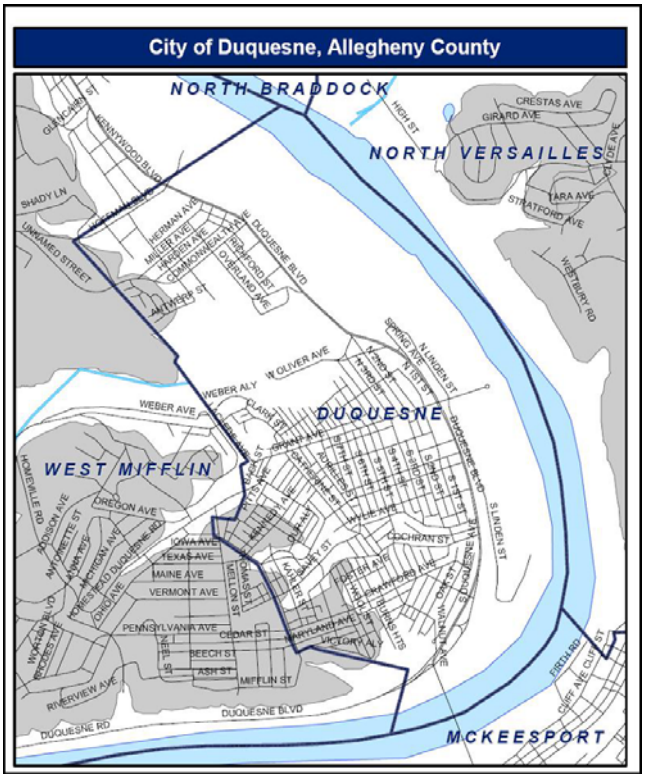

Figure 3. Map of Duquesne City prepared by the Pennsylvania Department of Environmental Protection, Mine Subsidence Section (11/15/2005). (http://www.depweb.state.pa.us/).

Duquesne's urban plan includes three low-income public housing buildings, a retirement residence and single-family homes. Duquesne City has one grocery store, several churches, one fire department, and one police department. Prior to the 2007-2008 academic school year the single Duquesne school building housed grades K-12; however, for the 2007-2008 school year, the high school was closed and students in grades 9-12 were redistricted in the two neighboring communities of West Mifflin and East Allegheny. Although the high school closed, grades K-8 remain in Duquesne.

The low socioeconomic status of Duquesne City residents contributes to the vulnerability of the population, negatively influences the general health status of community members and may ultimately lead community members to experience disproportionate health outcomes in the event of a public health emergency. The socioeconomic status of Duquesne City underlies and

exacerbates many other challenges in the face of a public health emergency. Effective communication during a public health emergency is one challenge faced by Duquesne City. Barriers to communicating immediately before, during and following an emergency include the lack of a community-based radio or television station to communicate emergency broadcasts without delay and an under-utilized community based newspaper that would be ineffective in maintaining daily or weekly updates of response progress.

The structure and capabilities of emergency response in Duquesne City represent other barriers to mounting an effective response against a large scale emergency. Emergency response capabilities within Duquesne consist of a greater than ten member police force, a salaried fire department and a privatized ambulance/Emergency Management Services force. Since the City of Duquesne falls within the bounds of Allegheny County, PA, it part of the larger Pennsylvania Region 13 Task Force emergency response structure. Comprised of 13 counties in Southwestern Pennsylvania and the City of Pittsburgh, Region 13 focuses on all-hazards and counter-terrorism approaches to preparedness and response (Pennsylvania Region 13, 2008). Thirteen counties and the City of Pittsburgh have regional mutual aid and intergovernmental agreements for preparing and responding to emergency events; stakeholders involved in Region 13 include Allegheny County Emergency Management Office Coordinators as well as representatives from municipalities, fire departments, police departments, emergency medical service agencies, hospitals and public health (Pennsylvania Region 13, 2008). In addition, the public health preparedness needs of Duquesne are served by the Allegheny County Health Department.

Duquesne lacks immediate access to emergency medical care. No hospital or pharmacy exists within the community and the three nearest hospitals are UPMC McKeesport, approximately two miles from Duquesne, University of Pittsburgh Medical Center (UPMC)

Braddock, approximately 4.7 miles from Duquesne, and Jefferson Regional Medical Center in Jefferson Hills, approximately 7.7 miles from Duquesne. Within the community, a Federally Qualified Health Center (FQHC) provides health services to community members; however the Duquesne Family Health Clinic operates only during business hours and does not stock pharmaceuticals.

Beyond the challenges associated with access to emergency response and medical care are issues of meeting basic food and water needs of the community in the event of a resource-demanding public health emergency. Within the Duquesne community "Save-a-lot" is the only grocery store and getting to other grocery stores outside the community such as the "Giant Eagle" in West Mifflin requires the use of two or more buses. Having a single grocery store presents challenges when considering the food, water and supply needs of a community in the face of disaster. Current concern about the proper functioning of the fire hydrant system also exists. In addition to challenges presented by accessing food and water, Duquesne City lacks a clear plan for where individuals would take shelter in the event of an emergency.

Underlying the challenges of communication and accessing medical care and basic resource needs are transportation issues faced by the Duquesne community. Reliance on public transportation creates many challenges for a community when responding to a public health emergency. Public transportation creates a ripe environment for the spread of diseases capable of human-to-human transmission such as pandemic influenza. When immediate escape from an area becomes critical due to airborne-associated emergencies such as fire, smoke, toxic fumes from a chemical spill, a natural gas leak, or aerial spraying, dependence on public transportation both dictates and limits escape. Not only does public transportation create problems when an individual must flee the community but also creates problems for accessing medical care

services. In order to access both UPMC Braddock and UPMC McKeesport hospitals, Duquesne community members must cross the Monongahela River.

Low socioeconomic status, barriers to communication, limited emergency response capabilities, limited access to medical care and basic food, water, and shelter services as well as a reliance on public transportation all contribute to the vulnerability of the Duquesne community and many of the challenges the community faces in responding to a public health emergency. As described above, Duquesne is a vulnerable community likely to be disproportionately affected in the event of an emergency or disaster and ideal for the development of community-based emergency preparedness materials.

2.3 EMERGENCY PREPAREDNESS AND COMMUNITIES

Existing literature and lessons learned from previous public health emergencies reveals the importance of establishing and identifying trusted sources of information and communication as well as considering the needs of vulnerable populations. Current national planning documents emphasize state and local preparedness however, funding for these activities is limited and questions remain about the ability of public health to engage in preparedness while maintaining essential public health services. Metrics and an evidence base for the evaluation of preparedness and how best to engage citizens are also lacking. Drawing from the literature and using past examples of public health emergencies and the current pandemic influenza preparedness activities, this section provides background on the complexities of public health preparedness at the local level.

As described by Nelson and colleagues, one central component of public health preparedness involves communities and individuals having the capacity to take action to prevent and protect themselves from public health emergencies, as well as capacity to respond and recover from such emergencies (Nelson et al., 2007). Community and local level emergency preparedness is multifaceted, encompassing a multitude of stakeholders requiring knowledge, human resources and funding. As previously described, recent disaster events exposed the local nature and impact of disasters as well as the importance of local emergency preparedness. In the discussion of emergency preparedness and communities, it is important to consider research conducted and lessons learned from the collapse of the World Trade Center on September 11, 2001, the Asian Tsunami (2004) and Hurricane Katrina (2005). Most recently, federal emergency preparedness efforts focus on planning and preparing for pandemic influenza. Local level preparedness is emphasized in pandemic planning and provides a timely example to explore the multifaceted nature of community emergency preparedness.

These tragic events expose the nature of terror, bioterror and natural disasters. In addition, these events provide policy makers and other leaders with important lessons to consider when developing preparedness plans and guides, especially in the areas of communication and local level preparedness. Difficulties encountered by responders when the World Trade Center collapsed on September 11, illustrate the importance of communication and coordination. Poor communication between police and fire departments, and the destruction of the Office of Emergency Management's (OEM) central communication hub reveal the necessity of communication and coordination in the event of a disaster (Schneider, 2006).

Shortly after September 11, 2001, anthrax was sent through the U.S. Postal Service as an act of bioterrorism. Following the 2001 anthrax attacks, Quinn and colleagues conducted

interviews and focus groups with U.S. postal workers from the Trenton, New Jersey, New York City, and Washington DC, postal offices that processed anthrax containing mail (Quinn, Thomas, & McAllister, 2005). Postal workers felt that the federal government and public health officials responded poorly to the anthrax attacks; the postal workers did not trust government or public health officials and felt communication was inadequate (Quinn et al., 2005). Postal workers desired honesty and openness from the public health officials especially in the face of changing messages and recommendations (Quinn et al., 2005).

The Southeast Asian Tsunami and Hurricane Katrina reveal the importance of local preparedness in the face of natural disasters. A research team from the Israeli Defense Forces Home Front Command Medical Department studied the response of the Thai medical system to the tsunami (Peltz et al., 2006). Using Quarantelli's criteria for evaluating disaster management, the research team determined that the most important factors in effective disaster management are "1) the flow of information; 2) overall coordination; 3) leadership" (Peltz et al., 2006, p. 299).

Hurricane Katrina struck the Gulf Coast of the United States in August of 2005. The poor response of federal, state and local governments to Katrina was highly criticized and publicized. Gheytanchi and colleagues (2007) examined failures of the response to Hurricane Katrina and similar to factors identified by the Israeli Defense Forces Home Front Command; they identified "1) lack of efficient communication; 2) poor coordination plans; 3) ambiguous authority relationships: who is in charge?" (pp. 119-121). When Hurricane Katrina struck, "people suffered huge personal losses and they turned to communities with inadequate resources to assist effectively" (Saunders, 2007, p. 32).

The circumstances surrounding Hurricane Katrina were rife with communication failures at multiple levels. Hurricane Katrina also shines a spotlight on the havoc the hurricane wreaked on vulnerable populations during and after the emergency. As stated by Cutter,

> The revelations of inadequate response to the hurricane's aftermath are not just about failures in emergency response at the local, state, and federal levels or failures in the overall emergency management system. They are also about failures of the social support systems for America's impoverished—the largely invisible inner city poor (Cutter, 2006, p. 1).

> Those that could muster the personal resources evacuated the city. With no welfare check (the hurricane struck near the end of the month), little food, and no help from the city, state, or federal officials, the poor were forced to ride out the storm in their homes or move to the shelters of last resort. This is the enduring face of Hurricane Katrina—poor, black, single mothers, young, and old—struggling just to survive; options limited by the ineffectiveness of preparedness and the inadequacy of response (Cutter, 2006, pp. 2-3).

Social inequalities lie at the heart of the local-level failures of Hurricane Katrina. Considering inequalities and the special needs and resources of vulnerable populations is essential in emergency preparedness. The needs of these individuals were not paramount in New Orleans, nor considered for important preparedness activities including evacuation; for example, "evacuation plans involved the use of services and resources not available to many residents in New Orleans" (Gheytanchi et al., 2007, p. 124).

What was learned from September 11, the anthrax attacks, the Asian Tsunami and Hurricane Katrina reveals the importance of establishing channels of communication and coordination in preparation for events of terrorism, bioterrorism and natural disasters. These events also teach us the foundational nature of local preparedness and the importance of planning for vulnerable populations. Communication and coordination are crucial to the success of preparedness activities and underpin all response measures; if communication and coordination are lacking, no element of response, regardless of the type of emergency, will be robust.

Intentional and natural disaster events in recent years expose weaknesses in emergency preparedness and response, which has led to investment in preparedness efforts. These events also highlight the importance of local level preparedness. Preparing for pandemic influenza is a current focus of federal emergency preparedness efforts. The importance of individual and local level response is particularly evident in the nation's federal planning for pandemic influenza. Investment and planning for pandemic flu serves not only for response to pandemic flu but also the increased capacity of the U.S. to respond to events of bioterrorism, natural disasters and other emerging threats (US Department of Health and Human Services, December 5, 2005). Released in November 2005, The National Strategy for Pandemic Influenza broadly describes how the federal government will prepare, detect and respond to pandemic influenza (The White House, 2005). Not only does the National Strategy describe the role of the federal government, but it also outlines the role of state and local governments as well as other stakeholders in preparing for pandemic flu. State and local preparedness is an important component in the National Strategy, and state and local governments are expected to plan and prepare for the threat of pandemic influenza.

In addition to the National Strategy and other planning documents, Health and Human Services Secretary Michael Leavitt convened state pandemic influenza summits as part of preparedness efforts. The summits included discussion of pandemic planning and promotion of the building of partnerships among public health, emergency response and other important stakeholders (Association of State and Territorial Health Officials, 2006). While speaking at a February 2006 State and Local Pandemic Preparedness meeting, Leavitt said, "Any community that fails to prepare with the idea that somehow, in the end, the federal government will be able to rescue them will be tragically wrong" (Inglesby, Nuzzo, O'Toole, & Henderson, 2006, p. 367).

Local preparedness is crucial to strong response and is also essential for reducing morbidity and mortality due to disaster events. Although federal planning documents such as the National Strategy for Pandemic Influenza outline specific duties for states and localities and provide guidance as states and localities engage in preparedness planning, the question of how communities and community members can be engaged in preparedness planning and activities and how individuals should be mobilized at the local level during bioterrorism attacks or other public health emergencies still remains unanswered.

Although the federal government expects states and localities to engage in preparedness planning, federal guidelines and recommendations provide only broad guidance for state and local level preparedness. Within the broader context of the National Strategy, each state must develop preparedness capacities tailored to the needs of the state and its localities. The development of preparedness materials relevant to different populations and localities within a state requires direction and guidance from policy makers as well as from local officials, community leaders and community members. Community leaders and members are routinely left out of emergency preparedness discussions. Therefore despite "individual's safety and survival [being] dependent on self-care for 72 hr after a disaster, [these] very individuals are unaware of and unprepared for their responsibilities" (Mack et al., 2006, p. 355).

Late in 2006, the Association of State and Territorial Health Officials (ASTHO) published a report on state influenza summits that were convened in 2006 (Association of State and Territorial Health Officials, 2006). The report identifies common themes emerging from debriefing sessions ASTHO held with 37 states following their influenza summits and the most common theme reported "was that the response to an influenza pandemic will occur at the state and local levels with minimal federal support and, therefore, planning should be occurring at

these levels" (Association of State and Territorial Health Officials, 2006, p. 4). The summits also served as a forum for discussion and for some states also served as a catalyst for the planning of regional preparedness summits that included planning for local preparedness.

As part of a Planning Resolution Memorandum of Understanding (MOU) between Pennsylvania and the US Department of Health and Human Services, Pennsylvania received three billion dollars from the Defense Appropriations Act, which includes monies for the purchase of antiviral drugs as well as for state and local planning (US Department of Health and Human Services, March 17, 2006). The Planning Resolution also included language about the responsibility of states and local communities to prepare, plan and implement measures to protect citizens from pandemic flu (US Department of Health and Human Services, March 17, 2006). The central message of state pandemic flu summits was that the onus of preparedness is on the states and the localities. The convening of state pandemic flu summits and the signing of MOUs between DHHS and states conveyed the importance of local preparedness and took important first steps in catalyzing building relationships between emergency preparedness stakeholders.

Funding allocated for preparedness activities, particularly for state and local level activities is also important to consider in the discussion of local emergency preparedness. According to the Fiscal Year 2008 (FY 2008) Department of Health and Human Services Budget in Brief, more than nine billion dollars were invested in public health emergency preparedness since 9/11 (US Department of Health and Human Services, 2007). In sharp contrast to the billions of dollars directed to vaccine and antiviral drug research, production and procurement are the millions of dollars that are divided among all states to increase state and local preparedness for pandemic influenza. Not only are funds to increase state and local preparedness

divided among states and localities, but also a significant portion of the money directed towards state and local preparedness funding is reserved to subsidize the state purchase of antiviral drugs (US Department of Health and Human Services, 2007). The funding of pandemic influenza preparedness is a classic example of an under-funded federal mandate: the federal government emphasizes the importance of local level preparedness but does not provide sufficient funds to sponsor such preparedness activities.

Allocation of resources and funding for community-wide and community-based preparedness is essential for the mobilization of local level resources; but is limited. The federal, state and local funding environment greatly influences the resources that can be realistically dedicated to local preparedness activities. Local preparedness planning needs to consider how best limited resources can be effectively used to maintain the essential services of public health while increasing local preparedness. Although significant funding was dedicated to preparedness since 9/11, a small fraction of that funding supports state and local preparedness and "emergency response planning has been placed on the shoulders of an under-funded and under-staffed public health system" (Hyde, Basil, Martinez, Clark, & Hacker, 2006, p. 111). According to Hyde and colleagues, "funding for emergency preparedness planning is tied to specific deliverables that often require more human resources than what is supported" by the funding provided (Hyde et al., 2006, pp. 106-107). Other challenges faced by public health in relation to emergency response is maintaining essential services while simultaneously preparing for bioterrorism and emerging threats that may or may not arise (Furbee et al., 2006).

Not only do emergency planning and preparedness activities often require substantial human resources, but they also take resources away from important public health functions. In examining the influence of emergency preparedness on public health practice, Lurie, Wasserman

and Nelson (2006) found that “senior state and local health department officials spend a substantial fraction of their time, often upward of 20 percent, on preparedness-related matters”; furthermore, “public health departments reported that cuts to local public health budgets have led to reduction in, and in some instances elimination of, important public health services and programs” (p. 938).

Related to the allocation of funding and resources for local preparedness activities is a paucity of literature on the benefits of local level preparedness and how to measure the level of community preparedness (Katz, Staiti, & McKenzie, 2006; Lurie et al., 2006; Lusby, 2006). This area of preparedness lacks “well-accepted, standardized measures and metrics [that] makes it difficult to satisfy the demands for accountability, or even to gauge the level of preparedness” (Lurie et al., 2006, p. 942). Additionally, “measuring preparedness creates challenges because it involves the capacity to deal with situations that happen rarely” (Lurie et al., 2006, p. 942). A lack of science-based research due to the relatively rare incidence of public health emergencies requires the use of a lessons-learned approach to local level preparedness. Lessons learned from recent terrorist, bioterrorist and natural disaster events reveal the importance of local level preparedness and response for lessening the harmful affects of terrorism, bioterrorism and natural disasters; however, translating these lessons into practice remains exceedingly difficult due to scarce public health resources. Ideally public health emergency preparedness functions need to be integrated with other essential public health functions; when emergency preparedness and other functions are combined, public health employees and systems are more prepared to respond to public health emergencies, as measured by participation in table top exercises and drills (Lurie et al., 2006).

Recent events not only reveal weaknesses in response systems but also show the importance of effective communication, coordination, trust and local preparedness. Although the National Strategy for Pandemic Influenza and messages from the Secretary of Health and Human Services emphasize the importance of state and local preparedness, the majority of federal funds for pandemic influenza preparedness support vaccine and antiviral drug research, development and procurement, leaving the states and localities without sufficient resources to fund preparedness activities. Community-based preparedness is especially relevant and important in communities with vulnerable populations that lack resources to respond in the event of a disaster.

The federal government expects localities including cities, communities, neighborhoods as well as individuals to be prepared for disasters; however, much of the focus on local level preparedness and response is directed towards local public health department officials and executives and hospital executives (Katz et al., 2006). Targeting leaders in public health, health care and related agencies is important for local emergency preparedness planning and response; however, citizens, including individuals from vulnerable populations, need to be included in emergency preparedness planning and educated about preparing for and responding to a public health emergency. Engaging, involving and educating citizens in local response is crucial for the local level mobilization of assets, personnel and other resources during a public health emergency to supplement the capabilities of hospitals and public health agencies. Building citizen engagement and trust prior to an event is important so that citizens are equipped with the knowledge and resources to be able to respond (Chesser, Ablah, Hayley et al., 2006; Quinn et al., 2005).

Individual, family, and community engagement in preparedness has been primarily addressed by emergency preparedness guides produced by the Department of Health and Human

Services, the Food and Drug Administration as well as other federal agencies and countless states and organizations. Existing guides are centered on the individual and family and rarely incorporate neighborhood or community collaboration. In addition, guides for individuals assume they possess the resources and education required to develop a family preparedness plan and assemble an emergency preparedness kit. The underlying assumption that individuals have economic resources and a level of education consistent with the preparedness guides inherently excludes individuals of lower socioeconomic status and other vulnerable populations (Mack et al., 2006).

The paucity of literature on the needs of the general public and vulnerable populations, and how best to prepare communities that lack resources on the local level, illustrates a deficit in current emergency preparedness research and knowledge. Federal preparation for pandemic influenza shows the complex nature of emergency preparedness and the multiple determinants influencing local level preparedness. Emergency preparedness is also in competition with equally if not more important essential public health services. Recent disaster events and current pandemic flu planning not only reveal the importance and expectation for local level preparedness, but also the timeliness of the Duquesne Emergency Preparedness Project and the importance of understanding the perceptions and needs of vulnerable populations and developing preparedness materials tailored to these needs.

2.4 EMERGENCY PREPAREDNESS AND LITERACY

In order to understand whether the preparedness needs of vulnerable populations are being met, it is crucial not only to understand the needs of these populations but also to gain a sense of what

individual and community preparedness materials exist. Low educational attainment is one characteristic common to vulnerable populations and relates to low levels of literacy. As a result, considering the literacy level and assumptions underlying these materials is important. Although the literature and the aftermath of disasters document the disproportionate effect of disasters on vulnerable populations, preparedness guides do not meet the needs of these individuals. A multitude of citizen preparedness guides from federal agencies, states and localities exist; however, false assumptions underlie existing preparedness guides, including that the literacy level of guides is inline with that of vulnerable populations.

The National Adult Literacy Survey (NALS) defines literacy as the ability to use "printed and written information to function in society, to achieve one's goals, and to develop one's knowledge and potential" and assesses prose, document and quantitative literacy (Kirsch, Jungeblut, Jenkins, & Kolstad, 1993, p. 2; Kutner, Greenberg, Jin, & Paulsen, 2006). Prose literacy is related to continuous texts such as news stories and brochures; document literacy is related to non-continuous texts such as job applications, maps, tables and food and drug labels; and quantitative literacy is about executing computations embedded in text (Kutner et al., 2007). The 2003 National Assessment of Adult Literacy (NAALS) created four classifications of literacy: *Below Basic, Basic, Intermediate and Proficient*. Definitions and specific abilities associated with each NAAL literacy category are described in Table 2. The NAALS does not use grade level equivalency as a measure of literacy level.

Table 2. Definitions and specific abilities associated with each National Assessment of Adult Literacy category adapted from Kutner et al 2007 Literacy in Everyday Life: Results from the 2003 National Assessment of Adult Literacy Table 1-2 Overview of the literacy levels (p. 4).

Literacy Level	Definition	Abilities Associated with Literacy Level
Below Basic	No more than the most simple and concrete literacy skills	1) Nonliterate; 2) locating easily identifiable information in short, commonplace prose texts; 3) locating easily identifiable information and following written instructions in simple documents (charts or forms); 4) locating numbers and using them to perform simple quantitative operations when mathematical information is concrete and familiar.
Basic	Skills necessary to perform simple and everyday literacy activities	1) Reading and understanding information in short, commonplace prose texts; 2) reading and understanding information in simple documents; 3) location easily identifiable quantitative information and using it to solve simple, one-step problems when arithmetic operation is specified or easily inferred.
Intermediate	Skills necessary to perform moderately challenging literacy activities	1) Reading and understanding moderately dense, less commonplace prose texts as well as summarizing, making simple inferences, determining cause and effect and recognizing the author's purpose; 2) locating information in dense, complex documents and making simple inferences about the information; 3) locating less familiar quantitative information and using it to solve problems when arithmetic operation is not specified or easily inferred.
Proficient	Skills necessary to perform more complex and challenging literacy activities	1) Reading lengthy, complex, abstract prose texts as well as synthesizing information and making complex inferences; 2) integrating, synthesizing, and analyzing multiple pieces of information located in complex documents; 3) locating more abstract quantitative information and using it to solve multi-step problems when the arithmetic operations are not easily inferred and the problems are more complex.

Classified in the *Below Basic* literacy category, 5% of adults aged 16 and older were considered to be nonliterate in English because "they were unable to complete a minimum number of simple literacy questions" or "unable to communicate in English or Spanish" (Kutner et al., 2007, p. iv). The 2003 NAAL estimated "some 30 million American adults had *Below Basic* prose literacy, 27 million had *Below Basic* document literacy, and 46 million had *Below Basic* quantitative literacy" (Kutner et al., 2007, p. 12). Of individuals surveyed, 29% had *Basic* prose literacy, 22% had *Basic* document literacy and 33% had *Basic* quantitative literacy (Kutner et al., 2007). Individuals with inadequate literacy skills do not have equitable access to health

information and impoverished individuals are disproportionately affected by low literacy. According to the 2003 NAALS, "With each higher level of prose, document, and quantitative literacy—from *Below Basic* through *Proficient*—the percentage of adults with household incomes below $10,000 decreased and the percentage of adults with household incomes of $100,000 or greater increased" (Kutner et al., 2007, p. 34). In addition to poverty, low literacy is prevalent among the elderly, non-English speaking individuals and in certain racial and ethnic groups. Individuals classified as having Below Basic and Basic literacy levels may experience difficulty with emergency preparedness materials. Emergency preparedness materials require literacy skills associated with intermediate literacy levels including understanding somewhat dense texts, determining cause and effect and making inferences.

Unlike the concept of general literacy addressed by the 1992 NALS and the 2003 NAAS, health literacy is content specific. Both *Healthy People 2010* and the Institute of Medicine Report on Health Literacy use Parker, Ratzan and Lurie's (2003) definition of health literacy: "The degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions" (p. 147). An individual who is health literate is able to read and understand health related materials such as prescription bottles, appointment slips, and patient education pamphlets; in addition, individuals with adequate functional health literacy are capable of reading, comprehending and acting on health information (Ad Hoc Committee on Health Literacy for the Council on Scientific Affairs, 1999).

When developing emergency preparedness materials, the concept of health literacy is important. Similar to health education and disease management materials, emergency preparedness materials require individuals to understand, process and act on the

recommendations and instructions of materials. The health literacy of the population residing in Duquesne is unknown; however the results of the 2003 National Assessment of Adult Literacy entitled, *The Health Literacy of America's Adults* reveal that nationally 53% of the population has intermediate health literacy while 36% of the population has basic or below basic health literacy (Kutner et al., 2006).

Functional literacy is described as the ability to perform different literacy tasks over a spectrum of difficulty levels (1985). When compared to functionally literate individuals, persons with low literacy do not understand general health information or condition-specific health information, have poorer health status and chronic disease management, use health services less often and are hospitalized more often, all of which have implications for both preparing for an responding to a public health emergency (Ad Hoc Committee on Health Literacy for the Council on Scientific Affairs, 1999; Baker, Parker, Williams, Clark, & Nurss, 1997; Howard, Sentell, & Gazmararian, 2006; Williams et al., 1995). Health literacy not only includes understanding print materials but also understanding spoken instructions (Plimpton & Root, 1994). Individuals with low literacy sometimes rely on others for health information such as family, friends and social networks, which has implications for the dissemination of preparedness materials among a low literate population such as Duquesne (Macario, Emmons, Sorensen, Hunt, & Rudd, 1998; Williams et al., 1995).

Characteristics of individuals with low literacy include thinking in concrete terms, interpreting information literally and experiencing difficulty in comprehending and applying information (National Cancer Institute, 2003b). People with low health literacy may rely on surrogate readers such as family members or close friends to aid them in health care settings (Macario et al., 1998; Williams et al., 1995). Individuals with low literacy are robbed of the

opportunity to participate in a literate society and because of their low literacy miss opportunities in all sectors of society including employment prospects and the chance to be healthy (Baker, Parker, Williams, Clark & Nurss, 1997). Participation in disease prevention and health promotion programs is lower among individuals with low literacy (Safeer & Keenan, 2005). Low literacy is not synonymous with lack of intelligence; however a strong negative social stigma accompanies low literacy, and low literate readers are often ashamed of their literacy level (Doak et al., 1985; Williams et al., 1995). Many of the issues and/or barriers underlying low literacy and low health literacy are societal in nature. Multiple studies report a correlation between literacy and an individual's educational attainment, income level and age (Doak et al., 1985; Gazmararian et al., 1999; Howard et al., 2006; National Cancer Institute, 2003b; Williams et al., 1995).

Guides on how to design health-related materials appropriate for individuals with low-literacy levels have existed since the mid 1980s (Rudd, Moeykens, & Colton, 1999). Doak, Doak and Root's (1985) *Teaching Patients with Low Literacy Skills*, the National Cancer Institute's (2003) *Clear and Simple: Developing Effective Print Materials for Low-Literate Readers*, Helen Osborne's (2005) *Health Literacy from A to Z*, the National Center for the Study of Adult Learning and Literacy's Health Literacy and Adult Education Training Materials curricula and materials provided by the Harvard School of Public Health's Health Literacy Study web page are examples of comprehensive guides for developing appropriate materials and teaching individuals with low health literacy. Education materials designed for low-literate readers are also preferred by individuals at large (Plimpton & Root, 1994). Although guides for developing low-literacy level health education materials exist, creating such materials has inherent challenges. Plimpton and Root (1994) reported that individuals who participated in a

workshop to create low-literacy level brochures were sometimes confronted by superiors who expressed concerns about the level of the information being too low. Another difficulty in developing appropriate materials for individuals with limited literacy is related to agency awareness of low literacy within target populations and agency willingness to participate in learning how to design and use these materials, which can be a time-consuming process that demands multiple revisions and evaluations (Plimpton & Root, 1994).

Materials designed for individuals with low literacy are not effective alone (Jacobson et al., 1999; Plimpton & Root, 1994; Sumner, 1991; Williams et al., 1995). In addition, low literacy level materials may not be appropriate for all persons with limited literacy; often an information mismatch occurs (Doak, Doak, Friedell, & Meade, 1998). Information mismatch means health information presented is not consistent with an individual's logic, language and experience (Davis, Crouch, Wills, Miller, & Abdehou, 1990; Doak et al., 1998). Information mismatch may be remedied by providing individuals with tailored messages by which the information presented is made relevant and important to the person (Doak et al., 1998). Also important to the design and ultimate use of effective education materials is the early presentation of behavioral information (Doak et al., 1998). Consistent with the medical model, which aims to increase knowledge, health education materials and public health emergency preparedness information present factual information first and follow the facts with behavioral information; for low literate readers, the how-to information is most important (Doak et al., 1998).

Plimpton and Root (1994) suggest that "either a way must be found to develop universally high level reading and listening skills, or communication must be improved so that most people can understand" (p. 86). In order to develop successful interventions for individuals with low health literacy, professionals developing materials and literacy specialists must work

together in designing interventions and in facilitating greater awareness of low health literacy among providers and agencies (Plimpton & Root, 1994). Doak and colleagues (1998) suggest clinicians and others may administer interventions designed using the Health Belief Model, self-efficacy theory and adult education methods to improve health literacy. Literacy experts interviewed about how best to improve low literacy suggest that individuals with low literacy should be involved in the design of health education materials (Macario et al., 1998). Basic adult education students interviewed about how they best received health information recommended presenting information that is relevant, uses clear visual representations and diagrams, is discussion based, and is culturally appropriate (Macario et al., 1998). The suggestions of individuals with low literacy are invaluable to the design of emergency preparedness materials.

3.0 METHODS

Methods for the Duquesne Emergency Preparedness Project included assessing the literacy level of ten randomly selected existing emergency preparedness guides using the SMOG Readability Grade Level Assessment and the Flesch-Kincaid Readability Test and exploring emergency preparedness needs through focus group discussions and a telephone survey. The exploratory qualitative and quantitative research aimed to gain an understanding of the emergency preparedness needs, especially risk perceptions and information seeking behaviors, of Duquesne community members.

Focus group methods explored the existing strengths and challenges of Duquesne as well as trusted sources of information, perceived level of individual and community preparedness, barriers to preparing for an emergency, and emergency preparedness planning (see focus group discussion guide Appendix A). The quantitative survey administered via random digit dialing in Duquesne, McKeesport and West Mifflin asked participants to rank threats facing their community, identify trusted sources of information and news, indicate the likelihood of experiencing a wide-spread emergency in their community, and answer questions related to emergency preparedness activities (see telephone survey Appendix B). A short anonymous survey administered prior to focus group discussions (see focus group demographic survey Appendix A) and several questions at the end of the phone survey also gathered demographic information about participants. Analysis of focus group and survey data centered on the themes

of community strengths and weaknesses, trusted sources of information, perceived level of individual and community preparedness, barriers to preparing for an emergency and design of a community emergency preparedness and education plan.

Focus group discussions and the phone survey were conducted with adults aged 18 and older. The focus group discussion and telephone survey research was approved by the University of Pittsburgh Institutional Review Board on August 29, 2007 (IRB# PRO07050124).

3.1 ASSESSING THE LITERACY LEVEL OF EXISTING EMERGENCY PREPAREDNESS GUIDES

The problem of low literacy and low health literacy is not unique to vulnerable populations but rather affects the nation at large. The widespread nature of low literacy in the United States makes low literacy emergency preparedness materials necessary for the general public. Research from the field of both literacy and health literacy provides invaluable guidance and important considerations for the development of preparedness educational materials that are appropriate for audiences with low literacy. Pertinent to the development of emergency preparedness materials using concrete and basic language, using examples relevant to every day, including clear visual representations and diagrams, and ensuring cultural relevance (Doak et al., 1998; Macario et al., 1998). Additionally, emergency preparedness materials should focus on instructional information instead of increasing knowledge (Doak et al., 1998). Finally, community members and individuals who are consumers of the educational materials need to be involved in the design and process of developing the materials (Macario et al., 1998).

In order to determine whether existing emergency preparedness guides are appropriate for audiences with low literacy, the author assessed the literacy level of ten randomly selected existing preparedness guides from local, state and federal agencies using the SMOG Readability Formula and the Flesch-Kincaid Readability Test (see Table 3).

Table 3. Local, state and federal emergency preparedness guides for which literacy levels were assessed.

Local	State	Federal
Allegheny County, Pennsylvania Citizens Guide to Emergency Planning	Pennsylvania Emergency Preparedness Guide	Federal Emergency Management Agency (FEMA) Guide to Citizen Preparedness
Emergency Preparedness Program for the Philadelphia Region		Agency for Healthcare Research and Quality (AHRQ) Community Planning Guide
Hardy County, West Virginia Emergency Planning Guide		U.S. Department of Health and Human Services Guide for Leaders and Responders
National Capital Region Pocket Emergency Planning Guide		Channing Bete Company Individual and Family Pandemic Flu Handbook
New York Disaster Interfaith Services (NYDIS) Spiritual Care and Mental Health for Disaster Response and Recovery		

The SMOG Readability Formula considers the number of polysyllabic words as well as sentence length to calculate the grade reading level of a text (McLaughlin, 1969; U.S. Department of Health and Human Services, National Institutes of Health, & National Cancer Institute, 1989). The Flesch-Kincaid Readability Test considers the average sentence length in words, the average word length in syllables, the average percentage of "personal words" and the average percentage of "personal sentences" (Flesch, 1948, p. 223). Both the SMOG Readability Formula and the Flesch-Kincaid Readability Test evaluate the grade level associated with a given text; therefore, a score of six by either the SMOG or Flesch-Kincaid Test equates to a majority of 6th graders being able to read and understand the text (U.S. Department of Health and Human Services et al., 1989).

3.2 FOCUS GROUPS

Focus groups are “an exploratory process that is used for generating hypotheses, uncovering attitudes and opinions, and acquiring and testing new ideas” (Gilmore & Campbell, 2005, p. 98). Focus groups gather qualitative information and involve in-depth discussions with six to twelve people led by a facilitator who uses a guide to moderate the discussion (Gilmore & Campbell, 2005). The author conducted focus groups in Duquesne City, PA to gather community perceptions on emergency preparedness. In order to gain a comprehensive understanding of community perceptions about emergencies and preparing for emergencies, several populations were targeted for participation. These included business and civic leaders; emergency medical personnel, law enforcement and public safety officers; and the general population, which included providers of child care, adults and the elderly. Only adults 18 and older were recruited to participate in the focus group discussions.

By engaging each target population in a focus group discussion, different perspectives about community strengths, threats to the community and perceived community capacity to respond to emergencies were captured. In addition, within the broad spectrum of preparedness, unique issues face each segment of the community.

The Duquesne Community Mobilization Project (DCMP) was instrumental in the recruitment of focus group participants. Members of the DCMP Youth Pride group hung flyers, and Lori Rue, Director of the Urban League Duquesne Community Mobilization Project, helped recruit participants by making recommendations for contacting and engaging different sub-populations of the community. Recruiting strategies included posting advertisements, advertising in the newsletters of community based organizations and directly contacting individuals who expressed willingness to participate in focus group discussions.

In total, four focus groups were conducted in Duquesne:

Group 1) Police chief, fire chief, city manager, city councilmen and public works employees

Group 2) Community members including parents;

Group 3) Adults aged 50 years and older, elderly and disabled community members; and

Group 4) Members of the general public including parents and providers of childcare.

Although firefighters and police were represented in the formal leader group a separate focus group composed of only first responders was proposed; however this proved to be unrealistic given the time constraints of emergency responder schedules. As a result, paper versions of the phone survey including additional questions pertinent to emergency responders were mailed to the Duquesne Emergency Management Services Coordinator, and emergency responders were asked to voluntarily complete the surveys. The community leaders group included the heads of community based service organizations.

In order to ensure accuracy of the information collected, all of the focus group discussions were audio-recorded. In addition to recording the discussions, Ravi Sharma, PhD served as the note-taker during the focus group discussions. The author transcribed the audio-recordings of all focus group discussions and the note-taker's commentaries were analyzed in conjunction with the focus group discussion transcripts. The data analysis of focus group discussion transcripts centered on the themes of community strengths and weaknesses, trusted sources of information, perceived level of individual and community preparedness, barriers to preparing for an emergency and design of a community emergency preparedness and education plan. Focus group discussion transcripts were analyzed for emergent themes and organized into a table. In addition to analyzing focus group data, the author analyzed the demographic data collected via the anonymous focus group demographic survey using SPSS statistical software.

SPSS software was used to tabulate frequencies of gender and race of focus group participants and these percentages were compared to gender and race profiles of Duquesne City as reported by the 2000 Census.

3.3 TELEPHONE SURVEY

In addition to focus groups, a telephone survey was conducted. The Duquesne Emergency Preparedness Project phone survey asked participants to answer questions related to level of concern about different issues ranging from violence to the public school system, trusted sources of information, modes of transportation, likelihood of their community experiencing a widespread emergency, importance of planning for an emergency and level of personal preparedness as well as demographic information. The phone survey was conducted by the University of Pittsburgh Institute for Evaluation Science in Community Health using a random digit Computer Assisted Telephone Interviewing (CATI) method. A sample of telephone numbers in Duquesne and the surrounding areas including West Mifflin and McKeesport was obtained from Marketing Systems Group in Fort Washington, PA. Including Duquesne and two adjacent municipalities allowed for a broader base of survey participants than was included in the focus group discussions and helped to ensure that the target of 100 individuals was achieved. Phone surveying with a random sample of individuals aged 18 years and older who live or work was conducted in Duquesne, West Mifflin and McKeesport.

SPSS statistical software was used to analyze the phone survey data. A total of 100 surveys were completed via random digit phone surveying in the municipalities of Duquesne, West Mifflin and McKeesport. SPSS statistical software was used to perform frequency analysis

of survey respondent answers to questions one through 12 of the telephone survey. When calculating the percentages of responses for the answer choices provided for each question, SPSS included the unknown or no response categories in the denominator; therefore, percentages reported were calculated based on the total number surveyed (n=100). SPSS software was also used to tabulate frequencies of gender and race of survey respondents and these percentages were compared to the averaged gender and race profiles of Duquesne City, McKeesport and West Mifflin as reported by the 2000 Census.

3.4 FOCUS GROUP DISCUSSION GUIDE AND TELEPHONE SURVEY DEVELOPMENT

Emergency preparedness literature and existing surveys informed the development of the survey and focus group discussion guide for the Duquesne Emergency Preparedness Project. The primary sources included Chesser and colleagues' (2006) "Preparedness Needs Assessment in a Rural State: Themes Derived from Public Focus Groups;" the Department of Homeland Security's (2003) Citizen Corps Survey of U.S. Households; and the New York Academy of Medicine's (2004) *Redefining Readiness: Terrorism Planning Through the Eyes of the Public* study.

In 2006 Chesser and colleagues assessed the preparedness needs of urban and rural communities in Kansas. Theoretical frameworks informing both the needs assessment and design of the survey instrument and focus group discussion guide consisted of risk assessment and information seeking theories (Chesser, Ablah, Hawley et al., 2006). The 2003 Citizen Corps surveyed 2,002 adults aged 18 years or older in the focus areas of household preparedness,

training, neighborhood preparedness and volunteer services (Office of Citizen Corps Department of Homeland Security & ORC Macro, 2003). The *Redefining Readiness: Terrorism Planning Through the Eyes of the Public* study randomly surveyed 2,545 about how they would react to a smallpox outbreak and a dirty bomb situation (Lasker et al., 2004). Not only did *Redefining Readiness* explore how people think they would react in a situation that requires mass vaccination and sheltering-in-place but also asked questions related to the interest of the public in emergency preparedness activities and planning (Lasker et al., 2004).

3.4.1 Theory

The Health Belief Model served as the primary theory on which the discussion guide and survey were based (Chesser, Ablah, Hayley et al., 2006; Janz, Champion, & Strecher, 2002). The central concepts of the Health Belief Model include perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cues to action and self-efficacy (Janz et al., 2002). In the context of preparing for public health emergencies, perceived susceptibility and severity correspond to individual perceptions about threats to health and safety. Perceived benefits relate to positive feelings surrounding preparing for emergencies and perceived barriers correspond to barriers individuals and/or communities face in preparing for emergencies. Cues to action and self-efficacy relate to potential interest in interventions resulting from the needs assessment such as providing how-to information, promoting awareness and employing reminder systems or providing training and guidance in performing actions related to emergency preparedness. The survey asked about risk perceptions and information-seeking behaviors; it also asked individuals to identify threats and asked questions to elucidate the degree of interest or concern people have about emergencies and preparing for emergencies. In addition to gathering data on individual

and community perceptions and opinions, the telephone survey and focus group discussions also aim to understand how the Duquesne community frames the issue of emergency preparedness.

4.0 RESULTS

This section reports on the literacy level assessment of existing preparedness guides as well as the analysis of focus group discussions (see Table 7 in Appendix C) and results of the telephone survey.

4.1 LITERACY LEVEL ASSESSMENT RESULTS

The ten emergency preparedness guides and other educational materials assessed varied in type and targeted different audiences including the general public, leaders and responders. The review reveals the high literacy level of existing materials, ranging from slightly above a 7th grade level to the 16th grade or university/graduate reading level. The average grade level difference between the SMOG Readability grade level assessment and the Flesch-Kincaid readability test was 2.8 grade levels; when considering the SMOG Readability scores are $\pm$ 1.5 grade levels, the grade level difference between tests ranged from 1.3 to 4.3. The Flesch-Kincaid readability test rated no guide higher than a 12^{th} grade reading level whereas the SMOG Readability scores ranged from 14^{th} to 16^{th} grade (see Table 4).

Table 4. Readability and grade level assessment of a sample of existing citizen and community preparedness guides and educational materials using the SMOG Readability Formula and the Flesch-Kincaid Readability Test.

Guide	SMOG Readability ± 1.5 Grade Levels	Flesch-Kincaid Readability
Pennsylvania Emergency Preparedness Guide	13	10.3
Ready Philadelphia Or Not? An Emergency Preparedness Program for the Philadelphia Region	10	7.3
Allegheny County, Pennsylvania Local Emergency Planning Committee Citizen Corps Council Citizens Guide to Emergency Planning	13	9.4
Hardy County, West Virginia Emergency Planning Guide: Planning for any type of emergency is important to your family by Hardy County OES and Health Department	14	12
Be Ready Make a Plan (www.makeaplan.org) Pocket Guide by the communities of the National Capital Region	13	9.9
Individual and Family Handbook, How You Can Be Prepared for a Flu Pandemic by the Channing Bete Company	10	8.2
Federal Emergency Management Agency (FEMA) Are You Ready? An In-depth Guide to Citizen Preparedness	15	12
New York Disaster Interfaith Services (NYDIS) Spiritual Care and Mental Health for Disaster Response and Recovery	14	12
Agency for Healthcare Research and Quality (AHRQ) Bioterrorism and Other Public Health Emergencies, Mass Medical Care with Scare Resources, A Community Planning Guide	15	12
U.S. Department of Health and Human Services Public Health Emergency Response: A Guide for Leaders and Responders	16	12

4.2 FOCUS GROUP RESULTS

As previously described, four focus groups were conducted in Duquesne with formal leaders, community leaders, individuals aged 50 and older and individuals with disabilities, and the general public. The demographic profile of the focus group participants was consistent with the 2000 Census Bureau demographic profile of Duquesne (see Table 5).

Table 5. Demographic profiles of Duquesne from the 2000 Census Bureau as compared to the demographic profile of focus group participants.

Demographic Characteristic	2000 Census Bureau	Focus Groups
Male	44.54%	46.70%
Female	55.46%	53.30%
African American	49.74%	54.80%
Asian	0.38%	0.00%
White	50.56%	41.90%
American Indian/Alaskan Native	0.67%	3.20%

Members of the formal leadership group included the police chief, fire chief, city manager, city councilmen and public works employees. The majority of formal leaders who participated in the focus group were longtime residents of Duquesne, the length of residence in Duquesne ranged from one year to 80 years. Members of the community leader group included heads and coordinators of local community organizations as well as a school board member. Residence in Duquesne for the community leaders group ranged from five years to one lifetime resident. The range of years of residence among focus group participants in the 50+ and individuals with disabilities group was relatively evenly distributed and varied from one year to sixty years. Within this group, one individual suffered from a visual impairment and several individuals were in wheelchairs. Compared to the other groups, the adults from the general public resided in Duquesne for the shortest period of time; among adult focus group participants length of residence in Duquesne ranged from one month to 12 years.

4.2.1 Focus Group Results: Community Strengths and Challenges

Formal leaders in Duquesne largely framed the issue of emergency preparedness in relation to their role or position in city government even when asked questions about personal capacity for emergency response. Similar to other groups, formal leaders cited longtime and lifelong residents as strengths of the Duquesne community. In addition, formal leaders in Duquesne discussed low-income and subsidized housing as a challenge faced by the City of Duquesne. In the eyes of formal leaders, 'Section 8' housing results in a transient population that is not invested in the community and difficult to mobilize.

Different from formal leaders in Duquesne, community leaders were able to frame issues of emergency preparedness from their perspective as community leaders as well as from an individual or citizen standpoint. Participants in the community leaders focus group discussed strengths of the City of Duquesne during the steel mill era as being strong neighborhoods and sense of community. Although community leaders largely described the strong sense of community in the past tense, many of these participants mentioned the small size of Duquesne as a strength are and that a spirit of community still existed. In response to the question of what the strengths of the Duquesne community one community leader said,

> People are still in each other's business so you still have that tightness of a community. If somebody's house catch on fire my phone is ringing… 'Do you know so and so burned down' you know they need help so I'm able to get on the phone and start finding resources even though they might not be one of my parents. So you still get a little bit here more than in other communities.

Community leaders also discussed the lack of a means to notify residents during an emergency situation. One community leader said, "The city has no way of notifying us. So say a disaster happens and we need to do something right now, there is no notification right now. West Mifflin has that siren that goes off; we don't have anything like that in Duquesne."

Individuals in the older adult and disabilities group spoke from personal experience when answering questions about emergency preparedness. Similar to the formal and community leader groups, participants in the 50+ and individuals with disabilities group cited the people, especially the longtime and lifetime residents as a major community strength. Weaknesses cited by the 50+ group included subsidized or section eight housing and the transient nature of people in Duquesne. The older adult and individuals with disabilities group also indicated the absence of a system or means to inform people about community happenings as a challenge.

Like the older adult and disabilities group, the general public adult focus group spoke from personal experience and framed the issue of preparedness from a personal standpoint. Compared to the other focus group discussions, participants in the adult group focused on available social services as community strengths. The discussion about services available to Duquesne led to a discussion about the need for a community forum and/or communication resource for new and established community members to find out about services and events. Adult focus group participants mentioned community members as a potential community strength but the lack of ability or community will to mobilize as a weakness.

4.2.2 Focus Group Results: Trusted Sources of Information and News

When asked about trusted sources of information, formal leaders trusted and relied primarily on Allegheny County Emergency Services (ACES); one city leader said, “County emergency management, they’re the ones with access to what we need whether it be medical, fire, collapse. We have to have help from them. Hazmats, bomb scare, bomb threat, bomb found, that’s our first phone call.” Beyond ACES formal leaders primarily expressed communicating and trusting one another during events to transmit information and news.

Community leaders, older adults and the general public identified family, friends and community members as trusted sources of information but did not identify formal leaders or local government officials as trusted sources. When asked why adults would not look to Duquesne officials for information one woman said, "I don't trust them before a disaster so why would I trust them during a disaster?" Similar sentiments were also expressed by members of the community leader and general public focus group participants. In addition to trusting family and friends as sources of information and news, members of the older adult focus group trusted religious leaders and spokespersons from neutral emergency response organizations including the American Red Cross and the Salvation Army; members of the general public group trusted community leaders including the leaders and employees of local social service agencies.

4.2.3 Focus Group Results: Community Ability to Respond to an Emergency and Community Emergency Planning

When discussing emergency planning for the City of Duquesne, formal leaders directly involved in emergency management were confident of their abilities to handle and mitigate small scale events but admitted that for large scale events Duquesne would require additional county resources. Formal leaders who were not directly involved in emergency services were confident that the fire and police forces were capable of handling emergency situations. One city councilman said, "I mean, our guys have been there long enough that they have been through an awful lot. Just call them up and tell them what you need and they are pretty good about stuff." In the eyes of formal leaders, emergency planning and preparedness are functions of city leaders and emergency services personnel; formal leaders have not actively engaged businesses or community members in preparing for emergencies. Formal leaders attributed the lack of citizen

involvement in part to the difficulty of engaging citizens. Illustrating the perceived difficulty of engaging citizens, one formal leader said:

> The other problem is trying to educate the public and they don't want to be educated. They are all in their own little world and nothing is going to happen and if it happens you [emergency responders] take care of it… and you [the public] may have to take care of yourselves for a little while until we get there and that is a big problem.

Although formal leaders admitted not trying to engage citizens, participants in the formal leaders group agreed that the community was difficult to mobilize and unwilling to be educated.

Similar to formal leaders, participants in all other focus groups also recognized the difficulty of engaging community members. Different from formal leaders, community leaders, older adults and the general public were not confident in the ability of the Duquesne community to respond to an emergency event.

When asked about community emergency plans, community leaders discussed the existence of emergency plans and one community leader said, "So everybody has a plan but everybody's on different pages." The community leader's statement speaks to multiple institutions in Duquesne possessing emergency plans. For example, Duquesne emergency management has a plan on file with Allegheny County, the Duquesne public school has a plan on file with the Allegheny Intermediate Unit and other social service entities such as the Boys and Girls club have a plan. Although these plans exist, they are not coordinated. In addition, according to both formal leaders and community leaders, many plans are in need of updates. Participants in the older adults and general public focus groups were not aware of emergency plans for the City of Duquesne. One general public participant said, "They [Duquesne] do need a plan and everybody needs to know about it. That's the worst part that even if there is a plan nobody knows. I don't even know if the police know."

Asking formal leaders about community emergency planning sparked a discussion about the city's existing emergency preparedness plan and how emergency events in Duquesne had been handled in the past. Formal leaders indicated that churches would be used as evacuation sites and agencies such as the Red Cross and the Pittsburgh Port Authority would be called upon to house and transport people. Although the formal leaders ideally would like to have a formal emergency communication signal or alarm in place, without such a signal, communication strategies prior to or during an emergency would include word of mouth, radio, police car PA system announcements, and door to door announcements by public works employees.

One community leader equated community emergency planning to choreographing a dance recital:

> Like you got five dancers doing this, you got six dancers doing that. Everybody plays a role like maybe Miss [Smith's] job would be every three months and say have you updated your emergency kit pack? Do you have fresh water? How old is your canned goods you have stored? 'Cause everybody is going to run out and meet at a certain place and there if like there is a real emergency like 9/11 or what happened in New Orleans we might be stuck in our house for five, six days. Do you have flashlights, do you have batteries? Do you have a portable radio? Do you have a portable TV that runs on batteries? Every three months that's this person's job. The fire department, this is your job to have three or four people that have three or four different plans, let's choreograph it together as to come together as one plan. Then they would communicate with the police department. What happens is we have one major plan.

Community leaders envisioned community emergency planning as involving people on all levels of the community including children, adults, caregivers, family units, individuals with disabilities, elderly and members of the local faith/religious community. Community leaders felt training in emergency preparedness should be interactive. Participants in the older adult group and the general public focus groups echoed the sentiments of community leaders about community emergency planning. In addition, individuals in these groups felt that community members need to be involved in the planning of emergency preparedness and be made aware of existing plans and emergency response protocols. All four groups expressed concern about the

lack of alarm or warning system in Duquesne and felt the establishment of a formal community information forum or emergency warning system was important for emergency preparedness and response.

4.2.4 Focus Group Results: Individual Ability to Respond to an Emergency and Barriers to Preparing for an Emergency

General consensus among formal leader focus group participants indicated that these individuals did not actively engage in personal preparedness activities and agreed that people travel to the store immediately before an emergency or disaster event in order to gather supplies. Community leaders recalled engaging in preparedness activities for different events in the past and reflected on how the emphasis on preparing for an emergency comes in waves, but maintaining interest and remembering to update supplies is difficult when the immediate urgency or hype about preparing declines. More specifically, community leaders remember preparing for Y2K and again thinking about the importance of preparing after September 11 and Hurricane Katrina. In regards to personal preparedness, one community leader said, “How prepared can you be?” Community leaders emphasized the importance of ‘thinking outside the box’ and being able to think on your feet when responding to an emergency.

Participants in the older adult focus group felt capable of responding to an emergency situation and described having some emergency preparedness supplies stockpiled; however, based on the descriptions of supplies, these individuals expected to have water and power and would not be able to survive in the absence of these commodities. With the exception of one member of the general public focus group, members of this group had not engaged in individual emergency preparedness planning or in the stockpiling of supplies.

Focus group participants in the community leaders, older adult and general public groups were asked about their familiarity with existing citizen emergency preparedness guides. Members of the older adult and general public group were largely unfamiliar with these guides. Community leaders were vaguely familiar with these guides. Community leaders described differential access to emergency planning materials; when discussing the Pennsylvania Emergency Preparedness Guide one community leader said,

> They made it offered online which is great and everyone is always like online online but we have to keep in mind that we have a large group of people who either economically or because they don't want it are not going to tackle the computer. So whenever somebody says it is available online I'm always like, big whoop because people I serve don't have access to online.

Community members were not familiar with existing preparedness guides and guides were not widely distributed within the community.

Across all four focus groups, only one participant had actively engaged in individual emergency preparedness activities. A former member of the Jesus Christ of Latter Day Saints Church, this general public focus group participant placed high importance on personal preparedness and had extensive shelter in place supplies as well as a go kit that included copies of social security cards, medical information and other personal documents as well as first aid supplies and other medications. Regarding personal preparedness she said:

> The internet has that thing about government.org where you can get emergency preparedness, what to take, what to do, how to plan, a plan you can work out with your family. You know because I kind of feel like anything happens and you are on your own… you and your family, so you know what I mean? So if you are kind of prepared within your family that is a start, that is a good starting point.

This self-motivated member of the general public was not only extremely prepared, but also familiar with existing citizen preparedness guides.

Focus group participants were asked about personal and community barriers to preparing for an emergency. Despite none of the members of the formal leader group having personally prepared for an emergency, this group cited the primary barrier to preparing as a lack of willingness of the community to get involved and be educated. Community leaders discussed barriers to preparing for emergencies on an organizational level as well as on an individual level. On an organizational level, community leaders described how buying the supplies necessary for sustaining the organization is challenging due to funding limitations and keeping clients and/or staff from using stockpiled supplies is also difficult. In addition, practicing plans, conducting drills, and updating emergency plans is difficult in the face of competing organizational priorities. On an individual level, community leaders described the importance of regularly reminding people about planning and updating stockpiled supplies on a periodic basis.

Both the older adult and general public group cited laziness, lack of awareness and/or lack of interest in emergency preparedness as a primary barrier. In reference to why people do not prepare for an emergency, a member of the older adult group said, “a lot of people think that it won’t happen to them” and a member of the general public group said, “if people are interested that is the key.” The older adult group also described an individual’s poor health status as a potential barrier to preparing as well as limited transportation to obtain supplies. Participants in the general public group also mentioned information about preparing for emergencies not being widely distributed as prohibitive to preparing.

4.3 TELEPHONE SURVEY RESULTS

A total of 100 surveys were completed via random digit phone surveying in the municipalities of Duquesne, West Mifflin and McKeesport. The small sample size (n=100) permitted a simple frequencies analysis. Although the sample of survey participants was small, the demographic profile of the sample was consistent with the 2000 Census Bureau demographic profiles of the municipalities surveyed (see Table 6).

Table 6. Demographic profiles of municipalities (Duquesne, West Mifflin, McKeesport) from the 2000 Census as compared to the demographic profile of the sample population surveyed.

Demographic Characteristic	2000 Census Bureau	Survey
Male	46%	46.70%
Female	54%	53.30%
African American	22%	29%
Asian	0.36%	1%
White	77%	67%
American Indian/Alaskan Native	0.55%	1%

4.3.1 Survey Results: Threats to the Individual and Community

Individuals were asked to share their level of concern about different threats to their community. Sixty percent of individuals surveyed were 'concerned' or 'very concerned' about the public school system or education for youth in the community, 50% of individuals surveyed were 'concerned' or 'very concerned' about violence in the community, 43% of individuals surveyed were 'concerned' or 'very concerned' about theft, burglary or other intentional damage to personal property, and 42% of individuals surveyed were 'concerned' or 'very concerned' about low wage jobs. In addition to these, 32% were 'concerned' or 'very concerned' about fires, blizzards, ice storms or flooding, 20% were 'concerned' or 'very concerned' about illness or

naturally occurring disease and 13% of individuals surveyed were 'worried' or 'very worried' about terrorism. Compared to other threats, terrorism was of least concern to individuals surveyed.

4.3.2 Survey Results: Trusted Sources of Information and News

When asked what their primary source of information or news about a local or national emergency, 95% of survey participants identified television. Other popular sources of information and news included family, friends and neighbors (78%); newspaper (71%), radio (55%) and the internet (48%). The least popular sources of news and information were local officials (22%) and community newsletters (21%). Individuals were asked who they most trusted as a source of information and news. Television was trusted most by 52% of people surveyed, whereas only 4% of those surveyed identified local officials as the most trusted sources of information. Survey participants were also asked who they would trust and rely on for help during an emergency: 38% of individuals surveyed would rely on fire/police/emergency workers, 37% would rely on household members and 15% of individuals surveyed would rely on neighbors and friends.

4.3.3 Survey Results: Ability to Respond to an Emergency and Preparing for an Emergency

When asked about the likelihood of experiencing a widespread emergency while living or working in the Mon Valley, 17% of individuals surveyed thought it was 'very likely' or 'likely' while 52% thought it was 'unlikely' or 'very unlikely.' Fifty-seven percent of individuals

surveyed felt that planning and preparing for an emergency was ‘very important’ or ‘important’ whereas 7% of people felt it was ‘of little importance’ or ‘not at all important.’ Preparedness was defined as having an emergency plan and/or emergency supplies. In regards to reported level of personal preparedness, 28% of people surveyed felt they were ‘very prepared’ or ‘prepared’ for an emergency situation. Forty-five percent of people surveyed felt they were ‘moderately prepared’ and 27% of people surveyed felt they were ‘a little prepared’ or ‘not at all prepared.’ Individuals who felt they were either ‘a little prepared’ or ‘not at all prepared’ were asked why they were not prepared. Of individuals who were not prepared, 22% did not have time to prepare, 15% did not know how to prepare, 15% thought it was too expensive to prepare and 4% did not think it was important to prepare for an emergency.

In addition to levels of personal preparedness, survey participants were asked about community preparedness. Thirty-one percent of individuals surveyed did not know if their community was prepared, 25% of individuals surveyed felt their community was ‘a little prepared’ or ‘not at all prepared’ for dealing with an emergency situation, and 22% of individuals surveyed felt their community was ‘very prepared’ or ‘prepared’ for dealing with an emergency situation. Survey participants were asked if there was a safe place to go in the community during an emergency. Thirty-one percent knew of a safe place to go in their community during a wide spread emergency while 13% of individuals surveyed indicated that there was not a safe place in their community and 56% of individuals surveyed did not know if there is a safe place to go. When asked about safe places to go outside of the community during an emergency, 10% did not have a place to go outside of the community.

Related to travel outside of their immediate community, participants were asked about transportation usage. Twenty-one percent of people surveyed relied on public transportation and

16% relied on rides from family, friends or neighbors with a personal car as their primary source of transportation.

When asked about interest level in learning more about preparing for emergencies, 41% of individuals surveyed were ‘moderately’ interested in learning more about emergencies, 39% of individuals surveyed were slightly or not at all interested in learning more about preparing for emergencies and 17% of individuals surveyed were ‘extremely’ or ‘very’ interested in learning more about preparing for emergencies.

5.0 DISCUSSION

Examination of existing preparedness guides revealed the high literacy level of existing citizen preparedness guides. Analysis of focus group discussion transcripts and survey responses revealed important insights about risk perceptions and information-seeking behaviors of the Duquesne City community and the surrounding municipalities of West Mifflin and McKeesport. Analysis of the qualitative and quantitative data also identified gaps in the dissemination of emergency preparedness information, provided insight about false assumptions underlying existing preparedness guides and exposed areas in which additional research is needed. Opinions and knowledge shared by focus group and survey participants also provided invaluable information for the development of preparedness educational materials and a community-based model.

5.1 DISCUSSION: LITERACY LEVEL ASSESSMENT OF EXISTING CITIZEN PREPAREDNESS GUIDES

Ranging from slightly above 7th grade to graduate reading level, none of the guides analyzed is at a literacy level appropriate for individuals with low literacy. The National Assessment of Adult Literacy evaluates prose, document and quantitative literacy. Although these literacy categories do not directly equate to grade level literacy, individuals who have less than or

equivalent to a high school diploma, most often fall into the *basic* or *below basic* literacy level. Understanding and acting on emergency preparedness materials requires intermediate prose literacy; therefore, these materials are inappropriate for 43% of individuals in the US population, who fall in the categories of below or below basic prose literacy. Not only are existing materials inappropriate for more than 40% of individuals in the US, but the literacy level of these materials is also likely to exceed the level of vulnerable populations. Several characteristics of vulnerable populations including older age, nonwhite race, low educational attainment and lower income, make these individuals likely to suffer from low literacy. Also important to consider is that grade level completion does not equate to the grade literacy level of an individual. Although no consensus exists among experts, accepted guidelines indicate that a 3rd to 5th grade literacy level is appropriate for individuals with low literacy or a literacy level between two and five grade levels below the highest level of education completed is appropriate (National Cancer Institute, 2003a). Using these guidelines, literacy levels between 3rd and 7th grade are appropriate for individuals with low literacy.

5.2 DISCUSSION: FOCUS GROUP

5.2.1 Focus Group Discussion: Community Strengths and Challenges

Strengths of the community as well as challenges facing Duquesne have important implications for the creation of emergency preparedness materials and a community-based training model relevant to the community. Formal leaders, community leaders and the older adult focus group described lifelong or longtime residents as strengths of the community. Identification of

longtime residents as a strength by three of four focus groups has important implications for emergency preparedness material development and training. Longtime residents may be appropriate spokespersons for the dissemination of key preparedness messages and important actors to train in emergency preparedness so that in turn they can train other community members.

Participants in the community leader and older adult focus group referred to the small size of Duquesne as a strength, making the widespread dissemination of emergency preparedness materials possible. In addition, the small size of the community makes training community members and engaging community members more feasible than if the community were larger or more geographically dispersed. The general public group focused on the availability of social services as a strength of the Duquesne community. The focus of the general public on social services suggests a reliance on these services and indicates that social service providers are an important partner in emergency preparedness. Participants in the general public focus group also identified social service agencies as a primary source of information. Social service agencies in Duquesne may serve as key sites for the dissemination of emergency preparedness materials. In addition, emergency preparedness trainings hosted by social service agencies may attract hard to reach and members of particularly vulnerable populations.

Many of the challenges cited by focus group participants provide insight about barriers that must be overcome for emergency preparedness as well as for emergency response strategies. The formal leader, community leader and 50+ groups described transient populations as weaknesses of the community. In the eyes of these groups, transient populations were described as community members who were not invested in the community and difficult to mobilize. In the context of emergency preparedness and response, transient populations are the most vulnerable

and are also often the most challenging population to reach and to mobilize. Therefore, emergency preparedness materials and training models must strive to address short term or transient populations. In addition, strategies for engaging these populations need to be included in training materials; leaders also need to be educated about the importance of including these populations despite the difficulties associated with reaching them. Although the general public group did not specifically indicate transient populations as a challenge, members of this group did identify the lack of community will to mobilize as a weakness.

In addition to transient populations, the lack of a robust means of communicating with the community was cited as a weakness. In the event of an emergency that requires residents to evacuate, the absence of a communication system would hinder the emergency response. Not only does the lack of communication system and/or community forum reveal potential problems in notifying community members during an emergency, but also creates challenges for alerting community members to the availability of emergency preparedness resources and/or occurrence of trainings in the community.

5.2.2 Focus Group Discussion: Trusted Sources of Information and News

Understanding who community members trust as sources of information and news has important implications for how best to communicate with the public during an emergency so that communication strategies are in line with the information seeking behaviors of individuals. Formal leaders not only viewed Allegheny County Emergency Services (ACES) as their primary source of information, but also expressed heavy reliance on the help of ACES or Pennsylvania Region 13 during a disaster that would overwhelm Duquesne resources. The reliance of Duquesne leaders on county resources is problematic in the event of a widespread emergency; in

the event of a regional disaster, Allegheny County or Region 13 resources may already be overwhelmed, leaving the county without capacity to lend direct assistance to communities including Duquesne.

Understanding who community members trust as sources of information and news during an emergency has strong implications for risk communication strategies, spokespersons selected to deliver key messages and the sharing of knowledge about emergency preparedness. Consistent with historically rooted distrust of institutions and government, focus group participants did not identify local officials as trusted sources of information. As a result, emergency preparedness trainings should be conducted by community leaders or employees of agencies such as the American Red Cross or the Salvation Army. By utilizing trusted sources of information and news, sound risk communications can be implemented and thus community member uptake of information will be greater.

5.2.3 Focus Group Discussion: Community Ability to Respond to an Emergency and Community Emergency Planning

Formal leaders did not view the community as a potential partner in emergency preparedness or response. The lack of formal leader willingness to engage community members has important implications for a community based emergency preparedness training model. Formal leaders expressed a paternalistic attitude and approach to emergency response. A community-based approach to emergency preparedness requires buy-in from stakeholders at multiple levels of the community and the paternalistic attitude of formal leaders will pose a challenge for a community-based approach. Public health approaches are new to the field of emergency preparedness and a cultural divide exists between how emergency management has historically

approached preparedness and response and how public health approaches preparedness. Consistent with the goal of creating a community-based model for emergency preparedness, public health's approach to preparedness is to empower citizens so that they will be better able to respond to an emergency or disaster event. In order to create such a model and achieve community-based preparedness, public health and emergency management need to engage in a dialogue about citizen engagement in emergency preparedness and response. By engaging in dialogue, these two entities may better understand the other's approach to preparedness and come to a consensus on how best and most appropriately to engage citizens.

Formal leaders conceptualized community emergency planning differently from all other focus group participants. These leaders viewed planning as a function of emergency services personnel only. They described how previous emergency events in Duquesne had been handled and also described components of existing emergency plans for Duquesne. Formal leaders made no mention of whether community members were aware or educated about existing emergency plans and members of the general public and older adult groups indicated not being aware of plans for Duquesne. A communication disconnect exists between formal leaders and community members in regards to emergency planning. If a plan exists for Duquesne, members of the general public are unaware of it and efforts need to be made to inform members of the public on the existence emergency plans.

Community leaders, older adults and members of the general public focus groups envisioned community emergency planning as a holistic effort that would engage all levels of the community. Not only would all levels of the community need to be involved, but community members would need to be made aware of the existence of plans. Members of these groups felt that education about emergency preparedness is important to help community members prepare.

Robust communication is essential for protecting people during an emergency as illustrated by communication failures in the World Trade Center and Hurricane Katrina. Channels of communication need to be established prior to an emergency event. Emergency planning, such as a community-based emergency preparedness model, that involves multiple levels of the community, can help to establish necessary communication channels. Although a communication disconnect exists between formal leaders and other segments of the community, all four groups recognized the importance of communication and discussed the need for a warning or communication signal in Duquesne.

5.2.4 Focus Group Discussion: Individual Ability to Respond to an Emergency and Barriers to Preparing for an Emergency

In addition to exploring community emergency planning and response, focus group participants were also asked questions about personal preparedness. Answers to questions about personal preparedness identified gaps in the dissemination of emergency preparedness materials as well as information about risk perceptions. The majority of focus group participants had not engaged in personal preparedness activities and participants were not familiar with existing citizen preparedness guides. The lack of personal preparedness suggests that people do not place high importance on preparing for an emergency or have other priorities and like participants in the community leaders group noted, the importance of preparedness ebbs and flows depending upon recent emergency or disaster events. In order to prepare for an emergency event, individuals must value or associate high risk with disasters and in turn place importance on preparing. If individuals do not think an emergency event is likely, expect to receive outside help in the event of an emergency, or are faced with competing priorities that are more important than preparing

for an abstract and potentially low-probability event, it is unlikely that individuals will engage in emergency preparedness.

The lack of familiarity with citizen preparedness guides among all participants suggests that these guides are not widely available. If guides are not widely distributed, the only individuals who will use the guides are those who are motivated and seek information about emergency preparedness. In addition, knowledge does not necessarily lead to behavior change or action. Even if these guides are widely distributed, only individuals who place high importance on preparing for emergencies and/or perceive high risk of emergency events are likely to engage in preparedness activities. As mentioned by community leaders, older adults and members of the general public, laziness or lack of interest in preparing for emergencies is a primary barrier preventing individuals from preparing. Preparedness guides fail to integrate preparedness into everyday activities. The literature suggests that integration of preparedness into routine activities ultimately results in greater preparedness. Therefore, by integrating preparing into every day, people may be more likely to engage in such activities.

Evident from all four focus group discussions are the differences between formal leaders and other groups. Formal leaders have largely negative opinions about members of the general public and vice versa, community leaders, older adults and members of the general public have largely negative opinions about formal leaders in Duquesne. The chasm between formal leaders and other members of the Duquesne community poses significant challenges to the establishment of a community-based emergency preparedness model. Such relationships are not easily mended and buy-in and backing from leadership as well as community members are integral to the success of any community-based program.

5.2.5 Discussion: Focus Groups Summary

Collectively, these focus group discussions provide important insight about emergency preparedness. Risk was associated with impending threats and high risk was not associated with disaster or emergency events. From the perspective of community members, Duquesne faces many challenges that trump challenges associated with emergency or disaster events. Members of the Duquesne community are faced with many competing priorities and multiple problems exist that are more important to community members than preparing for emergencies. Formal leaders in Duquesne are not viewed as trusted sources of information. Instead, community members look to family, friends and community or social service agency leaders as trusted sources of information. As a result, an effective risk communication strategy to use in Duquesne would involve using the Giuliani press conference approach in which formal leaders are backed by prominent members of the community. Using this approach would help to establish needed channels of communication and subsequently, community members would be more likely to trust information delivered.

Focus group participants were largely unaware of existing citizen preparedness guides, which exposes a gap in the dissemination of information. Not only does an information gap exist, but agencies and other groups who create emergency preparedness guides falsely assume that if received, individuals will act on the information presented and engage in emergency preparedness. Guides make emergency preparedness separate from day-to-day activities. In the face of competing priorities individuals who do not place high importance on preparing and who do not perceive an emergency event as likely, are unlikely to engage in preparedness activities, especially if such activities require a great deal of time, energy and resources.

5.3 DISCUSSION: SURVEY RESULTS

5.3.1 Survey Discussion: Threats to the Individual and Community

Survey participants were asked to indicate their level of concern about different possible threats to their community in order to gain a sense of what Monongahela Valley residents perceived as risks to their health and well being. Compared to other threats, survey participants did not associate high risk with natural disasters, terrorism or disease outbreaks. Highest perceived risk was associated with poor public education, violence, unsafe and inadequate housing, and low paying jobs among survey participants. Consistent with the low-probably nature of emergencies, the majority of individuals surveyed did not perceive a widespread emergency as a likely event. When creating educational materials and developing a community-based model, the lack of risk associated with emergencies needs to be considered. Without community buy-in, a community-based model for preparedness will fail. Similarly, if individuals do not perceive the occurrence of an emergency as likely, they will be unlikely to prepare. Therefore, plans and materials developed must work to relate the content of preparedness to the every day experiences of community members. By providing community members with concrete examples of local emergencies, relating preparedness to every day experience, and incorporating preparedness into common activities, individuals may be more willing to prepare.

5.3.2 Survey Discussion: Trusted Sources of Information and News

Understanding who community members trust as sources of information is important for risk communication and information dissemination strategies, including the spokespersons and media

outlets used. Respondents identified television as the most popular and the most trusted source of information for news about a local or national emergency. Therefore, during an emergency situation and if electrical power is still available, television broadcast is an important channel for the delivery of pertinent information and instructions to residents. During an emergency situation, the majority of individuals would rely on fire/police/emergency workers or household members for help. Therefore, these individuals may serve as appropriate conduits for the dissemination of preparedness educational materials or as teachers for emergency preparedness educational sessions.

5.3.3 Survey Discussion: Ability to Respond to an Emergency and Preparing for an Emergency

Although individuals surveyed did not perceive a widespread emergency event as a likely occurrence, more than half of people felt that planning and preparing for an emergency was 'very important.' Survey participants were also asked to indicate their level of personal preparedness for an emergency. Almost three quarters of individuals surveyed indicated having some level of preparedness (moderately prepared, prepared or very prepared). Although a high percentage expressed some level of preparedness, only 28% of people felt very prepared or prepared. A disconnect exists between the reported importance placed on preparing and the percentage of individuals who feel prepared. The lack of personal preparedness relates to the lack of risk associated with an emergency. The lack of personal preparedness may also result from the low probability and often abstract nature of emergency events, which reiterates the need to make preparedness more related and convenient to everyday experience.

People who indicated they were either ‘a little prepared’ or ‘not at all prepared’ for an emergency were asked why they were not prepared and approximately 52% of these individuals cited not having time to prepare, not knowing how to prepare and preparing being too expensive as barriers. When developing educational materials and a community-based model, the barriers identified by survey participants are important to consider. A lack of time to prepare for an emergency implies that preparedness is viewed as time-consuming. Providing suggestions for how preparedness can be incorporated into everyday activities may help to alleviate the problem of lacking time to prepare. Central to the problem of individuals not knowing how to prepare is the inaccessibility of information or the lack of dissemination of preparedness materials among community members. Educational materials designed must be easy to distribute and widely accessible to community members. Providing simple and resource independent actions to help individuals become more prepared helps to address the issue of preparing being too expensive.

The majority of individuals surveyed (56%) did not know if their community was prepared or felt their community was a little or not at all prepared, nor did they know of a safe place to go in the event of a widespread emergency. The lack of confidence in community preparedness and lack of knowledge of community emergency plans suggest that communities may not be prepared or if they are prepared, information about plans is not made public. Communication between planners and community members is poor. Poor communication also suggests that community members are not part of the planning process. In the event of an emergency, it is critical for community members to be familiar with their community’s emergency plan.

The 10% of people who did not have a safe place to go outside of the community are of particular concern in the event of an evacuation because these individuals would need to be

housed. Means of transportation has important implications for evacuating. Twenty-one percent of people surveyed relied on public transportation and 16% relied on rides from family, friends or neighbors with a personal car as their primary source of transportation. In the event of an evacuation order, individuals without personal transportation would be reliant on outside help for evacuating.

Fewer than 20% of people were extremely or very interested in learning more about preparing for emergencies whereas 39% were slightly or not at all interested. The low interest in learning more about preparing is consistent with the low risk associated with emergencies and/or with being concerned about other problems.

5.4 DISCUSSION: FOCUS GROUPS AND SURVEY

Gathering qualitative data through focus group discussions and quantitative data through the telephone survey provides a wealth of information for analysis and from which to draw conclusions about the preparedness needs of Duquesne and surrounding communities. Together, the focus group discussions and phone survey reveal two prominent themes that are important for understanding the emergency preparedness needs of Duquesne. The first theme centers on the risk perceptions of individuals and the second theme relates to emergency preparedness communication.

Threats or challenges identified by both focus group participants and survey respondents were common exposures that may result in immediate injury or loss. Threats identified by both focus group and survey participants were problems closely linked to the vulnerable nature of the community and related to both poor infrastructure and lack of resources (poor public education,

violence, unsafe and inadequate housing, and low paying jobs). Both qualitative and quantitative data illustrate how individuals associate risk with immediate threats and that distal events, like public health emergencies, are not on the forefront of residents' minds.

The Risk Perception Model provides a basis for understanding the threats identified; risks identified by focus group and survey participants were involuntary, uncontrollable and inequitable. By definition and as a product of circumstance, vulnerable populations are exposed to more hazards and have less control over risks than populations with greater resources. Exposure to poor education, violence, unsafe and inadequate housing, and low-wage jobs is not voluntary or controllable for an individual without resources. In addition, exposure to these threats does not equally affect individuals or communities. For many vulnerable populations, the hazards identified are ever present.

Although focus group participants did not mention disasters as potential threats and when asked directly about public health emergency events, survey participants ranked these risks lower than others, both groups recognized risks associated with emergencies and the importance of preparing when prompted. Consistent with social science research methods, the structure of both the focus group discussion and survey funneled from general to specific; therefore, in the beginning, participants were asked general questions and then were asked more specific questions about emergencies and preparing for emergencies. Without prompting, none of the participants discussed emergencies as immediate threats, which is logical considering the low-probability nature of these events. As the focus group and survey progressed, individuals were asked more specifically about risks associated and preparing for public health emergencies. When directly asked, participants were made to think about risks associated with emergencies and thus were more apt to recognize the importance of preparing.

If a risk is impending, the immediate potential of that threat to result in harm or loss will remain on the forefront of an individual's mind whereas if a hazard is distal, an individual will recognize the associated risks when prompted. Slovic and Weber (2002) refer to this concept as "risk previously ignored" (Slovic & Weber, 2002, p. 12). The focus groups and survey responses illustrate that if individuals do not think an emergency event is likely and are exposed to immediate and looming hazards on a day-to-day basis, it is unlikely that they will engage in emergency preparedness unless directly prompted and made to think about or if confronted with an emergency. In the event of a public health emergency however, risk perception factors would act to influence how the newly imminent risk is perceived.

In addition to providing insight about risk perceptions, focus group and survey responses presented critical insight about risk and emergency preparedness communications for vulnerable populations. Neither focus group participants nor survey respondents identified local leaders as trusted sources of information. Trust underlies risk communication and impacts people's desire or intention to act on the risk communication messages presented. In addition, trust has important implications for the achievement of other goals including awareness raising, education and building community capacity (Covello et al., 2001). Therefore, local leaders including city officials should not provide the only voice for communicating risks in the event of a public health emergency.

Also evident from the focus group discussions and survey responses was the lack of individual knowledge about existing emergency preparedness guides and community emergency plans. This lack of awareness and knowledge reveals not only a gap in the dissemination of preparedness information but also poor communication between preparedness planners and the public. The majority of survey and focus group participants was not confident in community

ability to respond to a disaster and was also not aware of existing plans. The lack of awareness suggests that either communities do not have robust emergency plans and/or planners are not effectively communicating about these plans. Regardless of the reason for poor communication, past disaster events reveal the catastrophic consequences of communication failures and speak to the need for increased information dissemination and stronger communication about existing preparedness activities and emergency plans.

6.0 IMPLICATIONS AND RECOMMENDATIONS FOR EMERGENCY PLANNING AND PREPAREDNESS

A paucity of information exists on community-based emergency preparedness planning and how best to engage vulnerable populations in preparedness activities. The Duquesne Emergency Preparedness Project illustrates the multifaceted and complex nature of both community-based emergency preparedness and planning for vulnerable populations. The use of social vulnerability indices is one means of quantitatively identifying areas that are most socially vulnerable to the disproportionate effects of disasters. Using geographic information systems software and census information to conduct a social vulnerability analysis can help determine where limited public health emergency preparedness resources can best be invested and where preparedness efforts are likely to have the greatest positive impact.

An assessment of a sample of different emergency preparedness guides demonstrates that their literacy levels not only exceed national literacy averages but are inappropriate for vulnerable populations likely to experience low literacy. Emergency preparedness materials developed for Duquesne or other vulnerable populations need to incorporate principles of low literacy. Materials developed for low literacy audiences will be of greater utility and will not only enhance reading comprehension but will also make an individual's ability to act on the information possible. In the future, emergency preparedness efforts should focus on making materials with literacy levels appropriate for low literacy populations.

Not only are the literacy levels of these guides inappropriate for the majority of the U.S. populace, but also these guides assume individuals are interested in learning about preparing for emergencies, have the physical resources and knowledge to act on the information presented, and that information equates to action. The federal government as well as state and local governments have invested inordinate amounts of money in developing these guides; however, little is known about the dissemination and utility of these guides. Current emergency preparedness guides separate preparedness activities from everyday life and are heavily resource dependent. Therefore, emergency preparedness needs to be framed in the context of everyday experience using low or no cost materials and supplies. In order to determine if and how guides are disseminated, if information results in increased emergency preparedness knowledge, and if guides result in individuals and/or communities taking actions to prepare, a systematic evaluation of the use of guides and the preparedness activities of the general public since these guides were published, needs to be designed and implemented. The current emergency preparedness framework is not conducive to helping vulnerable populations be better prepared for emergencies.

Although the disproportionate impact of disasters on vulnerable populations is well documented, these populations have largely been left out of emergency preparedness as illustrated by the literature, the lack of appropriate emergency preparedness guides and the lack of community-based models for emergency preparedness. The focus group discussions and telephone survey undertaken for this project provide important insight to understanding the risk perceptions, information seeking behaviors and emergency preparedness needs of vulnerable populations. Primary conclusions of the Duquesne Emergency Preparedness Project include:

1) People in Duquesne and surrounding areas do not view emergencies or disasters as impending high-risk events;

2) A serious disconnect exists between local officials, agencies and the public; information delivery during local emergencies may not be consistent with the information seeking behaviors of individuals and if emergency preparedness plans exist, individuals and communities are largely unfamiliar with these plans; and

3) Individuals are largely unfamiliar with existing citizen preparedness materials, perhaps because this information has not percolated into these communities, tends to focus on low-probability and abstract events, and is not consistent with the needs of resource poor and vulnerable populations.

Taken together, results from the focus group and phone survey have important implications for the development of community-based emergency preparedness educational materials and a training and awareness model relevant to vulnerable populations. Such a model requires that

1) Community members are made aware of the expectation to manage for three days without outside assistance, are engaged in emergency preparedness in spite of competing community challenges and/or priorities, are trained in emergency planning and preparedness, and preparing is made as relevant and resource independent as possible;

2) Risk communication strategies and information delivery networks and systems are consistent with community information-seeking behaviors and formal leaders are educated about the importance of citizen engagement and trained in how to engage community members; and

3) Existing emergency preparedness guides are tailored to the literacy level and expressed needs of resource poor communities.

6.1 NEXT STEPS AND FUTURE EMERGENCY PREPAREDNESS RESEARCH QUESTIONS

The exploratory research conducted in Duquesne and surrounding areas will ultimately be used to inform the development of emergency preparedness materials that are based on the expressed

needs of community members. In addition, while executing the focus groups, community members who volunteered for a community advisory group will provide feedback on emergency preparedness materials as they are developed to help insure the relevancy of the materials to individuals in Duquesne.

Ultimately, the community-based preparedness materials aim to help community stakeholders understand when an adverse event constitutes a community threat, establish channels of communication in order to disseminate information immediately before, during, and after an emergency occurs, and to plan to ensure that the basic needs of a community will be met if and when an emergency occurs. The creation of preparedness materials and a community-based model will not only help Duquesne be more prepared but also address the lack of appropriate materials for vulnerable populations and individuals with low literacy. Ideally, the preparedness needs assessment helped to mobilize community members to participate and engage in preparedness programming and interventions for the community.

Members of the faith community were identified as trusted sources of information and churches were indicated as potential evacuation sites. As a result, future needs assessment and/or emergency preparedness research would hold focus group discussions with members of the faith community. Other groups important to target in the future include members of the business and first responder communities. In addition to conducting additional exploratory research about emergency preparedness and designing community-based materials and training models, additional work may focus on the evaluation of the materials and models. The evaluation of emergency preparedness activities is lacking in the literature and it is crucial to assess the uptake and engagement of community members in emergency preparedness activities.

In addition, it is important to assess whether emergency preparedness activities actually increase the level of preparedness within communities.

Broad research questions generated from reviewing the literature and conducting the Duquesne Emergency Preparedness Project include the following:

1. How can communities be mobilized around emergency preparedness if preparedness is not a priority?

2. Social vulnerability indices and more comprehensive hazard vulnerability indices that include geographic, physical, economic, environmental and social attributes of an area shed light on the geographic nature of risks. Since risks vary by geographic location, do individual risk perceptions about emergencies differ according to where a person lives?

3. Although public health emergency preparedness is defined as capability and capacity to protect, respond, and recover from an emergency, what infrastructure, physical resources, knowledge and communication channels and resources constitute having capacity and being prepared?

4. What level of personal and/or community preparedness will actually protect individuals in the face of a public health emergency and how does the level of protection afforded vary with the scale and scope of an emergency event?

5. How can public health preparedness efforts be systematically evaluated in order to better understand if emergency preparedness efforts are helping individuals and communities to be better prepared?

6. The literature suggests that integrating emergency preparedness into public health services results in greater preparedness. Therefore, what are the best practices for integrating emergency preparedness into public health? How can scarce public health resources be best utilized to engage in essential public health services as well as emergency preparedness activities?

Exploring these questions is important to gain a better understanding of individual and community emergency preparedness and to establish best practices and develop valid and reliable evaluation measures.

6.2 LIMITATIONS OF THE DUQUESNE EMERGENCY PREPAREDNESS PROJECT

The Duquesne Emergency Preparedness Project has several limitations. Populations not included in focus group discussions included business leaders, members of the faith community and first responders including fire, police and emergency services personnel. Although paper versions of the telephone survey were distributed to emergency services personnel, the surveys were not completed. Ideally members of the business, faith and first responder community would have been included in focus group discussions in order to gather opinions from all of the key stakeholder groups in the community that were originally targeted.

The all-hazards approach to emergency preparedness was used to frame focus group and survey questions; however, this general approach was conceptually difficult for participants to grasp. Even though all-hazards approaches aim to help prepare individuals and communities for a wide array of potential emergencies, a radioactive emergency drastically differs from pandemic influenza, which differs from a natural disaster. As a result, providing participants in all focus groups with a specific example of a large scale emergency may have resulted in participants thinking more specifically about an event that would overwhelm their resources. In addition, using a large scale event as an example would help to convey that individuals are expected to self-manage for 72 hours.

Finally, time constraints and limitations of the original project design led to the simultaneous execution of focus groups and the telephone survey, which has methodological limitations. Ideally and in line with established social science methods, the focus groups would have been conducted prior to the telephone survey, two focus groups per target population would have been conducted, and information from the focus groups would have then been used to

create the telephone survey. Despite these methodological limitations, the use of both qualitative and quantitative methods yielded a rich pool of data.

7.0 CONCLUSION

The qualitative and quantitative methods utilized in the Duquesne Emergency Preparedness Project provide rich data to understand the emergency preparedness needs, risk perceptions and information seeking behaviors of Duquesne community members. Communities inherently possess strengths and also face challenges; however socioeconomically disadvantaged communities are confronted with numerous challenges. Competing threats including poor educational systems for youth, violence in the community, intentional damage to personal property and low wage jobs, take precedence over low-probability and relatively abstract public health emergency events. Since public health emergencies are not immediately associated with high risk, emergency preparedness is not a priority among the vulnerable community of Duquesne, Pennsylvania. Therefore, the question remains as to how best vulnerable populations can and should be mobilized to engage in emergency preparedness activities. Historical and recent disaster events reveal the disproportionate effects of public health emergencies on vulnerable populations; however the needs of these populations are rarely incorporated into emergency preparedness and preparedness education has yet to be tailored to communities lacking resources.

Although not generalizable, the focus group discussions and phone survey in Duquesne and surrounding municipalities provides a glimpse of the perceptions and needs of one vulnerable population, which may provide formal and community leaders as well as first

responders insight about other communities facing similar challenges across the US. Analysis of the literacy level and underlying assumptions of existing preparedness guides has broad implications for vulnerable populations across the United States: current emergency preparedness educational materials do not meet the needs of these populations. In addition and since knowledge does not translate into action or behavioral changes, local level emergency preparedness efforts that engage and train vulnerable populations are crucial for helping communities that lack resources prepare for public health emergencies. Local level preparedness is emphasized on the federal and state levels however the human and financial capital required to achieve local preparedness does not exist in the under funded and fragmented public health system. By not meeting the emergency preparedness needs of vulnerable populations, federal, state and local governments ensure that these individuals and communities will inevitably continue to be disproportionately affected in the event of a future public health emergency.

APPENDIX A FOCUS GROUP DISCUSSION GUIDE AND DEMOGRAPHIC SURVEY

A.1 FOCUS GROUP DISCUSSION GUIDE

Introduction

I first want to welcome and thank you for coming today. My name is Emilie and I will serve as the focus group discussion facilitator. The University of Pittsburgh in partnership with the Duquesne Community Mobilization Project (DCMP) wants to learn more about how you as residents (community leaders/ business leaders/ first responders/politicians/ individuals who work in Duquesne) of Duquesne think about your community and preparing for emergencies. From the information gathered today and from information collected in other focus group discussions within the community, Pitt in partnership with DCMP hopes to develop emergency preparedness materials that are relevant to you and to the Duquesne community.

As the discussion facilitator, I will ask the questions. I am not here as a participant or here looking for particular answers to the questions but rather am here to listen to the valuable information and opinions all of you have to share. The discussion will last for about one and a half hours and to ensure accuracy of the information we collect and will later use, the discussion will be audio-recorded. When the audio-recorded session is transcribed no names will be included, transcripts will be kept under lock and key and the tapes will be destroyed following transcription. We also have a note-taker here today who will take notes on the discussion but who will not participate. Everything you say today during our discussion is anonymous and confidential. Please feel free to voice your honest opinions and thoughts. I also want to remind you that your participation in the discussion today is voluntary and you may choose to leave at any time. I ask that all of you participate in the discussion and remind you that everything you say is of value. You are the experts!

Before we begin the discussion I want to provide you with a few ground rules: Please speak one at a time and speak both loudly and clearly so that everyone can hear what you have to say. Please listen to your fellow group members when they are talking and refrain from having side conversations. Feel free to express agreement or disagreement with what another group member has said once he or she has finished speaking. I also ask that you respect other group members and respect the confidentiality of the group. At the end of the session we will distribute the gift cards as a thank you for participating in our focus group session today. At this time does anyone have any questions?

General Discussion Questions

1) Please introduce yourself to the group by sharing your first name and how long you have lived or worked in Duquesne.

2) From your experience living or working in Duquesne, what do you think are the greatest strengths of the community?

3) What do you think are the greatest challenges and/or what are your greatest worries about Duquesne?

4) In the event of an emergency where would you look for information and who would you trust as a reliable source of information?

5) How capable do you think Duquesne is of responding to and resolving an emergency situation? How prepared is your community for responding to an emergency?

6) How prepared are you personally to respond to an emergency situation should one arise?

7) What are the barriers you and your community face in preparing for an emergency situation?

8) If you were to help create an emergency preparedness plan for Duquesne, what would you include? What is most important to you in an emergency plan?

A.2 FOCUS GROUP DEMOGRAPHIC SURVEY

A. Which best represents your race?

1. Black or African American
2. Asian
3. Native Hawaiian or other Pacific Islander
4. White
5. American Indian, Alaskan Native
7. Other (please Explain)_____

B. Are you Hispanic, Latino or of Spanish origin?

1. Yes
2. No

C. What is your gender?

1. Female
2. Male

D. What is your age?

1. 18-24
2. 25-29
3. 30-35
4. 36- 40
5. 41-64
6. 65 or older

E. Are you currently employed?

1. Yes
2. No

F. If you are currently employed, what is your occupation?

_____

G. What is your yearly income?

1. $0 - 10,000
2. $11,000 - 20,000

3. $21,000- 30,000
4. $31,000 - 40,000
5. $41,000 - 50,000
6. $51,000 - 60,000
7. $61,000 - 70,000
8. $71,000 - 80,000
9. $81,000 - 90,000
10. $91,000 - 100,000
11. More than $100,000

APPENDIX B SURVEY INSTRUMENT

TELEPHONE SURVEY

PHONE SCRIPT FOR CATI ADMINISTERED EMERGENCY PREPAREDNESS SURVEY:

Hello my name is _____ and I am calling on behalf of the University of Pittsburgh's School of Public Health.

Pitt is working with organizations in your community to help you and your community prepare for an emergency. Although your assistance is entirely voluntary, if you would answer just a few questions, you can help to improve emergency preparedness in the Mon Valley. Everything you say is strictly confidential and of course, personal information will never appear in any report we prepare.

Are you 18 years of age or older? **If "NO"** → Thank you very much, but we are only interviewing people who are 18 or older. Is there anyone home that is 18 or older that may be available to speak to me? Or is it possible that I may call back later to speak to an adult?

→ **Stop Here**

[This is also your first opportunity to code someone "physically or mentally incapable." If they seem to be so hard of hearing they could not complete an interview or do not understand because of mental problems what you are saying-enter a 3 and the system will go to termination; also if they say they are too sick to do the interview]

Do you live or work in the Mon Valley? **If "No"** → Thank you very much for your time but we are only interviewing people

who live or work in the Mon Valley.

→ **Stop Here**

[If participants are 18 years or older and either reside or work the Mon Valley, the phone interviewer may continue with the survey questions.]

EMERGENCY PREPAREDNESS SURVEY

1. On a scale of 1 to 5 with 5 being very concerned, 4 being concerned, 3 being moderately concerned, 2 being slightly concerned and 1 being not concerned at all, please tell me how worried you are about the following:

_____ Violence in the community
_____ Illness or naturally occurring disease that can be passed from person to person such as seasonal flu or sexually transmitted diseases
_____ Fires, blizzards, ice storms or flooding
_____ Theft, burglary or other intentional damage to personal property
_____ Terrorism
_____ Adequate and safe housing
_____ Low wage jobs
_____ Poor and/or limited transportation
_____ Public school system or education for youth in the community
_____ Other (please explain)_____
_____ Don't Know (98)
_____ No Response/Refused (99)

2. People get information from many places. Please tell me about where you would look for information or news about a local or national emergency? Do you get information from: _____ **Please check all that apply.**

_____ TV
_____ Radio
_____ Internet
_____ Community newsletter
_____ Newspaper
_____ Family, friends and neighbors
_____ Local officials
_____ Other (please explain)_____
_____ Don't Know (98)
_____ No Response/Refused (99)

3. Who do you ***MOST*** trust as a source of information and news? **Please check all that apply.**

_____ TV
_____ Radio
_____ Internet
_____ Community newsletter
_____ Newspaper
_____ Family, friends and neighbors
_____ Local officials
_____ Health care providers such as your doctor
_____ Other (please explain)_____
_____ Don't Know (98)
_____ No Response/Refused (99)

4. Of the following, what do you use ***MOST*** often for transportation? **Please choose one response.**

_____ Public transportation (bus and/or train)
_____ Personal car, truck or vehicle
_____ Bike
_____ Walking
_____ Rides from family, friends and neighbors with a personal car
_____ Other (please explain) _____
_____ Don't Know (98)
_____ No Response/Refused (99)

5. How likely do you think it is that you will experience a wide-spread emergency while living or working in the Mon Valley? Is it very likely, likely, moderately likely, unlikely or very unlikely? **Please choose one response.**

1. Very Likely
2. Likely
3. Moderately Likely
3. Unlikely
4. Very Unlikely
98. Don't Know
99. No Response

6. How important is it to you and your family to plan and prepare for an emergency? Is it very important, important, somewhat important, of little importance or not at all important? **Please choose one response.**

1. Very Important
2. Important
98. Don't Know
99. No Response

3. Somewhat important
4. Of little importance
5. Not at all important

7. How prepared are you and your family for an emergency? Very prepared, Prepared, Moderately Prepared, A little prepared, or Not at all prepared? **Please choose one response**.

1. Very Prepared
2. Prepared
3. Moderately prepared
4. A little prepared
5. Not at all prepared

98. Don't Know
99. No Response

After choosing one response please confirm that the participants answer corresponds with the following descriptions!

- **Very prepared** means that you have an emergency plan ***AND*** an emergency kit
- **Prepared** means you have either an emergency plan ***OR*** an emergency kit
- **Moderately prepared** means you have some emergency supplies on hand ***OR*** have thought about and discussed what to do in an emergency situation with your family
- **A little prepared** means some or little thought about preparing for an emergency
- **Not at all prepared** means you do not have any emergency supplies on hand or an emergency plan.

IF A LITTLE PREPARED OR NOT AT ALL PREPARED

7a) Why aren't you prepared for an emergency? **Please check all that apply.**

___ Do not think it is important
___ Do not have time to prepare
___ Do not know how to prepare for an emergency
___ It is too expensive to prepare
___ Other (PLEASE RECORD)_____

8. Who would you rely on for help during an emergency? **Please check all that apply.**

___ Household members
___ Fire/police/emergency workers
___ Neighbors and friends
___ Government agencies

98. Don't Know
99. No Response

___ Hospitals

9. How prepared do you think your community is to deal with an emergency? Are they very prepared, prepared, moderately prepared, a little prepared or not at all prepared? **Please choose one response.**

1. Very Prepared
2. Prepared
3. Moderately prepared
4. A little prepared
5. Not at all prepared

98. Don't Know
99. No Response

10. Is there a safe place to go in your community if there is a wide-spread emergency? **Please choose one response.**

1. Yes
2. No

98. Don't Know
99. No Response

11. If you had to leave or evacuate your community do you and your family have somewhere else to go outside of the area? **Please choose one response.**

1. Yes
2. No

98. Don't Know
99. No Response/Refuse

12. How interested are you in learning more about preparing for emergencies? **Please choose one response.**

1. Extremely interested
2. Very interested
3. Moderately interested
4. Slightly interested
5. Not at all interested

98. Don't Know
99. No Response/Refuse

I just have a few more questions:

13. Which of the following best describes your race?

1. Black or African American
2. Asian
3. Native Hawaiian or other Pacific Islander
4. White

5. American Indian, Alaskan Native
7. Other (please Explain)_____

98. Don't Know
99. No Response

14. Are you Hispanic, Latino or Spanish origin?

3. Yes
4. No

98. Don't Know
99. No Response

15. What is your gender?

1. Female
2. Male

16. What is your age?

1. 18-24
2. 25-29
3. 30-34
4. 35- 39
5. 40-64
6. 65 or older

98. Don't Know
99. No Response

17. Are you currently employed?

1. Yes
2. No

98. Don't Know
99. No Response

18. If you are currently employed, do you work in the Mon Valley or outside of the Mon Valley?

1. Work in the Mon Valley
2. Work outside of the Mon Valley

98. Don't Know
99. No Response

19. If you are currently employed, what is your occupation?

_____

20. What is your yearly household income?

1. $0 - 10,000
2. $11,000 - 20,000
3. $21,000- 30,000
4. $31,000 - 40,000
5. $41,000 - 50,000
6. $51,000 - 60,000
7. $61,000 - 70,000
8. $71,000 - 80,000
9. $81,000 - 90,000
10. $91,000 - 100,000
11. More than $100,000

98. Don't Know
99. No Response/Refused

21. What is the highest grade or year of school you have completed?

1. Never attended or only attended kindergarten
2. Attended grades one through eight (elementary school)
3. Attended grades none through eleven or some of twelve (some of high school)
4. Grade 12 completed or GED (high school graduate)
5. College or technical school 1 year to 3 years (associates degree, some college)
6. Completed college (BA, BS)
7. Graduate school, Master's Degree
8. Graduate school, Doctoral Degree
9. Professional degree (JD, MD)

98. Don't Know
99. 99. No Response/Refused

APPENDIX C FOCUS GROUP DISCUSSION RESULT TABLES

Table 7. Emergent themes from four emergency preparedness focus group discussions in Duquesne, Pennsylvania.

Formal Leader Focus Group	Community Leader Focus Group
Greatest Strengths of the Community	*Greatest Strengths of the Community*
•People who were "born and raised here" •The mutual aid system of Emergency Management Services (fire and EMS) •Volunteer firemen •Businesses in Duquesne •Reasonable property and low tax base	•Being a small community and still feeling like you can talk to people on the streets •Ease of networking and disseminating information among residents •Many of the positives mentioned by the community leaders were strengths of the steel mill era City of Duquesne
Greatest Challenges Facing the Community	*Greatest Challenges Facing the Community*
•Subsidized ("Section 8") Housing •Transient populations and renters who live in Duquesne for only a short period of time •Lack of stability in the community •Community members not willing to get involved •Poor school system (partially alleviated because of eliminating the high school)	•Loss of strong neighborhoods and sense of community •Transient nature of people in the community •Prevalence of single mother households and absence of male and/or father figures in families •Deterioration of schools, lack of public library •Prevalence of drugs in the community •Emergence and presence of female gangs •Lack of job opportunities for young people •Lack of businesses in Duquesne (people have to leave the community to work which impacts the structure of the community) •Act 47 (financially distressed status) of the City of Duquesne government • Lack of interest and involvement of formal city leaders in the community •Lack of fire and emergency services personnel that results in slow response time to events
Trusted Sources of Information and News	*Trusted Sources of Information and News*
•Allegheny County Emergency Management is the primary source of information during emergency situations •Formal leaders communicate with one another and trust one another during events to transmit information and news	•Word of mouth among family, friends and community members and being involved and active in the community •Community members who are involved with organizations lead by community leaders •Newspapers (McKeesport Daily News, Pittsburgh Post-Gazette, Tribune Review) and Federal reports are not trusted because they often do not accurately report information •Government leaders in Duquesne were not identified as trusted sources of information

Table 7. Continued

Formal Leader Focus Group	Community Leader Focus Group
Community Ability to Respond to an Emergency	*Community Ability to Respond to an Emergency*
•Confident that they (as formal leaders) are capable of handling and mitigating small scale events however for large scale events additional county resources would be necessary to respond to the event •Formal leaders not directly involved in emergency services were confident that fire and police knew what to do in the event of an emergency •Formal leaders have not actively engaged businesses or community members in preparing for emergencies	•Community leaders were not confident in the community's ability to respond to an emergency •Community leaders were vaguely aware of an emergency plan for the City however were unsure if the plan was up to date •If an emergency plan for the Duquesne exists it is not widely distributed •On an organizational level some organizations have emergency plans however the plans are not synchronized.
Individual Ability to Respond to an Emergency	*Individual Ability to Respond to an Emergency*
•General consensus among group members indicated formal leaders did not actively engage in personal preparedness activities and agreed that people travel to the store immediately before an event to gather supplies	•"How prepared can you be?" •Community leaders recall preparing for Y2K with supplies and kits and then thinking about preparing for emergencies after September 11 however felt the preparedness movement has lost momentum since September 11 •Community leaders felt 'thinking outside of the box' and being able to think on your feet was essential when responding to an emergency •Community leaders were somewhat familiar with preexisting citizen preparedness guides however recognized that these guides are not easily accessible or widely distributed
Barriers to Preparing for an Emergency	*Barriers to Preparing for an Emergency*
•Difficulty in working with certain groups for planning purposes including the school •Educating the public when they "don't want to be educated" or get involved •Not knowing how many people actually live in Duquesne which would present problems if an evacuation order was issued	•On an organizational level buying the supplies necessary for sustaining the organization and keeping clients and/or staff out of those supplies is difficult •Practicing plans, conducting drills and updating emergency plans is difficult •People need to be reminded about planning and updating supplies on a regular basis
Community Emergency Plan	*Community Emergency Plan*
•Despite group consensus about a general lack of interest and involvement on the part of the community, formal leaders acknowledged several organizations in Duquesne in which community members are engaged including the crime watch committee and Duquesne Pride •Churches would be used as sites for evacuation •Resources of agencies such as the Red Cross and vehicles including Port Authority buses would be used to house and transport people •Communicating with community members during an emergency would be accomplished via word of mouth, the radio, scanners, the police cars PA system and door to door announcements by public works employees •Ideally an alarm system would be in place and the signaling of the alarm would be explained to community members via newspaper announcements, flyers in different community locations and by printing it on the water bill.	•Community plan needs to be comprehensive involving people on all levels of the community from individuals to families to children however people should be trained/educated separately •The educational component of the plan needs to be interactive and not lecture based •Churches should be used as evacuation points •An alarm or warning system needs to be installed in order to alert people during an emergency event

Table 7. Continued

Formal Leader Focus Group	Community Leader Focus Group
Other	*Other*
•Formal leaders framed the issue of preparedness in terms of their leadership decision-making role •Even when asked to discuss personal preparedness, formal leaders framed responses based on their decision-making role	•Community leaders expressed positive thoughts about feeling that one's work is making a difference in Duquesne
50+ Individuals with Disabilities Focus Group	**General Public Focus Group**
Greatest Strengths of the Community	*Greatest Strengths of the Community*
•The people, especially the longtime and lifetime residents •The strong sense of community and strong families among the long time or lifetime residents •The small town feel of the community •Physical assets including the churches, grocery store •The quietness of the community •Many of the positives mentioned by the community leaders were strengths of the steel mill era City of Duquesne	•Social service providers and support programs in the community including the Duquesne Family Support Center, the Head Start Program, a Children's Hospital mobile Medical Unit, a book mobile and the Urban League Youth Program •Ability for families to obtain needed services •Strong sense of community and willingness to help one another after a fire or similar event in the community
Greatest Challenges Facing the Community	*Greatest Challenges Facing the Community*
•Subsidized ("Section 8") Housing •Transient populations and renters who live in Duquesne for only a short period of time •Weak police force and weak city government (especially the mayor) •Lack of job opportunities and businesses within the City of Duquesne •Lack of public transportation options •Lack of high school in Duquesne •Lack of motivation for people to stay in the city and build the city back up to where it was when the steel mill was in operation •Lack of system to inform people about community events	•Lack of social services for single people •Peer pressure among youth to participate in drugs and gangs •Lack of system and/or community forum to inform people about available resources and community events •Community members are largely not willing to get involved to improve the community
Trusted Sources of Information and News	*Trusted Sources of Information and News*
•Word of mouth among family, friends and community members and being involved and active in the community •Media including radio, TV, news broadcasts, newspaper (McKeesport Daily News) •Religious leaders were viewed as trusted sources of information and news •Government leaders in Duquesne were not identified as trusted sources of information •Neutral parties such as the American Red Cross and the Salvation Army were cited as trusted sources of information	•Word of mouth among family, friends and community members and being involved and active in the community •Social support services/workers were mentioned are trusted sources of information and news •Community leaders are trusted sources of information and news •TV and newspaper news perceived as only discussing negative community happenings •Government leaders in Duquesne were not identified as trusted sources of information and were described as out of touch with the issues facing Duquesne

Table 7. Continued

50+ Individuals with Disabilities Focus Group	General Public Focus Group
Community Ability to Respond to an Emergency	*Community Ability to Respond to an Emergency*
•Consensus among group members that the Duquesne community is not prepared for a wide-spread emergency •Some group members were confident in the ability of fire and emergency responders to respond to small scale events such as fires •Group members were unsure about the existence of an emergency plan for Duquesne •Residents were aware of the school's emergency plan	•Community is not perceived as being prepared to respond to an emergency and the community is not mobilized around preparing for an emergency •Community mobilization occurs during the response and/or recovery after an emergency event •Group members were unsure about the existence of an emergency plan for Duquesne and unsure about safe places to go during an emergency in Duquesne
50+ Individuals with Disabilities Focus Group	**50+ Individuals with Disabilities Focus Group**
Individual Ability to Respond to an Emergency	*Individual Ability to Respond to an Emergency*
•Consensus among group members that they are capable of responding to an emergency situation •Group members were largely unaware of preexisting citizen preparedness guides •Group members described having some emergency supplies stockpiled however based on descriptions of supplies, the community members would be dependent upon having water and power •Group members agreed that preparing for an emergency is very important	•One group member was extremely prepared for emergencies: actively sought information about preparedness online, was previously a member of the Jesus Christ of Ladder Day Saints Church, had a go kit and shelter in place supplies. •Other group members did not have an emergency plan or supplies for use during an emergency •With the exception of the one member who was interested in preparedness, group members were not familiar with existing citizen preparedness guides and commented that these guides were not easily accessible or widely distributed
Barriers to Preparing for an Emergency	*Barriers to Preparing for an Emergency*
•Laziness and/or not thinking an emergency event will happen was cited as a primary barrier to preparing for an emergency •An individual's health status was also cited as a possible barrier to preparing •Other barriers included lack of transportation	•Laziness, lack of awareness or lack of interest about preparing for emergencies •The importance one places on preparing for emergencies influences whether people will prepare or not: people are not interested! •Information is not widely distributed and people have to seek out the information
Community Emergency Plan	*Community Emergency Plan*
•Emergency preparedness needs to involve the community and everybody needs to be involved •Involving the community in the planning process is important •Participants felt education about preparing for emergencies was important •Participants would welcome trainings from trusted sources such as the American Red Cross or the Salvation Army •Specific concerns about preparing for an emergency centered around how people would obtain needed medications and what one should do in the event of different emergency situations •Vulnerable populations identified include the elderly, handicapped and children. •An alarm or notification system is needed	•Emergency preparedness needs to involve the community as well as local leaders; leaders need to support and back emergency preparedness •If a plan exists or if a plan is developed, community members need to aware as well as taught about the plan •Education about emergency preparedness would be helpful to the community including what is an emergency (types), where to turn, available resources, transportation options •Churches were identified as potential shelter/evacuation sites •Concerns were expressed about the elderly and children •A community contact or system for helping people to recover after an emergency needs to be established •An alarm or community information forum needs to be put in place to alert people about emergencies
Other	*Other*
	•Recognition that change is not the responsibility of any one community member but rather requires a group effort and community buy-in and mobilization

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