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Development of Population Protective Procedures for a Radiological Event

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Abstract

Objective: The purpose of this investigation was to evaluate the execution of emergency preparedness procedures of the west central Ohio region during a radiological event.

Preparedness plans were generated by the Dayton Metropolitan Medical Response System and Public Health – Dayton and Montgomery County, which would later be disseminated to eight counties in west central Ohio.

Methods: Two live scenarios, a region-wide functional exercise and a Medical Reserve Corps training exercise, were used to test different procedures and protocols for a radiological event relevant to various first response agencies (public health, law enforcement, emergency medical systems, hospitals, etc.). Exercise evaluation guidelines were used as metrics to determine exercise effectiveness for public health, emergency management agencies, and hospitals.

Results: Establishment of partnerships and resources among first responders was established and recognized as major strengths. Areas for improvement from each exercise includes providing assistance and emergency information to populations with special needs and updating of guideline materials. Establishment of a community reception center response was also recognized for population monitoring purposes.

Conclusions: Overall, both exercise opportunities yielded strengths and areas for improvement to better prepare for a radiological event. Further review of other local, state, and federal best-practice guidelines will improve overall preparedness planning for future scenarios. Improving communication, knowledge of resources and establishing connections among sister agencies and other first response agencies will be needed in the future to ensure a meaningful understanding of the regional radiological response preparedness plan.

Keywords: community reception center, emergency preparedness, incident command structure, public health, radiological event

Abbreviations

CDC – Centers for Disease Control and Prevention

DHS – Department of Homeland Security

EMA – Emergency management agency

EMS – Emergency medical systems

EOC – Emergency operations center

FBI – Federal Bureau of Investigations

GDAHA – Greater Dayton Area Hospital Association

ICS – Incident command structure

JIC – Joint information center

MMRS – Metropolitan Medical Response System

MSEL – Master sequence of events list

MRC – Medical Reserve Corps

NGO – Non-government organization

PHDMC – Public Health – Dayton and Montgomery County

PIO – Public information officer

SIM CELL – Simulation cell

Development of Population Protective Procedures for a Radiological Event

The three goals of public health are promotion, prevention, and protection. With multiple threats looking to harm Americans on a daily basis, there is an increase effort to protect large populations and the public health infrastructure. The use of radiological devices pose a direct threat to human health and safety (Centers for Disease Control and Prevention [CDC], 2012). While the use of a radiological bomb or improvised nuclear device has not been used in a terrorist attack, public health agencies at all levels of government make nuclear preparedness a top priority.

Practical application is one of the best methods to prepare for any natural or man-made disaster. Practical application may include meeting with regional public health agencies to available discuss resources, forming collaborative meetings with first responders to review preparedness plans, and research best practice strategies from other local, state, and federal public health agencies. However, the best practical application for emergency preparedness is through exercise planning and execution. Functional exercises utilize in-place preparedness plans and integrate all response partners and agencies into the exercise scenario for a realistic experience to increase overall preparedness for the future (Stergachis et al., 2007).

When an emergency does occur, disseminating information to the public as well as immediate services for the disaster is crucial. Quickly releasing accurate information to the public is necessary to keep the general public informed, prepared, and calm. It is also important because it gives the community a sense of trust in the health department and the decision makers overseeing the disaster. In addition to quickly releasing accurate information, the use of community reception centers may be needed during and following an emergency. These centers offer individuals affected by the disaster or not an area to receive information and assistance. The

mechanisms of these centers allow epidemiologists and public health officials the ability to gather population information to monitor the disaster effects in real time and discover medical/health patterns or trends stemming from the disasters cause.

Literature Review

Terrorism in the Modern World

The role of emergency preparedness in public health has grown as threats, both foreign and domestic, increase against the United States and assets around the globe. The role has also increased in regards to local, state, and federal infrastructure across the nation (Vielot & Horney, 2014). September 11th, 2001 showed the force of foreign terrorists against America. Nearly 3,000 individuals lost their lives in plane crashes in New York City at the World Trade Center buildings, the Pentagon in Washington, D.C., and in Shanksville, Pennsylvania (Pandya, 2013). The events of September 11th, 2001 shaped how the United States and the world view and react to terrorist organizations and their threats to human health and safety (Marmagas, King, & Chuk, 2003).

Since 2001, the term “terrorism” has become part of the common vernacular of most Americans. "Terrorism" has be defined as “involving violent acts or acts dangerous to human life that violate federal or state law, or, intending to intimidate or coerce a civilian population; cause influence on government policy by pressure or intimidation, or, affect the conduct of a government by mass obliteration, elimination, or kidnapping” (Federal Bureau of Investigations [FBI], 2013, p. 1). Both international and domestic terrorists have plotted and carried out attacks on the United States. While domestic terrorists reside primarily within the jurisdictions of the United States, international terrorists transcend national boundaries to intimidate or coerce the general public (FBI, 2013).

Once a terrorist event occurs, individuals may show psychosocial effects afterwards. Diagnosis of post-traumatic stress disorder, or PTSD, has been found in many individuals that were directly related to the September 11th attacks (Pandya, 2013). Typical after any traumatic event, common symptoms of PTSD include “upsetting memories of the event, increased jumpiness, or trouble sleeping” (Sareen, 2014, p. 462). Many people developed PTSD directly from the events they witnessed or were a part of on September 11th (Liu, Tarigan, Bromet, & Kim, 2014).

While the events that unfolded on 9/11 shaped people’s lives forever, those who developed PTSD had implications on both medical care and mental health care. While medical care was primarily given to those who had immediate needs, many psychologists were on hand to discuss aspects of 9/11 with first responders, families of victims, and general witnesses. Of the general areas described by the above listed groups, injury to the individual (minor or serious), loss of a family member, friend, or colleague, and witnessing horror (planes smashing into buildings/crashing, victims committing suicide by jumping from buildings, etc.) were the primary three topics discussed to psychologists in the New York Area on and just after September 11th, 2001 (Liu et al., 2014). While the PTSD was found in most individuals, the severity of the disorder depended on the amount of exposure to the terrorist attack (Liu et al., 2014). Pandya (2013) concluded that disaster-related mental health services would have benefited survivors in a higher capacity if mental health services were combined with the larger resources of social services to have broader reach to those who needed mental health consultation. It was also concluded that disaster survivors should have been evaluated for other mental health disorders in addition to PTSD to make the best diagnosis and provide the best aid (Pandya, 2013).

Radiation and Radiological Preparedness

Radiation is a process where energy is emitted by an object as either waves or particles through a medium (Wodarz, Sorace, & Komarova, 2014). The Centers for Disease Control and Prevention (CDC) lists radiation to broadly emit heat, light, radio waves, and microwaves (CDC, 2014a). Radiation falls under two separate subcategories; ionizing and nonionizing (World Health Organization [WHO], 2012). Ionizing radiation emits energy released by atoms that travels in either the form of particles (neutrons, beta or alpha) or electromagnetic waves (gamma or X-rays) (WHO, 2012). Nonionizing radiation is “electromagnetic radiation that does not cause ionization” (National Institute of Occupational Safety and Health [NIOSH], 2014, p. 2). Nonionizing radiation may take on several different forms to include infrared, microwave, radiofrequency ultraviolet and visible radiation (CDC, 2014a).

The rapid and powerful explosive potential of radiological materials makes it a desired commodity to do mass harm and destruction to populations. Terrorists and other adversaries continually look at utilizing the power of radiation to form a radiological bomb or an improvised explosive device to impact both national security and public health (Lucas et al., 2014). Mettler and Voelz (2002) evaluated what would be expected during a radiological disaster and how to appropriately respond. One scenario evaluated was the transportation of several radioactive materials across areas that have radioactive material detectors. Cobalt-60, cesium-137, cesium-137 and iridium-192, all of which are used in common industry such as radiotherapy machines and industrial radiographic devices, all have high penetrating abilities and therefore would be easily detectable (Mettler & Voelz, 2002).

Another scenario described by Mettler and Voelz (2002) was in regards to the detonation of a nuclear weapon. The authors describe that a low-level detonation device would require less

than 10 kilotons (kt) of radioactive material (Mettler & Voelz, 2002). In comparison, the amount of radioactive material used with the Hiroshima bombing in 1945 was 13kt (Takahashi et al., 2013). Table 1 depicts the fatality rate that could be expected from a nuclear weapon based on size. As the amount of nuclear materials used to build the bomb increases, the shock wave, thermal radiation, and ionizing radiation also increases.

Table 1

Fifty Percent Fatality Rate Expected According to the Size of a Nuclear Weapon

Approximate distance from the detonation site at which a 50 percent fatality rate might be expected according to the size of a nuclear weapon				
Yield	Shock Wave	Thermal Radiation	Ionizing Radiation	
(kilotons)	(Meters)	(Meters)	(Initial)	(Residual)
0.01 kt	60	60	250	1270
0.1 kt	130	200	460	2750
1 kt	275	610	790	5500
10 kt	590	1800	1200	9600

Source: Mettler & Voelz, 2002

Effects to the human body would occur immediately after the detonation of the nuclear weapon. Mettler and Voelz (2002) calculated the exposure dose in Grays (Gy) in accordance with the effect that would be expected in Table 2. The physiological effects vary greatly from asymptomatic to organ failure to death.

Table 2

Relationship of Dose Effect to Whole-body Absorption for Humans after Acute Exposure to Gamma Rays or X-rays

Whole-Body Absorbed Dose (Grays)	Effect
0.05 Gy	No Symptoms
0.15 Gy	No symptoms, but possible chromosomal aberrations in cultured peripheral-blood lymphocytes
0.5 Gy	No symptoms (minor decreases in white-cell and platelet counts in a few persons)
1 Gy	Nausea and vomiting in approximately 10 percent of patients within 48 hours after exposure
2 Gy	Nausea and vomiting in approximately 50% of persons within 24 hours, with marked decreases in white-cell and platelet counts
4 Gy	Nausea and vomiting in 90% of person within 12 hours, and diarrhea in 10% within 8 hours; 50% mortality in the absence of medical treatment
6 Gy	100% mortality within 30 days due to bone marrow failure in the absence of medical treatment
10 Gy	Approximate dose that is survivable with the best medical therapy available
> 10-30 Gy	Nausea and vomiting in all persons in less than 5 min; severe gastrointestinal damage; death likely in 2 to 3 weeks in the absence of treatment
> 30 Gy	Cardiovascular collapse and central nervous system damage, with death in 24 to 72 hours

Source: Mettler & Voelz, 2002

While the use of a nuclear weapon is not ruled out as a primary weapon choice by advisories, the background and expertise required to design, build, and execute such a device is much more difficult to find (Mettler & Voelz, 2002). Finding individuals with the above aforementioned education and ability to create such a weapon makes it a very low threat level for a terrorist attack choice.

Even though the use of radiation is limited in daily lives, many places around the United States and around the world depend on radiation for various needs; such as electricity from nuclear power plants. In the United States, there are over 100 nuclear power plants that provide electricity and steam to over 20 different states (Miller, Stakenboghs, & Tsai, 2011). Within the

state of Ohio, two fully operational nuclear power plants exist in Ottawa and Lake Counties (U.S. Nuclear Regulatory Commission, 2014a; U.S. Nuclear Regulatory Commission, 2014b). The Davis-Besse Nuclear Power Station, located in Ottawa County, was commissioned in 1978 and is property of FirstEnergy Corporation (U.S. Nuclear Regulatory Commission, 2014a). The Perry Nuclear Generation Station, located in Lake County, was commissioned in 1987 and also is property of FirstEnergy Corporation (U.S. Nuclear Regulatory Commission, 2014b). The Perry Nuclear Generation Station was built as one of the most costly nuclear power plants in the world at \$6 billion (Ohio Department of Public Safety [ODPS] Ohio Emergency Management Agency Nuclear Power Plants, 2014).

The generation of power from radioactive materials is beneficial to the environment. Clean energy generated from nuclear fuel rods has the ability to power many households and businesses while using very little resources that pollute the environment (Singh, 2013). Conversely, many Americans do not believe nuclear energy is a proper energy source in the present day or for the future (Koerner, 2014). Singh (2013) cites memorable accidents both domestic and international, contribute to negative public opinion to nuclear power. The partial meltdown of the Three Mile Island core reactor in 1979 was a significant cause for nuclear power concerns. The accident and radiological release did not cause immediate or long term effects to plant workers or surrounding residents (U.S. Nuclear Regulatory Commission, 2014a). The introduction of additional nuclear energy power plants has stopped since the late 1970's from growing costs and public fear of future accidents (Woo, 2015).

Fears of the world were focused on Japan in 2011 after a large meltdown occurred at the Fukushima Daiichi nuclear power plant in Fukushima, Japan. A magnitude 9.0 earthquake occurred in March 2011, which then caused a large tsunami to be generated and was focused at

the Japanese coast (Parajuli et al., 2013). The tsunami swept over the grounds of the Fukushima Daiichi nuclear power plant and knocked several of the cooling systems offline, causing a meltdown of the nuclear reactor. This meltdown resulted in the release of radiation into the air and water around the nuclear plant (Parajuli et al., 2013). Policies and procedures were quickly evaluated in the United States and in many other countries in regards to the safety of power plants during an earthquake and/or tsunami event, as well as, when critical control mechanism become nonoperational. Stevenson (2014) found that evaluation of seismic load, emergency planning for disasters, and reviewing principle building standards for most nuclear power plants was not being done on an annual basis.

While the use of radiation has been used to improve human life through the generation of energy, the threat of radiation being used as a weapon still exists. One of the greatest threats to the general public with radiological attack is the amount of radiation that is released and the method in which the release was caused. A radiological dispersal device will emit radiation in an area without the use of a large explosion or detonation (Eun Young, Wi-Ho, Young-Woo, Wesley, & Choonsik, 2015). Effective dose conversion coefficients for health care provider exposed to pediatric and adult victims in radiological dispersal device incident (Eun Young et al., 2015). This method could be used to release a lethal dose of radiation without causing a large scene with mass chaos. Another nuclear weapon is an improvised nuclear device, which uses a large explosion or detonation to cause damage and spread radiation (Eun Young et al., 2015). This method would be used to spread radiation quickly with the intent of a mass casualty, and panic and disorder in the general population.

Community Reception Centers

The CDC has been tasked with the responsibility to generate and implement strategies and guidelines for public health agencies across the United States. Emergency preparedness procedure and guidelines for radiological disasters has become increasingly important at the CDC citing increased threats from international terrorist organizations planning future attacks against the United States (CDC, 2014b). Generation of these policies incorporates professional skill sets from local and state public health agencies (National Center for Environmental Health, 2014).

The standing of a Community Reception Center (CRC) is the primary means of population monitoring for communities following a radiological event (National Center for Environmental Health, 2014b). Figure 1 represents a CRC conducive to basic population monitoring.

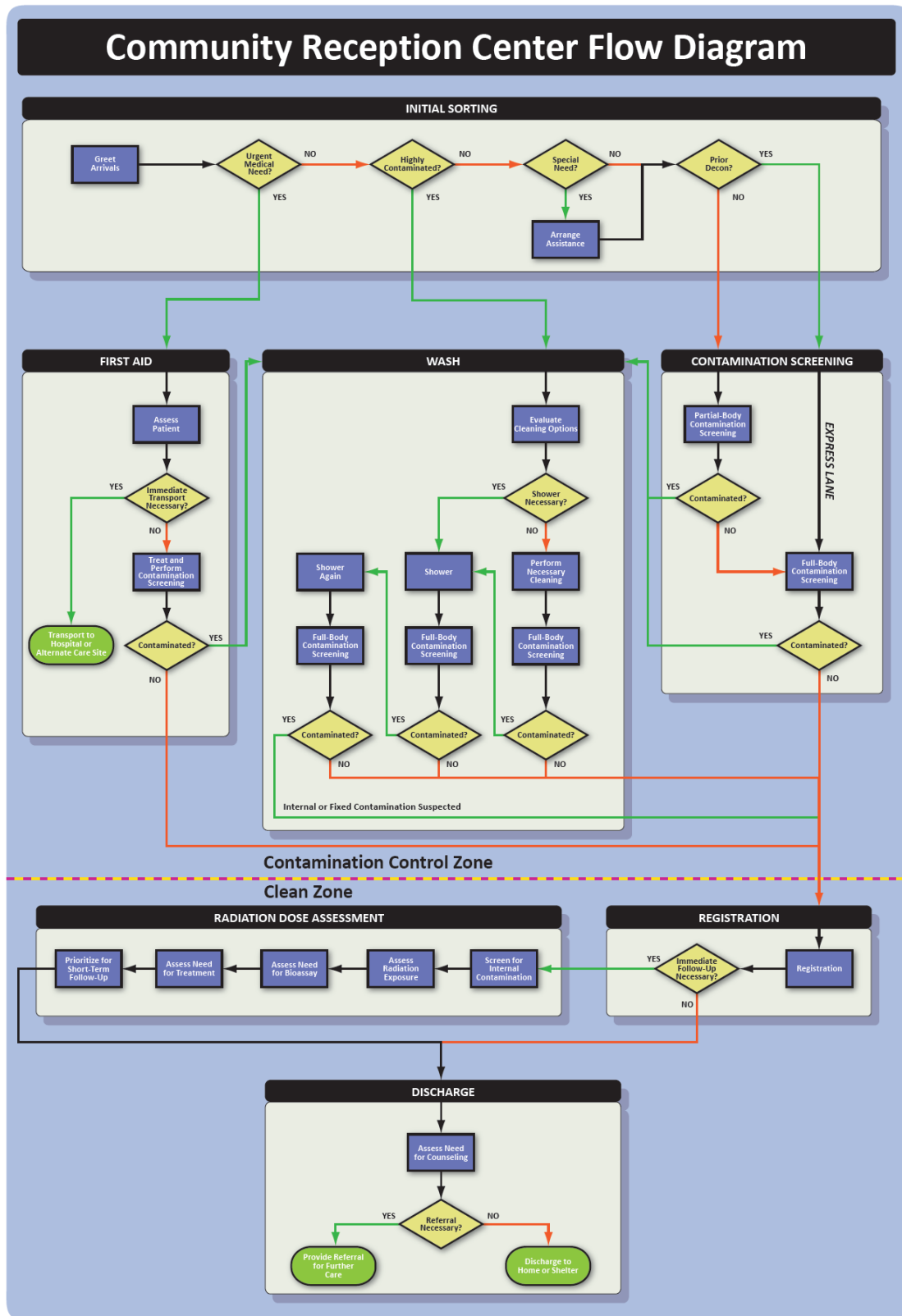


Figure 1. Community reception flow diagram.
 Source: CDC, 2014a

Outlined within the CDC community reception center diagram are seven stations: initial sorting, first aid, contamination screening, wash, registration, radiation dose assessment, and discharge. The combination of these stations has been seen to be the most effective policy to quickly move large numbers of individuals through a community reception center during a radiological disaster (National Center for Environmental Health, 2014). Staffing needs of the CRC include healthcare assistants and providers, logistical personnel, administrative personnel, and volunteers (such as the Medical Reserve Corps) (Casparly, 2012).

The site for a CRC is contingent upon the available resources located within the facility, the ease and ability for large numbers of people to arrive, and the overall building structure (Casparly, 2012). *Population Monitoring in Radiation Emergencies*, the National Center for Environmental Health (CDC, 2014c) states that a CRC should include shower facilities, well defined entry and exit points, and large open areas for individuals to stay inside away from weather. Some examples of CRC locations would include convention centers and sporting arenas.

Emergency Public Health

Role of first responders.

First responders play a critical role in the overall operations and success during public health emergencies. Examples of a public health emergency would include a terrorist attack, natural disaster, loss of critical infrastructure, or disease epidemic (CDC, 2014c). Public health emergency preparedness planning has worked to create networks of continuity among first response agencies at the federal, state, and local levels from small to large-scale disasters. In addition to public health, law enforcement, hospital networks, EMS, emergency management

agencies, and fire departments are integrated into preparedness planning (Federal Communications Commission Public Safety and Homeland Security Bureau, n.d.).

Variations in disaster severity and the area affected most by the disaster will dictate the necessary response from local, state, and federal officials (CDC, 2014c). A federal emergency declaration is declared under jurisdiction given to the Federal Emergency Management Agency (FEMA) and may be declared by FEMA or by the governor in the state where the disaster has occurred (Federal Emergency Management Agency [FEMA], 2014).

The policy allows state governors to declare a state of emergency prior to an anticipated disaster (FEMA, 2014). Typically a hurricane or other natural disaster has been ground for a declaration before a disaster. The number of federal disaster declarations across the United States rose from an average of 74 during the 1990's to 137 during the 2000's (Rutkow et al., 2014). The state of Ohio has shown to be below the national average of disaster declarations with a total of 54 disaster declarations since 1956 (FEMA, 2013).

Incident structure and management.

During an emergency first response agencies, including public health, will be following an incident command structure (ICS), established by the National Response Framework (NRF) as well as the National Incident Management System (NIMS). NIMS provides a “consistent nationwide template to enable Federal, State, tribal, and local government, nongovernmental organizations (NGO's). and the private sector to work together to prevent, protect against, respond to, recover from, and mitigate the effects of incidents, regardless of cause, size, location, or complexity,” (National Incident Management System [NIMS], 2008, p. 3). The NRF is “a guide to how the Nation conducts all-hazards response,” (NIMS, 2008, p. 3). Both the NRF and

NIMS were created following the order of Homeland Security Presidential Directive 5, “Management of Domestic Incidents” (NIMS, 2008, p. 3).

The use of ICS and NIMS during emergencies has proven to be effective in the management of personnel, information, and resources. The key principle of the ICS is flexibility and scalability. A unified command structure is used to visually show the hierarchy of individuals critical to a given incident (Figure 2). Incidents that require lots of personnel may require additional branches added to the primary ICS structure while smaller incidents may have branches be combined. Flexibility and scalability allows incident commanders to determine how to best handle the needs of the emergency while properly utilizing available staff.

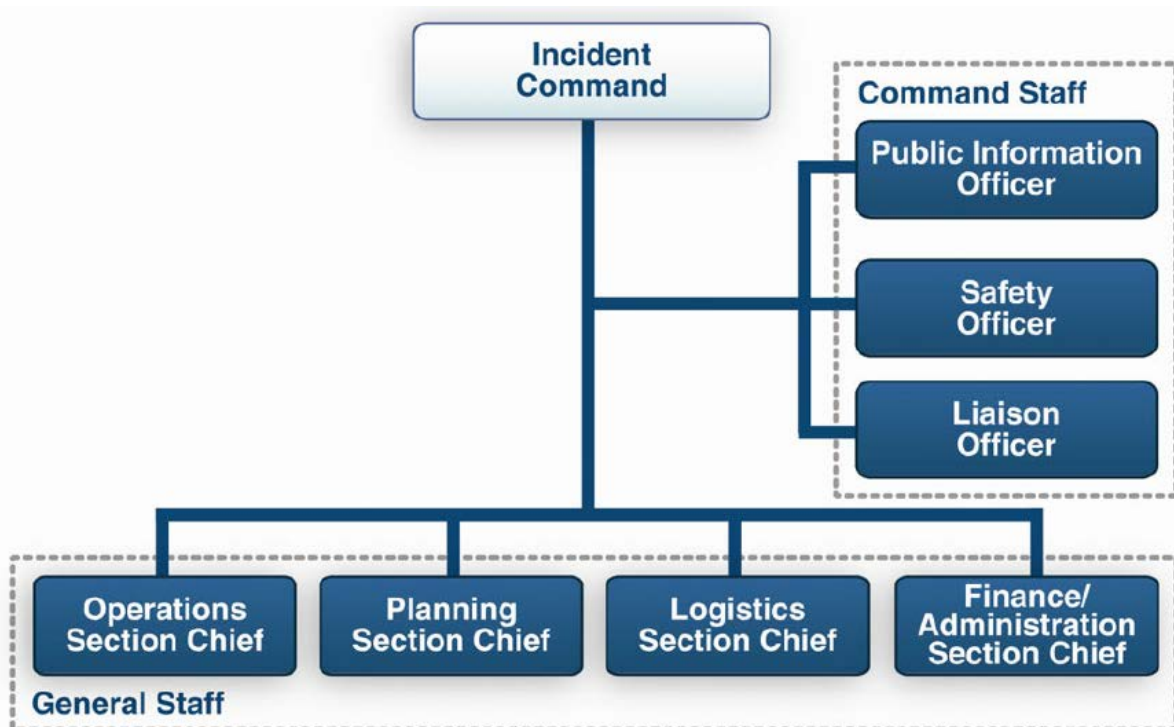


Figure 2. Basic incident command structure.

Source: NIMS, 2008, p. 54

The basic ICS structure is broken into two primary components: command staff and general staff. Command staff is made of key individuals that provide information to the incident

commander about the current status of the incident. The key positions of the command staff are public information officer (PIO), safety officer, and liaison officer. Table 3 lists the duties completed by each of these individuals.

Table 3

List of Incident Command System Command Staff Titles and Responsibilities

Incident Command System - Command Staff Titles	Responsibilities
Public Information Officer	Responsible for interfacing with the public and media and/or with other agencies with incident-related information requirements. The Public Information Officer gathers, verifies, coordinates, and disseminates accurate, accessible, and timely information on the incident's cause, size, and current situation; resources committed; and other matters of general interest for both internal and external audiences.
Safety Officer	Monitors incident operations and advises the incident commander on all matters relating to operational safety, including the health and safety of emergency responder personnel. The ultimate responsibility for the safe conduct of incident management operations rests with the IC/UC and supervisors at all levels of incident management
Liaison Officer	Point of contact for representatives of other governmental agencies, NGOs, and the private sector (with no jurisdiction or legal authority) to provide input on their agency's policies, resource availability, and other incident-related matters. Under a single incident command structure, representatives from assisting or cooperating agencies and organizations coordinate through the Liaison Officer.

Note: Cited verbatim from the NIMS, 2008, p. 52

The second component of the basic ICS structure is general staff. These staff members are the lead individuals of the four primary ICS branches: operations section, planning section, logistics section, and finance/administration section. Table 4 lists the duties completed by each of these individuals.

Table 4

List of Incident Command System General Staff Titles and Responsibilities

General Staff Titles	Responsibilities
<p style="text-align: center;">Operations Section</p>	<p>Responsible for all tactical activities focused on reducing the immediate hazard, saving lives and property, establishing situational control, and restoring normal operations. Lifesaving and responder safety will always be the highest priorities and the first objectives in the incident action plan.</p>
<p style="text-align: center;">Planning Section</p>	<p>Collects, evaluates, and disseminates incident situation information and intelligence to the incident commander and incident management personnel. This Section then prepares status reports, displays situation information, maintains the status of resources assigned to the incident, and prepares and documents the incident action plan, based on Operations Section input and guidance from the incident commander.</p>
<p style="text-align: center;">Logistics Section</p>	<p>Responsible for all service support requirements needed to facilitate effective and efficient incident management, including ordering resources from off-incident locations. This Section also provides facilities, security (of the incident command facilities and personnel), transportation, supplies, equipment maintenance and fuel, food services, communications and information technology support, and emergency responder medical services, including inoculations, as required.</p>
<p style="text-align: center;">Finance/Administration Section</p>	<p>Established when the incident management activities require on-scene or incident-specific finance and other administrative support services. Some of the functions that fall within the scope of this Section are recording personnel time, maintaining vendor contracts, administering compensation and claims, and conducting an overall cost analysis for the incident.</p>

Note: Cited verbatim from the NIMS, 2008, p. 54

Continuity of operations.

Continuity of operations planning is critical for all organizations, including local health departments. Continuity of operations planning requires public health departments to establish a framework to conduct essential services to the general public during a disaster (CDC, 2014c).

Many different situations could arise to active a public health continuity of operations plan

including terrorist attack, natural disaster (tornado, hurricane, etc.), infectious disease, or loss of utilities. In the event of a catastrophic disaster that would make the permanent public health facility inoperable, secondary and tertiary arrangements would need to be identified to establish continuity of operations.

While the likelihood of a disaster that would make public health inoperable, the hierarchy of individuals who would manage the daily operations of public health would still need to be established (CDC, 2014c). The health commissioner would be at the county emergency operations center (EOC) during a wide spread emergency leaving the public health incident commander to be the deputy health commissioner or a designee. Operations would then be placed on essential services provided by the public health department such as vital statistics, restaurant and business inspections, new construction inspections, emergency preparedness, etc.

Statement of Purpose

The purpose of this research was to evaluate the overall preparedness of first response agencies across the west central Ohio region for a large-scale nuclear incident and proper procedures to monitor populations during a radiological event. The preparatory training of both exercises aims to increase overall preparedness for public health and identify strengths and areas for improvement with current plans and guidelines.

Materials and Methods

A primary analysis was conducted using deidentified data collected by Public Health – Dayton and Montgomery County (PHDMC) during two live emergency preparedness scenarios; a region-wide functional exercise of a radiological disaster and a Medical Reserve Corps training exercise for a radiological community reception center.

West Central Ohio Radiological Functional Exercise

The regional functional exercise utilized tabletop exercises and preliminary planning sessions to begin discussion among various first response agencies across west central Ohio (emergency management agencies (EMAs), emergency medical systems (EMS), Greater Dayton Area Hospital Association (GDAHA), hospitals, law enforcement, long-term care facilities, metropolitan medical response system (MMRS), non-government organizations (NGO), and public health. General information was provided by public health about the risks to public health and safety in west central Ohio during a radiological event with insight and contributions about the remaining response agency’s duties and obligations.

The six core capabilities listed in Table 5 were determined as best over-arching areas from the Department of Homeland Security (DHS) exercise evaluation guideline structure:

Table 5

List of Six Department of Homeland Security Core Capabilities for the West Central Ohio Radiological Functional Exercise

Department of Homeland Security Core Capabilities – West Central Ohio Radiological Functional Exercise
Public Information and Warning
Medical Surge
Mass Care
Emergency Operations and Coordination
Responder Safety and Health
Weapons of Mass Destruction (WMD)/Hazardous Materials (HAZMAT) Response and Decontamination

The following six objectives in Table 6 were determined to best orient execution of the aforementioned DHS core capabilities:

Table 6

List of Six Department of Homeland Security Exercise Objectives for the West Central Ohio

Radiological Functional Exercise

Department of Homeland Security Exercise Objectives– West Central Ohio Radiological Functional Exercise
Demonstrate the capability to coordinate the formulation and dissemination of accurate information and instructions to the public
Exhibit the adequacy of the equipment, procedures, supplies, and personnel of medical facilities responsible for treatment of contaminated, injured, or exposed individuals
Evaluate decision and planning for opening or not opening of a Community Reception Center (CRC) and/or shelter in response to a radiological incident
Demonstrate the ability to direct and support a radiation incident by establishing a scalable system of oversight under the National Incident Management System
Validate the ability to continuously monitor and control radiation exposure to emergency workers.
Exhibit the ability to provide multiple methods of decontamination of patients and the general population.

The conclusion of exercise planning among participating agencies provided a radiological event occurring at two separate locations in the west central Ohio region on two separate days by a domestic terrorist organization: a small-scale nuclear dispersal device was placed in a large arena during an evening music concert while a large-scale improvised nuclear device was detonated during a large ham radio operator’s event the following morning. Thousands of deaths were to result from the nuclear device detonation while panic and disorder tested local emergency services and first response agencies.

A simulation cell (SIM CELL) was staged with representatives from all participants of the exercise to disseminate information to exercise participants through a master sequence of events list (MSEL). Exercise evaluators were placed at 20 separate locations to evaluate participants on the aforementioned core capabilities and objectives. Evaluators utilized exercise evaluation guidelines (EEGs) to score participants on completing various goals within each of the above capabilities (Appendix A).

Medical Reserve Corps - Community Reception Center Exercise

The community reception center exercise with the Medical Reserve Corps (MRC) required MRC volunteers attend workshops to familiarize themselves with basic radiological procedures and principles. Following the workshops, a simulated community reception center was staged utilizing guidelines from the CDC for a community reception center. The training workshop was located at Wright State University’s National Center for Medical Readiness at Calamityville (NCRM).

The following core capability shown in Table 7 was determined to best represent the MRC training exercise. The capability was chosen to demonstrate exercise participants ability to manage and care for a large number of individuals using a community reception center.

Table 7

List of Department of Homeland Security Core Capabilities for the Medical Reserve Corps Community Reception Center Exercise

Department of Homeland Security Core Capabilities – Medical Reserve Corps Community Reception Center Exercise
Mass Care

The objectives listed in Table 8 were determined to best orient execution of the aforementioned DHS core capabilities. The objectives were chosen to overall goals of exercise players associated with local MRC volunteers.

Table 8

List of Department of Homeland Security Exercise Objectives for the Medical Reserve Corps Community Reception Center Exercise

Department of Homeland Security Exercise Objectives– Medical Reserve Corps Community Reception Center Exercise
Demonstrate the process flow within a Community Reception Center and identify the obstacles that may arise.
Identify the seven stations within a CRC and gather a general understanding of what part each station plays within a Community Reception Center

The stations listed in Table 9 were to be staged and utilized during the exercise, per CDC guidelines (Table 7) as well as the incorporated into the building layout at the NCMR (Figure 3).

Table 9

Centers for Disease Control and Prevention List of Stations for Community Reception Center

Centers for Disease Control and Prevention List of Stations for Community Reception Center	
Initial Sorting	Staff identify individuals who have : <ul style="list-style-type: none"> • Urgent medical needs • High levels of contamination • Special needs • Pets
First Aid	- Staff identify individuals with urgent medical needs for medical care and possible transport to a medical facility or alternate care site. - An urgent medical need is defined as any medical condition that requires immediate medical attention. This could include cardiac arrest, heat injuries, or open wounds that could potentially be contaminated or get contaminated in the CRC. - Lifesaving care should not be delayed for extensive decontamination – removing the outer layer of clothing is sufficient.
Contamination Screening	- Staff monitor individuals for external contamination. - Staff may use a combination of partial-body and full-body screenings, using either handheld detectors or portal monitors, to screen for contamination. - Individuals who are contaminated go to the wash station for decontamination. - Individuals who are not contaminated go to registration.
Wash Station	- Individuals are responsible to clean themselves. - Some individuals may need only minimal decontamination, such as washing their hands or removing the outer layer of their clothing. - Screening staff in the wash station will check individuals for contamination after they clean themselves. - If contamination is still present after two showers, that individual may be internally contaminated and will require additional screening at the radiation dose assessment station.
Registration	- Individuals register with public health staff. - Information collected at this station can be used to identify people who need immediate follow-up at the radiation dose assessment station.
Radiation Dose Assessment	Staff are responsible to: <ul style="list-style-type: none"> • Screen people for internal contamination • Assess radiation exposure • Assess the need for bioassay • Assess the need for treatment • Prioritize people for short-term follow-up.
Discharge	- Staff assess the need for counseling and provide referrals for further care. - Staff also provide information for people who are being discharged to their homes and facilitate placement in a public shelter.

Source: Caspary, 2012 p. 4-9

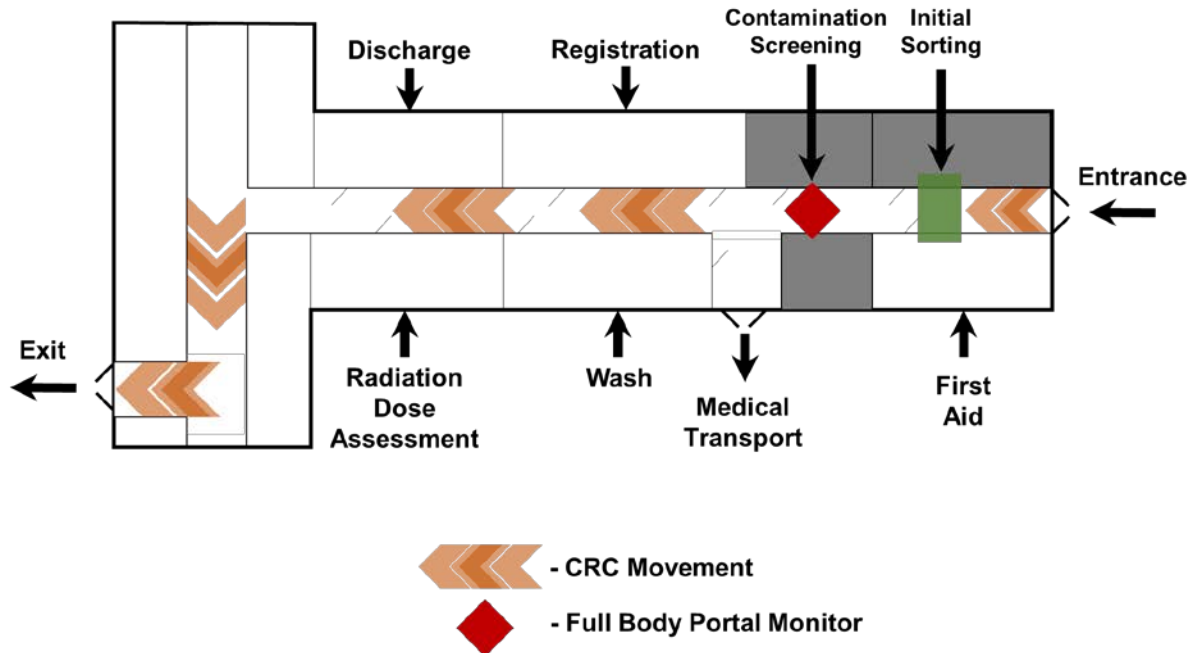


Figure 3. Diagram of Medical Reserve Corps community reception center at the National Center for Medical Readiness.

Exercise participants were tasked to be either a community reception center worker or as a member of the general public going to the community reception center. The overall building layout utilized guidelines from the PHDMC triage map (Appendix B). Participants who were tasked to be a reception center worker were placed at one of the seven stations listed above and given a specific job task sheet to follow through the exercise. Participants who were tasked as members of the general public going to the reception center were given a roleplaying sheet with different backstories, personal information, and medical conditions. General public participants were also given medallions with trace amounts of radiation to test the accuracy of the radiation portal detector. Once the exercise was completed, participants were to switch roles from general public to reception center worker, and reception center worker to general public.

Evaluation was conducted by Public Health – Dayton and Montgomery County based on the aforementioned core capability and exercise objectives as well as the overall design and flow of the community reception center based on CDC guidelines.

Data Collection and Analysis

Qualitative and quantitative data were collected through exercise evaluation guidelines (EEG's) administered by exercise evaluators at certain locations during the radiological functional exercise. The quantitative data were then placed into a Microsoft Excel spreadsheet with exercise locations receiving an "X" to indicate a guideline that was not achieved (Appendix C).

Qualitative observations were collected while observing the MRC training exercise at NCMR from exercise controllers. A general hotwash followed the exercise to provide additional qualitative data from exercise participants. List of strengths and areas for improvement was created using Microsoft Word (Appendix D).

Collaborative Institutional Training Initiative (CITI) training was completed by principal investigator prior to researching (Appendix E). An institutional review board (IRB) application was approved by Wright State University (Appendix F). A research application was approved by PHDMC for use of all functional exercise evaluation guidelines (Appendix G).

Results

West Central Ohio Radiological Functional Exercise

Strengths.

The west central Ohio Radiological Response Plan drafted from the Dayton MMRS was found to be helpful to agencies participating in the response exercise. Hospital Incident Commands, Department Operations Centers and Emergency Operations Centers showed strong cooperation within the Incident Command System (ICS) structure. Organizations throughout the west central Ohio region improved and benefited from the coordination and collaboration efforts

during the exercise. Contact among various agencies was found to be proactively done by most exercise participants.

Areas of improvement.

A better understanding of roles and responsibilities under hospital incident command system and incident command structure (HICS/ICS) needs to be strengthened. The overall command structure that would be used during a similar incident should have been identified prior to the exercise. Most hospitals utilized a form of HICS/ICS yet did not have a clear understanding of the structure for a radiological disaster. Ongoing training in the roles and responsibilities of HICS/ICS needed to be taken into account. The exercise demonstrated that hospitals do not continually practice HICS/ICS except during exercises. Individuals involved in the emergency needed to be cycled through HICS/ICS to gain more experience. More individuals need permission to participate under HICS/ICS to reduce case load to staff at various locations.

External/internal information sharing processes needs improvement. Protocol needs to be developed to facilitate sharing of information between key partners, other WCO counties and the public during a large scale event. WCO partners need to work together to create a robust Joint Information System. In addition, WebEOC was discussed as a means to share and update information among partners.

Better coordination and understanding of decontamination resources in the WCO region is needed. Partners need to be educated on the definition of a Community Reception Center (CRC) and the services that would be housed at a CRC. In addition, radiation experts need to be pre-identified to assist during a similar incident to improve incident response time. County response partners need clarification of what radiation decontamination equipment is available to the region and where it is located. Partners need to develop a better understanding of when

decontamination is needed and to what extent for different radiological incidents. Partners need clarification of how the County EOC can assist during an event, whether radiological, hazmat, natural disaster. In addition, satellite hospitals and care centers are still under used and need to be included in emergency response plans.

To improve communication during a critical event, participants need to learn how to monitor and track trends in social media outlets to gather real time information to aid incident management. The use of social media by critical event participants would improve communication by allowing the immediate wide spread dissemination of information as needed. Protocols should be developed and put in place for use of social media.

The exercise evaluation guidelines (EEGs) for the functional exercise were completed at 20 separate locations. The areas listed in Table 10 had the largest amount of guidelines not appear during the exercise. Table 11 lists the organizational area of participants and the number of guidelines that were not observed in the exercise.

Table 10

Number of Evaluation Guidelines Not Appearing in Exercise by Core Capabilities Area

Core Capabilities Area	Number of Evaluation Guidelines not Appearing in Exercise
Public Information and Warning	78
Mass Care	67
Responder Safety and Health	51
Weapons of Mass Destruction (WMD) and Hazardous Materials (HAZMAT)	47
Emergency Operations Center	40
Medical Surge	21

Table 11

Number of Evaluation Guidelines Not Observed in Exercise by Organizational Area

Organizational Area	Number of Participants	Non-Appearing Guidelines
Public Health/ Emergency Operations Centers	7	163
Hospitals and Medical Centers	8	106
Long-Term Care/Local Government /Non-Governmental Agencies	5	35

Medical Reserve Corps - Community Reception Center Exercise

Strengths.

Participants indicated that information was presented in a clear and concise format. It calmed the fears of potential volunteers regarding their assistance with a radiation related incident. The region has superior pool of volunteers who are engrossed in learning and in supporting their county and region.

Areas of improvement.

The job action sheets provided for participants as templates from the CDC were found to be inefficient and needed multiple modifications. In addition, numerous issues arose on what and how individuals would be handled within the wash (DECON) area. Procedures and staffing in the wash area of the CRC need to be developed.

There was also no method for tracking victims through the CRC. CDC protocol requires filling out paperwork upon entering registration. Information, depending on the circumstances, would have to be gathered from different stations. It has been suggested to develop of a Tyvek piece of paper to go through each station to facilitate record keeping. Tyvek would be used because of its ability to be sanitized rather than regular copy paper.

The anxiety of the victims and ways to reduce it as they go through the individual stations in the CRC needs to be addressed. An educator/counselor at select locations within the CRC is

needed to provide reassurance. Identifying a victim as “highly contaminated” creates added stress and anxiety for the designee and the availability of immediate counselors would ease anxiety, facilitate compliance and speed processing through the CRC. Adding digital display signs and/or televisions with continuously updated information would keep both victims and personnel informed of progress during the event would also lessen the stress and increase efficiency in the station.

Improvement of external/internal communication processes is needed. Communication resources (i.e., walkie-talkies) are needed to facilitate communication between stations. Points of Dispensing, vests or some other type of identifier will need to be given to staff working within the CRC. Additionally, signage can play a major role in the flow process within the CRC. The specific signs needed and the location of their placement in the CRC needs to be identified prior to the subsequent incident/exercise.

The exercise also showed that there was a significant need for increasing the number of runners that would be available to escort and direct victims from station to station to improve both the flow through the CRC and to reduce waiting time at the various stations

Lastly, a thorough review what can realistically be done within a CRC at the Radiation Dose Assessment area needs to be done and to list the subject matter experts needed and available to staff it. This would include pre-identifying health physicists and other experts available through mutual aid rosters. The protocol/SOG must be updated on the specific tasks that can be done with in this station of the CRC.

Discussion

West Central Ohio Functional Exercise

The purpose of the West Central Ohio Functional Exercise was to evaluate preparedness plans in place regarding radiological incidents. Most of the players during this exercise utilized the West Central Ohio Radiological Disaster Plan prepared by the Dayton Metropolitan Medical Response System (MMRS). The use of this plan stressed the importance of having clear, concise, and consistent communication among various agencies that would be responding to a radiological incident across west central Ohio.

The functional exercise addressed the six design objectives described in Table 3. The exercise identified gaps and shortfalls in areas such as information sharing, social media, agency coordination, understanding of roles, and decontamination. Agencies involved in the functional exercise found a need for a clearer understanding of other response agency's primary roles. The lack of clear understanding of response agencies roles generated confusion and frustration during the incident when expectations were not met.

Medical Reserve Corps – Community Reception Center Exercise

The purpose of the MRC community reception center exercise was to increase awareness of radiological emergencies while training medical volunteers from the various county MRC units of west central Ohio. In addition, the exercise shed insight on the operations of a community reception center following a radiological incident for population monitoring and general shelter.

The primary finding from the training was that understanding roles between agencies will help response move more quickly in an actual event. Continuous training on the specific roles of each agency is indicated. In regards to hospitals and satellite hospitals, it would be

beneficial to get all entities working together for long term planning to address the assistance that each site can provide during an emergency.

Study Limitations

West Central Ohio Radiological Functional Exercise.

A primary limitation to the exercise was that not all of the first response agencies were participating. This prevented general communication between agencies that normally would interact in an incident.

Medical Reserve Corps - community reception center exercise.

The primary limitation from the MRC community reception center exercise is that the exercise only being conducted once. The original plan was to have individuals who were “role playing” as reception center individuals in the exercise reverse roles and act as reception center administrators (and vice versa). Reversing the roles would have provided everyone with an opportunity to experience and better observe the strengths and areas in need of improvement in the community reception center.

Future Research

Future exercises would be beneficial to focus on decontamination issues in the event of a radiological incident. Mass casualty incidents would provide more training and exercises to help in the critical incident planning for hospitals, EMAs, public health and other agencies. Additional exercises would allow the west central Ohio region to further refine the plans and procedures needed to open and staff a community reception center as quickly as possible after a critical incident. Future exercises should also incorporate the use of social media and information sharing, so agencies within west central Ohio can continue to improve those skills. Finally, integrating pets into the community reception center design should be considered. Victims are

more likely to seek help if they know that their pets will be cared for as well. Public and private animal welfare organizations could be brought in as participants to organize, operate and maintain the pet area of the CRC.

Conclusions and Recommendations

The threat of a radiological incident, intentional or accidental, poses a serious threat to the great Dayton area and the Miami Valley. Lucas et al. (2014) cited the likely cause of a radiological incident would be from an improvised nuclear explosive device. Similarly, the west central Ohio functional exercise utilized the use of an improvised nuclear explosive device as the basis of their exercise. Increased threats from domestic and international terrorist organizations continually pose threats to the health and safety of the general public. The use of community reception centers is the ideal situation to serve two primary purposes; properly decontaminate and monitor individuals. This statement is echoed in the Community Reception Centers for Radioactive Contamination stating that the importance of monitoring individuals properly prepares public health for radiological outcomes of the population as well as putting ease and comfort into the minds of individuals being monitored (CDC, 2014b).

While the planning and execution for triage in a community reception center has been established for humans of all ages and abilities, the same cannot be said for pets. The CDC (2014b) provided updated guidelines in 2014 to include pets into the triage process. This process gives pet owners peace of mind knowing their pet is being monitored for radiation and being properly cared for at the community reception center. While the triage schematic has been generated for the pet integration, it was not exercised in neither the west central Ohio functional nor the medical reserve corps exercises. I recommend the establishment of memoranda of

understanding be generated with local veterinary offices, animal resource centers, and rescue clinics to provide equipment, food, and care for pets entering a community reception center.

While the fear of a radiological attack is low, the threat continues to exist. Putting fears to rest of stressed heavily in general briefing materials (Caspary, 2012). The general public does not have a firm grasp or handle of the impacts of radiation or the basic protective procedures to follow. A strength captures in the medical reserve corps exercise detailed the friendliness of volunteers roleplaying reception center staff members. By having those volunteers provide a calm and comforting demeanor, it allowed individuals being screened to be put at ease about the risk of radiation contamination. While the attitude and demeanor of reception center staff is crucial to the overall success of the CRC, information provided by a reputable agency would provide additional ease and reference to individuals. I would recommend having general fact sheets about the dangers of radiation exposure and contamination available for individuals. Ideally, enough information would be available for all individuals triaging through the CRC. This was observed during the medical reserve corps exercise as an area for improvement for future exercises and implementation into future plans.

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Appendix A - West Central Ohio Functional Exercise Evaluation Guideline Template

Evaluator Name/Location: _____

Phone #: _____

Emergency Operations Center (EOC) Management	
<i>Relevant Exercise Objectives</i>	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

	Task	Yes	No	N/A
	<i>Establish organization/operation of EOC.</i> _____ _____			
	<i>Ensure that all appropriate support functions are staffed.</i> _____ _____			
	<i>Assist in coordinating shelter operations.</i> _____ _____			
	<i>Verify that all participating organizations serving the EOC directly or indirectly, have established communication links with the EOC.</i> _____ _____			
	<i>Coordinate emergency management efforts among local, county, regional, State, and Federal agencies.</i> _____ _____			
	<i>Coordinate with nongovernmental agencies and/or the private sector to collect/share data on the incident situation.</i> _____ _____			
	<i>Monitor, collect, analyze, and disseminate information and intelligence.</i> _____ _____			

	Task	Yes	No	N/A
	<i>Ensure appropriate notifications are made.</i> <hr/> <hr/>			
	<i>Establish situational awareness.</i> <hr/> <hr/>			
	<i>Disseminate sit reps to appropriate agencies as needed.</i> <hr/> <hr/>			
	<i>Coordinate activation of mutual aid agreements to obtain resources.</i> <hr/> <hr/>			
	<i>Provide direction, information, and/or support as appropriate to Incident Command/Unified Command and/or the EOC.</i> <hr/> <hr/>			
	<i>Support incident response operations by providing resources ordered through the EOC.</i> <hr/> <hr/>			
	<i>Coordinate resource logistics and distribution.</i> <hr/> <hr/>			
	<i>Support identification and determination of potential hazards and threats including mapping, modeling, and forecasting.</i> <hr/> <hr/>			
	<i>Facilitate formulation of protective action decisions (PADs), as needed.</i> <hr/> <hr/>			

Activity Analysis
Observations <i>(Each bullet will need a completed AAR input form.)</i>
Strengths <ul style="list-style-type: none">•••
Areas for Improvement <ul style="list-style-type: none">•<ul style="list-style-type: none">– Root Cause•<ul style="list-style-type: none">– Root Cause•<ul style="list-style-type: none">– Root Cause
Additional Observations: _____

Evaluator Name/Location: _____

Phone #: _____

Emergency Public Information and Warning	
<i>Relevant Exercise Objectives</i>	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

Manage Emergency Public Information and Warnings

	Task	Yes	No	N/A
	<i>Activate plans, procedures, and policies for coordinating, managing, and disseminating public information and warnings.</i> _____ _____			
	<i>Coordinate internal information programs.</i> _____ _____			
	<i>Coordinate external information programs.</i> _____ _____			
	<i>Coordinate public emergency information.</i> _____ _____			
	<i>Implement government agency and nongovernmental organization notification protocols and procedures.</i> _____ _____			
	<i>Implement a plan for ensuring continued communications with citizens and city, county, tribal, State, Federal, and private industry leaders.</i> _____ _____			
	<i>Plan and coordinate warnings, instructions, and information updates.</i> _____ _____			

	Task	Yes	No	N/A
	<p><i>Coordinate with the Emergency Operations Center (EOC)/responders for public safety concerns that need to be disseminated.</i></p> <hr/> <hr/>			
	<p><i>Monitor communications and information systems as needed to identify information to be disseminated to the public.</i></p> <hr/> <hr/>			
	<p><i>Coordinate with law enforcement, and provide media outlets to provide the public with accurate, consistent, and timely information.</i></p> <hr/> <hr/>			
	<p><i>Coordinate dissemination of incident site information within a National Incident Management System (NIMS)-compliant framework.</i></p> <hr/> <hr/>			
	<p><i>Activate and establish Joint Information System (JIS).</i></p> <hr/> <hr/>			
	<p><i>Assign Public Information Officer (PIO).</i></p> <hr/> <hr/>			
	<p><i>Identify appropriate spokesperson(s).</i></p> <hr/> <hr/>			
	<p><i>Notify partner agencies regarding Joint Information Center (JIC) activation.</i></p> <hr/> <hr/>			
	<p><i>Ensure appropriate participation in any JIC that is established.</i></p> <hr/> <hr/>			

	Task	Yes	No	N/A
	<p><i>Coordinate the provision of timely and accurate emergency public information through the JIS.</i></p> <hr/> <hr/>			
	<p><i>Coordinate emergency public information through the JIS.</i></p> <hr/> <hr/>			
	<p><i>Provide a central contact for the media through the JIC, ensuring a “one accurate message, many voices” approach to information dissemination.</i></p> <hr/> <hr/>			
	<p><i>Coordinate among JICs at all levels of government.</i></p> <hr/> <hr/>			
	<p><i>Implement routing and approval protocols for release of information.</i></p> <hr/> <hr/>			
	<p><i>Correct misinformation.</i></p> <hr/> <hr/>			
	<p><i>Receive, authenticate, and screen information for relevance at the supervisory level in a timely manner.</i></p> <p><i>Outgoing:</i></p> <hr/> <p><i>Incoming:</i></p> <hr/>			
	<p><i>Use a NIMS-compliant framework for prioritizing & coordinating incident-related communications.</i></p> <hr/> <hr/>			
	<p><i>Provide for rumor control within information network.</i></p> <hr/> <hr/>			

	Task	Yes	No	Time
	<p><i>Disseminate information to the media, public, partners, and stakeholders.</i></p> <hr/> <hr/>			
	<p><i>Provide emergency public information to special-needs populations.</i></p> <hr/> <hr/>			
	<p><i>Provide emergency information to the public that is verified, accurate, and as up-to-date as possible.</i></p> <hr/> <hr/>			
	<p><i>Disseminate travel advisories.</i></p> <hr/> <hr/>			
	<p><i>Ensure accurate and timely dissemination of protective action messages to emergency personnel and the public.</i></p> <hr/> <hr/>			
	<p><i>Disseminate prompt, accurate information to the public in appropriate languages and formats that take into account demographics and special needs/disabilities.</i></p> <hr/> <hr/>			
	<p><i>Provide emergency public information to special, vulnerable, and at-risk populations that are economically disadvantaged, have limited language proficiency, have disabilities (physical, mental, sensory, or cognitive limitations), experience cultural or geographic isolation, or are vulnerable due to age.</i></p> <hr/> <hr/>			

	Task	Yes	No	Time
	<i>Disseminate critical health and safety information designed to alert the public to clinical symptoms and reduce the risk of exposure to ongoing and potential hazards.</i> <hr/> <hr/>			
	<i>Track media contacts and public inquiries, listing contact, date, time, query, and outcome.</i> <hr/> <hr/>			
	<i>Issue corrective messages when errors are recognized in previous public announcements.</i> <hr/> <hr/>			
	<i>Establish frequently updated public information hotline.</i> <hr/> <hr/>			

Activity Analysis
Observations (Each bullet will need a completed AAR input form.)
Strengths <ul style="list-style-type: none"> • • •
Areas for Improvement <ul style="list-style-type: none"> • <ul style="list-style-type: none"> – Root Cause • <ul style="list-style-type: none"> – Root Cause • <ul style="list-style-type: none"> – Root Cause
Additional Observations: _____ <hr/> <hr/> <hr/> <hr/>

Evaluator Name/Location: _____

Phone #:

Mass Care (Sheltering, Feeding, and Related Services)

<i>Relevant Exercise Objectives</i>	
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Direct Mass Care Operations

	Task		Yes	No	N/A
	<i>Conduct initial and ongoing mass care needs assessment for sheltering, feeding, and bulk distribution.</i> _____ _____				
	<i>Obtain information on population and location of potentially affected populations as part of planning process.</i> _____ _____				
	<i>Coordinate anticipated need for mass care services with agencies responsible for evacuation.</i> _____ _____				
	<i>Designate sites to serve as mass care facilities including shelters, feeding sites, reception centers, food preparation sites, distribution points, etc.</i> _____ _____				
	<i>Estimate numbers requiring sheltering services.</i> _____ _____				
	<i>Estimate numbers requiring feeding services.</i> _____ _____				
	<i>Estimate numbers requiring bulk distribution of relief items.</i> _____ _____				

	Task		Yes	No	N/A
	<p><i>Activate contingency plans for shelter surge capacity, as needed.</i></p> <hr/> <hr/>				
	<p><i>Activate vendor agreements/MOUs/MOAs in support of mass care activities as needed.</i></p> <hr/> <hr/>				
	<p><i>Acquire and provide resources necessary to support mass care services.</i></p> <hr/> <hr/>				
	<p><i>Provide appropriate communication systems for mass care personnel and facilities.</i></p> <hr/> <hr/>				
	<p><i>Disseminate accurate, timely, and accessible information to the public, media, support agencies, and vendors about mass care services.</i></p> <hr/> <hr/>				
	<p><i>Coordinate mass care services for the general population with appropriate agencies.</i></p> <hr/> <hr/>				
	<p><i>Coordinate environmental health assessment of mass care operations with agencies responsible for environmental health.</i></p> <hr/> <hr/>				
	<p><i>Coordinate mass care services for companion animals and owners with appropriate agencies.</i></p> <hr/> <hr/>				
	<p><i>Notify mass care staff.</i></p> <hr/> <hr/>				

	Task		Yes	No	N/A
	<i>Mobilize needed mass care resources.</i> <hr/> <hr/>				
	<i>Assemble mass care teams for each identified mass care facility.</i> <hr/> <hr/>				
	<i>Assemble mass care teams for each identified mass care site (e.g. shelter, feeding, bulk distribution).</i> <hr/> <hr/>				
	<i>Activate emergency shelters.</i> <hr/> <hr/>				
	<i>Determine whether areas are located in a safe area as determined by appropriate government agencies.</i> <hr/> <hr/>				
	<i>Staff shelter with appropriately trained personnel.</i> <hr/> <hr/>				
	<i>Set up shelter for operations.</i> <hr/> <hr/>				
	<i>Ensure adequate communication systems are available for shelter staff.</i> <hr/> <hr/>				
	<i>Conduct regular communications with mass care management.</i> <hr/> <hr/>				
	<i>Provide regular updates on shelter needs and capacity.</i> <hr/> <hr/>				

	Task		Yes	No	N/A
	<p><i>Coordinate provision of mass care services within the shelter.</i></p> <hr/> <hr/>				
	<p><i>Coordinate provision of shelter support services with appropriate agencies.</i></p> <hr/> <hr/>				
	<p><i>Coordinate with appropriate government agency to ensure any necessary decontamination is provided for shelter residents before entering shelter facility.</i></p> <hr/> <hr/>				
	<p><i>Coordinate dissemination of information about locations of different kinds of shelters.</i></p> <hr/> <hr/>				
	<p><i>Establish processes to address issues identified in the assessment of shelter registrants.</i></p> <hr/> <hr/>				
	<p><i>Make arrangements to transfer individuals and caregivers/family members to appropriate care facilities when necessary.</i></p> <hr/> <hr/>				
	<p><i>Request additional resources and equipment necessary to support shelter operations.</i></p> <hr/> <hr/>				
	<p><i>Coordinate to provide security services if needed.</i></p> <hr/> <hr/>				
	<p><i>Coordinate feeding services for general populations in shelters.</i></p> <hr/> <hr/>				

	Task		Yes	No	N/A
	<i>Provide regular updates on shelter needs and capacity.</i> _____ _____				
	<i>Assess ongoing medical and public health needs of shelter population, and refer as appropriate.</i> _____ _____				
	<i>Coordinate environmental health assessment of mass care operations.</i> _____ _____				
	<i>Estimate projected feeding services required.</i> _____ _____				
	<i>Develop a strategy to meet projected feeding need.</i> _____ _____				

Activity Analysis
Observations (Each bullet will need a completed AAR input form.)
Strengths <ul style="list-style-type: none"> • • •
Areas for Improvement <ul style="list-style-type: none"> • <ul style="list-style-type: none"> – Root Cause • <ul style="list-style-type: none"> – Root Cause • <ul style="list-style-type: none"> – Root Cause

Activity Analysis
Additional Observations: _____

Evaluator Name/Location: _____

Phone #: _____

Medical Surge	
<i>Relevant Exercise Objectives</i>	
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

	Task	Yes	No	N/A
	<i>Implement incident response communications within the healthcare system.</i> <hr/> <hr/>			
	<i>Execute medical mutual aid agreements.</i> <hr/> <hr/>			
	<i>Provide coordination and support for medical care through Incident Command/Emergency Operations Center (EOC) in accordance with NIMS.</i> <hr/> <hr/>			
	<i>Provide & coordinate consistent, accurate, and relevant public health and medical information to clinicians, other health care providers, other responders, and the public in a timely manner.</i> <hr/> <hr/>			
	<i>Consider the implementation of altered standards of care. e.g. Early discharge, patient ratios, glad bag gowns, etc...</i> <hr/> <hr/>			
	<i>Activate medical surge plans, procedures, and protocols to ensure medical treatment for populations requiring specialized assistance.</i> <hr/> <hr/>			

	Task	Yes	No	N/A
	<p><i>Activate alternative care sites and overflow emergency medical care facilities to manage hospital surge capacity.</i></p> <hr/> <hr/>			
	<p><i>Provide knowledge or visibility of available destination medical care facilities/services and tracking for mass movement of patients, ensuring patients are matched with transportation and destinations that provide appropriate levels of medical care.</i></p> <hr/> <hr/>			
	<p><i>Discuss or activate healthcare workers' and volunteers' call systems.</i></p> <hr/> <hr/>			
	<p><i>Support medical surge capability by using volunteer resources.</i></p> <hr/> <hr/>			
	<p><i>Mobilize incident-specific medical treatment personnel for pediatrics and adults.</i></p> <hr/> <hr/>			
	<p><i>Mobilize nonmedical support personnel.</i></p> <hr/> <hr/>			
	<p><i>Assess initial and ongoing need for medical specialists, and augment as needed.</i></p> <hr/> <hr/>			
	<p><i>Provide just-in-time training for staff performing nonstandard duties.</i></p> <hr/> <hr/>			

	Task	Yes	No	N/A
	<i>Coordinate response staffing with Medical Reserve Corps, Metropolitan Medical Response System, Federal and interstate resources, and nongovernmental organizations and faith-based groups.</i>			
	<i>Ensure adequacy of medical equipment and supplies in support of immediate medical response operations and for restocking supplies/equipment requested.</i>			
	<i>Coordinate and integrate with local and state EOCs.</i>			
	<i>Discuss stress management strategies and programs for all emergency responders and workers.</i>			

Activity Analysis
Observations (Each bullet will need a completed AAR input form.)
Strengths
<ul style="list-style-type: none"> • • •
Areas for Improvement
<ul style="list-style-type: none"> • <ul style="list-style-type: none"> - Root Cause • <ul style="list-style-type: none"> - Root Cause • <ul style="list-style-type: none"> - Root Cause
Additional Observations: _____

Evaluator Name/Location: _____

Phone #: _____

Responder Safety and Health	
<i>Relevant Exercise Objectives</i>	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

Direct Responder Safety and Health Tactical Operations

	Task	Yes	No	N/A
	<i>Monitor & Maintain routine and emergency communications within the Command structure at all times during the incident.</i> <hr/> <hr/>			
	<i>Maintain coordination and communication on safety and health issues between agencies and departments.</i> <hr/> <hr/>			
	<i>Contact and work with subject matter experts (SMEs) from public/private agencies who may be able to assist with safety issues at the incident.</i> <hr/> <hr/>			
	<i>Assess availability of resources/assets provided by public, private, and volunteer organizations.</i> <hr/> <hr/>			
	<i>Request additional safety and health resources through mutual aid.</i> <hr/> <hr/>			
	<i>Coordinate and support decontamination activities.</i> <hr/> <hr/>			

	Task	Yes	No	N/A
	<p><i>Designate a Safety Officer within the Incident Command System (ICS).</i></p> <hr/> <hr/>			
	<p><i>Ensure ongoing safety and health assessments of response operations.</i></p> <hr/> <hr/>			
	<p><i>Review/evaluate hazard and response information as it pertains to the safety of all persons at the location.</i></p> <hr/> <hr/>			
	<p><i>Identify responder safety and health resources required.</i></p> <hr/> <hr/>			
	<p><i>Perform an incident safety analysis.</i></p> <hr/> <hr/>			
	<p><i>Identify and prioritize the operations, hazards, and exposures of greatest risk to site personnel, and coordinate with the Incident Commander to develop specific actions to address them and protect site personnel.</i></p> <hr/> <hr/>			
	<p><i>Assist the Incident Commander in developing an incident safety and control plan to respond within the capabilities of available response personnel, taking into account available resources such as PPE, monitoring equipment, and control equipment.</i></p> <hr/> <hr/>			
	<p><i>Ensure the availability of incident/site-specific training.</i></p> <hr/> <hr/>			

	Task	Yes	No	N/A
	<p><i>Implement site-specific incident health and safety plan, including after-action care as needed for onscene personnel.</i></p> <hr/> <hr/>			
	<p><i>Ensure the provision of appropriate safety and health equipment.</i></p> <hr/> <hr/>			
	<p><i>Assist the Incident Commander and ICS staff in implementing exposure monitoring and enforcing safety considerations.</i></p> <hr/> <hr/>			
	<p><i>Identify and implement all corrective actions necessary to ensure the safety and health of all site personnel.</i></p> <hr/> <hr/>			
	<p><i>Coordinate with Incident Command/Emergency Operations Center (EOC) to ensure that a medical unit is established in coordination with Community Reception Centers operations.</i></p> <hr/> <hr/>			
	<p><i>Make recommendation to alter, suspend, or terminate any activity judged to be an imminent danger or immediately dangerous to life and health.</i></p> <hr/> <hr/>			
	<p><i>Monitor hazardous site operations, and ensure that personnel perform their tasks in a safe manner and follow the safety-related requirements.</i></p> <hr/> <hr/>			

Activity Analysis
Observations <i>(Each bullet will need a completed AAR input form.)</i>
Strengths <ul style="list-style-type: none">•••
Areas for Improvement <ul style="list-style-type: none">•<ul style="list-style-type: none">– Root Cause•<ul style="list-style-type: none">– Root Cause•<ul style="list-style-type: none">– Root Cause
Additional Observations: _____

Evaluator Name/Location: _____

Phone #: _____

Weapons of Mass Destruction (WMD) and Hazardous Materials (HazMat) Response and Decontamination

Relevant Exercise Objectives

<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Activate WMD and HazMat Response and Decontamination

	Task	Yes	No	N/A
	<i>Initiate WMD/ HazMat procedures. Initiate Decontamination procedures.</i> _____ _____			
	<i>Discuss assembly of personnel and equipment at designated location.</i> _____ _____			
	<i>Implement/integrate WMD/ HazMat resources into the Incident Command System (ICS) organization.</i> _____ _____			
	<i>Collect, prioritize, and manage data and information from all sources.</i> _____ _____			
	<i>Use plume dispersion models and other analytical tools to generate ongoing WMD/HazMat response actions.</i> _____ _____			
	<i>Implement risk evaluation process that adequately addresses the risk of various actions to both responders and the public.</i> _____ _____			
	<i>Establish hazard control zones, based on the scope and nature of the event.</i> _____ _____			

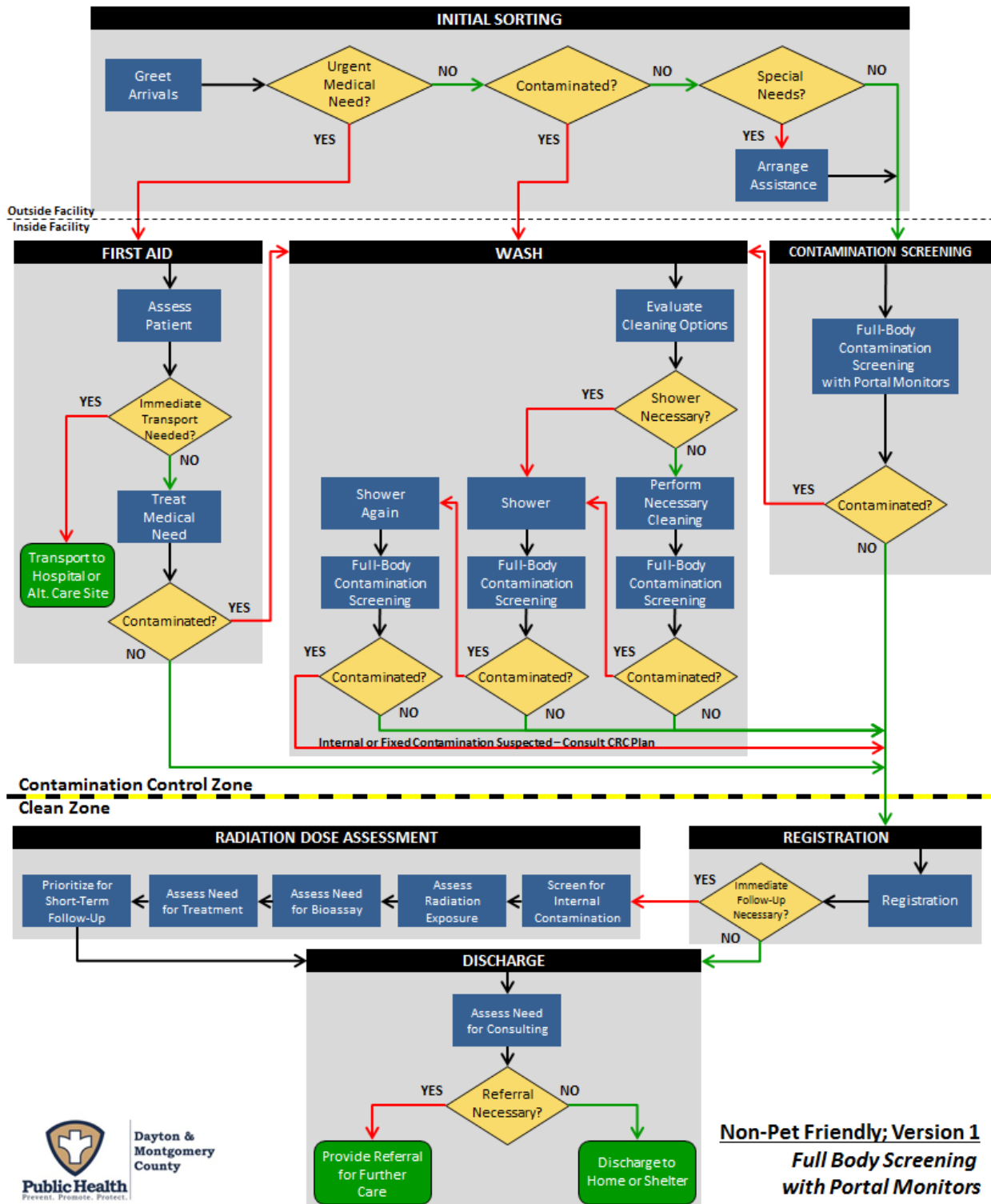
	Task	Yes	No	N/A
	<i>Conduct ongoing assessments.</i> <hr/> <hr/>			
	<i>Identify appropriate PPE based on suspected HazMat.</i> <hr/> <hr/>			
	<i>Coordinate with Safety Officer to monitor responders for exposure to HazMat.</i> <hr/> <hr/>			
	<i>Identify assets required for decontamination activities.</i> <hr/> <hr/>			
	<i>Identify the type of contaminants, nature of response operations, and the required type/level of decontamination operations.</i> <hr/> <hr/>			
	<i>Implement plans, procedures, and protocols to ensure onsite individual gross decontamination of persons and household pets affected by the incident.</i> <hr/> <hr/>			
	<i>Provide a means to allow medical treatment facilities and shelter managers to readily identify people who have received gross decontamination. Discuss use of OhTrac.</i> <hr/> <hr/>			
	<i>Establish decontamination sites for victims.</i> <hr/> <hr/>			
	<i>Screen affected persons. CRC Discussion</i> <hr/> <hr/>			
	<i>Decontaminate pets, if resources are available.</i> <hr/> <hr/>			

	Task	Yes	No	N/A
	<i>Coordinate with environmental authorities to ensure appropriate decontamination area cleanup and disposal of waste materials.</i>			
	<i>Discuss decontamination of affected facilities and equipment used.</i>			

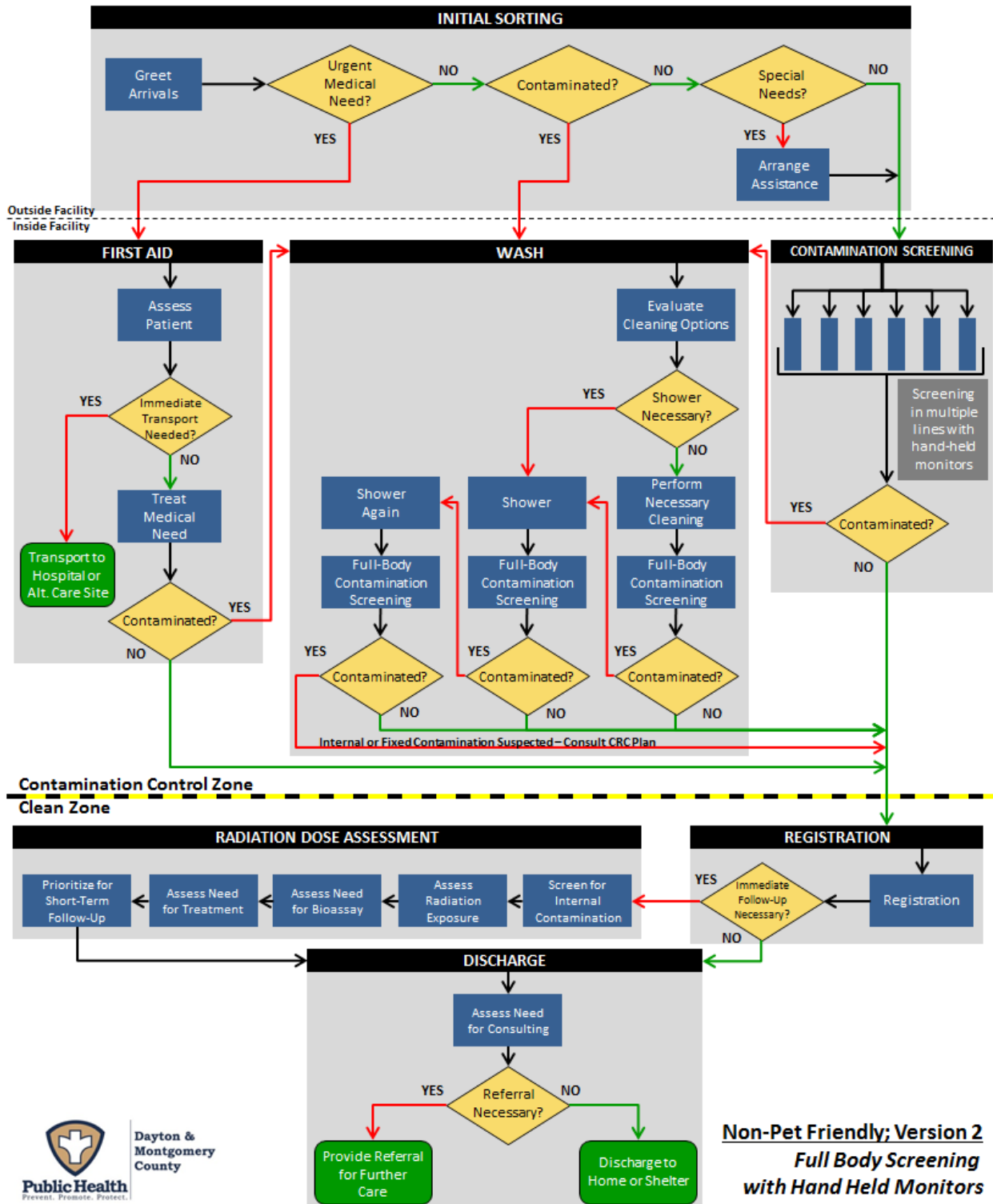
Activity Analysis
Observations (Each bullet will need a completed AAR input form.)
Strengths
<ul style="list-style-type: none"> • • •
Areas for Improvement
<ul style="list-style-type: none"> • <ul style="list-style-type: none"> - Root Cause • <ul style="list-style-type: none"> - Root Cause • <ul style="list-style-type: none"> - Root Cause
Additional Observations: _____

Appendix B - PHDMC Community Reception Center Flow Diagrams

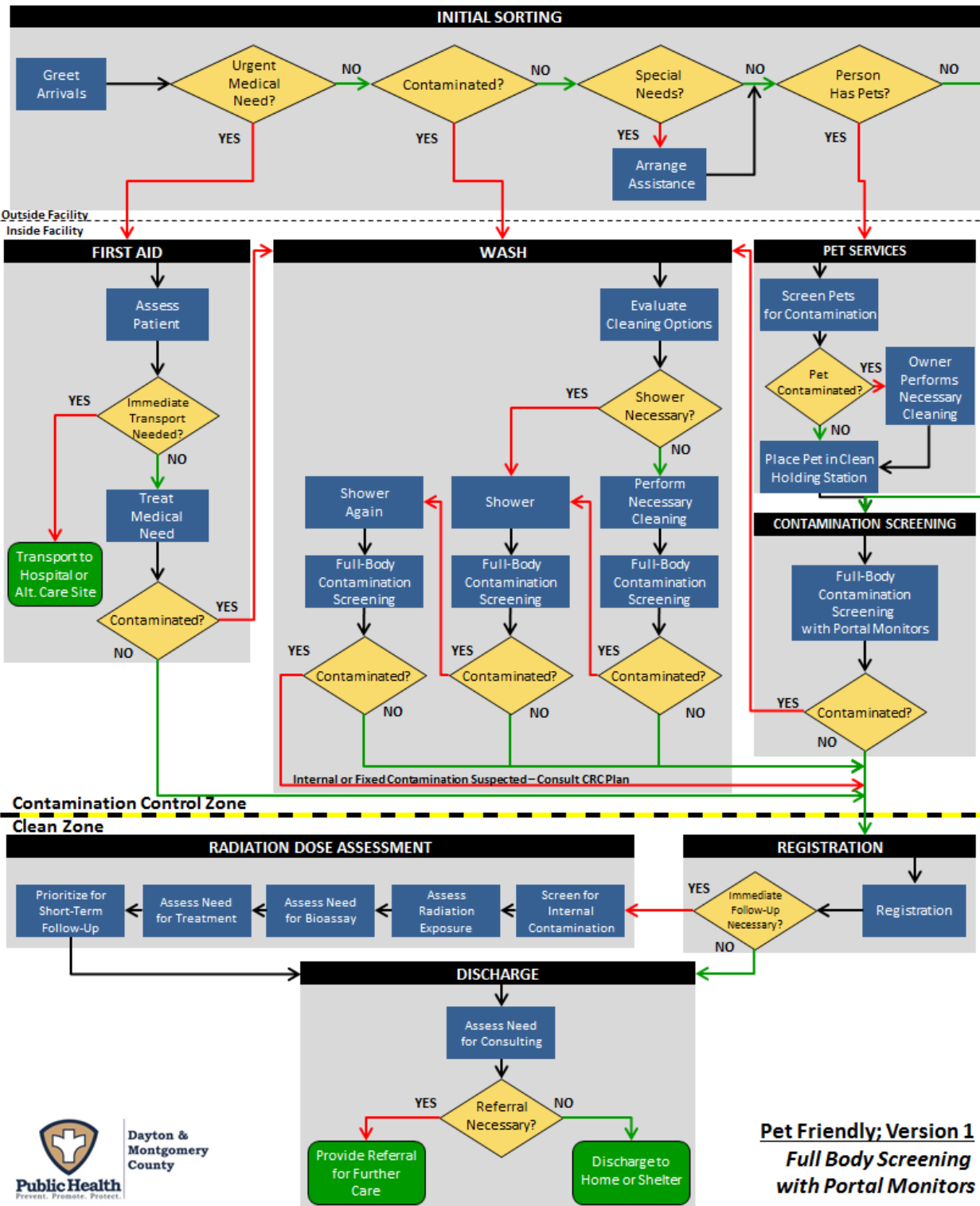
Community Reception Center Flow Diagram



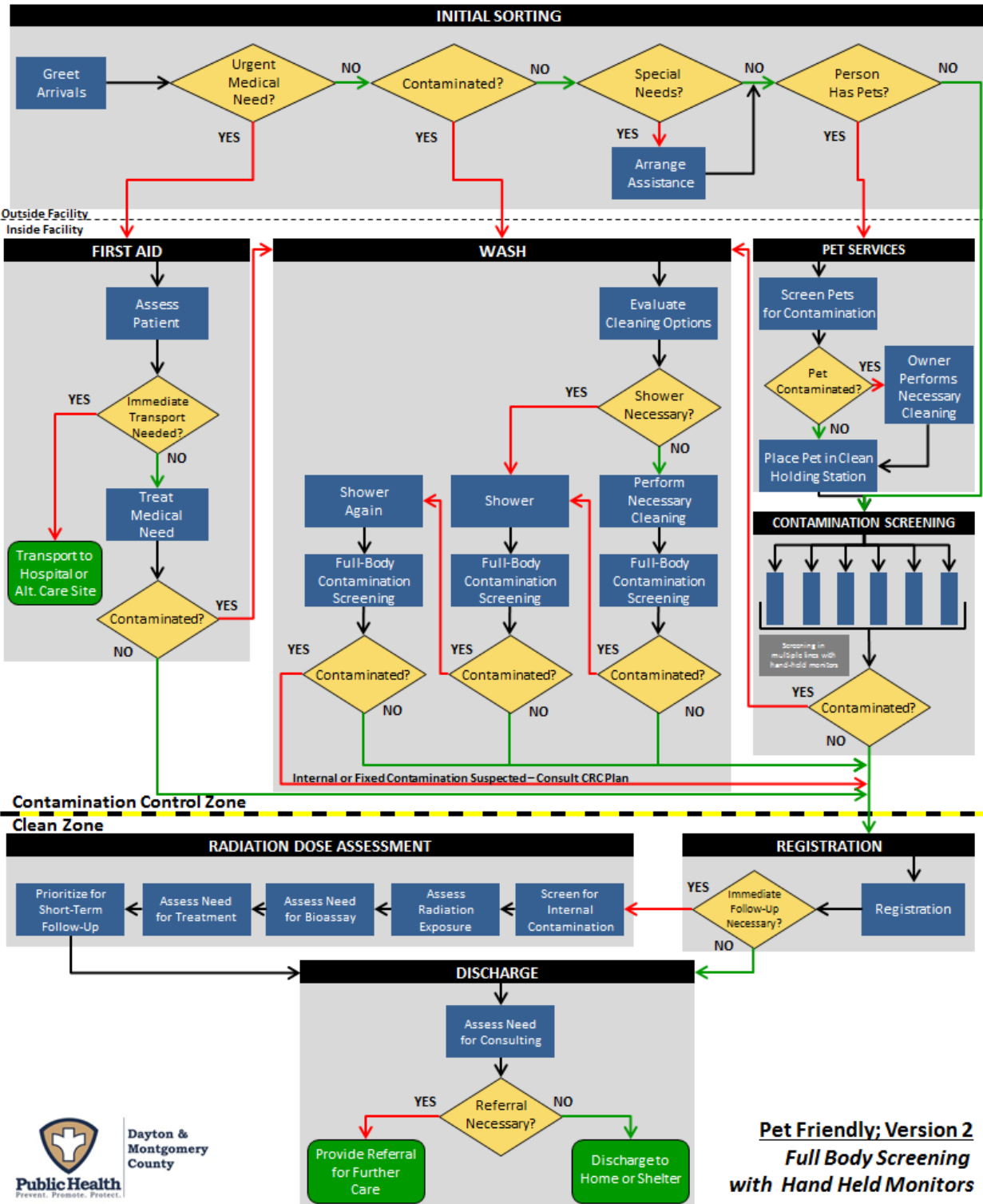
Community Reception Center Flow Diagram



Pet-Friendly Community Reception Center Flow Diagram



Pet-Friendly Community Reception Center Flow Diagram



Appendix C - Exercise Evaluation Guidelines Matrix

Exercise Evaluation Guidelines Matrix

Radiological Functional Exercise (28 Apr 14) Exercise Evaluation Guidelines Matrix	Darke Pub Hlth	Montgomery Pub Hlth	Clark EOC	Darke EOC	Greene EOC	Montgomery EOC	Preble EOC	Miami Valley South	Kettering Med. Ctr.	Sycamore Hospital
Emergency Operations Center (EOC) Mgmt.										
<i>Establish organization/operation of EOC</i>										
<i>Ensure that all appropriate support functions are staffed</i>	X						X			X
<i>Assist in coordinating shelter operations</i>	X		X							X
<i>Verify that all participating organizations serving the EOC directly or indirectly, have established communication links with the EOC</i>	X									X
<i>Coordinate emergency management efforts among local, county, regional, State, and Federal agencies</i>	X									X
<i>Coordinate with nongovernmental agencies and/or the private sector to collect/share data on the incident situation</i>	X			X			X			X
<i>Monitor, collect, analyze, and disseminate information and intelligence</i>	X									X
<i>Ensure appropriate notifications are made</i>	X					N/A				X
<i>Establish situational awareness</i>	X				X					
<i>Disseminate sit reps to appropriate agencies as needed</i>	X	X			X					X
<i>Coordinate activation of mutual aid agreements to obtain resources</i>	X		N/A							X
<i>Provide direction, information, and/or support as appropriate to Incident Command/Unified Command and/or the EOC</i>					N/A					
<i>Support incident response operations by providing resources ordered through the EOC</i>	X									
<i>Coordinate resource logistics and distribution</i>	X				X					X
<i>Support identification and determination of potential hazards and threats including mapping, modeling, and forecasting</i>	X			X			N/A			
<i>Facilitate formulation of protective action decisions (PADs), as needed</i>	X	N/A				X	N/A			

Exercise Evaluation Guidelines Matrix

Radiological Functional Exercise (28 Apr 14) Exercise Evaluation Guidelines Matrix	Darke Pub Hith	Montgomery Pub Hith	Clark EOC	Darke EOC	Greene EOC	Montgomery EOC	Preble EOC	Miami Valley South	Kettering Med. Ctr.	Sycamore Hospital
Notify partner agencies regarding Joint Information Center (JIC) activation	X								X	
Ensure appropriate participation in any JIC that is established									X	X
Coordinate the provision of timely and accurate emergency public information through the JIS										X
Coordinate emergency public information through the JIS										
Provide a central contact for the media through the JIC, ensuring a "one accurate message, many voices" approach to information dissemination					X				X	
Coordinate among JICs at all levels of government	N/A				X				X	
Implement routing and approval protocols for release of information	N/A				X				X	
Correct misinformation									N/A	
Receive, authenticate, and screen information for relevance at the supervisory level in a timely manner	X				N/A				X	
Use a NIMS-compliant framework for prioritizing & coordinating incident-related communications	X	X							X	
Provide for rumor control within information network										
Disseminate information to the media, public, partners, and stakeholders										
Provide emergency public information to special-needs populations	X	X	X		X		X			
Provide emergency information to the public that is verified, accurate, and as up-to-date as possible		X							X	
Disseminate travel advisories		X	N/A						X	X

Exercise Evaluation Guidelines Matrix

Radiological Functional Exercise (28 Apr 14) Exercise Evaluation Guidelines Matrix	Darke Pub Hlth	Montgomery Pub Hlth	Clark EOC	Darke EOC	Greene EOC	Montgomery EOC	Preble EOC	Miami Valley South	Kettering Med. Ctr.	Sycamore Hospital
<i>Ensure accurate and timely dissemination of protective action messages to emergency personnel and the public</i>										
<i>Disseminate prompt, accurate information to the public in appropriate languages and formats that take into account demographics and special needs/disabilities</i>			N/A		X				X	
<i>Provide emergency public information to special, vulnerable, and at-risk populations that are economically disadvantaged, have limited language proficiency, have disabilities (physical, mental, sensory, or cognitive limitations), experience cultural or geographic isolation, or are vulnerable due to age</i>		X	X		X		X		X	
<i>Disseminate critical health and safety information designed to alert the public to clinical symptoms and reduce the risk of exposure to ongoing and potential hazards</i>										
<i>Track media contacts and public inquiries, listing contact, date, time, query, and outcome</i>	X	X			X		X		N/A	
<i>Issue corrective messages when errors are recognized in previous public announcements</i>		X	N/A		N/A		N/A		N/A	
<i>Establish frequently updated public information hotline</i>			N/A		X				X	
Mass Care										
<i>Conduct initial and ongoing mass care needs assessment for sheltering, feeding, and bulk distribution</i>	X			X						
<i>Obtain information on population and location of potentially affected populations as part of planning process</i>	X			X						

Exercise Evaluation Guidelines Matrix

Radiological Functional Exercise (28 Apr 14) Exercise Evaluation Guidelines Matrix	Darke Pub Hlth	Montgomery Pub Hlth	Clark EOC	Darke EOC	Greene EOC	Montgomery EOC	Preble EOC	Miami Valley South	Kettering Med. Ctr.	Sycamore Hospital
<i>Coordinate anticipated need for mass care services with agencies responsible for evacuation</i>	N/A	N/A		X	N/A					
<i>Designate sites to serve as mass care facilities including shelters, feeding sites, reception centers, food preparation sites, distribution points, etc</i>	N/A									
<i>Estimate numbers requiring sheltering services</i>	N/A			X	X		X			
<i>Estimate numbers requiring feeding services</i>	N/A	X			X		X			
<i>Estimate numbers requiring bulk distribution of relief items</i>	N/A	X		N/A	X		X			
<i>Activate contingency plans for shelter surge capacity, as needed</i>	N/A	N/A		X			N/A			
<i>Activate vendor agreements/MOUs/MOAs in support of mass care activities as needed</i>	N/A	N/A		X	N/A					
<i>Acquire and provide resources necessary to support mass care services</i>	N/A									
<i>Provide appropriate communication systems for mass care personnel and facilities</i>	N/A	X		X	N/A		X			
<i>Disseminate accurate, timely, and accessible information to the public, media, support agencies, and vendors about mass care services</i>	N/A	X		X	N/A					
<i>Coordinate mass care services for the general population with appropriate agencies</i>	N/A			X						
<i>Coordinate environmental health assessment of mass care operations with agencies responsible for environmental health</i>	N/A	X		X			X			
<i>Coordinate mass care services for companion animals and owners with appropriate agencies</i>	N/A	X		X	N/A		X			
<i>Notify mass care staff</i>	N/A			X						
<i>Mobilize needed mass care resources</i>	N/A			X			N/A			

Exercise Evaluation Guidelines Matrix

Radiological Functional Exercise (28 Apr 14) Exercise Evaluation Guidelines Matrix	Darkle Pub Hlth	Montgomery Pub Hlth	Clark EOC	Darkle EOC	Greene EOC	Montgomery EOC	Preble EOC	Miami Valley South	Kettering Med. Ctr.	Sycamore Hospital
	Assemble mass care teams for each identified mass care facility	N/A			X	N/A		N/A		
Assemble mass care teams for each identified mass care site (e.g. shelter, feeding, bulk distribution)	N/A			X	N/A		N/A			
Activate emergency shelters	N/A			X			N/A			
Determine whether areas are located in a safe area as determined by appropriate government agencies	N/A			N/A						
Staff shelter with appropriately trained personnel	N/A			X	N/A		N/A			
Set up shelter for operations	N/A	X		X	N/A		N/A			
Ensure adequate communication systems are available for shelter staff	N/A	X		X	N/A		N/A			
Conduct regular communications with mass care management	N/A	X		X	N/A		N/A			
Provide regular updates on shelter needs and capacity	N/A			X	N/A		N/A			
Coordinate provision of mass care services within the shelter	N/A			X	N/A		N/A			
Coordinate provision of shelter support services with appropriate agencies	N/A			X	N/A		N/A			
Coordinate with appropriate government agency to ensure any necessary decontamination is provided for shelter residents before entering shelter facility	N/A			X						
Coordinate dissemination of information about locations of different kinds of shelters	N/A			N/A						
Establish processes to address issues identified in the assessment of shelter registrants	N/A	X		X	N/A		N/A			

Exercise Evaluation Guidelines Matrix

Radiological Functional Exercise (28 Apr 14) Exercise Evaluation Guidelines Matrix	Darke Pub Hlth	Montgomery Pub Hlth	Clark EOC	Darke EOC	Greene EOC	Montgomery EOC	Preble EOC	Miami Valley South	Kettering Med. Ctr.	Sycamore Hospital
<i>Make arrangements to transfer individuals and caregivers/family members to appropriate care facilities when necessary</i>	N/A	X		X			N/A			
<i>Request additional resources and equipment necessary to support shelter operations</i>	N/A			X	N/A					
<i>Coordinate to provide security services if needed</i>	N/A	N/A		X	N/A					
<i>Coordinate feeding services for general populations in shelters</i>	N/A	N/A		X	N/A		N/A			
<i>Provide regular updates on shelter needs and capacity</i>	N/A			X	N/A		N/A			
<i>Assess ongoing medical and public health needs of shelter population, and refer as appropriate</i>	N/A	N/A		X	N/A		N/A			
<i>Coordinate environmental health assessment of mass care operations</i>	N/A	X		X	N/A		N/A			
<i>Estimate projected feeding services required</i>	N/A	X		X	N/A		N/A			
<i>Develop a strategy to meet projected feeding need</i>	N/A	X		X	X		N/A			
Medical Surge										
<i>Implement incident response communications within the healthcare system</i>	N/A						N/A			
<i>Execute medical mutual aid agreements</i>	N/A						N/A			
<i>Provide coordination and support for medical care through Incident Command/Emergency Operations Center (EOC) in accordance with NIMS</i>	N/A				X		N/A			
<i>Provide & coordinate consistent, accurate, and relevant public health and medical information to clinicians, other health care providers, other responders, and the public in a timely manner</i>	N/A				N/A		N/A			

Exercise Evaluation Guidelines Matrix

Radiological Functional Exercise (28 Apr 14) Exercise Evaluation Guidelines Matrix	Darke Pub Hlth	Montgomery Pub Hlth	Clark EOC	Darke EOC	Greene EOC	Montgomery EOC	Preble EOC	Miami Valley South	Kettering Med. Ctr.	Sycamore Hospital	
<i>Consider the implementation of altered standards of care. e.g. Early discharge, patient ratios, glad bag gowns, etc</i>	N/A					N/A	N/A				
<i>Activate medical surge plans, procedures, and protocols to ensure medical treatment for populations requiring specialized assistance</i>	N/A					N/A	N/A				
<i>Activate alternative care sites and overflow emergency medical care facilities to manage hospital surge capacity</i>	N/A					N/A	N/A				
<i>Provide knowledge or visibility of available destination medical care facilities/services and tracking for mass movement of patients, ensuring patients are matched with transportation and destinations that provide appropriate levels of medical care</i>	N/A					N/A	N/A		N/A		
<i>Discuss or activate healthcare workers' and volunteers' call systems</i>	N/A					N/A	N/A		N/A		
<i>Support medical surge capability by using volunteer resources</i>	N/A					N/A	N/A				
<i>Mobilize incident-specific medical treatment personnel for pediatrics and adults</i>	N/A					N/A	N/A		N/A		
<i>Mobilize nonmedical support personnel</i>	N/A					N/A	N/A		N/A		X
<i>Assess initial and ongoing need for medical specialists, and augment as needed</i>	N/A					N/A	N/A		N/A		
<i>Provide just-in-time training for staff performing nonstandard duties</i>	N/A					N/A	N/A		N/A	X	X
<i>Coordinate response staffing with Medical Reserve Corps, Metropolitan Medical Response System, Federal and interstate resources, and nongovernmental organizations and faith-based groups</i>	N/A	N/A	N/A								

Exercise Evaluation Guidelines Matrix

Radiological Functional Exercise (28 Apr 14) Exercise Evaluation Guidelines Matrix		Darke Pub Hlth	Montgomery Pub Hlth	Clark EOC	Darke EOC	Greene EOC	Montgomery EOC	Preble EOC	Miami Vralley South	Kettering Med. Ctr.	Sycamore Hospital
Ensure adequacy of medical equipment and supplies in support of immediate medical response operations and for restocking supplies/equipment requested	N/A					N/A		N/A			
Coordinate and integrate with local and state EOCs	N/A					N/A		N/A			
Discuss stress management strategies and programs for all emergency responders and workers	N/A					N/A		N/A			
Responder Safety and Health											
Monitor & Maintain routine and emergency communications within the Command structure at all times during the incident						N/A		N/A			
Maintain coordination and communication on safety and health issues between agencies and departments	X							N/A			X
Contact and work with subject matter experts (SMEs) from public/private agencies who may be able to assist with safety issues at the incident	X					N/A		N/A		X	X
Assess availability of resources/assets provided by public, private, and volunteer organizations	X		N/A					N/A			
Request additional safety and health resources through mutual aid	X			X				N/A		X	X
Coordinate and support decontamination activities	X							N/A			X
Designate a Safety Officer within the Incident Command System (ICS)	X			X	X			N/A			X
Ensure ongoing safety and health assessments of response operations	X					N/A		N/A			
Review/evaluate hazard and response information as it pertains to the safety of all persons at the location	X					N/A		N/A			

Exercise Evaluation Guidelines Matrix

Radiological Functional Exercise (28 Apr 14) Exercise Evaluation Guidelines Matrix	Darke Pub Hlth	Montgomery Pub Hlth	Clark EOC	Darke EOC	Greene EOC	Montgomery EOC	Preble EOC	Miami Valley South	Kettering Med. Ctr.	Sycamore Hospital
Identify responder safety and health resources required	X						N/A			
Perform an incident safety analysis	X		X	X			N/A			X
Identify and prioritize the operations, hazards, and exposures of greatest risk to site personnel, and coordinate with the Incident Commander to develop specific actions to address them and protect site personnel			N/A	X			N/A			
Assist the Incident Commander in developing an incident safety and control plan to respond within the capabilities of available response personnel, taking into account available resources such as PPE, monitoring equipment, and control equipment	X		X	X	N/A		N/A			
Ensure the availability of incident/site-specific training	X		X	X	N/A		N/A			
Implement site-specific incident health and safety plan, including after-action care as needed for onscene personnel	X			X			N/A		X	
Ensure the provision of appropriate safety and health equipment	X		X				N/A			
Assist the Incident Commander and ICS staff in implementing exposure monitoring and enforcing safety considerations			X				N/A			
Identify and implement all corrective actions necessary to ensure the safety and health of all site personnel							N/A			
Coordinate with Incident Command/Emergency Operations Center (EOC) to ensure that a medical unit is established in coordination with Community Reception Centers operations	X		N/A				N/A	N/A		

Exercise Evaluation Guidelines Matrix

Radiological Functional Exercise (28 Apr 14) Exercise Evaluation Guidelines Matrix	Darke Pub Hlth	Montgomery Pub Hlth	Clark EOC	Darke EOC	Greene EOC	Montgomery EOC	Proble EOC	Miami Valley South	Kettering Med. Ctr.	Sycamore Hospital
<i>Make recommendation to alter, suspend, or terminate any activity judged to be an imminent danger or immediately dangerous to life and health</i>	X						N/A		X	
<i>Monitor hazardous site operations, and ensure that personnel perform their tasks in a safe manner and follow the safety-related requirements</i>			N/A	N/A			N/A			X
Weapons of Mass Destruction (WMD) and Hazardous Materials (HAZMAT)										
<i>Initiate WMD/ HazMat procedures. Initiate Decontamination procedures</i>	N/A						N/A			
<i>Discuss assembly of personnel and equipment at designated location</i>	N/A						N/A			
<i>Implement/integrate WMD/ HazMat resources into the Incident Command System (ICS) organization</i>	N/A	X		X			N/A			
<i>Collect, prioritize, and manage data and information from all sources</i>	X						N/A			
<i>Use plume dispersion models and other analytical tools to generate ongoing WMD/HazMat response actions</i>	N/A		X	X			N/A			
<i>Implement risk evaluation process that adequately addresses the risk of various actions to both responders and the public</i>	X	N/A		N/A			N/A	X		X
<i>Establish hazard control zones, based on the scope and nature of the event</i>	N/A		N/A	N/A			N/A	X		
<i>Conduct ongoing assessments</i>	X	N/A	N/A				N/A			
<i>Identify appropriate PPE based on suspected HazMat</i>	X						N/A			
<i>Coordinate with Safety Officer to monitor responders for exposure to HazMat</i>	X	N/A	N/A				N/A			X
<i>Identify assets required for decontamination activities</i>	N/A	X					N/A			

Exercise Evaluation Guidelines Matrix

Radiological Functional Exercise (28 Apr 14) Exercise Evaluation Guidelines Matrix	Darke Pub Hlth	Montgomery Pub Hlth	Clark EOC	Darke EOC	Greene EOC	Montgomery EOC	Preble EOC	Miami Valley South	Kettering Med. Ctr.	Sycamore Hospital
<i>Identify the type of contaminants, nature of response operations, and the required type/level of decontamination operations</i>	X						N/A		X	
<i>Implement plans, procedures, and protocols to ensure onsite individual gross decontamination of persons and household pets affected by the incident</i>	N/A	X					N/A		X	X
<i>Provide a means to allow medical treatment facilities and shelter managers to readily identify people who have received gross decontamination. Discuss use of OhTrac</i>	N/A			X			N/A		X	X
<i>Establish decontamination sites for victims</i>	X						N/A		X	X
<i>Screen affected persons, discussion of CRC</i>	X	X					N/A		X	
<i>Decontaminate pets, if resources are available</i>	N/A	X		N/A			N/A		X	
<i>Coordinate with environmental authorities to ensure appropriate decontamination area cleanup and disposal of waste materials</i>	N/A	N/A	N/A				N/A		X	
<i>Discuss decontamination of affected facilities and equipment used</i>	X	N/A	N/A				N/A		X	

Exercise Evaluation Guidelines Matrix

Radiological Functional Exercise (28 Apr 14) Exercise Evaluation Guidelines Matrix	<i>Upper Valley Med.</i>	<i>Good Sam. Hosp.</i>	<i>Soin Med. Ctr.</i>	<i>Wayne Healthcare</i>	<i>Wilson Memorial</i>	<i>Oakwood Village</i>	<i>Greenwood Manor</i>	<i>St. Leonard's</i>	<i>Dayton Fire Dept.</i>	<i>American Red Cross</i>
<i>Notify partner agencies regarding Joint Information Center (JIC) activation</i>		N/A			X				N/A	
<i>Ensure appropriate participation in any JIC that is established</i>									N/A	
<i>Coordinate the provision of timely and accurate emergency public information through the JIS</i>		N/A	N/A						N/A	
<i>Coordinate emergency public information through the JIS</i>		N/A	N/A						N/A	
<i>Provide a central contact for the media through the JIC, ensuring a "one accurate message, many voices" approach to information dissemination</i>			N/A						N/A	
<i>Coordinate among JICs at all levels of government</i>		N/A	N/A						N/A	
<i>Implement routing and approval protocols for release of information</i>		N/A	N/A						N/A	
<i>Correct misinformation</i>			N/A		N/A					
<i>Receive, authenticate, and screen information for relevance at the supervisory level in a timely manner</i>		N/A	N/A		N/A				N/A	
<i>Use a NIMS-compliant framework for prioritizing & coordinating incident-related communications</i>	X	N/A	N/A							
<i>Provide for rumor control within information network</i>										
<i>Disseminate information to the media, public, partners, and stakeholders</i>			X							
<i>Provide emergency public information to special-needs populations</i>	X	N/A	X		X				X	
<i>Provide emergency information to the public that is verified, accurate, and as up-to-date as possible</i>			X							
<i>Disseminate travel advisories</i>	X	N/A	X		X					

Exercise Evaluation Guidelines Matrix

Radiological Functional Exercise (28 Apr 14) Exercise Evaluation Guidelines Matrix	Upper Valley Med.	Good Sam. Hosp.	Solon Med. Ctr.	Wayne Healthcare	Wilson Memorial	Oakwood Village	Greenwood Manor	St. Leonard's	Dayton Fire Dept.	American Red Cross
Coordinate anticipated need for mass care services with agencies responsible for evacuation										X
Designate sites to serve as mass care facilities including shelters, feeding sites, reception centers, food preparation sites, distribution points, etc									N/A	
Estimate numbers requiring sheltering services									X	X
Estimate numbers requiring feeding services									X	
Estimate numbers requiring bulk distribution of relief items									X	
Activate contingency plans for shelter surge capacity, as needed									N/A	
Activate vendor agreements/MOUs/MOAs in support of mass care activities as needed									N/A	
Acquire and provide resources necessary to support mass care services									N/A	
Provide appropriate communication systems for mass care personnel and facilities									N/A	
Disseminate accurate, timely, and accessible information to the public, media, support agencies, and vendors about mass care services										
Coordinate mass care services for the general population with appropriate agencies									N/A	
Coordinate environmental health assessment of mass care operations with agencies responsible for environmental health									N/A	
Coordinate mass care services for companion animals and owners with appropriate agencies	X								N/A	
Notify mass care staff									N/A	
Mobilize needed mass care resources									N/A	

Exercise Evaluation Guidelines Matrix

Radiological Functional Exercise (28 Apr 14) Exercise Evaluation Guidelines Matrix	Upper Valley Med.	Good Sam. Hosp.	Soin Med. Ctr.	Wayne Healthcare	Wilson Memorial	Oakwood Village	Greenwood Manor	St. Leonard's	Dayton Fire Dept.	American Red Cross
Assemble mass care teams for each identified mass care facility	N/A								N/A	
Assemble mass care teams for each identified mass care site (e.g. shelter, feeding, bulk distribution)	N/A								N/A	
Activate emergency shelters	N/A									
Determine whether areas are located in a safe area as determined by appropriate government agencies	N/A								N/A	
Staff shelter with appropriately trained personnel	N/A								N/A	
Set up shelter for operations									N/A	
Ensure adequate communication systems are available for shelter staff	N/A								N/A	
Conduct regular communications with mass care management									N/A	
Provide regular updates on shelter needs and capacity									N/A	
Coordinate provision of mass care services within the shelter	N/A								N/A	
Coordinate provision of shelter support services with appropriate agencies	N/A								N/A	
Coordinate with appropriate government agency to ensure any necessary decontamination is provided for shelter residents before entering shelter facility									N/A	
Coordinate dissemination of information about locations of different kinds of shelters	N/A									
Establish processes to address issues identified in the assessment of shelter registrants	N/A								N/A	

Exercise Evaluation Guidelines Matrix

Radiological Functional Exercise (28 Apr 14) Exercise Evaluation Guidelines Matrix	Upper Valley Med.	Good Sam. Hosp.	Soln Med. Ctr.	Wayne Healthcare	Wilson Memorial	Oakwood Village	Greenwood Manor	St. Leonard's	Dayton Fire Dept.	American Red Cross
<i>Make arrangements to transfer individuals and caregivers/family members to appropriate care facilities when necessary</i>	N/A								N/A	
<i>Request additional resources and equipment necessary to support shelter operations</i>	N/A								N/A	
<i>Coordinate to provide security services if needed</i>									N/A	
<i>Coordinate feeding services for general populations in shelters</i>	N/A								N/A	
<i>Provide regular updates on shelter needs and capacity</i>	N/A								N/A	
<i>Assess ongoing medical and public health needs of shelter population, and refer as appropriate</i>	N/A								N/A	
<i>Coordinate environmental health assessment of mass care operations</i>	N/A								N/A	
<i>Estimate projected feeding services required</i>									N/A	
<i>Develop a strategy to meet projected feeding need</i>									N/A	
Medical Surge										
<i>Implement incident response communications within the healthcare system</i>							X			
<i>Execute medical mutual aid agreements</i>		N/A		N/A						
<i>Provide coordination and support for medical care through Incident Command/Emergency Operations Center (EOC) in accordance with NIMS</i>	N/A				N/A	N/A				
<i>Provide & coordinate consistent, accurate, and relevant public health and medical information to clinicians, other health care providers, other responders, and the public in a timely manner</i>						N/A				

Exercise Evaluation Guidelines Matrix

Radiological Functional Exercise (28 Apr 14) Exercise Evaluation Guidelines Matrix	Upper Valley Med.	Good Sam. Hosp.	Spin Med. Ctr.	Wayne Healthcare	Wilson Memorial	Oakwood Village	Greenwood Manor	St. Leonard's	Dayton Fire Dept.	American Red Cross
<i>Consider the implementation of altered standards of care. e.g. Early discharge, patient ratios, glad bag gowns, etc</i>										
<i>Activate medical surge plans, procedures, and protocols to ensure medical treatment for populations requiring specialized assistance</i>	N/A				N/A					
<i>Activate alternative care sites and overflow emergency medical care facilities to manage hospital surge capacity</i>	N/A	N/A					X		N/A	
<i>Provide knowledge or visibility of available destination medical care facilities/services and tracking for mass movement of patients, ensuring patients are matched with transportation and destinations that provide appropriate levels of medical care</i>							X			
<i>Discuss or activate healthcare workers' and volunteers' call systems</i>										
<i>Support medical surge capability by using volunteer resources</i>					N/A		X		X	
<i>Mobilize incident-specific medical treatment personnel for pediatrics and adults</i>							X			
<i>Mobilize nonmedical support personnel</i>							X			
<i>Assess initial and ongoing need for medical specialists, and augment as needed</i>						N/A	X		N/A	
<i>Provide just-in-time training for staff performing nonstandard duties</i>			N/A		X		X		X	
<i>Coordinate response staffing with Medical Reserve Corps, Metropolitan Medical Response System, Federal and interstate resources, and nongovernmental organizations and faith-based groups</i>		N/A			X	N/A	X		N/A	

Exercise Evaluation Guidelines Matrix

Radiological Functional Exercise (28 Apr 14) Exercise Evaluation Guidelines Matrix <i>Ensure adequacy of medical equipment and supplies in support of immediate medical response operations and for restocking supplies/equipment requested</i>	Upper Valley Med.	Good Sam. Hosp.	Solon Med. Ctr.	Wayne Healthcare	Wilson Memorial	Oakwood Village	Greenwood Manor	St. Leonard's	Dayton Fire Dept.	American Red Cross
<i>Coordinate and integrate with local and state EOCs</i>	X						X			
<i>Discuss stress management strategies and programs for all emergency responders and workers</i>	X				N/A		X			
Responder Safety and Health										
<i>Monitor & Maintain routine and emergency communications within the Command structure at all times during the incident</i>										
<i>Maintain coordination and communication on safety and health issues between agencies and departments</i>										
<i>Contact and work with subject matter experts (SMEs) from public/private agencies who may be able to assist with safety issues at the incident</i>	X								X	
<i>Assess availability of resources/assets provided by public, private, and volunteer organizations</i>				X	N/A					
<i>Request additional safety and health resources through mutual aid</i>	X	N/A		X						
<i>Coordinate and support decontamination activities</i>	X									
<i>Designate a Safety Officer within the Incident Command System (ICS)</i>						X				
<i>Ensure ongoing safety and health assessments of response operations</i>										
<i>Review/evaluate hazard and response information as it pertains to the safety of all persons at the location</i>										

Exercise Evaluation Guidelines Matrix

Radiological Functional Exercise (28 Apr 14) Exercise Evaluation Guidelines Matrix	Upper Valley Med.	Good Sam. Hosp.	Sohn Med. Ctr.	Wayne Healthcare	Wilson Memorial	Oakwood Village	Greenwood Manor	St. Leonard's	Dayton Fire Dept.	American Red Cross
Identify responder safety and health resources required										
Perform an incident safety analysis		X				N/A				
Identify and prioritize the operations, hazards, and exposures of greatest risk to site personnel, and coordinate with the Incident Commander to develop specific actions to address them and protect site personnel										
Assist the Incident Commander in developing an incident safety and control plan to respond within the capabilities of available response personnel, taking into account available resources such as PPE, monitoring equipment, and control equipment						N/A				
Ensure the availability of incident/site-specific training					X				N/A	
Implement site-specific incident health and safety plan, including after-action care as needed for onscene personnel	X				N/A					
Ensure the provision of appropriate safety and health equipment										
Assist the Incident Commander and ICS staff in implementing exposure monitoring and enforcing safety considerations										
Identify and implement all corrective actions necessary to ensure the safety and health of all site personnel										
Coordinate with Incident Command/Emergency Operations Center (EOC) to ensure that a medical unit is established in coordination with Community Reception Centers operations	N/A				N/A	N/A			X	

Exercise Evaluation Guidelines Matrix

Radiological Functional Exercise (28 Apr 14) Exercise Evaluation Guidelines Matrix	Upper Valley Med.	Good Sam. Hosp.	Soyin Med. Ctr.	Wayne Healthcare	Wilson Memorial	Oakwood Village	Greenwood Manor	St. Leonard's	Dayton Fire Dept.	American Red Cross
<i>Identify the type of contaminants, nature of response operations, and the required type/level of decontamination operations</i>										
<i>Implement plans, procedures, and protocols to ensure onsite individual gross decontamination of persons and household pets affected by the incident</i>										
<i>Provide a means to allow medical treatment facilities and shelter managers to readily identify people who have received gross decontamination. Discuss use of OhTrac</i>	X	N/A							X	
<i>Establish decontamination sites for victims</i>										
<i>Screen affected persons, discussion of CRC</i>	N/A									
<i>Decontaminate pets, if resources are available</i>	X	N/A			X				X	
<i>Coordinate with environmental authorities to ensure appropriate decontamination area cleanup and disposal of waste materials</i>	X								X	
<i>Discuss decontamination of affected facilities and equipment used</i>	X								X	

Exercise Evaluation Guidelines Matrix

Radiological Functional Exercise (28 Apr 14) Exercise Evaluation Guidelines Matrix	
Emergency Operations Center (EOC) Mgmt.	
<i>Establish organization/operation of EOC</i>	0
<i>Ensure that all appropriate support functions are staffed</i>	3
<i>Assist in coordinating shelter operations</i>	3
<i>Verify that all participating organizations serving the EOC directly or indirectly, have established communication links with the EOC</i>	2
<i>Coordinate emergency management efforts among local, county, regional, State, and Federal agencies</i>	2
<i>Coordinate with nongovernmental agencies and/or the private sector to collect/share data on the incident situation</i>	4
<i>Monitor, collect, analyze, and disseminate information and intelligence</i>	3
<i>Ensure appropriate notifications are made</i>	2
<i>Establish situational awareness</i>	3
<i>Disseminate sit reps to appropriate agencies as needed</i>	5
<i>Coordinate activation of mutual aid agreements to obtain resources</i>	3
<i>Provide direction, information, and/or support as appropriate to Incident Command/Unified Command and/or the EOC</i>	1
<i>Support incident response operations by providing resources ordered through the EOC</i>	1
<i>Coordinate resource logistics and distribution</i>	3
<i>Support identification and determination of potential hazards and threats including mapping, modeling, and forecasting</i>	3
<i>Facilitate formulation of protective action decisions (PADs), as needed</i>	2

Radiological Functional Exercise (28 Apr 14) Exercise Evaluation Guidelines Matrix	
Public Information and Warning	
<i>Activate plans, procedures, and policies for coordinating, managing, and disseminating public information and warnings</i>	0
<i>Coordinate internal information programs</i>	0
<i>Coordinate external information programs</i>	0
<i>Coordinate public emergency information</i>	1
<i>Implement government agency and nongovernmental organization notification protocols and procedures</i>	2
<i>Implement a plan for ensuring continued communications with citizens and city, county, tribal, State, Federal, and private industry leaders</i>	1
<i>Plan and coordinate warnings, instructions, and information updates</i>	0
<i>Coordinate with the Emergency Operations Center (EOC)/responders for public safety concerns that need to be disseminated</i>	1
<i>Monitor communications and information systems as needed to identify information to be disseminated to the public</i>	1
<i>Coordinate with law enforcement, and provide media outlets to provide the public with accurate, consistent, and timely information</i>	0
<i>Coordinate dissemination of incident site information within a National Incident Management System (NIMS)-compliant framework</i>	2
<i>Activate and establish Joint Information System (JIS)</i>	1
<i>Assign Public Information Officer (PIO)</i>	0
<i>Identify appropriate spokesperson(s)</i>	0

Exercise Evaluation Guidelines Matrix

Radiological Functional Exercise (28 Apr 14) Exercise Evaluation Guidelines Matrix	
<i>Notify partner agencies regarding Joint Information Center (JIC) activation</i>	3
<i>Ensure appropriate participation in any JIC that is established</i>	2
<i>Coordinate the provision of timely and accurate emergency public information through the JIS</i>	1
<i>Coordinate emergency public information through the JIS</i>	0
<i>Provide a central contact for the media through the JIC, ensuring a "one accurate message, many voices" approach to information dissemination</i>	2
<i>Coordinate among JICs at all levels of government</i>	2
<i>Implement routing and approval protocols for release of information</i>	2
<i>Correct misinformation</i>	0
<i>Receive, authenticate, and screen information for relevance at the supervisory level in a timely manner</i>	2
<i>Use a NIMS-compliant framework for prioritizing & coordinating incident-related communications</i>	4
<i>Provide for rumor control within information network</i>	0
<i>Disseminate information to the media, public, partners, and stakeholders</i>	1
<i>Provide emergency public information to special-needs populations</i>	9
<i>Provide emergency information to the public that is verified, accurate, and as up-to-date as possible</i>	3
<i>Disseminate travel advisories</i>	6

Radiological Functional Exercise (28 Apr 14) Exercise Evaluation Guidelines Matrix	
<i>Ensure accurate and timely dissemination of protective action messages to emergency personnel and the public</i>	2
<i>Disseminate prompt, accurate information to the public in appropriate languages and formats that take into account demographics and special needs/disabilities</i>	6
<i>Provide emergency public information to special, vulnerable, and at-risk populations that are economically disadvantaged, have limited language proficiency, have disabilities (physical, mental, sensory, or cognitive limitations), experience cultural or geographic isolation, or are vulnerable due to age</i>	9
<i>Disseminate critical health and safety information designed to alert the public to clinical symptoms and reduce the risk of exposure to ongoing and potential hazards</i>	3
<i>Track media contacts and public inquiries, listing contact, date, time, query, and outcome</i>	6
<i>Issue corrective messages when errors are recognized in previous public announcements</i>	3
<i>Establish frequently updated public information hotline</i>	3
Mass Care	
<i>Conduct initial and ongoing mass care needs assessment for sheltering, feeding, and bulk distribution</i>	2
<i>Obtain information on population and location of potentially affected populations as part of planning process</i>	3

Exercise Evaluation Guidelines Matrix

Radiological Functional Exercise (28 Apr 14) Exercise Evaluation Guidelines Matrix	
<i>Coordinate anticipated need for mass care services with agencies responsible for evacuation</i>	2
<i>Designate sites to serve as mass care facilities including shelters, feeding sites, reception centers, food preparation sites, distribution points, etc</i>	0
<i>Estimate numbers requiring sheltering services</i>	5
<i>Estimate numbers requiring feeding services</i>	4
<i>Estimate numbers requiring bulk distribution of relief items</i>	4
<i>Activate contingency plans for shelter surge capacity, as needed</i>	1
<i>Activate vendor agreements/MOUs/MOAs in support of mass care activities as needed</i>	1
<i>Acquire and provide resources necessary to support mass care services</i>	0
<i>Provide appropriate communication systems for mass care personnel and facilities</i>	3
<i>Disseminate accurate, timely, and accessible information to the public, media, support agencies, and vendors about mass care services</i>	2
<i>Coordinate mass care services for the general population with appropriate agencies</i>	1
<i>Coordinate environmental health assessment of mass care operations with agencies responsible for environmental health</i>	3
<i>Coordinate mass care services for companion animals and owners with appropriate agencies</i>	4
<i>Notify mass care staff</i>	1
<i>Mobilize needed mass care resources</i>	1

Radiological Functional Exercise (28 Apr 14) Exercise Evaluation Guidelines Matrix	
<i>Assemble mass care teams for each identified mass care facility</i>	1
<i>Assemble mass care teams for each identified mass care site (e.g. shelter, feeding, bulk distribution)</i>	1
<i>Activate emergency shelters</i>	1
<i>Determine whether areas are located in a safe area as determined by appropriate government agencies</i>	0
<i>Staff shelter with appropriately trained personnel</i>	1
<i>Set up shelter for operations</i>	2
<i>Ensure adequate communication systems are available for shelter staff</i>	2
<i>Conduct regular communications with mass care management</i>	2
<i>Provide regular updates on shelter needs and capacity</i>	1
<i>Coordinate provision of mass care services within the shelter</i>	1
<i>Coordinate provision of shelter support services with appropriate agencies</i>	1
<i>Coordinate with appropriate government agency to ensure any necessary decontamination is provided for shelter residents before entering shelter facility</i>	1
<i>Coordinate dissemination of information about locations of different kinds of shelters</i>	0
<i>Establish processes to address issues identified in the assessment of shelter registrants</i>	2

Exercise Evaluation Guidelines Matrix

Radiological Functional Exercise (28 Apr 14) Exercise Evaluation Guidelines Matrix	
<i>Make arrangements to transfer individuals and caregivers/family members to appropriate care facilities when necessary</i>	2
<i>Request additional resources and equipment necessary to support shelter operations</i>	1
<i>Coordinate to provide security services if needed</i>	1
<i>Coordinate feeding services for general populations in shelters</i>	1
<i>Provide regular updates on shelter needs and capacity</i>	1
<i>Assess ongoing medical and public health needs of shelter population, and refer as appropriate</i>	1
<i>Coordinate environmental health assessment of mass care operations</i>	2
<i>Estimate projected feeding services required</i>	2
<i>Develop a strategy to meet projected feeding need</i>	3
Medical Surge	
<i>Implement incident response communications within the healthcare system</i>	1
<i>Execute medical mutual aid agreements</i>	0
<i>Provide coordination and support for medical care through Incident Command/Emergency Operations Center (EOC) in accordance with NIMS</i>	1
<i>Provide & coordinate consistent, accurate, and relevant public health and medical information to clinicians, other health care providers, other responders, and the public in a timely manner</i>	0

Radiological Functional Exercise (28 Apr 14) Exercise Evaluation Guidelines Matrix	
<i>Consider the implementation of altered standards of care. e.g. Early discharge, patient ratios, glad bag gowns, etc</i>	0
<i>Activate medical surge plans, procedures, and protocols to ensure medical treatment for populations requiring specialized assistance</i>	0
<i>Activate alternative care sites and overflow emergency medical care facilities to manage hospital surge capacity</i>	1
<i>Provide knowledge or visibility of available destination medical care facilities/services and tracking for mass movement of patients, ensuring patients are matched with transportation and destinations that provide appropriate levels of medical care</i>	1
<i>Discuss or activate healthcare workers' and volunteers' call systems</i>	0
<i>Support medical surge capability by using volunteer resources</i>	2
<i>Mobilize incident-specific medical treatment personnel for pediatrics and adults</i>	1
<i>Mobilize nonmedical support personnel</i>	2
<i>Assess initial and ongoing need for medical specialists, and augment as needed</i>	1
<i>Provide just-in-time training for staff performing nonstandard duties</i>	5
<i>Coordinate response staffing with Medical Reserve Corps, Metropolitan Medical Response System, Federal and interstate resources, and nongovernmental organizations and faith-based groups</i>	2

Exercise Evaluation Guidelines Matrix

Radiological Functional Exercise (28 Apr 14) Exercise Evaluation Guidelines Matrix	
<i>Ensure adequacy of medical equipment and supplies in support of immediate medical response operations and for restocking supplies/equipment requested</i>	1
<i>Coordinate and integrate with local and state EOCs</i>	1
<i>Discuss stress management strategies and programs for all emergency responders and workers</i>	2
Responder Safety and Health	
<i>Monitor & Maintain routine and emergency communications within the Command structure at all times during the incident</i>	0
<i>Maintain coordination and communication on safety and health issues between agencies and departments</i>	2
<i>Contact and work with subject matter experts (SMEs) from public/private agencies who may be able to assist with safety issues at the incident</i>	5
<i>Assess availability of resources/assets provided by public, private, and volunteer organizations</i>	2
<i>Request additional safety and health resources through mutual aid</i>	6
<i>Coordinate and support decontamination activities</i>	3
<i>Designate a Safety Officer within the Incident Command System (ICS)</i>	5
<i>Ensure ongoing safety and health assessments of response operations</i>	1
<i>Review/evaluate hazard and response information as it pertains to the safety of all persons at the location</i>	1

Radiological Functional Exercise (28 Apr 14) Exercise Evaluation Guidelines Matrix	
<i>Identify responder safety and health resources required</i>	1
<i>Perform an incident safety analysis</i>	5
<i>Identify and prioritize the operations, hazards, and exposures of greatest risk to site personnel, and coordinate with the Incident Commander to develop specific actions to address them and protect site personnel</i>	1
<i>Assist the Incident Commander in developing an incident safety and control plan to respond within the capabilities of available response personnel, taking into account available resources such as PPE, monitoring equipment, and control equipment</i>	3
<i>Ensure the availability of incident/site-specific training</i>	4
<i>Implement site-specific incident health and safety plan, including after-action care as needed for onscene personnel</i>	4
<i>Ensure the provision of appropriate safety and health equipment</i>	2
<i>Assist the Incident Commander and ICS staff in implementing exposure monitoring and enforcing safety considerations</i>	1
<i>Identify and implement all corrective actions necessary to ensure the safety and health of all site personnel</i>	0
<i>Coordinate with Incident Command/Emergency Operations Center (EOC) to ensure that a medical unit is established in coordination with Community Reception Centers operations</i>	2

Exercise Evaluation Guidelines Matrix

Radiological Functional Exercise (28 Apr 14) Exercise Evaluation Guidelines Matrix	
<i>Make recommendation to alter, suspend, or terminate any activity judged to be an imminent danger or immediately dangerous to life and health</i>	2
<i>Monitor hazardous site operations, and ensure that personnel perform their tasks in a safe manner and follow the safety-related requirements</i>	1
Weapons of Mass Destruction (WMD) and Hazardous Materials (HAZMAT)	
<i>Initiate WMD/ HazMat procedures. Initiate Decontamination procedures</i>	0
<i>Discuss assembly of personnel and equipment at designated location</i>	0
<i>Implement/integrate WMD/ HazMat resources into the Incident Command System (ICS) organization</i>	2
<i>Collect, prioritize, and manage data and information from all sources</i>	1
<i>Use plume dispersion models and other analytical tools to generate ongoing WMD/HazMat response actions</i>	3
<i>Implement risk evaluation process that adequately addresses the risk of various actions to both responders and the public</i>	4
<i>Establish hazard control zones, based on the scope and nature of the event</i>	1
<i>Conduct ongoing assessments</i>	2
<i>Identify appropriate PPE based on suspected HazMat</i>	2
<i>Coordinate with Safety Officer to monitor responders for exposure to HazMat</i>	3
<i>Identify assets required for decontamination activities</i>	1

Radiological Functional Exercise (28 Apr 14) Exercise Evaluation Guidelines Matrix	
<i>Identify the type of contaminants, nature of response operations, and the required type/level of decontamination operations</i>	2
<i>Implement plans, procedures, and protocols to ensure onsite individual gross decontamination of persons and household pets affected by the incident</i>	3
<i>Provide a means to allow medical treatment facilities and shelter managers to readily identify people who have received gross decontamination. Discuss use of OhTrac</i>	5
<i>Establish decontamination sites for victims</i>	3
<i>Screen affected persons, discussion of CRC</i>	3
<i>Decontaminate pets, if resources are available</i>	5
<i>Coordinate with environmental authorities to ensure appropriate decontamination area cleanup and disposal of waste materials</i>	3
<i>Discuss decontamination of affected facilities and equipment used</i>	4

Appendix D - Community Reception Center Exercise Notes

During Exercise

- ADA capabilities
- Double check for registration process for people leaving CRC from first aid station
- Concealed carry safety
- Director for hallway traffic at each station
- Make job action sheets clearer
- Exact purpose of Rad Dose Assessment Station
 - People were unclear of roles
- Security!!!
- Discharge to have a psych evaluation for a referral, if needed
- Clearly spell out logistics
- Goodwill ambassador for Q&A at entrance
- Better identification of mens/womens facilities in wash station
- First aid needs more supplies
 - Blood pressure cuff, stethoscope, pen light, etc.
- Many questions on the SNS push pack

Strengths

- People with bad medical conditions were quickly escorted into the building
- Nice to have caring/empathetic people at entrance
- Good role playing
- Alpha, beta, and gamma education was good

Areas of Improvement

- Q&A educator position
- Have more runners from portal to stations
- Make pamphlets for people to read while waiting in line

- All reading materials needs to be in lower reading levels with pictures
 - Different languages?
- Make sure families stay together
- Clarify PR communications
- Make sure there is only one line outside of CRC
- Very crowded at the portal
- Portal did not go off when rad source was on person
- Have radios at each station to communicate among others in the CRC
- Watch language
 - Don't say "highly contaminated" because it might get people freaked out
- Need someone at each station to be a "knowledge counselor" to answer questions and give reassurance
- Calm reassurance
- Differentiating workers from patrons
 - Wearing name tags or vests
- Improve job sheet and training on job stations
 - Have a small index card with quick, relevant information
- Male and female attendants for each gender in wash station
- Much more signs
 - Larger and with arrows
- Spot clean people before doing a total wash to save time and manpower
 - Make wash station move much faster
- Discuss ranges for what levels to set screening for
- No tracking of people from registration
 - Why carry around paperwork?
 - Shouldn't they only get paper work after the registration station?
- Better ID/tracking system

Appendix E - CITI Training Certification

COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI)

HUMAN RESEARCH CURRICULUM COMPLETION REPORT

Printed on 06/21/2014

LEARNER Dan Baker (ID: 3852973)
PHONE 937-775-4000
EMAIL baker.218@wright.edu
INSTITUTION Wright State University
EXPIRATION DATE 11/24/2016

SOCIAL/BEHAVIORAL INVESTIGATOR

COURSE/STAGE: Basic Course/1
PASSED ON: 11/25/2013
REFERENCE ID: 11825102

REQUIRED MODULES	DATE COMPLETED	SCORE
Recognizing and Reporting Unanticipated Problems Involving Risks to Subjects or Others in Biomedical Research	11/25/13	6/6 (100%)
Cultural Competence in Research	11/25/13	5/5 (100%)
Students in Research	11/25/13	10/10 (100%)
History and Ethical Principles - SBE	11/25/13	5/5 (100%)
Defining Research with Human Subjects - SBE	11/25/13	5/5 (100%)
The Regulations - SBE	11/25/13	5/5 (100%)
Assessing Risk - SBE	11/25/13	5/5 (100%)
Informed Consent - SBE	11/25/13	5/5 (100%)
Privacy and Confidentiality - SBE	11/25/13	5/5 (100%)
Research with Prisoners - SBE	11/25/13	4/4 (100%)
Research with Children - SBE	11/25/13	4/4 (100%)
Research in Public Elementary and Secondary Schools - SBE	11/25/13	4/4 (100%)
International Research - SBE	11/25/13	3/3 (100%)
Internet Research - SBE	11/25/13	5/5 (100%)
Research and HIPAA Privacy Protections	11/25/13	5/5 (100%)
Vulnerable Subjects - Research Involving Workers/Employees	11/25/13	4/4 (100%)
Conflicts of Interest in Research Involving Human Subjects	11/25/13	1/5 (20%)
Wright State University	11/02/13	No Quiz

For this Completion Report to be valid, the learner listed above must be affiliated with a CITI Program participating institution or be a paid Independent Learner. Falsified information and unauthorized use of the CITI Program course site is unethical, and may be considered research misconduct by your institution.

Paul Braunschweiger Ph.D.
 Professor, University of Miami
 Director Office of Research Education
 CITI Program Course Coordinator

Appendix F – Wright State University IRB Exemption

Office of Research and Sponsored Programs
201J University Hall
3640 Col. Glenn Hwy.
Dayton, OH 45435-0001
(937) 775-2425
(937) 775-3781 (FAX)
e-mail: rsp@wright.edu

DATE: August 12, 2014

TO: Daniel Baker, PI, Graduate Student
Center for Global Health
Mark Gebhart, M.D., Faculty Advisor

FROM: B. Laurel Elder, Ph.D.
Chair, IRB-WSU

A handwritten signature in black ink, appearing to be "B. Elder".

SUBJECT: SC# 5607

'Development of Population Protective Procedures for a Radiological Event'

Your study does not meet the definitions for human subjects research. Therefore the proposal submitted does not need approval from the Wright State University Institutional Review Board.

If you have any questions or require additional information, please call Jodi Blacklidge, Program Facilitator at 775-3974.

Thank you!

Appendix G - Public Health – Dayton and Montgomery County Exemption



Public Health
Prevent. Promote. Protect.

Reibold Building
117 South Main Street
Dayton, Ohio 45422

937-225-4395 Voice
937-496-3070 Fax

Health Commissioner
James W. Gross, M.P.H.

**Assistant to the
Health Commissioner**
Jeffrey A. Cooper, M.S.

Medical Director
Thomas Herchline, M.D.

Board of Health

President
Emmett Orr, M.P.A.
President Elect
Ken Spires

Lloyd L. Laubach, Ph.D.

Jan Lepore-Jentleson

Gary L. LeRoy, M.D.

Patricia S. Meadows, MSSW

David Page, M.D.

John E. Rhodes, D.D.S.

J. Michael Sims

*Equal Opportunity
Employer/Service Provider*



Dayton & Montgomery County

September 29, 2014

Daniel Andrew Baker
[REDACTED]

Dear Mr. Baker:

IRB #: 2014.09.29.

Title of Proposal: Development of Population Protective Procedures for a Radiological Event.

The Public Health-Dayton & Montgomery County (PHDMC) Research Review Panel has reviewed and accepted your research project. You have been approved to conduct this study for one calendar year beginning September 29, 2014. Projects must be conducted in full accordance with the guidelines of Public Health-Dayton & Montgomery County (PHDMC).

Annually, **OR** when the project is completed, a project report must be submitted. For any research activity which continues beyond one year after the approval start date, project status reports will be requested by the PHDMC Research Review Panel. Any significant change in procedure, research participants, or plans to publish not addressed in the original project application must be reviewed and approved prior to implementation.

A confidentiality agreement must be signed by all research participants prior to the execution of any research activities. This agreement and any other signed documents will be kept by the PHDMC Research Review Panel for at least three years past completion of the research project.

Thank you for considering Public Health-Dayton & Montgomery County as an agency to assist you in your pursuit of scientific exploration. We look forward to working with you.

Sincerely,

James W. Gross, MPH
Health Commissioner

Appendix H – List of Competencies Met in CE

Tier 1 Core Public Health Competencies

Domain #1: Analytic/Assessment Skills
Applies ethical principles in accessing, collecting, analyzing, using, maintaining, and disseminating data and information
Uses information technology in accessing, collecting, analyzing, using, maintaining, and disseminating data and information
Collects valid and reliable quantitative and qualitative data
Describes assets and resources that can be used for improving the health of a community (e.g., Boys & Girls Clubs, public libraries, hospitals, faith-based organizations, academic institutions, federal grants, fellowship programs)
Domain #2: Policy Development/Program Planning Skills
Contributes to state/Tribal/community health improvement planning (e.g., providing data to supplement community health assessments, communicating observations from work in the field)
Contributes to development of program goals and objectives
Implements policies programs, and services
Gathers information for evaluating policies, programs, and services (e.g., outputs, outcomes, processes, procedures, return on investment)
Describes how public health informatics is used in developing, implementing, evaluating, and improving policies, programs, and services (e.g., integrated data systems, electronic reporting, knowledge management systems, geographic information systems)
Domain #3: Communication Skills
Suggests approaches for disseminating public health data and information (e.g., social media, newspapers, newsletters, journals, town hall meetings, libraries, neighborhood gatherings)
Conveys data and information to professionals and the public using a variety of approaches (e.g., reports, presentations, email, letters)
Communicates information to influence behavior and improve health (e.g., uses social marketing methods, considers behavioral theories such as the Health Belief Model or Stages of Change Model)
Facilitates communication among individuals, groups, and organizations
Describes the roles of governmental public health, health care, and other partners in improving the health of a community
Domain #4: Cultural Competency Skills
Describes the diversity of individuals and populations in a community
Describes the effects of policies, programs, and services on different populations in a community
Describes the value of a diverse public health workforce
Domain #5: Community Dimensions of Practice Skills
Recognizes relationships that are affecting health in a community (e.g., relationships among health departments, hospitals, community health centers, primary care providers, schools, community-based organizations, and other types of organizations)
Suggests relationships that may be needed to improve health in a community
Provides input for developing, implementing, evaluating, and improving policies, programs, and services
Informs the public about policies, programs, and resources that improve health in a community
Domain #6: Public Health Sciences Skills
Describes the scientific foundation of the field of public health
Identifies prominent events in the history of public health (e.g., smallpox eradication, development of vaccinations, infectious disease control, safe drinking water, emphasis on hygiene and hand washing, access to health care for people with disabilities)
Describes how public health sciences (e.g., biostatistics, epidemiology, environmental health sciences, health services administration, social and behavioral sciences, and public health informatics) are used in the delivery of the 10 Essential Public Health Services
Retrieves evidence (e.g., research findings, case reports, community surveys) from print and electronic sources (e.g., PubMed, Journal of Public Health Management and Practice, Morbidity and Mortality Weekly Report, The World Health Report) to support decision making
Recognizes limitations of evidence (e.g., validity, reliability, sample size, bias, generalizability)
Describes evidence used in developing, implementing, evaluating, and improving policies, programs, and services
Describes the laws, regulations, policies, and procedures for the ethical conduct of research (e.g., patient confidentiality, protection of human subjects, Americans with Disabilities Act)
Suggests partnerships that may increase use of evidence in public health practice (e.g., between practice and academic organizations, with health sciences libraries)

Domain #7: Financial Planning and Management Skills
Describes government agencies with authority to impact the health of a community
Contributes to development of program budgets
Describes how teams help achieve program and organizational goals (e.g., the value of different disciplines, sectors, skills, experiences, and perspectives; scope of work and timeline)
Uses evaluation results to improve program and organizational performance
Describes program performance standards and measures
Uses performance management systems for program and organizational improvement (e.g., achieving performance objectives and targets, increasing efficiency, refining processes, meeting Healthy People objectives, sustaining accreditation)
Domain #8: Leadership and Systems Thinking Skills
Incorporates ethical standards of practice (e.g., Public Health Code of Ethics) into all interactions with individuals, organizations, and communities
Describes public health as part of a larger inter-related system of organizations that influence the health of populations at local, national, and global levels
Describes the ways public health, health care, and other organizations can work together or individually to impact the health of a community
Contributes to development of a vision for a healthy community (e.g., emphasis on prevention, health equity for all, excellence and innovation)
Identifies internal and external facilitators and barriers that may affect the delivery of the 10 Essential Public Health Services (e.g., using root cause analysis and other quality improvement methods and tools, problem solving)
Describes needs for professional development (e.g., training, mentoring, peer advising, coaching)
Participates in professional development opportunities
Describes the impact of changes (e.g., social, political, economic, scientific) on organizational practices
Describes ways to improve individual and program performance

Concentration Specific Competencies

Emergency Preparedness:
Demonstrate the understanding of model leadership in emergency conditions
Communicate and manage information related to an emergency
Demonstrate the mastery of the use of principles of crisis and risk management
Use research and/or evaluation science methodologies and instruments to collect, analyze and interpret quantitative and qualitative data
Employ ethical principles in the practice of public health emergency preparedness
Demonstrate an understanding of the protection of worker health and safety