

Foreword

Prior to September 11, 2001, Americans defined disasters in terms of nature, traffic accidents, or domestic crime. Terrorism, war, even the threat of large scale horrors, were calamities to be feared by the rest of the world, tragedies that fell upon other people. They were not anything we needed to realistically fear here in our United States.

But on that Tuesday morning, we learned most personally that disaster – terrifying, unexpected, violent tragedy – does not only happen to someone else. It can happen to anyone. It happened to me. On 9/11/2001, my husband John was among the nearly 3,000 people killed when terrorists crashed their airplanes into the World Trade Center. My world, my children’s world, our nation’s world changed forever that day. It has not been, nor will ever be the same.

As a result, we as a nation are left feeling vulnerable and afraid. How are we to wake up and face each day confronting our frailty, our mortality, the real chance that a disaster can affect us personally? How can we be resilient? How can we enjoy the beauty of life amidst the threat of danger? How can we rise above the fear? It has not been an easy task for my children or me. We are not blessed with the ability to turn our faces away from the tragedy. We cannot pretend it did not happen, or find a sort of solace in the fact that we were spared and might continue to be spared. John is forever gone; the violent circumstances of his death firmly and forever imbedded in our minds and hearts.

“An ounce of prevention is worth a pound of cure.” A simple adage, but a rule to live by. This plain sentence is a priceless tool for all of us as we strive to be resilient in an

unsettled world. Many people believe that explaining or discussing possible threats, risks, and after-effects of disaster does nothing more than incite increased fear. Yet, as evidenced by the world-wide campaigns for self care and examination, and disease prevention, it is clear that the MORE information to which an individual has access, the MORE prepared he will be, and therefore, the LESS risk he will face in almost every situation. Information REDUCES fear. A future fraught with its share of adversity, but adversity for which one is prepared, is a future that holds less risk of tragedy.

We are human, and events like 9/11 remind us we are fragile and vulnerable. This book, *Resiliency in the Face of Disaster and Terrorism: 10 Things To Do To Survive*, by Dr. Joseph Napoli and Dr. V. Alex Kehayan, can be your tool, your source of information to be best prepared should disaster find itself at your front door. Both authors have seen the effects of fear in disaster survivors and in their patient populations, and have dedicated themselves, through this book, to help even more people fight the fear associated with today's world. They present their outreach experience and clinical expertise in such a way as to be most useful for everyone, including attention to special needs issues such as caring for children and seniors. This book offers information as well as instructions on how best to prepare yourself for the future and how best to strengthen your own resiliency.

MaryEllen Salamone

President

Families of September 11

Preface

Childhood trauma. Domestic violence. Fires. Homicide. Industrial accidents and disasters. Motor vehicle accidents. Natural disasters. Rapes. Suicides. Terrorism. Transportation disasters. Violence. Genocide. War.

We have worked with survivors who have faced a multitude of traumatic events. We have witnessed the resiliency of many survivors. We give you the benefit of our expertise derived from many years of experience, and share what we have learned from the survivors of disaster and terrorism. Our book condenses the essential collective knowledge in the fields of disaster mental health, emergency management, and public health. This simple, practical pocket guide will assist you – the general reader – to be a more resilient and effective disaster survivor. It will describe how you can help yourself and others in your community to carry on.

Alex & Joe

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Introduction

“Of a good beginning cometh a good end.”

John Heywood

1546

Why a guide about survival? We have produced this guide because disasters challenge our survival. How do we survive? We stay alive. We continue to function as individuals. We carry on as a society. The definition of disaster by the World Health Organization (WHO), as “a severe disruption – ecological and psychosocial – which greatly exceeds the coping capacity of the affected community,” addresses the twofold dimension of disaster. On the one hand, a disaster is a massive event that causes death and destruction. On the other hand, a disaster tears the social fabric, disrupting our human bonds and leading us to question the meaning of life. Disasters can injure our psychological functioning and test our ability to cope. Although the pocket guide emphasizes disasters, it does not neglect crises, that is, everyday tragedies, or “personal disasters,” that individuals and their loved ones try to endure. Both crises and disasters are psychosocial events that involve a threefold individual reaction. We react biologically. We react psychologically. We react as members of society. However, for convenience, we will use the term “disaster” throughout this guide instead of using “crisis” and “disaster.”

What about resiliency? Because we are mental health professionals, we focus primarily on your psychological survival. We believe that giving you knowledge about disasters and a set of practical tools strengthens resiliency, that is, the capacity to “bounce back.” We give you tips on how to cope,

conquer, adapt, and re-equilibrate (regain your balance and return to pre-disaster functioning or create a new level of functioning). We help you to move on, so you are not a victim of life's catastrophic events but a survivor. We emphasize the importance of respecting cultural differences when helping others to survive disasters.

Since disasters also threaten life and limb, we also emphasize what you can do to prevent death and bodily injury. We highlight the importance of safety and preventive measures. We outline specific actions that you should take to protect yourself and others. Even those methods that may not appear related to psychological wellness are actually basic to maintaining your emotional well-being. By being prepared and knowing what to do in the face of danger, you can eliminate the irrational fear that leads to panic. By knowing the ten basic things to do, you can act confidently and decisively.

What are the 10 things that you should do? You should do the following: 1) determine the types and frequencies of the disasters that might happen, especially in your community, 2) learn what to expect when a disaster strikes, 3) prevent disasters or lessen their impact, 4) prepare for disasters, 5) learn the human reactions to disaster, 6) decide when you need to seek help, 7) find out where to get help, 8) help yourself, 9) help others, and 10) convince yourself that doing the first nine things is essential for your survival and the survival of others.

In this time of terrorism, Homeland Security Advisory System alerts, Center for Disease Control and Prevention bulletins about new disease outbreaks, and daily media barrages with the latest news of violence and tragedy, convincing yourself to use this pocket guide should not be difficult. Do

we want to make you anxious? Yes we do! A little bit of anxiety is a good thing. It keeps us vigilant and ready. Nevertheless, too much anxiety interferes with our attention and ability to function. Therefore, when fear seems to dominate everyday life, we believe that you need to assess risk, maintain a proper perspective, and manage your fear. This book helps you manage your fear in two ways – it provides you with fear reduction strategies, and as a pocket companion, it puts essential information at your fingertips. In the words of Sir Francis Bacon, “Knowledge is Power.”

Disease outbreaks have occurred throughout history. Although the particular infectious agents may be new and the disease names – HIV, West Nile, SARS (Serious Acute Respiratory Syndrome) – may be recently coined, large disease outbreaks have always plagued mankind. Pestilence has always created the largest disasters. The wrath of Mother Nature – volcanic eruptions, earthquakes, floods, tornadoes, tsunamis – is very violent and more dramatic, but her stealth invaders, especially bacteria and viruses, are more deadly. In the Middle Ages, bubonic plague killed a third of the world’s population. The estimated worldwide death toll of the great influenza pandemic of 1918 was at least 50 million and possibly as high as 100 million people. Therefore, we tell you things to do when there is an outbreak of disease.

Some believe “no pain, no gain.” We reject this myth. Although disasters cause sorrow and emotional pain, we do not believe that severe suffering is necessary for psychological development. Enduring torment is only one path to personal growth. Therefore, you need not fear that recovery from a disaster will only occur if you embrace suffering. We prefer to place our reliance on the resiliency of the human spirit. Although we confront you with catastrophe and violence,

our message is one of hope. It is our wish that by using this guide you will not be a victim of a disaster but a survivor who may even grow from the experience.

Although some of the practical steps are geared to the United States, the many principles that we present are universal and may be applied anywhere in the world. Most private agencies listed in this guide are committed to global disaster relief. Our descriptions of governmental disaster preparedness, response structures, and programs in the United States illustrate the role of governments in countries throughout the world in helping their citizens survive disasters.

How does our guide's design help you? Simply put, it is user friendly. Our chapter title pages give you the main points and subject areas of each of the 10 things to do, so you can go straight to the parts that you want to pursue. We use a bullet format to emphasize things to learn, lists to remember, and the best actions to take. Our "Do You Know?" sections alert you to special topics. Boxes highlight important procedures and specific organizations that provide help. Other information is organized in tables for handy reference. You can make enlarged copies of forms and kit checklists and use them as part of your Family Emergency Preparedness Plan.

Read this guide. Digest its information. Carry it with you. Be prepared. Use your power to face traumatic events. Then you will be able to meet the challenge of disasters and help yourself and others to be resilient.

1 DETERMINE WHAT MIGHT HAPPEN

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WHAT MIGHT HAPPEN

*“We didn’t start the fire/
It was always burning/
Since the world’s been turning”*
Billy Joel
1989

In general, we should take an all hazards approach and be prepared for any disaster at any time. Nevertheless, it is advantageous to know the potential for specific events. In order to prevent, it helps to know what we are preventing. In order to be ready, it is best to be specific with our preparations. Therefore, it is important to know what disasters might occur, especially those that might typically occur in your community.

What is the risk of a particular traumatic event occurring? Which ones are more likely to occur? Which ones are less likely to occur? How frequently do particular events occur? How deadly and devastating are they? By answering these questions, we are able to better prevent and prepare.

Below we provide partial lists of disaster or emergency events that occur respectively in the United States and in the world (including the United States). For comparison, we have also included some non-disaster events such as fatalities due to cancer or poverty. We present this data as approximate frequencies, which are more dramatic than statistical measures of percentages, risk ratios, and the number per 100,000 of the population. However, bear in mind that these events do not necessarily occur at regular intervals. The frequency method spreads the events out over an entire year even though they might have occurred in clusters within a year.

For example, several civilians might have died during a single terrorist attack, but these fatalities are accounted for as if they occurred over time.

FREQUENCY OF EVENTS IN THE UNITED STATES

On average, every:

- ⇒ 1.6 seconds a person experiences a disabling injury due to an accident
- ⇒ 2.5 seconds a person experiences a heart attack
- ⇒ 4.7 seconds an acre of forest is destroyed by wildfire
- ⇒ 5.0 seconds a motor vehicle accident occurs
- ⇒ 6.3 seconds a woman is the victim of domestic violence
- ⇒ 7.7 seconds a person experiences a workplace injury
- ⇒ 9.9 seconds a person experiences a motor vehicle accident injury
- ⇒ 44.5 seconds a person dies from heart disease
- ⇒ 57.3 seconds a child is neglected
- ⇒ 57.3 seconds a person dies from cancer
- ⇒ 1.2 minutes an elderly person is abused
- ⇒ 1.3 minutes a tobacco related death occurs
- ⇒ 1.6 minutes a child is abused
- ⇒ 1.8 minutes an obesity related death occurs
- ⇒ 2.6 minutes a woman is raped
- ⇒ 2.6 minutes a person is hospitalized for influenza
- ⇒ 4.4 minutes a pregnant woman is involved in a motor vehicle accident
- ⇒ 5.2 minutes an alcohol related death occurs
- ⇒ 5.3 minutes a thunderstorm occurs
- ⇒ 5.8 minutes a person is injured during a tornado
- ⇒ 6.8 minutes a wildfire ignites
- ⇒ 9.7 minutes a person dies due to an accident not involving a motor vehicle

- ⇒ 12.3 minutes a person dies due to a motor vehicle accident
- ⇒ 13.1 minutes a person becomes infected with HIV
- ⇒ 13.1 minutes a person dies from influenza
- ⇒ 15 minutes a fire breaks out
- ⇒ 18.2 minutes a person is shot to death
- ⇒ 18.6 minutes a person commits suicide
- ⇒ 18.8 minutes a person is injured in a fire
- ⇒ 32.7 minutes a homicide is committed
- ⇒ 34.5 minutes a person dies from HIV
- ⇒ 35 minutes an alcohol related motor vehicle death occurs
- ⇒ 43.8 minutes an emergency vehicle accident occurs
- ⇒ 1.3 hours a candle ignites a fire
- ⇒ 1.6 hours a person dies in a fire
- ⇒ 1.6 hours a boating accident occurs
- ⇒ 1.7 hours a person dies due to a workplace accident
- ⇒ 2.4 hours a person dies due to a motorcycle accident
- ⇒ 2.5 hours an earthquake occurs
- ⇒ 18.3 hours a fetus is killed due to a motor vehicle accident
- ⇒ 13.7 hours workplace violence occurs
- ⇒ 1.1 days a railroad crossing fatality occurs
- ⇒ 1.2 days a person is injured by lightning
- ⇒ 1.7 days a person dies due to a thunderstorm
- ⇒ 1.9 days an explosion occurs
- ⇒ 2.6 days a person dies due to a flash flood
- ⇒ 3.7 days a person dies due to lightning
- ⇒ 11 days a child is shot to death
- ⇒ 11 days a person dies in a landslide
- ⇒ 33.2 days a major landslide occurs
- ⇒ 34.7 days a person dies due to an aviation accident

- ⇒ 91.3 days a fatal train wreck occurs
- ⇒ 162.3 days an aviation disaster occurs
- ⇒ 182.6 days an act of international terrorism occurred (1991 to 2000)
- ⇒ 219 days a hurricane occurs
- ⇒ 219.2 days a school shooting involving mass casualties occurs
- ⇒ 260 days a person died due to an act of international terrorism (1991 to 2000)
- ⇒ 365 days a nuclear power plant accident occurs

(In stark contrast to the above events, there has been only one major nuclear power plant accident which occurred in 1979. Also, twenty-two individuals were infected and five died during the anthrax terrorism in 2001.)

FREQUENCY OF EVENTS IN THE WORLD

On average, every:

- ⇒ 1.1 seconds a person is injured in a motor vehicle accident
- ⇒ 2 seconds a thunderstorm occurs
- ⇒ 3.6 seconds a person dies because of poverty
- ⇒ 11.3 seconds a person dies from HIV
- ⇒ 17.3 seconds a child dies from malaria
- ⇒ 26.3 seconds a person dies due to a motor vehicle accident
- ⇒ 60 seconds a person dies due to interpersonal violence
- ⇒ 1.7 minutes a person dies in an armed conflict
- ⇒ 1.8 minutes a woman is raped
- ⇒ 8.4 minutes a person dies due to a disaster
- ⇒ 16.9 minutes an earthquake occurs
- ⇒ 3.2 hours a person dies due to an aviation accident

- ⇒ 3.8 hours a civilian dies due to terrorism
- ⇒ 23.1 hours a terrorist incident occurs
- ⇒ 3.6 days a hurricane occurs
- ⇒ 7.1 days a volcano erupts
- ⇒ 15.4 days an aviation accident occurs

(The approximate death toll from the 2004 Asian tsunami was 173,906 compared to an estimated 1,825,000 children who die from malaria each year.)

NATURAL DISASTERS AND EMERGENCIES

Avalanches: An avalanche occurs when a mass of snow breaks loose from a mountainside. It can travel at speeds over 200 mph (322 kmph).

Droughts: A drought is a prolonged period of drier than normal weather. The US Weather Service defines a drought as at least 21 consecutive days of 30% or less of the average rainfall for a particular area and season.

Earthquakes and Tsunamis: An earthquake is the powerful shaking of the earth caused by the release of pressure that has built up as two large sections (tectonic plates) of the earth's crust grind against each other along a fault line. The amount of ground movement is measured using the Richter scale devised in 1935 by geologist Charles Richter. A tsunami, a Japanese word meaning "harbor wave," is a wave triggered mostly by an undersea earthquake. The wave grows to tremendous size (up to 90 feet in height) as it travels at speeds of up to 398 mph (640 kmph) and can reach several miles inland. Alaska, California, Hawaii, Oregon, and Washington are states that have experienced tsunamis.

Extreme Heat: Heat waves – prolonged high environ-

mental temperatures – create emergency conditions because they can cause illness and death, especially in the elderly, young children, and those who are ill or overweight.

Floods: Floods can be caused by heavy rains, hurricanes, melting snow, collapsing dams, etc. and account for over 40% of natural disaster deaths worldwide.

Hurricanes (tropical cyclone): A hurricane is an intense tropical circulating weather system. The word hurricane is from Mayan and Crib Indian roots and means “evil spirit,” “storm god,” or “devil.” Hurricanes are classified using the Saffir-Simpson Scale devised by Herbert Saffir, an engineer, and Dr. Robert H. Simpson, former director of the National Hurricane Center, that ranks hurricanes according to degree of damage and rate of sustained winds. Less intense tropical circulating weather systems are termed tropical depressions and tropical storms. A storm surge is a large wave of water between 50 to 100 miles wide that moves across the coastline where a hurricane makes landfall. A storm tide is a storm surge combined with the normal tide. Therefore, when a storm surge occurs during high tide, the height of the water is even greater. The storm tide of Hurricane Camille in 1969 was 25 feet high. Hurricanes can grow to 500 miles in diameter. The hurricane season starts in June and extends through November. It peaks from mid-August to mid-October. The Atlantic and Gulf coastal states, and the Caribbean islands are at risk. In the Pacific Ocean, Hawaii, Guam, American Samoa, and other islands are at risk. In the western pacific, these weather systems are called typhoons. They are referred to as cyclones when they strike the coastlines along the Indian Ocean.

Landslides and Mudslides: These are movements of

huge masses of earth that may travel at speeds in excess of 200 mph. Earthquakes, heavy rain, and construction can trigger them. Sinkholes are horizontal depressions in the ground that develop suddenly and rapidly due to the loss of underground support.

Thunderstorms and Lightning: These storms, which cover a small area compared to hurricanes and winter storms, can cause severe flooding and lightning damage. A thunderstorm is described as “severe” if it produces either hail at least three-quarter inch in diameter, winds 58 mph or higher, or tornadoes. Lightning can occur anywhere, anytime, and without any rain. Thunderstorms are most likely to occur in the spring and summer, but can occur all year round.

Tornadoes: Tornadoes are rotating columns of air that extend from swelling cumulonimbus clouds to the ground. Although 40% of the tornadoes in the United States occur in the central plains states from March through July, they can happen anywhere. More tornadoes touch down in the United States than any other country.

Volcanic Eruptions: There are about 600 active volcanoes or vents through which molten rock escapes from beneath the earth’s surface. Many erupt periodically without any threat to human life or property. Some volcanoes produce a continuous lava flow; others cause powerful explosions that hurl ash and volcanic fragments into the sky. After being dormant for 123 years, Mount St. Helens in Washington state erupted on May 18, 1980, producing an ash cloud fifteen miles high, causing 60 deaths, destroying 123 homes, and devastating tens of thousands of acres of forest.

Wildfires: These fires can spread rapidly, setting brush and trees ablaze, and leaving the earth scorched. Wildfires

cause an average loss of 2 million acres a year in the United States. Hot summers produce tinder-dry conditions that leave the countryside vulnerable to accidental or deliberate man-made fires. Dwellings near wooded areas can easily be engulfed in the flames of an advancing wildfire.

Winter Storms and Blizzards: Blizzards consist of sustained winds or frequent gusts to 35 mph or greater and considerable falling and blowing snow that reduces visibility to less than a quarter mile. In March 1888, a blizzard devastated the coastal northeastern United States from Washington, DC to Maine and probably caused about 800 deaths.

CYBER INCIDENTS

Cyber (computers and their support systems) incidents could be caused by natural disasters which could damage or destroy equipment. In addition, financial, security, and transportation information systems could be disrupted or destroyed by the introduction of computer viruses or worms. An intruder could hack into a computer system and take it over.

CBNRE (CHEMICAL, BIOLOGICAL, NUCLEAR, RADIOLOGICAL, AND EXPLOSIVE AGENTS)

Chemical: There are four categories of chemical weapons: 1) blister agents: used to incapacitate by producing eye, skin, and respiratory irritations and pain (mustard agents, Lewisite, and phosgene oxime), 2) blood agents: used to cause death by destroying tissues, thereby causing breathing to stop and cardiac arrest (hydrogen cyanide and cyanogen chloride), 3) nerve gases: used to block nerve functioning and cause convulsions and death (Tabun, Sarin, Soman, and VX), and 4) lung toxins: used to damage the

capacity to breathe (phosgene and diphosgene). In addition, conventional explosives could be used to damage a chemical plant and cause clouds of hazardous materials to disperse over the surrounding population. Disasters involving hazardous chemicals may also occur by accident during the manufacturing process or while the chemicals are being stored or transported.

Biological: Although there are numerous infectious agents, the most likely biological agents that would be used are rated by the CDC as highest risks (category A). They are anthrax, botulism, plague, smallpox, T2 mycotoxins, tularemia, and viral hemorrhagic fevers. Secondary agents include brucellosis, glanders, melioidosis, psittacosis, Q fever, ricin, and staphylococcal enterotoxin B.

Radiological: A dirty bomb or Radioactive Dispersal Device (RDD) is a bomb made of conventional explosives contaminated with a small amount of radioactive material. When the bomb is detonated (most likely in a crowded area), the explosion would cause structural damage and human injuries, deaths in the adjacent area, and spew out radioactive material so that it contaminates people over a wider area. Radiological events could also occur by accident within industrial, medical, or research facilities or during the transportation of radioactive material or waste. However, the handling and transportation of radioactive material is so highly regulated and safeguarded that these events are of low frequency and/or intensity. Since conventional explosives and radioactive material and waste are plentiful, a dirty bomb scenario is very likely.

Nuclear: Two possible nuclear scenarios are: 1) a terrorist piloted plane or planes carrying explosives could crash

into a power plant nuclear reactor causing an explosion and damage that allows radioactive gases to spew from the plant, and/or 2) a small nuclear device or portable bomb could be detonated in a crowded area. Fortunately, although such bombs exist, experts believe that terrorist groups do not presently possess them. Nuclear power plant events may occur by accident. Two notable nuclear power plant accidents occurred at Three Mile Island, Harrisburg, Pennsylvania on March 28, 1979, and at Chernobyl in the former USSR on April 25-26, 1986.

Explosives: Conventional explosives are the most likely type of terrorist weapon. The ingredients are inexpensive, readily available, and easily assembled. Presently, this is the most widely used method and includes the use of suicide bombers, especially in crowded areas or on public transportation. In the United States there have been terrorist bombings of cars and buildings. The Unibomber killed his victims by sending bombs through the mail. The first attack on the World Trade Center on February 26, 1993, and the bombing of the Murrah Federal Building in Oklahoma on April 21, 1995, used bombs made of fertilizer that were carried respectively in a van and a rental truck. Other terrorist bombings include: the Fraunces Tavern in New York City that killed four and injured sixty by the Armed Forces of the National Liberation (Fuerzas Armadas de Liberacion Nacional (FALN)) on January 24, 1975, and the US Department of State building in Washington, DC on January 29, 1975 by the Weather Underground Organization during the Vietnam war.

2 LEARN WHAT TO EXPECT

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LEARN WHAT TO EXPECT

“If anything can go wrong, it will.”

Murphy’s Law

In this section we describe the details of what a disaster could possibly do to your community before, during, and after it strikes. Chaos is the essence of any disaster because existing social structures and infrastructures are destroyed. Even carefully planned responses by emergency workers are often frenzied. The degree of chaos is proportional to the magnitude of the disaster. However, even a disaster of low magnitude may be experienced subjectively as extremely chaotic.

First, we present a general list of things to expect that apply to all hazards. Although chaos is part of any disaster, the specific things that might go wrong are largely dependent on the type of event, its intensity and size, its duration, its location, how many people are involved, and what is impacted. Then, we list specific consequences that are associated with particular disasters.

FOR ANY TYPE OF DISASTER (ALL HAZARDS)

Before a Disaster (Warning Phase)

For events for which there can be warnings, there will be:

- ⇒ Public broadcasts of public advisories and warnings
- ⇒ Excited and anxious people
- ⇒ Increased activity
- ⇒ Increased traffic and traffic jams
- ⇒ Shopping for water, food, and emergency supplies

- ⇒ Evacuation routes bumper-to-bumper, if authorities order an evacuation
- ⇒ Roads and areas closed by law enforcement personnel

Immediately after Impact (Response Phase)

- ⇒ Chaos! Chaos! Chaos!
- ⇒ Damage and destruction
- ⇒ Disruption of transportation
 - ◆ roads and bridges blocked, damaged, or destroyed
 - ◆ grounding of air travel
- ⇒ Hazardous material conditions
- ⇒ Lack of water
 - ◆ contaminated water
 - ◆ disruption of water supply
- ⇒ Loss of communications including:
 - ◆ cellular phones
 - ◆ emergency communication systems
 - ◆ pagers
 - ◆ pay phones
 - ◆ radio and/or TV transmission
 - ◆ telephones
- ⇒ Mass casualties and injuries
- ⇒ Outbreaks of fires
- ⇒ Power outages causing loss of:
 - ◆ air conditioning

- ◆ ATMs
- ◆ computer (automated data processing) systems unless battery operated backup
- ◆ electric appliances including microwave ovens and electric stoves
- ◆ heat
- ◆ lights including street lights
- ◆ refrigeration
- ◆ television and radios unless battery operated
- ◆ traffic signals
- ◆ water for people who use well water obtained via electric pumps

Over Time after a Disaster (Recovery Phase)

- ⇒ Economic hardship
- ⇒ Health hazards and disease
- ⇒ Huge financial cost for reconstruction
- ⇒ Increased prices because of shortage of goods due to crop damage, disruption of production, and/or increased demand
- ⇒ People dislocated
- ⇒ Waste accumulation due to:
 - ◆ disruption of garbage collection
 - ◆ spoiled food
 - ◆ sewage processing plants unable to operate

SPECIFIC CONSEQUENCES OF PARTICULAR TYPES OF DISASTERS

Disease Outbreaks

The course and speed of a disease outbreak depends on opposing forces. On the one side, the factors are lethality of the biological agent (virulence), disease transmission, environmental conditions, such as overcrowding or poor sanitation, and human behaviors that might enhance the transmission of the disease. On the other side, working against the spread of disease are countermeasures such as public health surveillance, immunization, changes in human behavior, medication, and quarantine, that is, isolating infected individuals so that they will not infect others. An epidemic can be prevented or controlled by public health measures such as educating the public, promoting sanitary conditions, reporting and tracking of new cases, and reducing the populations of disease carrying animals (vectors).

SARS (Serious Acute Respiratory Syndrome) is an example of a relatively contained disease outbreak. From November 2002 through June 12, 2003, SARS, a potentially severe form of pneumonia, infected 8,500 and caused about 800 fatalities worldwide. It is believed that this illness started in China and was identified in Vietnam in February 2003. In July 2003, the World Health Organization (WHO) declared the end of the global outbreak. In contrast, malaria is still a huge health menace in underdeveloped countries. Although the annual influenza outbreak is small compared to the influenza pandemic of 1918, influenza still causes about 36,000 deaths each year in the United States.

Natural Disasters

Geological and weather events may range from those that inflict little or no damage on people and their living environment to disasters that cause mass casualties, widespread devastation, and billions of dollars in losses.

Other Disasters

- ⇒ Industrial disasters may involve fires and explosions that cause the release of hazardous materials into the air, necessitating the evacuation of the surrounding areas.
- ⇒ Transportation disasters – motor vehicle accidents, aviation disasters, naval disasters, train wrecks – may involve many people and result in mass casualties, hazardous material spills and fires. Trapped individuals will need extrication.

Terrorism

- ⇒ Cyber Terrorism
 - ◆ corruption of data files
 - ◆ disruption of information systems
 - ◆ disruption of banking, transportation and/or utilities
 - ◆ disruption of the availability of food and pharmaceuticals
 - ◆ disruption of government operations
 - ◆ impact on economy
- ⇒ CBRNE Agents

Chemical: People contaminated by a chemical agent would become sick immediately. The degree of illness would

depend upon the type of chemical and degree of exposure. The number of casualties would depend on the agent, the amount released, the number of people exposed, and the area in which it was released, for example, indoors or outdoors. Hazardous material units would respond, set up decontamination facilities, and decontaminate people. Decontamination would also take place in facilities set up adjacent to hospitals.

Biological: There would usually be no awareness of an attack until several days after the release of the biological agent. The first reported symptoms would not likely be recognized as terrorist related. As the number of individuals reporting similar symptoms increases, public health surveillance methods would detect the surge of cases, and bioterrorism would be suspected. An investigation would be launched to determine the origin of the illness. As more individuals become ill and require treatment, an even larger number of people may become exposed and need preventive interventions. Treatment centers, called points of distribution (POD), would be set up in various locations and staffed by health personnel to distribute antibiotics or administer vaccinations. The National Pharmaceutical Stockpile would provide medication and vaccines to augment the local supply. [See “Do You Know?” “National Pharmaceutical Stockpile” in Chapter 4, p. 72.]

Radiological/nuclear: The degree of destruction would depend upon whether a nuclear device is detonated (most destructive/very high radioactivity), a dirty bomb is exploded (destruction depends on amount of explosives/ not much radioactivity), or a nuclear power plant is attacked (not much destruction outside the plant/could be high radioactivity). A detonated nuclear device would be very devastating. There

would be a powerful shockwave causing buildings to implode and generating a wind that would demolish structures and forcefully propel people and objects. Intense heat and light from the thermal radiation would burn and blind people and ignite fires. The electromagnetic pulse (EMP) would destroy all electronic circuitry so that cars, computers, and communication equipment would not function. People exposed to a high level of radiation would develop acute radiation sickness (ARS), causing serious tissue damage and producing symptoms within minutes or hours. Those who survived the nuclear blast would probably have about a 15% increased risk of developing cancer over the long term.

Explosives: The number of injuries and fatalities and amount of property damage would depend upon the amount of explosives, where they were placed, how many people were in the vicinity, and whether the explosives were detonated out in the open (less impact) or in an enclosed area (greater impact).

GROUPS WITH SPECIAL NEEDS

There are individuals in certain groups that have special needs compared to others in the general population. In this chapter, we highlight these groups by listing the possible additional disruptions and environmental changes that might impact them. In subsequent chapters, we describe other aspects about these groups specific to those chapter topics.

Children

- ⇒ Compromised school operations
- ⇒ Disruption of activities outside of school

Physically Disabled

- ⇒ Disruption of service delivery
- ⇒ Destruction of the usual accessible environment

People with Serious Mental Illness

- ⇒ Disruption of service delivery:
 - ◆ Service center, such as the Community Mental Health Center, is impacted by the disaster.
 - ◆ Provider resources are diverted to emergency services for disaster victims.
- ⇒ Changes in the environment:
 - ◆ Client cannot get to service center because public transportation is disrupted.
 - ◆ Stabilizing psychiatric medications become unavailable.

Seniors

- ⇒ Disruption of service delivery:
 - ◆ The senior center is impacted by the disaster and cannot provide services such as meals and health clinics.
 - ◆ Health center services are disrupted or diverted to care for disaster victims.
- ⇒ Changes in the environment:
 - ◆ Client cannot get to service center because public transportation is disrupted.
 - ◆ Disease stabilizing medications become unavailable.

DO YOU KNOW?

Disaster Phases



Do you know the different phases of a disaster?

Before

Mitigation: Before or in between disasters, we take steps to prevent or lessen the impact of potential disasters. For the community, this might consist of the government establishing a water control project to reduce the possibility of flooding. For a family, this might be installing smoke detectors in the home. [See Chapter 3 - “Prevent” - p. 29.]

Preparedness: In this phase people plan and train for emergencies, and perform practice exercises. At the local level, a Local Emergency Planning Committee (LEPC), Emergency Management Council, or similar government group comprised of government officials, the Office of Emergency Management Coordinator, representatives of the emergency services, and citizens design an emergency plan. Likewise, each family should develop their emergency or disaster plan. [See Chapter 4 - “Prepare” - p. 52.]

Warning: This phase starts from the time of the detection of the threat and runs to the time of impact. For some disasters, such as hurricanes and winter storms, there is a long warning phase. For other disasters, this phase may be very short, for example, not more than about on average 13 minutes for some tornadoes. There may be no warning for other disasters, such as earthquakes or transportation accidents. [See “Alert Systems” in Chapter 4, p. 59 and 67.]

During

Impact: The disaster strikes. The duration of the impact varies – minutes for an explosion, hours for a hurricane and even days for a major flood. During this phase, if they have not evacuated, individuals take action for their protection and survival.

After

Response: During this phase responders are engaged in immediate emergency action. The major goals are to keep people safe and restore order out of the chaos caused by the disaster. The objectives are to save lives, protect property, and minimize psychological injury. Therefore, the tasks are rescuing, combating the threat (for example, extinguishing a fire), administering emergency medical care, protecting people, caring for basic needs, and providing emotional support. This phase may range from hours to days or even weeks depending on the nature and size of the disaster.

The impact and response phases combined are also referred to as the emergency phase.

Recovery: This phase extends over the long term and may last years. The goal is to return to either the pre-disaster state or fashion a new and better way of life. People attend both to practical tasks such as repairing or replacing damaged property as well as to psychological tasks such as grieving for loved ones who died, coping with the loss of belongings, and healing from the trauma. For a few, it is a period to recover from physical injuries and/or receive treatment for mental disorders caused by the traumatic event. Some individuals may need to resolve deeper emotional issues that existed before the disaster and have become worse. If not addressed,

these emotional issues would likely impair their ability to cope with life's responsibilities and experience life's joys.

There are specific things that you can do to help yourself and others during the emergency and recovery phases. [See Chapter 8 - "Help Yourself" - p. 14 and Chapter 9 - "Help Others" - p. 164.]

Response Sequence



Do you know the sequence of an emergency response to a disaster?

Minutes to Hours: The local emergency services respond - police, fire, emergency medical services. As the incident grows in size, the Office of Emergency Management (OEM) responds to provide coordination and supply more resources. An incident command center is established near the scene. The incident commander directs the emergency response with the assistance of representatives from each of the emergency services. The National Incident Management System is the national standard method for directing an emergency operation. It provides a common technical language and emergency standard operating procedures (SOP) throughout the United States. As the need increases for additional emergency resources, the incident commander requests mutual aid responses from neighboring jurisdictions and finally from state agencies. As the emergency operation grows, an Emergency Operation Center (EOC) housed permanently in a specific location is placed into operation. The staff at the EOC arrange for resources needed by the incident command. There are local EOC's for local emergency operations and state EOC's for state level disasters.

State of Emergency: The local government declares a "state of emergency" because of the magnitude and duration

of the disaster. The state government may also call a “state of emergency” because it is impacting several local government jurisdictions in the state. The governor may also activate the state’s National Guard units.

Federal Response: Once a state declares a “state of emergency,” the federal response is activated. Responding agencies would include the Office of Emergency Preparedness (OEP) and the Federal Emergency Management Agency (FEMA), both of which are divisions of the Department of Homeland Security. If the disaster requires a federal public health response, the Center for Disease Control and Prevention (CDC) is called in. Other government entities such as the military may also respond.

3 PREVENT

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PREVENT

*“Watch out for danger and chaos when they are still formless
and prevent them before they happen.”*

Sun Tzu
505-473 B.C.

Knowledge is power. Now that you have read the first two chapters, and you know what to expect, use this as a springboard to learn the appropriate preventive actions.

Why is prevention essential? Even a small preventive step such as wearing an automotive seatbelt can yield enormous benefit. An estimated 135,000 lives have been saved from 1975 through 2000 by this simple change in our behavior.

There are multiple ways to prevent or mitigate. Public health uses the term “prevention.” Emergency management uses the term “mitigate,” that is, to lessen. There are three types of prevention: primary, secondary, and tertiary. Primary prevention is lessening or eliminating exposure to a danger. Secondary prevention is stopping the consequences (likely effects) after being exposed. Tertiary prevention is stopping the long-term effects once short-term effects develop.

In medical terms, primary prevention limits exposure to what causes a disease. Secondary prevention wards off a disease after a person is exposed to a disease-causing agent or event. Tertiary prevention lessens the likelihood of disability developing after the onset of an illness or injury.

Using the example of a terrorist attack, primary prevention begins with law enforcement investigation and surveillance to detect an imminent attack. Suspected terrorists are

apprehended before the attack is carried out. You can practice primary prevention by being vigilant and reporting suspicious activities.

In secondary prevention, emergency personnel are ready and respond quickly to an attack. After experiencing an event, you can protect yourself and others from harm by taking certain actions. Decontaminating yourself after being contaminated with a hazardous material is an example of secondary prevention.

In tertiary prevention, government and relief agencies provide assistance and funds for recovery. If your arm is injured during a terrorist attack, you can practice tertiary prevention by engaging in physical therapy to prevent permanent disability.

The first principle of prevention or mitigation is “always place safety first.” We have listed procedures to maintain your health and well-being, in addition to measures that might prevent or limit exposure to an accident, crisis and/or disaster. Although some of these actions provide secondary and tertiary prevention, you need to do them before the event, for example, purchasing insurance. Therefore, we have organized what you should do in a chronological sequence – “What to Do Before” and “What To After” – and within each group according to the type of prevention. Since this guide is not a first aid manual, we have not included any first aid procedures. Instead, we recommend that you take courses in first aid and CPR.

THINGS TO DO BEFORE

Keeping an Event from Happening or Preventing Exposure to an Event (Primary Prevention)

⇒ Practice safety principles and procedures. For example:

- ◆ Be mindful of risks and potential dangers.
- ◆ Avoid storing flammable materials in your home.
- ◆ Be careful about storing non-flammable hazardous materials, for example household cleaning agents, in your home, especially if children or pets are present.
- ◆ Be extremely careful if you use candles.
- ◆ Smoke safely, if you must smoke. For example, refrain from smoking in bed.
- ◆ Keep all matches, lighters, and flammables out of the reach of children.
- ◆ Lock medications away from children.
- ◆ Drive safely and defensively.
- ◆ Drive only when alert and fully awake. Be especially careful when taking over-the-counter or prescription medications that might make you drowsy.
- ◆ Drive only if sober.
- ◆ Stop friends and/or family members from driving while intoxicated.
- ◆ Avoid talking on a cellular phone while driving.
- ◆ Practice bicycle safety, including wearing a helmet.
- ◆ Wear appropriate safety equipment when engaged in sports.
- ◆ Practice gun safety if you own and/or use firearms.
- ◆ Avoid walking alone after dark.

- ◆ Practice safety procedures on your job. [See “Do You Know?” – “In The Workplace” – in this chapter, p. 38.]
- ⇒ Live a preventive and healthy lifestyle, and practice risk avoidance.
 - ◆ Resist smoking tobacco.
 - ◆ Avoid drug use.
 - ◆ Make responsible decisions about drinking alcoholic beverages.
 - ◆ Maintain a healthy diet.
 - ◆ Exercise regularly.
 - ◆ Schedule time for sufficient rest and relaxation (R & R).
 - ◆ Maintain good sleep habits.
 - ◆ Get regular medical check-ups and screening tests as recommended.
 - ◆ Be aware of the risks of driving, having unprotected sex, and using drugs; especially make certain your teenagers are aware.
- ⇒ Be mindful of security, and practice security procedures. For example:
 - ◆ Use your vigilance and intuition (“Listen to your gut.”) to detect potential threats.
 - ◆ Report suspicious activity to police or other authorities such as security personnel.
 - ◆ Safeguard your home with proper locks and lighting.

- ◆ Protect your identity by refusing to give any identity information to unknown telephone callers.
- ⇒ Practice health precautions when traveling, including recommended immunizations.
- ⇒ Practice electronic protection and cyberspace security. For example:
 - ◆ Protect your computer by using a surge protector.
 - ◆ Use a backup battery for power outages.
 - ◆ Use anti-virus and internet security software.
 - ◆ Update virus definitions and security software frequently.
 - ◆ Open e-mail attachments only from known senders.
 - ◆ Resist forwarding e-mail that you have received from unknown sources.
 - ◆ Download updates as soon as you are notified that they are ready.
 - ◆ Avoid suspect internet sites.
 - ◆ Be careful about what you download.
- ⇒ Evacuate, if directed, during the warning phase of an impending disaster, for example, a flood, hurricane, or tsunami.

Lessening the Impact of an Event (Secondary Prevention)

- ⇒ Prepare for disasters. [See Chapter 4 - “Prepare” - p. 52.]
- ⇒ Wear seatbelts, use safety cribs for babies, and safety harnesses for children.
- ⇒ Wear a medical information bracelet or neck chain to identify medical conditions, allergies, medications you

are taking that might cause dangerous drug interactions, and/or special needs, for example, blood type; ask your pharmacist for the names of the companies that sell these bracelets and chains.

- ⇒ Install smoke detectors in your home, and change batteries at least twice per year (when you change your clocks for daylight savings time in April and back to standard time in October).
- ⇒ Install a carbon monoxide detector in your home.
- ⇒ Place an ABC fire extinguisher in your kitchen.
- ⇒ Keep an emergency kit in your car or vehicle. [See – “Car or Vehicle Emergency Kit Checklist” – in Chapter 4, p. 66.]
- ⇒ Strengthen your home against, natural disasters.
 - ◆ If you are building a home, follow the building code, especially regarding special requirements for earthquakes, hurricanes, etc., in areas likely to be at risk for specific disasters.
 - ◆ Consider using construction methods to protect your home from the potential damage of natural disasters even if they are not required by the building code.
 - ◆ Bring an older home up to code.
- ⇒ Practice electronic protection and cyberspace security. For example:
 - ◆ Create an emergency recovery disk.
 - ◆ Keep the original disks of your software and make back-up copies.

- ◆ Back-up your data files.
 - ◆ Store back-up files in a secure place or places.
 - ◆ Store second back-up files at a separate location.
 - ◆ Use and periodically change passwords.
- ⇒ Secure your financial data.
- ◆ Keep financial affairs up-to-date.
 - ◆ Maintain essential financial records.
 - ◆ Store financial records in a safe place, for example, a waterproof, fire resistant safe box with a lock, or bank safety deposit box.
- ⇒ Protect your business.
- ◆ Use backup and data recovery software.
 - ◆ Have a remote location to electronically store and replicate critical business data.
 - ◆ Install or arrange for a backup telecommunication system.
 - ◆ Arrange for an alternate place to conduct business.

Lessening a Permanent State of Impairment (Tertiary Prevention)

- ⇒ Maintain an inventory, preferably with photographs of your valuable belongings.
- ⇒ Get flood insurance if you live on a flood plain (your regular home insurance does not cover flood damage). [See “Do You Know?” – “Flood Insurance” – in this chapter, p. 40.]
- ⇒ Make sure your homeowners insurance includes coverage for terrorism.

THINGS TO DO AFTER

Lessening the Impact of an Event (Secondary Prevention)

- ⇒ Take survival action.
 - ◆ Evacuate, when necessary. *
 - ◆ Rescue, if possible.
 - ◆ Shelter in place, when appropriate. *
- * [See “Do You Know?” – “Evacuate vs. Shelter in Place” – in this chapter, p. 41.]
- ⇒ Call 911.
 - ◆ Decontaminate, if necessary. [See “Do You Know?” – “Decontamination vs. Privacy” – in this chapter, p. 43.]
- ⇒ Practice safety.
- ⇒ Attend to medical emergencies. [See “Do You Know?” boxes – “1 vs. 2 or More Collapsed Victims Rule” and “Collapsed or Seriously Injured Victim” – in this chapter, p. 49.]
- ⇒ Prevent further structural damage.
 - ◆ Turn off utilities at main shut-offs, if not a risk to do so.
 - ◆ Secure structure. For example, board up windows and entry doors.
- ⇒ Attend to basic needs.
- ⇒ Attend to mental health and social needs.
- ⇒ Take essential financial records with you if you evacuate.

Lessening a Permanent State of Impairment (Tertiary Prevention)

- ⇒ Inspect your residence for structural damage, if safe to do so.
- ⇒ Document damage with written inventory and photographs.
- ⇒ Get damage assessment from Red Cross and/or your insurance company.
- ⇒ Make repairs and keep copies of paid bills.
- ⇒ Seek professional help when necessary for:
 - ◆ health and/or mental health care
 - ◆ legal advice and/or representation
- ⇒ Seek aid and grant funds from government and/or disaster relief agencies. [See “Do You Know?” – “Disaster Grants, Loans, and Funded Services” – in this chapter, p. 45.]

DO YOU KNOW?

In The Workplace



Do you know you have a right to a safe and healthful workplace?

The *Occupational Safety and Health Act of 1970* (OSH Act), P.L. 91-596, assures safe and healthful working conditions for working men and women throughout the United States. The Occupational Safety and Health Administration (OSHA) in the U.S. Department of Labor has the primary responsibility for administering the OSH Act. To file a complaint, report an emergency, or seek OSHA advice, assistance, or products,

visit the OSHA website: www.osha.gov or call: 1-800-321-OSHA (6742)

Adapted from OSHA 3165-09R

Mail And Hazardous Materials



Do you know it is illegal and extremely dangerous to mail restricted or prohibited hazardous materials?

With certain limited exceptions, the federal law Title 18 United States Code (18 USC) 1716 declares it is a crime to mail anything which may kill or injure persons or harm property. Persons violating the statute may be subject to fines, imprisonment, or other severe penalties.

Although mailing of the most hazardous materials is prohibited, the statute allows the Postal Service to adopt rules prescribing preparation and packaging conditions under which certain hazardous materials may be mailed if they are not “outwardly of their own force dangerous or injurious to life, health, or property.”

To learn more about it:

1. See Publication 52, Hazardous, Restricted, and Perishable Mail.
2. Contact your local post office.
3. Contact the Pricing and Classification Service Center (PCSC).

New York PCSC
1250 Broadway 14th FL
New York, NY 10095
212-613-8676

Adapted from *United States Postal Service Notice 107*