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Safeguarding your Home and Family

To our valued TACDA Members,

We are so grateful to you, for your support of The American Civil Defense Association. Some of you have been faithful members for many years and I have become very familiar with your names throughout this time, as well as had the privilege to speak with several of you on the phone.

I have been working at TACDA since we first moved the offices to Utah back in the summer of 2005 and have been the office manager for the last six years or so. It has also been my pleasure to be an associate editor of this **Journal of Civil Defense** publication and to have my hand in seeing each issue come to fruition. I have seen the Journal come a long way since its inception way back in the 1960s! I appreciate the efforts of our editor, Kylene Jones and our graphic designer, Lisa Potter. They are both incredible talents at what they do. I am proud of the product that we are able to send out.

I feel like an apology is due for the delay with this particular issue. Some unforeseen circumstances held up its production and we appreciate your patience with us as we are so late in getting it sent.

I also need to take this opportunity to lay out some cold hard facts about the future of TACDA. Unfortunately, it has been a struggle to stay afloat for the last few years. Even given the state of affairs in our great nation, the wars of terrorism and civil unrest around the world and the recent political upheaval that we have witnessed since the election of our new President (when one would think civil defense would be foremost in one's mind), our membership numbers continue to drop each month and they are as low as I have seen them in the last decade.

As some of you may know, we fund the organization with membership dues and with the sales of our METTAGs (medical emergency triage tags). Sadly, we have been seeing a drop in sales of METTAGs as well. As the economy has struggled, many medical supply companies have merged and still order less quantities of our products each month.

This is a call for help. We cannot continue to be a viable organization without increasing our member numbers. We would encourage you at this time to reach out to all of those you know, who may be family members or co-workers or neighbors, who would also see a value in the information that TACDA shares. As a reminder, online memberships are just $12.00 a year and gift memberships are just $24.00.

Without a change in the near future I truly worry that TACDA may cease to exist, and that would be so unfortunate. Again, we appreciate your continued support and want thank you very much!

Kindest regards,

Polly Wood
TACDA Office Manager

IN THIS ISSUE

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PRESIDENT'S **MESSAGE**

The election is over and we will have a new and different administration. Regardless of our political affiliation we should all hope and pray for wise decisions and a safe and more prosperous America.

Some of the problems a new administration must address are: (not in a particular order)

Terrorism - home and abroad
Economy — jobs, GDP growth, interest rates, problems in Europe
Immigration border control, new policy, protestors
Iran nuclear deal, sponsor of terrorism
Trade — TPP, NAFTA
Israel — Gaza, Hamas, PLO, Hezbollah
Iraq & Afghanistan Wars
China — South China Sea, currency manipulation
Russia — Ukraine, Syria, Eastern Europe

In some way, these problems will affect us all.

If you live in a major urban area, you should be concerned that the protest taking place now doesn't deteriorate into massive civil unrest. (BE PREPARED) This could also create an opportunity for acts of terror. If there was ever a time we needed to stay vigilant it is now.

Remember when the time of need arrives —the time to prepare has passed. May GOD bless each of you and may GOD BLESS AMERICA.

William David Perkins
President
E-mail: kd4fjl@att.net

FROM THE **EDITOR**

We find ourselves in a unique era of time as we enter 2017. A hundred years from now it will be interesting to see how historians record the events and challenges of our day. It appears that we hover tenuously on the brink of a disaster which we are currently unable to clearly define. Perhaps it will come in the form of economic challenges, natural disasters, political battles, famine, or even the decline of a civilized world as hatred and entitlement grows.

Whatever face the future takes on, one thing is sure in my mind; the necessity of being prepared physically, emotionally and spiritually. We must build and strengthen relationships with family, friends and neighbors. As we embrace good old-fashioned values of loving and serving each other, we may not be able to stop the storm from coming, but we can make our little piece of the world a better, safer place.

I want to thank our authors for sharing their knowledge and expertise, which enables us to produce this valuable resource. A big thanks to both Polly and Lisa for turning it into a fantastic publication.

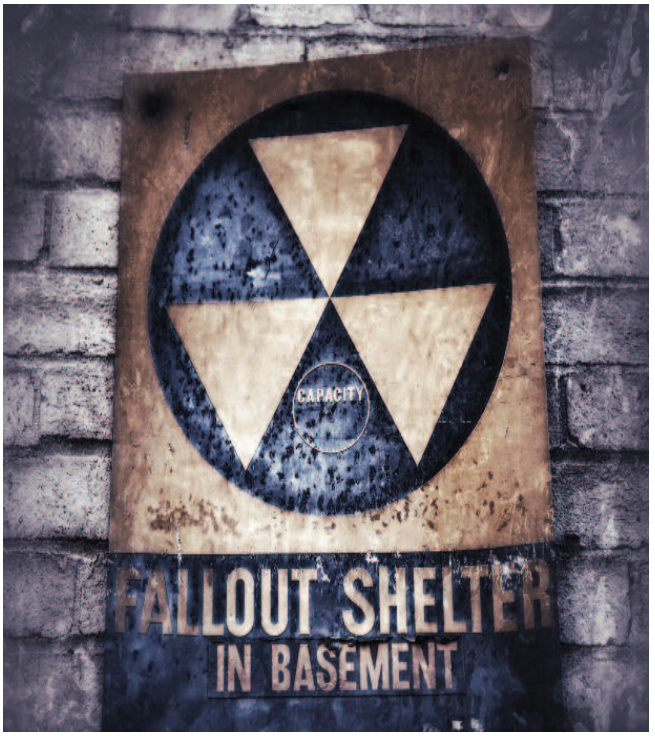
Thank you for being part of the solution my friends. May God bless you in your efforts to prepare for tomorrow, enjoy today, and bless the lives of others.

Kylene Jones
Editor, *Journal of Civil Defense*

Finding or Making an Expedient

FALLOUT SHELTER

By Kenneth B. Moravec



The movie "The Day After" was released in 1983 resulting in a wave of concerned preppers rushing home to dig fallout shelters in their backyards. In the film, our missiles had just been launched and a group of students gathered to watch. We are privy to the following conversation;

"Those are Minuteman missiles," explains Professor Joe Huxley.

"Like a test sort of. Like a warning?" questions a female student.

"They are on their way to Russia. They take about 30 minutes to reach their targets," the professor commented.

"So do theirs, right?" the male classmate inquired.

A sad state of affairs for others, but you are comfortable because you have prepared and have a shelter waiting to protect your family right at home. But what happens if you are downtown at work or perhaps shopping or otherwise away from home when disaster strikes? Or perhaps worse, what if it happens when you are at home but you never bothered to listen to reason and construct a shelter at home?

What can you do to protect yourself? Unfortunately, most Americans will throw their hands up in the air and say "let the bombs just drop on me." Guess what? They won't, at least not for the majority of Americans. Yes, in the initial attack about 2% of the population will be in a blast area. The rest of the casualties will come as a result of individuals:

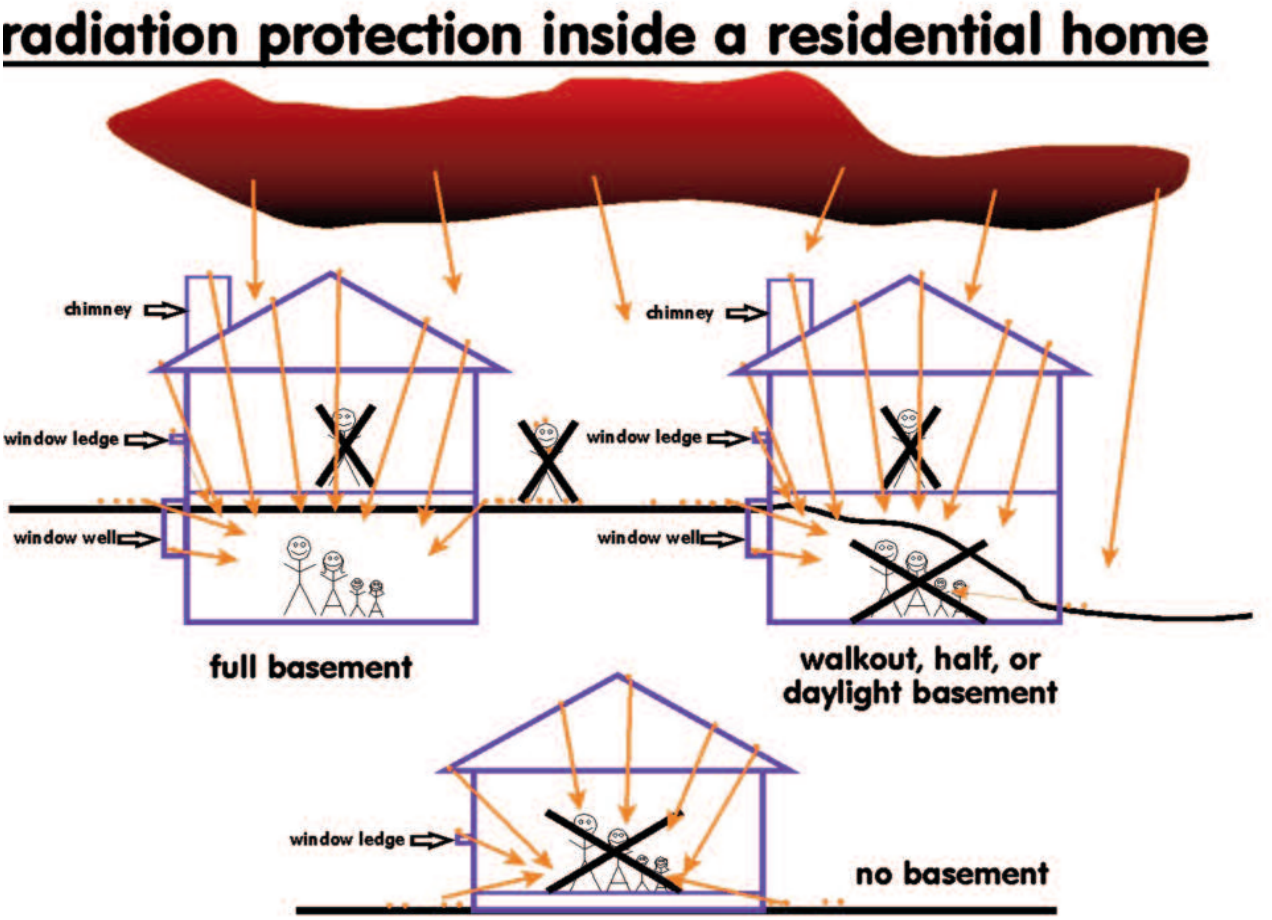
1) failing to find any kind of shelter
2) locating adequate shelter, but coming out of the protected shelter too soon
3) sheltering in places with inadequate protection from radiation

The remainder of this article will focus on the third group of people and providing education on creating expedient sheltering with adequate levels of protection from radiation. Ideally, you will have a quality shelter prepared far in advance and be close enough to access it when needed. If you do not, the information in this article could be the difference between life and death when threatened with a radiological event.

Basic principles of radiation protection include three main factors; time, distance and mass. Radiation weakens with time (having a half-life of seven hours). Increase the distance and amount of mass between you and the source of the radiation. We will explore this more later in this article.

Just what does an expedient fallout shelter look like? It will not have the standard fallout shelter sign on it. The first step is to locate something which can act as a minimal shelter to a more than adequate shelter. There are many in public areas. Let's start with the obvious ones like tunnels, underground parking structures, subways, caves, mines, bank vaults, sewers, and deep basements of buildings.

Next, there are the less obvious



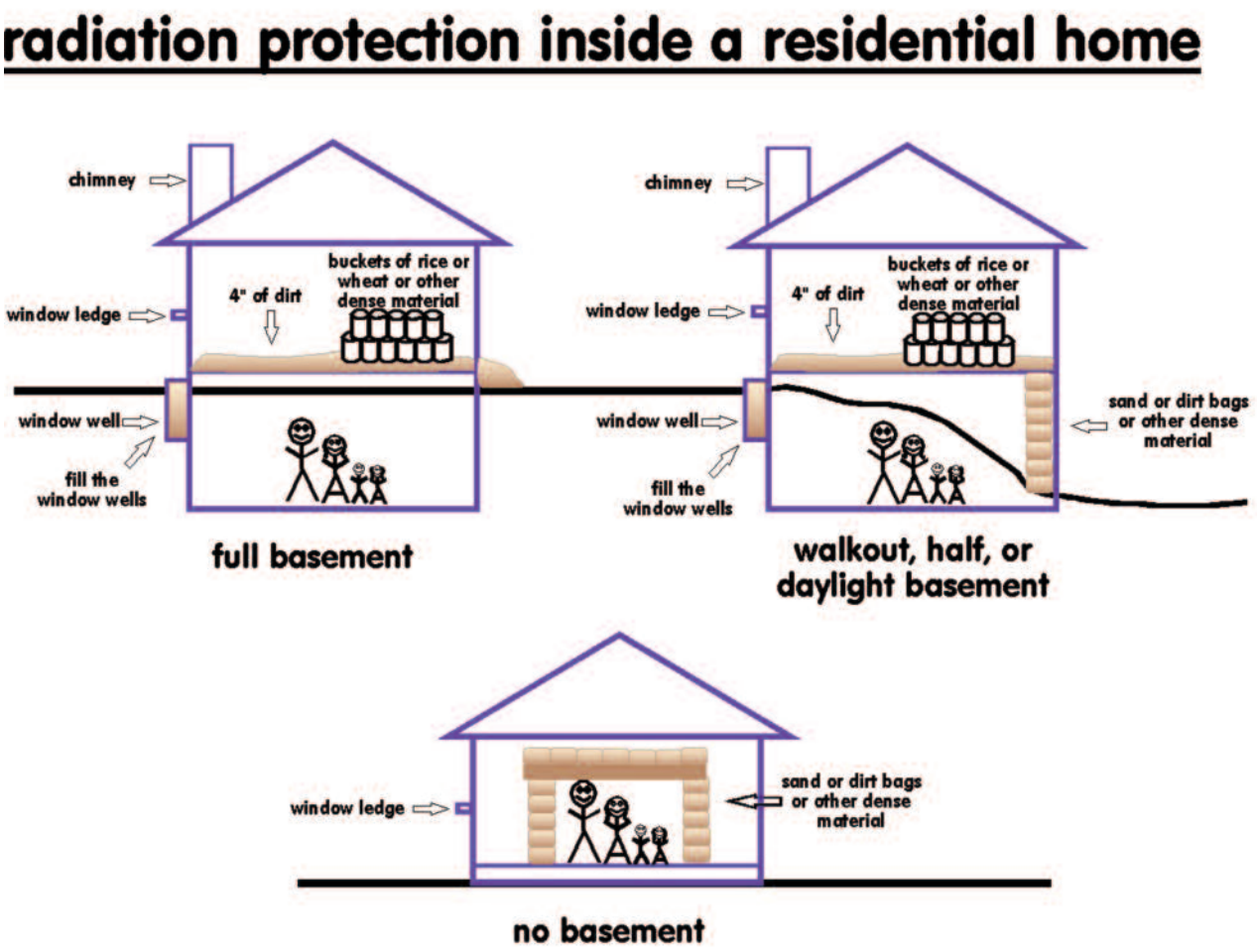
options. For instance, the middle floor in the middle of the building of a six story (or higher) high rise building, culverts that go under the road, water pump stations out in the farmland that go down 20' or more, deep inside underground walkways, boiler rooms, pipe chases under buildings, elevator shafts, and interior stairwells.

This next group we will discuss are less than ideal but could work as is, without improvement, for a short period of time until a better one can be procured. This might include a full basement of a residential house. (Not one with a daylight or walkout basement or one half out of the ground.) Perhaps a concrete cold storage room in a residential home, a storm shelter, deep inside above ground parking structures, the space up under overpasses on the freeway, enclosed gymnasiums and arenas with very tall ceilings. Structures that may have one or more openings directly to the outside such as tunnels, caves, parking structures, and culverts. Remember the more shielding the better. Getting deep inside may be the best you can do, but any amount of additional shielding you can place in between you and those openings the better.

Let's revisit the less-than-ideal shelters and explore how to improve them. Consider the three weapons to combat radiation: time, distance and mass. We cannot speed up time, but we can increase distance and add mass.

Distance can be accomplished in most cases getting to the center most, lowest part of the structure. The greater the distance between you and the source of the radiation, the weaker it will be.

Mass blocks radiation and can be increased in a short period of time. Select items that are made from thick or dense materials. Furniture, which is all air, is not a good choice. Select items like books and magazines (lots of them), dirt from the yard and food storage (concentrate on grains and canned goods which contain water). In every radiation protection guide, you will see other items like wood, steel, concrete, rocks and lead. However; in the short amount of time you may have available these items are usually not available easily. Concentrate on what you have available in your immediate surroundings.



Time is precious when a nuclear event occurs. Use it wisely. You may have virtually no time at all and bombs may be detonating in your vicinity. Do whatever you can with the moments you may have. I do not recommend using the time to try and pick up the kids from school. Leave them there. They will be safer in school, hopefully in the gymnasium or other high roof part of that school than they will be caught out in the open trying to walk home. And no, you will not be driving there and back with them. Remember the EMP that went off and killed your car? Yeah, no transportation. Tell them to stay put, use the skills that you have taught them and you will find them as soon as it is safe to do so.

The passage of time decreases the strength of the radiation. I could go into a lot of technical jargon here about how radiation decreases in strength over time, however, let's keep this simple and say that it does. It would be great if you had a survey meter to actually measure it, but most people do not. As a rule of thumb, your best bet is to stay sheltered as long as possible. Two weeks is good, although three weeks is better. We use the 7/10 rule to determine the decay of radiation to relatively safe levels. Let's say you found shelter but it is not the best and you want to move to a more secure location. Of course, your best chance is to wait, the longer the better, however, if at all possible, wait for the first seven hours to pass before you make any move. Yes, I know you are chomping at the bit to get your kids from school. If you can, hold off on that for at least three days before venturing out. Is this safe? Not really, but it is safer. In all reality, it is still best to wait at least two weeks. Three would be better.

Now that you have found shelter and improved it to create an adequate amount of shielding from radiation, what's next? What about food, water and sanitation? You were away from home when disaster struck. The best you have is the 72 hour kit that you have kept in your car at all times. I rarely promote stealing or taking things that don't belong to you, but taking food and water in your surroundings with you is essential. You can pay for it later. Once again, use your time wisely. Your life will depend on it. •

Simple, Effective EMP Protection for ELECTRICAL DEVICES

By Jay Whimpey, PE
TACDA Board

A NUCLEAR WEAPON detonated high above the earth can create an electromagnetic pulse (EMP) that could significantly affect any electrical equipment that you have. The electromagnetic energy caused by this detonation would be collected by our power grid and it would be channeled to everything connected to the grid significantly damaging that equipment as well as the generating equipment providing energy to our power grid. Smaller electrical devices using integrated circuits could also be significantly damaged by this form of energy. It is prudent to protect our radios, generators, and other useful electric devices from electromagnetic energy when it is not in use. The following information should provide a set of useful guidelines and principles to help anyone construct simple yet effective and inexpensive EMP protection for their electrical and electronic equipment.

Sealing Outisde of Aluminum Clamshell Box for EMP protection

There are many simple, straightforward and inexpensive ways to protect electronic equipment from EMP pulses. There are also simple testing methods to determine whether a particular container is sufficient to provide adequate EMP protection. The objective of this article is to help anyone who is interested devise their own EMP protection strategy and devices. It is also hoped that everyone will take advantage of this information and protect their electronic and electrical equipment from EMP.

A simple testing method for the effectiveness of an EMP container or protective device is available to almost everyone. A pair of cell phones can be used to test the effectiveness of any container by putting one phone on the inside of the container either with an audible or vibrating alert and then close the container and try to call the device inside the container. If the device inside the container does not receive a signal, and does not respond, then that is very good evidence that the container can protect a device inside it. For many years we were told that microwave ovens would be a good EMP protective device. Seven microwave ovens were tested using the cell phone method and all seven of them failed to show that they are an adequate EMP protective device. This would indicate that the cell phone method is a very good test for EMP protective devices. Small FMRS radios can also be used but they do not seem to be as effective as cell phones at getting through possible weaknesses in an EMP protective device or envelope. The fact that everyone has cell phones and the test is very simple and straightforward indicates that anyone can devise and test their own EMP protective devices.

The overall objective of an EMP protective device is to isolate the device inside of a metal conductive cage or envelope, normally called a Faraday cage, in order to protect from any electromagnetic forces or energy outside the cage. We simply have to surround whatever we are trying to protect with a continuous metal envelope. It is also good to have the device itself insulated from the metallic cage that surrounds it. A relatively tight metal screen with holes less than 1/16 of an inch will also provide protection from EMP pulses, but I do not believe that a screen can keep the cell phone from

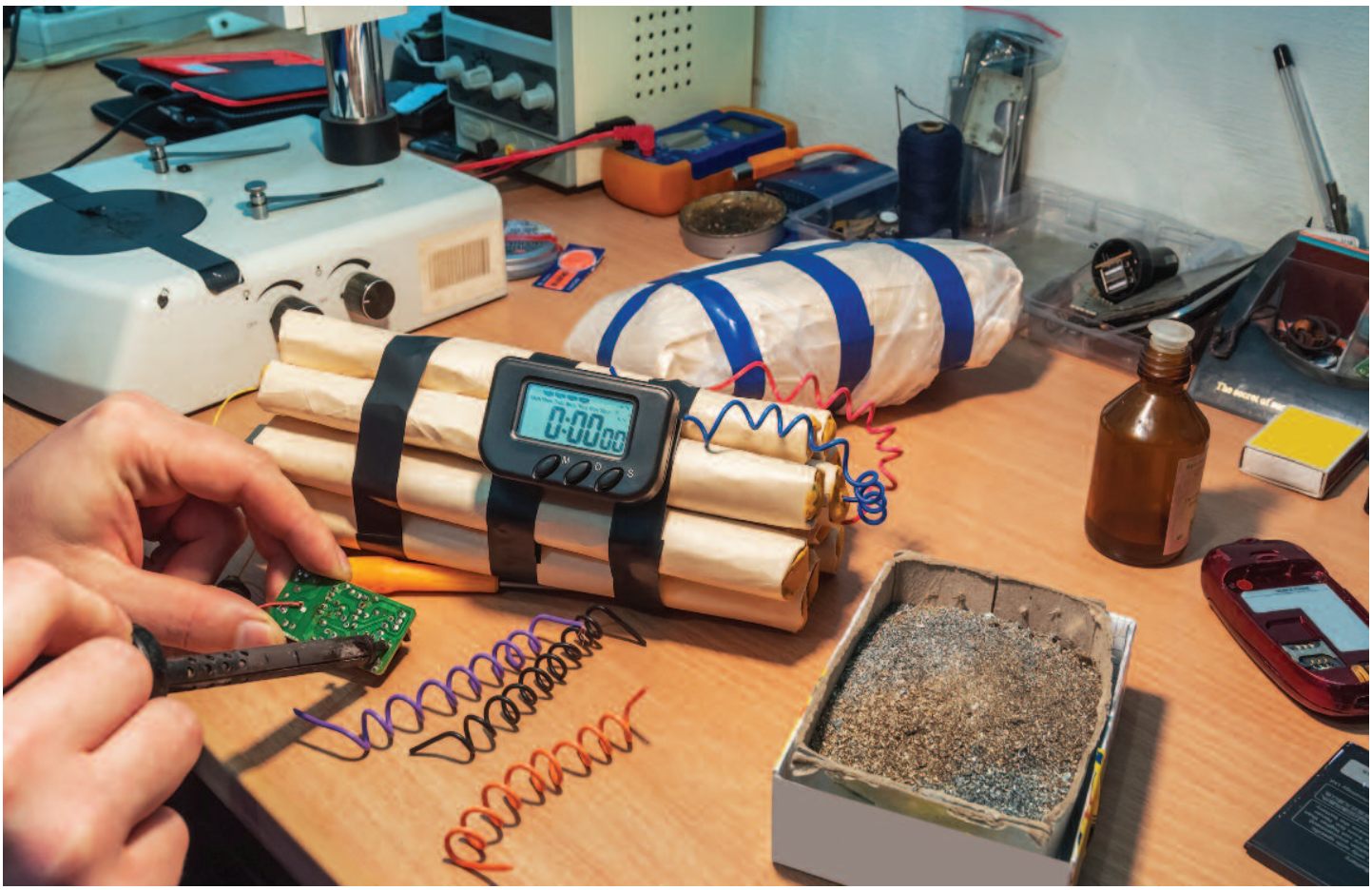
Continues on page 24

Unconventional Weapons and Tactics:

THREATS TO EVERYONE

By Colonel Jim Smith

A large spectrum of threats exists and many are routine crimes that most are aware and possibly even prepared to respond to. However, the recent advances in technology, the expansion of homegrown violent extremists (HVEs) and terrorist groups and the availability of information regarding targets, how security and law enforcement operate along with the habits of the public, have led to a target rich setting. The adverse media reporting has crippled law enforcement and thus law enforcement, at every level, is busy trying to maintain their relationship with communities.



Law enforcement now is more reactive than ever before. This weakness has been recognized by HVEs and lone offenders which has led to individuals and small groups using unconventional tactics and weapons against law enforcement and the public. The purpose may be to further a criminal goal, or perhaps for political reasons motiviating terrorists. The use of surveillance, countermeasures and tactics to defeat operational security of infrastructure, security countermeasures, and law enforcement by these groups are well documented.

Here is the order of probability of method used to perform an attack by an HVE or lone offender:

> The use of firearms and even edged weapons have become common. The public and law enforcement are no longer facing a poorly trained criminal, but in some cases a well-trained and even combat experienced adversary.

Firearms attack

Little skills needed, simple to perform, inexpensive, many soft targets available, and if the plan is for suicide, no escape method is needed.

Bomb

The same above applies. The Internet is replete with examples of simple and sophisticated improvised explosive devices (IEDs).

Chemical Weapons

The use of improvised chemical weapons has not been common in the U.S. However, the attack of a soft venue with a chemical agent such as chlorine or anhydrous ammonia is somewhat more difficult to achieve than a firearms attack but is feasible for even a lone offender. A simple plan which has been used in several instances in occupied soft targets is tear gas or OC spray. One event in a shopping mall sent almost 100 persons seeking medical care. The stampede following the release of OC in occupied structures has resulted in multiple fatalities. The use of cyanide to poison liquids such as coffee has also been used.

Biological Weapons

The use of biological weapons for political purposes by a terrorist group has already occurred in the U.S. along with the use of anthrax and ricin sent via the U.S. Mail. Growing some of the less lethal bacteria to contaminate a food source is not difficult as a prior biological attack in the U.S. used salmonella from spoiled chicken to contaminate salad bars. This resulted in more than 400 persons ill, requiring medical assistance.

Radiological Dispersion Device

Many radiological sources are not secured well - some are only secured with a padlock. The theft of a source, and coupling it to an IED, would cause substantial economic damage. The words bomb and radiation would cause a public reaction far out of proportion to the damage and threat posed. The decontamination of a large area would be costly and the use of the area would be lost for an extended period.

The use of firearms and even edged weapons have become common. The public and law enforcement are no longer facing a poorly trained criminal, but in some cases a well-trained and even combat experienced adversary. Some areas of the U.S. prohibit concealed carry and this provides the offender or HVE an opportunity to know he or she will likely have several minutes of uninterrupted shooting time. In many instances, facilities, such as malls or businesses, have security officers but they are likely unarmed and poorly trained. Soft targets such as public areas within a shopping mall, restaurant, sporting event, hospital, or other business provide many targets who are likely unarmed.

The use of improvised explosive devices (IED) or improvised incendiary devices (IID) remains a common threat. Bomb threats and suspicious objects must be treated as an actual event or bomb until proven otherwise. IEDs are likely to be used in a densely populated public venue. In many instances the HVEs or terrorists seek media attention. Suspicious packages or pre-placed concealed IEDs are an easy method of attack. Bombs and IIDs are inexpensive, easily placed, anonymous, and less likely to leave physical evidence. The word "bomb" has negative connotations and the resulting media attention and public atten-

tion is out of proportion to the event in many instances.

Letter bombs remain a simple method to attack a specific target in an anonymous manner. Postal regulations have made it more difficult to send larger devices but a small letter bomb, under 13 ounces, is still quite feasible. Mail and package screening plans should address this issue. Unknown letters, unexpected packages, or those items that meet letter bomb criteria should be isolated and treated as suspect items. The UNABOMBER used the U.S. Mail successfully in several instances to attack and kill his targets. Some counter terrorism authorities are surprised that this method is not used more frequently since the process is simple, anonymous, and inexpensive.

Less conventional threats include vehicle borne improvised explosive devices (VBIEDs). These are more difficult to use and require more resources to produce a viable threat. Several attempts have been successful in the U.S. by lone offenders.

Radiological devices may consist of explosively distributed radioactive materials or simple devices, which can consist of radioactive material mailed to a target. The acquisition of radioactive material is relatively straightforward. Radiographic sources, medical facilities and other users of radioactive material do not usually have sophisticated security. Nuclear power facilities are reasonably well-guarded but may be subject to a well-planned sophisticated attack by a trained group. The use of radioactive materials is strictly a terror weapon, as it usually does not present an immediate risk of death, like some chemical agents. Radioactive materials are an excellent source of "denial of use attacks" as a contaminated area may take extensive remediation efforts to restore.

Terrorists and HVEs may have well planned and thought out methods of attack. They may use secondary devices that lure public safety onto a scene then specifically target their operations with a secondary explosive device. Alternatively, terrorists may stage an event such as an explosion and then target responders for assault with firearms.

Suicide bombings are rare in the U.S. but it may be only a matter of time until the U.S. will have to face this event. A location with a large number of persons who could become casualties and are lightly guarded may be a target. Examples would be local sporting events, shopping malls, medical facilities or similar locations. Another form of attack is to use multiple attacks at different locations that are contemporaneous. This amplifies the impact of the events and stretches public safety resources.

Mass assaults have been seen in the U.S. and are becoming a common event. This tactic is an excellent terrorism tool. The attack of a high-profile facility with numerous casualties would transmit a chilling effect on similar functions and gather the needed media attention to the political cause. In many instances, in the ensuing panic, the shooters may be able to escape. Coupling the attack with hand thrown or pre-placed IEDs will further enhance casualties and magnify the event out of proportion to the harm caused.

Another disturbing trend by both terrorists and conventional criminals is the use of military weapons and tactics. Surveillance of potential targets and developing at least a rudimentary plan of attack has become common.

The North Hollywood bank robbery is an excellent example of the use of military style tactics and weapons by criminals. Although officers heavily outnumbered the robbers, the robbers were still able to inflict numerous casualties on law enforcement with superior weaponry and by wearing protective body armor. The phenomena of the use of body armor is also well documented in the U.S. Criminal elements and HVEs are now using this equipment to protect themselves much in the same manner as law enforcement.

The use of distraction tactics by both criminal and terrorist groups is becoming more commonplace. Some criminal elements have used arson fires of important structures, bomb threats or the explosion of bombs to distract law enforcement while

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> Surplus and makeshift gas masks have become more common in mass protests.

they commit a crime. Terrorists have adopted this technique to lure public safety responders into an ambush. Criminals have even used false calls to have law enforcement respond and then ambush officers.

Protesters and anarchists have learned to defeat police and their less lethal projectiles. Improvised body armor may consist of magazines, plywood, and multiple layers of clothing or similar devices that can effectively lessen the impact of less lethal projectiles or defeat electrical devices as skin contact is difficult to achieve through these materials. At the same time, surplus and makeshift gas masks have become more common in mass protests. They afford respiratory and facial protection from chemical agents such as OC and CS.

These countermeasures make even regular impact weapons, such as batons, less effective and may require officers to physically confront protesters and use manual force to subdue or remove them, increasing the potential injury to both officers and violators. Some groups have used CS and OC against law enforcement. Anti-abortion groups have used malodorants such as butyric acid extensively against abortion clinics. This liquid smells like vomit and is a very effective denial of use agent.

The use of exotic weapons such as biological or chemical agents has now been brought into the mainstream. The use of anthrax to attack a small number of facilities in the U.S. created terror out of proportion to the magnitude of the attack and potential threat posed to the public. Chemical weapons such as cyanide have been used effectively against law enforcement in other countries with lethal results. It has been discovered by law enforcement in the U.S. but its use is not widespread.

The wake up calls for sophisticated chemical weapons was the Sarin attack in Japan in the 1990s. Although difficult to manufacture, substitute chemical agents such as organophosphate insecticides are fairly simple to obtain. The lethal nature of these agents, if dispensed appropriately, is high.

Attacks of fixed enclosed structures such as a building, subway or enclosed stadium could produce a large number of casualties. Another potential means of injuring and potentially killing persons within an enclosed structure is the introduction of carbon monoxide gas. This gas can be obtained through theft from industrial gas supply facilities. It would require a large amount to contaminate a structure but terror potential of this agent is significant. Other chemical agents that might be stolen and used against enclosed structures or large gatherings include anhydrous ammonia, chlorine, or sulfur dioxide. These are toxic and readily available in most communities.

Although more insidious and less applicable to a mass attack is the use of toxins such as ricin. This agent is suitable for assassination of a single person or small

group. Ricin is a deadly derivative of the castor bean for which no antidote exists. One interrupted plot by a right wing radical group proposed to use ricin mixed with DMSO, a powerful solvent, to contaminate and kill federal agents when they contacted door knobs or door handles. In theory, using DMSO to facilitate skin absorption of the ricin. Only a very small amount of ricin is required to kill. The problem is the ricin molecule is too large for DMSO to serve as a vehicle to carry it through skin. However, do not discount this type of threat.

HVEs, lone offenders, and terrorist tactics are now planned and practiced. Even some criminals plan and rehearse their crimes. These groups may conduct surveillance and learn what resources are available and the degree of security present. They may use countermeasures to defeat tactics they identify. These groups may study operational security methods and attempt to defeat them. Monitoring of radio traffic, reading the local newspaper, viewing media reports, and gathering information from the Internet can result in operational security compromises.

Countermeasures are simple. Perhaps the easier of the countermeasures is to stay situationally aware. When you enter an unfamiliar area, orient yourself to fire exits, at least two escape routes, and pay attention to your surroundings. If something seems out of the ordinary, consider it out of the ordinary and take action. Pay attention to people as they may pose a threat. Some are so oblivious to their surroundings they have tried to walk around police to enter shopping malls during active shooter situations. Use logic and rational thinking to avoid soft targets such as high profile events.

If an unusual event occurs in or near your area, consider increasing your readiness for a second or similar event. During situations where threats are known, avoid public areas, especially those which are soft targets.

For those carrying firearms, if confronted by a shooter where body armor appears to be in use, consider targeting the unprotected body areas. Usually the legs and head are not protected by body armor. Adopt and practice the tactic of aiming for unprotected body parts if incapacitation does not occur with center of mass shots. Remember, a person not in uniform with a firearm is a "shooter" to any others present. If confronted by law enforcement, follow their commands and in no circumstance turn toward them while holding a firearm.

Pay attention to unexpected packages at work or home. If you did not expect it, do not open it. Isolate the item and notify law enforcement.

Treat bomb threats as "real" but use common sense. Do not evacuate blindly. Check the assembly areas for suspect persons, packages, or vehicles. The bomb threat, or even fire alarm, could be a ruse to force individuals from a structure into an unprotected area where they can be shot or targeted with a pre-placed IED.

Some individuals are carrying a simple survival kit on their person or vehicle. A commercially available escape mask can be carried in a pocket or an ankle holster. Many first responders now wear tourniquets and emergency wound bandages in ankle holsters along with a heavy set of shears. Perhaps one of the more critical but forgotten items is a flashlight. A flashlight is critical during power failure or smoke to facilitate an escape. A pocket knife can be a useful tool for escape or cutting clothing away from wounds, or as a last ditch weapon.

Simple first aid training, the ability to use an escape mask in a smoke or other toxic agent setting can be essential. Remember, self-rescue is vital. Do not depend upon others to come to your aid. •

Jim Smith has more than 43 years of public safety experience and serves as the public safety director for a rural community in Alabama. Smith also serves as a member of the Federal Joint Terrorism Task Force. He is a practicing paramedic and author of several terrorism related textbooks. Smith teaches for the University of Phoenix and Troy University as a criminal justice adjunct.

If an unusual event occurs in or near your area, consider increasing your readiness for a second or similar event. During situations where threats are known, avoid public areas, especially those which are soft targets.

EASY MEDICAL PREPPING

in the Comfort of Your Home

By Cynthia J. Koelker, MD

www.ArmageddonMedicine.net

One of the biggest problems with medical prepping (and prepping in general) is finding the time to do it. Wouldn't it be nice if someone offered a simple blueprint to follow in the comfort of your home, outlining where to begin, what it will cost, and where your priorities should lie? That's my aim here. What follows is the advice of a fellow prepper and family physician with decades of practical experience, who has given the topic careful consideration. This article will address the needs of the general population and so is applicable to any family or community with a mix of ages, genders, and common medical problems.

Preparing for medical treatment in time of disaster or lack of access to traditional care involves primarily three areas:

1. Assessing your personal health needs beforehand, as well as those of your family, group, and/or community
2. Educating yourself regarding how to care for yourself and loved ones in the event outside help is limited or unavailable
3. Gathering supplies to meet current and future needs

You don't need to leave the comfort of your home to accomplish the majority of this, at least if you have access to the internet. Just plan to spend an hour or two assessing your medical needs, another hour or so ordering supplies I've recommended below, and the remainder of your time educating yourself and gathering educational materials, many of which are free or nearly so. Start today and re-assess periodically. Education is an ongoing process, and just as doctors require life-long learning in their field, so will you.

ASSESSING MEDICAL NEEDS

Begin with a comprehensive assessment of your current health, as well as the health of your family and/or group. It's best to keep a medical file on everyone, just as a doctor would. Although physicians are mandated to use an Electronic Health Record, hardcopy paper records would be more useful in time of crisis, though you can certainly keep a digital copy as well.

You may not know where to start or how to organize your records in a standard format. Therefore, I suggest downloading a free "History and Physical" form from the many available online, such as the "New Student Medical History and Examination" form from the Lawrence, Wisconsin University Health Services, or any other to your liking. (Alternatively, hard copy templates and printable digital files of appropriate medical forms are included in the Armageddon Medicine Resource Kit, available at www.armageddonmedicine.net.) Complete a form for each family member. Reviewing your health systematically will keep you from forgetting important items. Also complete a physical exam on each individual to the best of your ability. Examine your kids inside and out – make sure you know their normal condition. Do they have big tonsils when they are healthy? It's good to know a person's baseline to compare to when they are sick.

Free online tutorials offer as much direction in physical examination as I received in medical school (but we were expected to learn more on our own). For example, Duke University offers a free "Complete Physical Examination Tutorial" (via YouTube) which outlines how to perform a systematic exam. Details of each part of the exam can then be studied in more depth. For example, if you want to see what an ear infection looks like, search for images and videos of otitis media. If you wonder how asthma sounds, listen to online recordings of breath sounds. It's amazing how much free medical education is available to the general public. (And again, if you prefer a hardcopy format, Chapters 33 and 34 of my book, Armageddon Medicine, give practical instruction for the layperson regarding how to take a medical history and perform a physical exam.)

Once you've assessed your family's current medical status, project forward to future needs. Is your wife pregnant? Is your mother having trouble walking? Where do you see your family five to ten years from now? Are immunizations up-to-date or nearly expired? Are you tending toward diabetes? At least once a year you should re-evaluate your situation: is there a newborn in your group? Has an elder become disabled? Needs will change as life goes on, and you will want to change your prepping priorities accordingly.

After you've thought through your current and potential future situation, you can focus your education and supplies accordingly.

EDUCATION

The internet is a treasure trove of free resources for medical prepping. Say, for example, you'd like to learn how to suture but have no one to teach you: read or download a free copy of Semer's Practical Plastic Surgery for Nonsurgeons. Although this sounds like an advanced textbook, it is very suitable for the layman, with the intent "to bring straightforward plastic surgery information and techniques to health care providers working in areas with limited access to plastic surgeons." It's more

about suturing to achieve excellent results than about plastic surgery. YouTube features dozens of videos on suturing techniques. The Sim*Vivo series is a great place to begin, showing suture placement on synthetic skin (craft foam is a reasonable substitute). The Duke Suture Skills Course is an excellent second step. This course is aimed at medical students and residents, but is easily understandable. While it is ideal to have personal instruction, which allows immediate feedback, these courses are a wonderful introduction to professional suture techniques, which would put you ahead of 99% of laymen. (See "How to Suture a Wound Like a Professional" in the *Journal of Civil Defense*, 2015 Issue 2, page 7.)

Learn to splint and cast for free as well in your spare time. Online videos of orthopedic casting workshops demonstrate numerous casting techniques. Start with short arm splints and casts, short leg splints and casts, then move on to advanced techniques. The American Family Physician journal has two excellent 2009 articles on "Principles of Casting and Splinting" as well as "Indications and Methods." This is the same instruction doctors receive. Even if you don't trust your own treatment skills, you can certainly teach yourself enough to be an excellent assistant, which can double the effectiveness of a physician.

If you have a condition such as asthma, diabetes, or hypertension, learn all you can now while you have the option to explore various treatments yet still have the benefit of modern medicine. For trusted information on nearly any specific problem, you can download free articles from the American Academy of Family Physicians website at www.aafp.org. This is the same journal doctors pay hundreds of dollars for annually. You won't have access to the previous year's issues, but everything else is available to the general public at no cost.

Many people with hypothyroidism expect to die without their medication, but this certainly need not be the case. Hypothyroidism – Answers for a Post-Apocalyptic World (available at my web site) addresses all the common questions, and tells you how to survive when prescription medication is not available.

In addition to garnering free materials, you should build yourself a small library of essential medical books. For a fraction of the cost of new texts you can pick up the same books medical students used just a few years ago; for $100–200 you can acquire a fairly comprehensive library. I suggest obtaining at least one book in each of the following categories (all available on Amazon and elsewhere online):

1. Physical examination, such as Swartz's *Textbook of Physical Diagnosis*
2. Differential diagnosis, such as Seller's *Differential Diagnosis of Common Complaints,* which explains what various symptoms may indicate
3. Family medicine, such as an older copy of Rakel's *Textbook of Family Medicine*
4. Orthopedics (fractures/sprains/dislocations), such as Anderson's *Office Orthopedics for Primary Care*
5. *Pediatrics*, such as CURRENT *Diagnosis and Treatment Pediatrics*
6. Clinical pharmacology, such as Olson's *Clinical Pharmacology Made Ridiculously Simple*
7. Physician's Desk Reference (PDR), either a used annual hardback, or the *PDR Pocket Guide to Prescription Drugs*
8. Dentistry, such as Dickson's *Where There is No Dentist*
9. Survival medicine, such as Koelker's *Armageddon Medicine*
10 Natural medicine, such as Null's *Complete Encyclopedia of Natural Healing* or Murray's *Encyclopedia of Natural Medicine*
11. Suturing, such as Semer's *Practical Plastic Surgery for Nonsurgeons* (also available as a free download)

Dividing your limited prepping time between garnering supplies and acquiring education is essential. In general, it is much easier to focus on supplies rather than on learning appropriate skills needed for diagnosis and treatment, but both are essential. A sling can be improvised from a T-shirt, but the knowledge to treat a fracture cannot.

SUPPLIES

Supplies fall into two primary categories: treatment and diagnosis. Since a correct diagnosis precedes and guides treatment, we will start with diagnostic equipment. All of the following are available to the layperson on Amazon and elsewhere. A half hour from now you can be well on your way to being better equipped than many doctors.

DIAGNOSTIC EQUIPMENT

1. **Stethoscope.** Although a $300 Littman stethoscope is top-of-the-line, $30 can net you an MDF Sprague Rappaport Dual Head Stethoscope appropriate for adults, children, and infants, with a lifetime warranty. If that's out of your budget, a $10 nurse's stethoscope is far better than nothing, and you may

be able to find a close-out deal on a far better model. A stethoscope is useful for assessing heart rate and breath sounds, such as wheezing or rhonchi (rattles), which you can learn to identify (per education, above).

2. **Otoscope.** If you're wondering if your child has an ear infection, you'll need an otoscope. The 4th General Dr Mom LED POCKET Otoscope includes specula for both adults and children. The product comes with a satisfaction-guaranteed warranty, as well as a link to 30 high-resolution ear drum photos that can help guide diagnosis. The LED light will last nearly forever, but don't forget extra batteries. For $40 the price is reasonable, but if you want to upgrade, purchase a Welch-Allyn rechargeable unit for $200 to $400. Too costly? Amazon also sells the Primacare DL-4112 Mini Diagnostic Otoscope LED for only $6.69. With an otoscope a person can diagnose middle ear infection, outer ear infection, Eustachian tube problems, foreign bodies in the ear, as well as wax build-up.

3. **Ear irrigation equipment.** On occasion I've been able to cure a person's hearing loss simply by removing built-up wax. Before removing wax, it is best to examine the ear canal, so please do acquire an otoscope. My favorite ear wax removal instrument is a $1 disposable (or reusable) 60-cc catheter-tip irrigation syringe. Though I haven't used one, the $30 Elephant Ear Washer Bottle System looks like a great choice. Some nurses prefer using a water pik, though this requires electricity. I recommend AGAINST using any sort of ear curette or scraper. It is easier to harm a person than to remove the wax unless you are a skilled doctor, primarily because you can't see what you're doing. Ear irrigation is also the simplest way to remove most foreign bodies, including insects.

4. **Ophthalmoscope.** The main purpose for a layman to have an ophthalmoscope would be to check for a corneal abrasion or foreign body. The cost is significantly higher than an otoscope, but if you don't mind spending $350 or so, a Welch Allyn is top of the line. Using fluorescein dye, a very small corneal abrasion requires magnification to detect; a larger one can often be seen with the naked eye.

5. **Fluorescein**. Because a small scratch on the eye is difficult to see, a dye is often used to highlight the area and aid detection. A fluorescein strip can be wetted in the tears that accumulate in the corner of the eye or lower eye lid, which will then distribute over the eyeball with blinking. The dye accumulates in areas of inflammation or irregularity, such as a corneal abrasion, and fluoresces a yellowish green when examined with a cobalt blue light (or a Wood's lamp or a black light). A good ophthalmoscope will include a cobalt blue light. A Wood's lamp can be purchased for about $40–50. A cobalt blue light filter for a pen light costs under $10. A box of 100 fluorescein Glo-Strips costs approximately $50.

6. **Rapid strep tests.** In an era when sore throats will still be common and conserving antibiotics essential, it would be a good idea to have rapid strep tests on hands. For the most part, if a sore throat isn't caused by Strep A bacteria, antibiotics are not required. Most people are unaware that they can buy similar or the same testing kits that doctors use, and for quite a reasonable price. Cost per test is as low as $1.50, with a shelf life of at least a few years (and likely longer). A box of 20 to 25 test strips can be had for about $30 to $50 – less than a single trip to a doctor and worth having on hand even before disaster strikes. Any kit marked "CLIA-waived" should be fine, though I would recommend a product with individually wrapped tests such as the Easy@home Areta Strep A Test.

7. **Urine Test Strips.** Urinary tract infections are also common, and cause fairly predictable changes in one's urine that are easily detectable with simple urine test strips. The Siemens (Bayer) product Multistix 10 SG is the gold standard costing about $35 to $50 for a bottle of 100. However, similar generic 10 Parameter Urinalysis Reagent Strips cost as little as $9 per 100. When urine is infected, these dipsticks show a simple color change indicating white blood cells in the urine, or nitrites, or sometimes blood. They are also useful for diagnosing kidney stones (blood), dehydration (specific gravity and ketones), and diabetes (glucose).

8. **Pregnancy Tests.** Though you may be in no danger of pregnancy, your daughter might be. Over-the-counter pregnancy tests for HCG (human chorionic gonadotropin) now cost as little as 50 cents apiece. ClinicalGuard® sells a pack of 20 for under $8.

9. **Ovulation Test Strips.** Although these tests are currently used primarily to identify fertile days to increase the likelihood of conception, they might also be used to identify the riskiest days for conception. People will have sex at TEOTWAWKI but may want to ensure against pregnancy. Although less essential to procure than pregnancy tests, you might want to consider having some on hand, considering a pack of 50 can cost under $10. One word of caution: sperm can live a week inside a women's body before fertilization, so pregnancy can still occur if sex occurs during the week before ovulation.

10. **Tuning fork.** A tuning fork can be used to detect hearing loss, but more importantly at TEOTWAWKI it may be useful in determining whether a bone is broken. (For a review of this topic see http://bmjopen.bmj.com/content/4/8/e005238.full). A C-128 aluminum tuning fork costs only about $10. (The A-440 tuning forks are too small for medical use.)

11. **Reflex hammer.** Odds are you won't have much clinical use for a reflex hammer, but for $6 it will make you look like a professional.

Even if you spend only $100 on a combination of the above, you will be ahead of most Americans (and most preppers as well).

Next we will cover readily available therapeutic supplies and equipment aimed at treatment. Again, if you spend only $100 on a combination of the following, you will be better supplied than most doctors will be should a catastrophe wipe out your local Wal-Mart or pharmacy.

THERAPEUTIC SUPPLIES: OVER-THE-COUNTER MEDICATIONS

BRAND NAME	GENERIC NAME	POTENTIAL USES
SUDAFED	pseudoephedrine	Congestion from allergies or colds Chest congestion from bronchitis or asthma Helps prevent sleep/increases wakefulness
BENADRYL	diphenhydramine	Nasal drainage from colds or allergies Cough from drainage Insomnia (trouble sleeping) Sedation of anxious or problematic patients Itching and/or hives Possibly nausea
UNISOM	doxylamine	Same uses as diphenhydramine but often more sedating
ZYRTEC	cetirizine	Same uses as diphenhydramine but often less sedating Related to a prescription anti-anxiety drug
Claritin	loratadine	Nasal drainage from allergies (not as good for colds) – less sedating than diphenhydramine Itching and/or hives
PRIMATENE TABLETS	ephedrine	Asthma Increases wakefulness/alertness

BRAND NAME	GENERIC NAME	POTENTIAL USES
CAFFEINE	caffeine	Increases alertness/wakefulness Mild bronchodilator for asthma or bronchitis
MUCINEX	guaifenesin	Expectorant – thins nasal and chest mucus
BONINE DRAMAMINE	meclizine	Nausea and vomiting Sleep Anxiety Vertigo-type dizziness
PEPCID	famotidine	Heartburn/acid reflux/stomach ulcers Stomach upset May counteract stomach upset from aspirin, ibuprofen, and similar pain medications
ZANTAC	ranitidine	Same as Pepcid but also helps with hives
TUMS, ROLAIDS, MAALOX	antacids	Quick relief from heartburn/upset stomach but only lasts a few hours
PRILOSEC	omeprazole	Heartburn/acid reflux Stomach and duodenal ulcers Stronger than Pepcid or Zantac May counteract stomach upset from aspirin, ibuprofen, and similar pain medications
PREVACID	lansoprazole	Similar to Prilosec
NEXIUM	esomeprazole	Similar to Prilosec
IMODIUM	loperamide	Diarrhea treatment
TYLENOL	acetaminophen	Pain relief (without stomach upset) Fever reduction
BAYER	aspirin	Pain relief (risk of stomach irritation) Fever reduction Blood thinner Anti-inflammatory Lasts about 4 hours

BRAND NAME	GENERIC NAME	POTENTIAL USES
MOTRIN ADVIL	ibuprofen	Pain relief (risk of stomach irritation) Fever reduction Anti-inflammatory (arthritis, gout) Lasts about 6 to 8 hours
ALEVE	naproxen	Pain relief (risk of stomach irritation) Anti-inflammatory (arthritis, gout) Lasts about 12 to 24 hours
AZO	phenazopyridine	Urinary burning Temporary relief for symptoms of urinary infection but does not cure infection
CORTAID 10 CREAM	hydrocortisone	Cream for allergic, inflammatory, and itchy rashes
GYNE-LOTRIMIN CREAM	clotrimazole	Vaginal yeast infection Candida (yeast) diaper rash Athlete's foot and skin fungus/ringworm
LAMISIL CREAM	terbinafine	Athlete's foot Skin fungus such as ringworm
BACIGUENT	bacitracin cream	Cream to prevent skin infections Treatment for mild skin infections

As you can see, there is overlap in various therapeutic areas. For example, you don't need Pepcid, Zantac, Prilosec, and Prevacid. I would recommend getting a generic for Zantac (since it is also useful for hives, unless you have had better luck with Pepcid for your symptoms) and either Prilosec, Prevacid, or Nexium – whichever of this last group that costs the least and/or is most effective for you. All three are among the strongest and longest-lasting acid reducers for heartburn, reflux, or ulcers.

OTHER USEFUL ITEMS

- Birth control (condoms, spermicide)
- Tampons and Kotex
  In addition to their intended uses, Kotex are good bandages for large wounds
- Burn cream
- Natural and herbal preparations:
  Honey for wound treatment and coughs
  Mullein for cough
  Peppermint oil for stomach upset
- Coconut oil for preparing ointments and salves
- B & W Ointment – Amish burn cream
- Baby formula
- Gatorade for fluid replacement (or learn to make your own oral rehydration solution)

LACERATIONS

If we're all forced to be more physically active, chopping wood and hunting food, accidents and lacerations will likely be more common. Even if you don't have the guts to suture yourself, a friendly nurse, doctor, or even dentist might help you out. Professional supplies are available without a prescription, and it's only sensible to keep them on hand.

Regarding suturing practice, this is the only time when the less expensive practice suture is advisable. Also, except for practice, don't bother with the so-called

veterinary suture. Sim*Vivo makes a nice kit with a practice pad, practice instruments, and practice suture. However, the practice suture needles are not sharp enough to penetrate skin easily.

A disposable sterile laceration tray, such as the Dynarex Minor Laceration Tray, costs less than $10 and contains everything you need to suture a wound except for the suture itself (and even cheaper if you buy in bulk). One of the least expensive and most reliable sutures is available from AD Surgical. A box of 12 sutures runs about $30 to $40. If you can afford only one box, get the medium 4-0 nylon suture. If you can afford more, get a box of 5-0 (for children and fine skin) and 3-0 (heavier suture for deeper, bigger wounds, thicker skin).

If you're worried about pain during suturing, also buy a topical lidocaine preparation such as a 5% lidocaine tattoo cream.

For wound cleaning, hand soap is fine, or anti-bacterial soap, or surgical soap. My personal favorite is Hibiclens ($17 for 32 oz). My least favorite is betadine, which stains the skin orange, making it more difficult to see what you're doing while repairing the wound and making it harder to assess initial healing. Clean tap water may be used to irrigate superficial wounds and lacerations with minimal increase in risk of infection, and is certainly cheaper than sterile saline, which should be reserved for deeper injuries.

Don't forget gloves, to protect both yourself and your patient. For minor wounds, where there's no need to be touching inside the wound, non-sterile nitrile gloves may be used (about $8 to $15 for a box of 100). For deeper wounds, sterile gloves may be advisable, especially if you need to reach into the wound. Purchase a few pair of sterile gloves (at about $2/pair) in your correct size, since it is difficult to operate with ill-fitting gloves. Sterile techniques should be followed as much as possible. With limited access to antibiotics and advanced health care, prevention of wound infection is essential, so do your best to keep the operative field clean.

Wound dressings serve to protect the injury, prevent spread of bodily fluids, and prevent wound infection. Buy plenty of Band-Aids, gauze, and tape – more than you think you will use. Kotex are great for covering larger wounds and are much cheaper than bandages.

OTHER INJURIES

Be prepared for a wide assortment of injuries in people of all sizes and shapes. Splinting and casting supplies such as gauze and Plaster of Paris can be adapted to any size person or injury, though require more skill in application than a pre-made splint. Rolls of gauze and splinting/casting material cost $30 to $50 for a box of 12 rolls. Gypsona 3" is good for arm injuries such as a sprained wrist or broken forearm, or 4" for leg and foot injuries. Stockinet can be used under a cast, but a thin sock can do as well. Undercast padding is also essential; the cotton Webril is nice but synthetic is cheaper and often easier to work with. If you don't trust your skills at splint-making, get a variety of pre-made splints for wrists (left and right) and ankles. Air casts or gel casts provide extra padding. Coban and Ace wraps can help stabilize an injury and prevent swelling. Ice packs help prevent swelling and inflammation. Slings come in different sizes and strengths, from $5 to $30 a piece. Acquire an assortment to fit your expected needs.

If you don't have the time or inclination to make your own kit, buy a pre-made one. Even $30 will provide a nice assortment of first aid supplies. Or for about $370 you can purchase the deluxe Stomp Medical Kit containing over 300 items. Medical kits are also a great gift idea for birthdays and holidays, so that you're not the only one with supplies.

CONCLUSION

Though a person could spend months or years preparing for medical emergencies, even a single day of prepping can help protect your family against hundreds of potential problems. If you can't afford everything at once, start with a monthly budget to build your medical library and supplies. Don't remain among the millions of ill-prepared families who believe disaster will never strike. Get ready for medical emergencies so that you can be a blessing to your family and your community. •

Fermenting RIPPLES

By Jim Sumsion

Many years ago, my wife, Trudy, grew up on her grandpa's farm in Anola, Manitoba, Canada, which is located about 40 miles East of Winnipeg. Her home did not have running water or an indoor toilet. One of her earliest childhood memories was a barrel of sauerkraut in the cellar.

One day she was reminded of that cabbage and decided to try her hand at making some of her own. Our first attempt utilized a plastic bucket. We bought 20 pounds of cabbage, sliced the cleaned heads into the bucket and sprinkled it with salt. Next, we lightly pounded it with something like a baseball bat, then repeated the process until the bucket was almost full. We were amazed at how much juice was produced and how tightly the cabbage was packed in the bucket. Once the bucket was a little over three quarters of the way full, we covered the top of the mixture with a glass plate and added a weight on top of the plate to hold the cabbage under the juice. Finally, we placed a plastic garbage bag, filled with water, on top of everything. The water bag conformed to the edge of the bucket and created a seal to keep the air out.

We placed the pail in our pantry and waited. Within a day or two, we noticed that some of the juice bubbled up past the edges of the water bag and eventually started to mold. We continued to patiently wait for about four weeks. Finally we beheld our first batch of sauerkraut that had been nestled under a layer of mold. It smelled like sauerkraut. We scooped some out and replaced the plate, weight, etc. The kraut was wonderful. We felt pretty proud of ourselves.

It didn't take us very long to discover that five gallons of sauerkraut lasts a long time, and that there was always a new crop of mold around the edge to remove. It didn't seem to affect the quality of the kraut, but it didn't look appetizing and made it awkward to deal with every time we wanted to get some for a meal or snack. At the time, we didn't think to refrigerate it in smaller containers. It just seemed to be part of the process.

A few years later, our children bought a 20 liter sauerkraut crock and gave it to us for Christmas. It came with two large, semi-circular stones that were used as a weight inside the crock, on top of the salted cabbage to hold things under the juice. The top of the crock was

formed into a shallow circular ditch that held water. When the lid was put in place a seal was created that let the fermenting gases escape, but didn't allow air back in. We were excited that there was no mold as we enjoyed the kraut over the following few weeks. Eventually, due to constant opening and closing the unrefrigerated crock, mold started growing inside, and we ended up discarding the last quarter of the contents. We only made one batch in the crock.

Off and on, amidst our sauerkraut experiences, we also dabbled with fermenting cucumber pickles in a bucket. They were very tasty, but mold was also an issue with them.

Then we discovered a device called The Perfect Pickler. It fit on a wide-mouth canning jar, and included an S-shaped air-lock device that is commonly used in the home brewing industry for making beer and wine. It solved the mold problem, but was difficult to clean if the juice

overflowed into it. I told a friend about it, who bought one. Later he suggested a couple of improvements in the design which included a three-piece air-lock and a reusable canning lid. I made some prototypes that worked well and which we gave to other interested friends.

Because the device was so easy to use, I started experimenting with other kinds of fermented veggies, like kimchi, pickled green beans, carrot sticks, etc. Before long, I found myself teaching fermentation to a wide variety of audiences.

I've met many people who told me they loved sauerkraut. On the other hand I've also had many tell me they hate sauerkraut. Among those who said they hate it, some have been brave enough to actually taste my samples. One man looked up from a taste test with a surprised look on his face and exclaimed "I hate sauerkraut!" Then added with a grin, "But I could eat this!"

How is it possible that someone could be transformed from "I hate sauerkraut!" to "I could eat this!" in just one taste? One reason could be that we may have grown up eating from the grocery store, and don't know where our food really comes from. For example, canned sauerkraut is just cut up cabbage cooked in a commercially prepared vinegar, while fermented sauerkraut is raw cabbage and salt. The sour taste comes from the lactic acid produced by the lacto bacillus eating the sugar from the cabbage juice. The flavor is much milder than the processed vinegar from the can.

Fermenting foods is a fun and inexpensive way to add natural probiotics to your diet. Sauerkraut is probably the easiest to start with, and one batch of it can provide a lot of variety. After it is fermented (about five days), put a regular lid on the jar, and keep it in the fridge. Now you can start to enjoy it many different ways. Just take out enough for one meal, and shred a sweet apple into it, mix it up and serve it as a side dish. The contrast of the sweet and sour is surprisingly delightful. You can add some raisins or crushed pineapple instead of apple and get a slightly different flavor. Add some caraway, fennel, cumin or other of your favorite spices the night before, so there is some time for the flavor to disperse. It is amazing how many different ways you can use a single batch of sauerkraut.

Try making kimchi with Napa cabbage, daikon radish (that's the large white one), fresh ginger, fresh garlic, sea salt (non-iodized), and some sort of red pepper for spice. Or try cucumbers, ginger, garlic, sea salt, and some form of red pepper. In fact, I recently made a batch of kimchi without adding any spice during the fermentation, and put it in the fridge after five days. It tasted pretty good just plain, but I really wanted to see how the flavor would be affected when I added the spice after the fact.

I tried different types of chili pastes or sauces. Each one added its own unique flavor, and I couldn't really tell that it had not been in the fermenting jar the whole time. Out of pure curiosity, when I saw a bottle of Bull's Eye BBQ sauce (I know, it has high fructose corn syrup in it), I wondered how it would taste in my spice-less kimchi. It wasn't bad at all, although it is a shame to add all that artificial flavor to a delightful ferment. But if there are members of your family that enjoy that, and are not now inclined to eat fermented veggies, it might be something you could try.

In an emergency, all you really need to make sauerkraut is cabbage, something to cut it, non-iodized salt, and a container to ferment it in. The bacteria culture is provided by nature on the cabbage. Cutting the cabbage as thin as possible and adding the right amount of salt (1 teaspoon per pound of sliced cabbage) will draw the juice out and make it available for the fermentation to begin quickly. The thinner you can slice the cabbage, the faster it will ferment.

I like to mix the cabbage and salt in a glass or stainless steel bowl first, so the salt gets evenly distributed. Just three or four minutes of lightly massaging it by hand, is usually plenty. At that point you should be able to observe that the mixture is starting to get heavy and wet with the juice. That is when I pack it into the fermenting jar.

When is it safe to eat fermented foods? For sauerkraut and kimchi, it has only taken four-five days to reach a pH of about 3.0-3.5. The food safety standards usually state that it should be less than 4.6, so this is well within the safe range. In my experience, I have never found a batch of sauerkraut or kimchi in the unsafe range after fermenting for four days or longer. If you want to make sure, you can get some pH testing strips from me or on-line for less than $10. The ones I have used come in a roll and are called Hydrion pH 0.0-13.0. If you are interested in a more scientific study about the safety of fermenting, search the internet for Frederick Breidt and Jane M Caldwell from the University of North Carolina. They have some good studies on this subject.

If you are feeling a little unsure of how to start fermenting, search the internet for Jim Sumsion on YouTube and I will demonstrate exactly how to make your own sauerkraut and kimchi. It's easier than you may think to make delicious fermented creations. •

Jim's Homemade SAUERKRAUT

Yield: 2 quarts of fresh, raw sauerkraut, teeming with natural probiotics

Ingredients:

3 ½ pounds thinly sliced cabbage (green, red, or half-and-half)
3 ½ teaspoons Redmond Real Salt

Optional ingredients:

1-2 cloves of garlic (finely chopped or shredded)
1 inch of fresh ginger root (finely chopped or shredded)
Black pepper
Caraway seed, fennel seed or dill seed to taste

Materials Needed:

Kitchen scale, mandolin-type slicer, kitchen knife, large stainless-steel or glass bowl, funnel, Jim's Jar-Top Fermenter, one 2-quart wide-mouth Mason jar

1 Place the jar ring on an outer leaf of the cabbage near the core, with the main rib of the leaf running up the middle of the ring. Cut a circle of cabbage about 1/4" bigger than the ring. Repeat on a second leaf. These circles serve to hold the prepared cabbage under the brine and will be used in Step 5.

2 Slice the cabbage into the bowl. I prefer to use a mandolin slicer set on the thinnest setting. If you are adding any optional ingredients, mix them in here, or you can add them to smaller portions after the fermentation is complete.

3 Sprinkle all of the salt over the sliced cabbage and massage the mixture with your hands until there is enough cabbage juice to slightly cover the contents in the jar.

4 Using the funnel, pack the cabbage and juice into the jar, making sure that it does not come up past the shoulder of the jar .

YouTube video link:
https://www.youtube.com/watch?v=QczPYQndJZU
Questions? Contact Jim Sumsion at jes1952@gmail.

5 Cut the two prepared leaf circles in half horizontally across the main rib. Insert each of the four pieces into the jar so that they overlap each other a little. The curved edge of the pieces should be pointing toward the outside of the jar, one in each corner. Press down slightly to force the juice to the top. There should be enough to cover the leaves as you apply pressure.

6 Place the glass overflow cup on top of the leaves. The top of the cup should be about level with the lip of the jar.

7 Dampen the black rubber grommet and the red rubber ring with water. Lay the ring in the channel on the under-side of the white grommeted lid, and place them on the jar so that the ring is between the lid and the lip of the jar. If the jar is too full, the cup won't allow the lid to lie flat on the rim of the jar. If this is the case, remove enough of the cabbage (not the juice) so that it does.

8 Remove the cap from the air-lock and fill it with water up to the second mark (about halfway). Snap the small plastic cap back onto the top of the air-lock. Carefully insert the stem of the air-lock into the grommet. The tip of the air-lock only needs to be tight enough so that air and/or liquid will not leak past it.

Using the threaded ring, fasten the assembled air-lock onto the jar, hand tight.

9 Place the jar in a glass cake pan or other suitable container, to prevent a mess if there is an overflow, and keep it in a cool place (68° to 72°F), away from direct sunlight. A step on the stairs going into your basement will work or a portable chest cooler with a small freezer pack in it. A refrigerator is too cold.

10 If the juices overflow into the air-lock device, which sometimes happens about the second or third day, remove the lid, discard the brine from the cup, put the cup back on top of the cabbage, refill the air-lock with fresh water, and reattach the assembled lid onto the jar.

11 After four-five days you will have a mild sauerkraut. If you want it stronger, leave it longer. You may need to experiment with a couple of batches so you know how long to leave it for your particular taste. When it's done, remove the device and wash it out. Place a regular lid on the jar and store in the refrigerator. Enjoy! Then, start another batch so you never run out! It's usually best to not open the jar during the fermentation, unless you have to empty the cup, as it could introduce mold into your jar.

receiving the signal from the outside.

Testing revealed that a Mylar pouch that is commonly used for industrial equipment protection or even to contain food such as potato chips are an effective EMP protective device or Faraday cage. Mylar is actually a thin layer of aluminum bonded to two layers of Mylar plastic on the inside and outside. The sandwiched material is commonly called Mylar. A Mylar pouch or envelope that is heat sealed around the edges and with one side open can serve as an effective means of protecting electrical devices if the device is placed inside the envelope and a single relatively tight fold is made on the open end. Plastic clips that are intended to seal the edge of the envelope temporarily are also effective at sealing the opening and preventing electromagnetic energy from entering the envelope. Relatively heavy industrial Mylar envelopes as well as very thin Mylar containers used for food were tested and were equally effective. (Note the attached photos for an idea of how to use a Mylar envelope for EMP protection.)

For larger items, such as generators or alternators, a different solution is required. For larger items a metal cabinet can be made EMP resistant by simply taping the seams with aluminum tape. Aluminum tape is commonly used to seal ductwork and is readily available at most hardware stores. A large metal cabinet that was roughly 6 feet high and 2 feet deep and 4 feet wide was made EMP resistant by taping the seams of the metal panels making up the cabinet on the inside. No attempt was made to prepare the surface in order to create a conductive link between the cabinet and the tape, however, testing with a multimeter once the tape was in place indicated that the tape was electrically connected to the cabinet itself. Once the inside seams of the cabinet are sealed, the piece of equipment that requires protection from electromagnetic energy is placed inside the cabinet, the cabinet doors are closed and then the seams on the outside of the cabinet, including the hinges, are sealed with tape. This may take a little bit of experimentation to determine if there is a sufficient amount of tape on the inside and the outside of the seams. Each time the cabinet is opened the tape on the seams of the doors must be cut and then replaced. Simply applying the aluminum tape over the previous layer of aluminum tape is also acceptable.

It was discovered, however, that all aluminum tape is not as effective at creating an electrical bond and seal at the seams. Some brands and types of tape are more effective than others. Some aluminum tapes had an obvious plastic film on the inside of the aluminum and that tape was much less effective at sealing seams and forming an electrical bond with the metal panels. 3M brand tape was used that was obviously just made of aluminum coated with an adhesive on the inside of the tape. Other tapes were tested but they required much more taping and were much less likely to produce satisfactory results.

The medical boxes that are used by the military were also tested in this effort. It was discovered that the seam as well as the latches must be covered with aluminum tape in order to form an effective electrical bond and create an effective seal against EMP energy. (Note the photo of the box that was converted to an EMP protective device and the amount of tape that was necessary to prevent the cell phone inside from receiving a signal.)

Hopefully this article will help anyone with an interest, who is willing to make a very modest investment in time and materials, create effective EMP protection for their communication, power producing, and other electronic devices - ensuring they will still be viable after an EMP pulse. •

Mylar Pouch with Plastic Sealing Clamp

Sealing Seams Inside of Steel Cabinet with Aluminum Tape

Developing Your Own Herbal Remedies

By Kyle D. Christensen, DC, ND, MH
www.DrKyleChristensen.net

FEW PEOPLE with the interest in herbal medicine have the opportunity to work with a remedy and adjust, adapt and tweak it over decades of time. In my chiropractic/naturopathic/herbal practice, I have enjoyed this experience. There are many good and even inspired formulas on the market today and this is our starting point. Take an existing remedy, usually one of the classics, approximate it and begin using it. With most of them, soon you find that it doesn't seem to work for everyone as well as hoped for. Through study, prayer and inspiration, often an herb or two will come to mind. These are not added to the formula, but rather given as a separate adjunct, taken along side of the formula. Over time this adjunct is tweaked, modified and adjusted until it feels right. Often there are a handful of patients who are the focus of the endeavour. Eventually, when the two remedies feel like the perfect couple, they are combined into one recipe.

Let me share with you an example. Many people with a chronic, dry cough suffer as a result of airborn allergies. One mother had such a cough that persisted for years and years. Her children could never get lost from her in the grocery or fabric store, they would just have to stop for a minute until they heard the beckon call of her cough. She was treated for her allergies using an allergy elimination method that balances the acupuncture meridians while being exposed to the allergen, effectively eliminating the allergy. [This is a whole discussion on its own, not for this paper, but suffice it to say, it really does work. And the person is no longer allergic. Go to my YouTube Channel for more information on this. Link: https://www.youtube.com/watch?v=b3uk7ao8LY8]

Once we assured that allergies were no longer an influencing part of the cough (a little to our dismay), we began looking for additional herbs that could be employed. Our basic cough syrup formula we developed in the early 1990's and, over time, added supplemental herbs.

We discovered what I refer to as our "secret ingredients" – Elecampane, Skunk Cabbage and Coltsfoot. These were given separately, but along side the based cough syrup – which has worked so well for the majority of people. The ratios of these three additions were played with until we felt they worked best. This combination seemed to hit the mark. The chronic cough that plagued so many were resolving. The formulas were combined into one and for about five years now, this cough syrup (recipe on next page) is what we teach today.

The three recipes that follow are ones that we use and teach in our clinic today. The detailed instructions will guide you step by step as you make them at home. Many illnesses affect the respiratory system and it is necessary to have something to:

1) Build the immune system
2) Clear and open the lungs
3) Soothe and relieve the cough

Feel free to use these recipes as a starting point for your own powerful and potent herbal remedies.

As always, we encourage each of you to take what truth and goodness you know and add to it. We have been blessed in nature with such a rich diversity so that there are multiple solutions to nearly every problem.

Continues next page

HERBAL COUGH SYRUP

This is a combination of several cough formulas that we have meshed together into one and it is pretty darn good. Especially for those chronic persistent coughs. This is not a cough suppressant, but will assist in getting out what needs to come out while healing and calming the sensitive membranes in the throat and airways. Use as many of these herbs as you can get a hold of – some may be tricky to find. This remedy can be taken by the spoonful as well as put into a spray bottle and used as a throat spray for sore throats. We cannot express how happy we are with this formula!

HERBAL COUGH SYRUP RECIPE

Yield: 64-72 ounces

- 1/2 cup comfrey root – cut
- 1/2 cup wild cherry bark – cut
- 1/2 cup elecampane root – cut
- 1/4 cup peppermint leaf – cut
- 1/4 cup horehound herb – cut
- 1/8 cup elder flowers – cut
- 1/8 cup skunk cabbage root – cut
- 1/8 cup coltsfoot herb – cut
- 1/8 cup lobelia herb/seed – cut
- 1.75 liters vodka (80 proof)
- 8 ounces raw honey
- 8 ounces vegetable glycerine
- 8 ounces cherry juice concentrate

1. Use dry volume measurements not weight. Measure herbs into the blender.
2. Add vodka so that it is at least a couple inches over the herb. The alcohol is necessary to pull the phytochemicals (that's the medicinal properties from the herb) out of the herb and into the solution.
3. Blend the herb and the vodka.
4. Pour mixture into a two quart jar. Rinse out the remaining herb from the blender with the alcohol. Fill your jar until about an inch from the top.
5. Set your jar on the kitchen counter and shake at least a couple times daily.
6. After at least two weeks, you can strain your tincture. Too soon and you will be missing out and losing strength. There is no problem of keeping it preserved indefinitely in the alcohol. Last year I finally strained a tincture that had been sitting in storage since 1997 (made 15 years ago).
7. Strain your tincture using your nylon paint strainer. You will strain out five to six cups if you squeeze really hard.
8. We do not simmer off the alcohol in this formula. There will be alcohol in the finished product, which assists in relieving the cough and helps the herbal goodness penetrate into the irritated throat.
9. Add one cup each of honey, vegetable glycerine and tart cherry juice concentrate to the strained alcohol extract.
10. Name your cough syrup and label it. Our family liked "Wheezy Breezy Cough Syrup."

Recommendations for use. Take one dropperful (about 30 drops) two to three times daily. For an active or persistent cough, take it every waking hour. This formula is especially good for chronic coughs.

Description of Herbs

Comfrey root - The impressive wound-healing properties of comfrey are partially due to the presence of allantoin. It stimulates cell proliferation and augments wound-healing both inside and out. The addition of much demulcent mucilage makes comfrey a powerful healing agent in gastric and duodenal ulcers, hiatus hernia and ulcerative colitis. Its astringency will help hemorrhages wherever they occur. It has been used with benefit in cases of bronchitis and irritable cough, where it will soothe and reduce irritation whilst helping expectoration. Comfrey may be used externally to speed wound-healing and guard against scar tissue developing incorrectly. Care should be taken with very deep wounds, however, as the external application of comfrey can lead to tissue forming over the wound before it is healed deeper down, possibly leading to abscesses. It may be used for any external ulcers, for wounds and fractures as a compress or poultice. It is excellent for chronic varicose ulcers. It has a reputed anti-cancer action.

Wild cherry bark - Due to its powerful sedative action on the cough reflex, wild cherry bark finds its main use in the treatment of irritating coughs and thus has a role in the treatment of bronchitis and whooping cough. It can be used with other herbs in the control of asthma. It must be remembered, however, that the inhibition of a cough does not equate with the healing of a chest infection, which will still need to be treated. It may also be used as a bitter where digestion is sluggish. The cold infusion of the bark may be helpful as a wash in cases of inflammation of the eyes.

Elecampane root - Elecampane is a specific for irritating bronchial coughs, especially in children. It may be used wherever there is copious catarrh formed e.g. in bronchitis or emphysema. This remedy shows the complex and integrated ways in which herbs work. The mucilage has a laxing effect accompanied by the stimulation of the essential oils. Expectoration is accompanied by a soothing action which in this herb is combined with an anti-bacterial effect. It may be used in asthma and bronchitic asthma. Elecampane has been used in the treatment of tuberculosis. The bitter principle makes it useful also to stimulate digestion and appetite.

Peppermint leaf – Peppermint has a history of medicinal use for a variety of conditions, including nausea, indigestion, and symptoms of the common cold.

Horehound herb - Horehound is a valuable plant in the treatment of bronchitis where there is a non-productive cough. It combines the action of relaxing the smooth muscles of the bronchus whilst promoting mucus production and thus expectoration. It is used with benefit in the treatment of whooping cough. The bitter action stimulates the flow and secretion of bile from the gallbladder, aiding digestion. Horehound is used externally to promote the healing of wounds.

Elder flowers - Elder flowers are ideal for the treatment of colds and influenza. They are indicated in any catarrhal inflammation of the upper respiratory tract such as hayfever and sinusitis. Catarrhal deafness responds well to elder flowers.

Skunk cabbage root – A traditional anti-asthma remedy because it reduces bronchial spasms and relieves cough.

Coltsfoot herb - Coltsfoot combines a soothing expectorant effect with an anti-spasmodic action. There are useful levels of zinc in the leaves. This mineral has been shown to have marked anti-inflammatory effects. Coltsfoot may be used in chronic or acute bronchitis, irritating coughs, whooping coughs and asthma. Its soothing expectorant action gives Coltsfoot a role in most respiratory conditions, including the chronic states of emphysema. As a mild diuretic it has been used in cystitis. The fresh bruised leaves can be applied to boils, abscesses and suppurating ulcers.

Lobelia herb/seed - Lobelia is one of the most useful systemic relaxants available to us. It has a general depressant action on the central and autonomic nervous system and on neuro-muscular action. It may be used in many conditions in combination with other herbs to further their effectiveness if relaxation is needed. Its primary specific use is in bronchitic asthma and bronchitis. An analysis of the action of the alkaloids present reveal apparently paradoxical effects. Lobeline is a powerful respiratory stimulant, whilst isolobelanine is an emetic and respiratory relaxant, which will stimulate catarrhal secretion and expectoration whilst relaxing the muscles of the respiratory system. The overall action is a truly holistic combination of stimulation and relaxation!

IMMUNE SYRUP

This is an Echinacea-based formula that is a powerful immune stimulant that tastes wonderful. Unlike, the Anti-Plague Formula (a garlic based remedy/syrup), children (and adults) love this syrup (cinnamon and maple syrup flavor). In our home, the rule has been, that when one person is sick, everyone takes the herbal formula. This is one that never got any complaints. The kiddies would line up open mouthed like little birds as we would dropper the yummy syrup in their eager mouths.

IMMUNE SYRUP RECIPE

Yield: 64-72 ounces

1	cup heaping Echinacea Angustifolia root
1/2	cup heaping Echinacea Purpurea root or herb
1/8	cup Eleuthero root (formerly Siberian Ginseng)
1/8	cup Pau d'Arco inner bark
1/8	cup Cinnamon
1/8	cup Cat's Claw
1.75	liters vodka (80 proof)
4	cups Organic Grade B or A Maple Syrup

1. Measure your herbs – All of these herbs are cut/sifted into ¼ inch pieces, not powdered. Place the herbs into the blender
2. Add vodka so that it is at least a couple inches over the herb.
3. Blend the herb and the vodka.
4. Pour mixture into a two quart jar. Rinse out the remaining herb from the blender with the alcohol. Fill your jar until about an inch from the top.
5. Set your jar on the kitchen counter and shake at least a couple times daily. This assists in extracting the herbal goodness into the liquid.
6. After at least two weeks, you can strain your tinc-

ture. Too soon and you will be missing out and losing strength. There is no problem with keeping it preserved indefinitely in the alcohol.

7. Strain your tincture using your nylon paint strainer. You will strain out five to six cups. Squeeze really hard.
8. When canning foods, we know that to preserve it, we use salt (pickles), acid (vinegars) or sugar. Each of these prevent pathogens (bacteria) from growing. For this recipe, we choose sugar (yea!!) and why not pure organic maple syrup (yum!). Add 4 cups/32oz of maple syrup and you're finished.
9. This remedy is preserved with both maple syrup and alcohol. It will keep well unrefrigerated.
10. Label the syrup with a creative name.

Recommendations for use: Take 2 dropperfuls (about 30 drops) two to three times daily. If sick, you can take it every waking hour.

Contrary to what you may have heard about Echinacea, you can take it indefinitely as an immune builder. However, as with all herbs, taking a break now and then will prevent you from acclimating to it. As a general rule to build/stimulate your immune system; six weeks on, one week off. Do that for six months.

Description of Herbs

Echinacea Angustifolia root – Many Native American groups used this plant for a variety of medicinal purposes, including pain relief and relief of colds and toothaches. E. Angustifolia is known as the most potent of the Echinacea family when it comes to building and stimulating our bodies natural immune response.

Echinacea Purpurea root or herb - Echinacea is believed by many people to stimulate the immune system. In indigenous medicine of the native American Indians the plant is used externally for wounds, burns, and insect bites, chewing of roots for toothache and throat infections; internal application is used for pain, cough, stomach cramps and snake bites.

Eleuthero root (formerly known as Siberian Ginseng) – This is highly beneficial for supporting the adrenal system and increasing overall energy production in the body.

Pau d'Arco inner bark (Brazilian tree bark) – This bark has become a very popular herb in the treatment of yeast, allergies, and other immune problems.

Cinnamon - Cinnamon helps stop menstrual cramps, indigestion, diarrhea, and genital and urinary infections. It increases sweating, and creates heat when used in a liniment.

Cat's Claw - Has a long history of use in South America to prevent and treat disease.

LUNG FORMULA

This is a wonderful formula that will open the lungs (bronchial dilation) as well as clear the lungs from congestion. Used for asthma (has replaced inhalers for some) as well as bronchitis, pneumonia and respiratory infections. This remedy is very potent. It can be used even by infants – but only 1 drop at a time. We usually take this in some water or juice. Expect to feel a Whoosh! as your airways open up.

Follow the instructions carefully for this formula. It is not like the others.

LUNG FORMULA RECIPE

Yield: about 6 cups

- 1 cup lobelia herb
- 1/2 cup Brigham Tea herb
- 1/8 cup coffee bean
- 1/2 cup pleurisy root
- 1/8 cup oregano leaf
- 2 ounces peppermint essential oil – (Add to finished strained tincture)
- 2 cups organic raw apple cider vinegar
- 4 cups vodka – but you will fill the jar

1. Measure your herbs – Do *not* add the liquid essential oil until step #8. *Not* powdered! All measurements are dry volume measurements. You can measure 1/8 of a cup or, as we do it, a large pinch. Don't be stingy with your herbs. Put your herbs into the blender. It should be about 2-1/2 cups of herb. We like using BlendTec or VitaMix blenders.
2. For a half gallon batch – which is what you are making here – add 2 cups of Apple Cider Vinegar to the blender first then the herbs and the rest is vodka. You will fill your jar so that it is about an inch from the top of the jar.

Side Note: *Now, understand that the vodka/alcohol is a tool. If you remember back to your 8th grade chemistry (of course, you don't), you will recall that because of the O-H (that's oxygen-hydrogen group) that defines an alcohol – it is hungry and looking to grab on to something making it more stable. The chemical formula for water is H2O or H-O-H – which is very stable. The alcohol is necessary to pull the phytochemicals (that's the medicinal properties from the herb) out of the herb and into the solution. I'm sorry, but you have to use alcohol. If you are not willing to purchase or use alcohol, you will end up with a pitifully weak product that is one step above useless.*

1. Blend the herb with the ACV (that's Apple Cider Vinegar) and the vodka.
2. Pour mixture into a two quart jar. Rinse out the remaining herb from the blender with the alcohol. Fill your jar until about an inch from the top. You may have a little alcohol left. Don't drink it, because you bought cheap vodka.
3. Set your jar on the kitchen counter and shake at least a couple times daily. This assists in extracting the herbal goodness into the liquid.
4. After at least two weeks, you can strain your tincture. Too soon and you will be missing out and losing strength. There is no problem with keeping it preserved indefinitely in the alcohol.
5. Strain your tincture using your nylon paint strainer. You will strain out five to six cups if you squeeze really hard.
6. Add the peppermint essential oil to your strained liquid. Shake or stir well.
7. Name your lung remedy. Something fun and creative. Personalize and individualize your remedies.
8. Take from 1 DROP to one dropperfuls (about 30 drops) two to three times daily. If you've got an active or persistent cough, you can take it every waking hour. Suitable for infants and small children (tiny doses).

Description of Herbs

Lobelia herb – Lobelia is one of the most useful systemic relaxants available to us. It has a general depressant action on the central and autonomic nervous system and on neuro-muscular action. It may be used in many conditions in combination with other herbs to further their effectiveness if relaxation is needed. Its primary specific use is in bronchitic asthma and bronchitis. An analysis of the action of the alkaloids present reveal apparently paradoxical effects. Lobeline is a powerful respiratory stimulant, whilst isolobelanine is an emetic and respiratory relaxant, which will stimulate catarrhal secretion and expectoration whilst relaxing the muscles of the respiratory system. The overall action is a truly holistic combination of stimulation and relaxation!

Brigham Tea herb – Used traditionally as a blood purifier. Frontiersmen valued it as a treatment for asthma, hay fever, altitude sickness, and any illness effecting oxygen intake. Besides respiratory conditions, it was also used as a blood purifier, believed to help treat rheumatism, and used as a digestive tonic.

Coffee bean – Used originally in most cultures for ceremony or some daily stimulation. Coffee in very small doses is a bronchial dilator.

Pleurisy root – Pleurisy root is effective against respiratory infections where it reduces inflammations and assists expectoration. It can be used in the treatment of bronchitis and other chest condition. The addition of diaphoretic and anti-spasmodic powers will show why it is so highly valued in the treatment of pleurisy and pneumonia. It can be used in influenza.

Oregano leaf - Used as an abortifacient in folk medicine in some parts of Bolivia and other north western South American countries, though no evidence of efficacy exists in Western medicine. Hippocrates used oregano as an antiseptic, as well as a cure for stomach and respiratory ailments. A Cretan oregano (O. dictamnus) is still used today in Greece as a palliative for a sore throat. Evidence of efficacy in this matter is lacking.

Peppermint Essential Oil - Peppermint is renowned for action on the digestive system and for use in bowel disorders. It is one of the best essential oils for nausea, vomiting, morning sickness (small amounts only), mouth or gum infections, fainting, and motion sickness. Peppermint oil is strongly anti-inflammatory and analgesic. Peppermint oil increases circulation. All varieties of peppermint essential oil are useful for muscle pain, inflamed joints, and arthritis. The anti-inflammatory properties make peppermint essential oil supportive of prostate function. Our use of peppermint in this formula is for it's obvious respiratory benefits. That whoosh of opening the airways, but also the calming of inflamed mucosal membranes. •

About The Author: *Kyle Christensen, DC, ND, MH is the author of Herbal First Aid and Health Care, which is available on Amazon.com.*

Launch Your Survival Skills by Building a **ROCKET STOVE**

By Daniel Weatbrook, Sr.

Photos courtesy of WellPrepared.com

When I first began making emergency preparations, I became concerned about cooking. After all, what is the use of storing food if you can't cook it?

You've probably got several pretty good methods of cooking for when the power goes out: propane grill, charcoal grill, Dutch oven, camp stove, solar oven, and even your fire pit. But, if your grill gets damaged, your propane supply runs low, or you find yourself away from your base, you are going to need another option that is easy, reliable, and efficiently burns renewable fuel.

Enter the rocket stove that cooks with high efficiency and little fuel. A rocket stove is a small, wood-burning stove with an interior elbow heating unit and is easy to use in situations where fossil fuel and electricity are not available. Because they burn wood or brush, the fuel is more readily available.

You can cook almost anything that requires stovetop cooking on a rocket stove. Since they burn twigs, leaves, and wood debris-all readily available after severe storms or earthquakes, rocket stoves are a resourceful solution to survival cooking.

Understanding the concepts behind rocket stoves will fuel your preparations should you ever need to construct your own stove:

Rocket stoves are crazy-efficient: you don't need electricity or fossil fuels. Rocket stoves burn small amounts of kindling-sized wood or dry brush. Because of the efficient airflow rocket stoves create, every inch of wood releases the maximum amount of energy. Rocket stoves prove to be a solution to fuel economy and indoor air pollution in developing nations. In fact, a study done in India by the Aprovecho Research Center showed single pot rocket stoves used 18 % less fuel compared to traditional stoves and saved 41% of the fuel compared to an open fire. Rocket stoves are also clean burning. The study also found that single pot rocket stoves decreased particulate matter by 73% compared to an open fire.

Rocket Stoves can be made from

just about anything. Rocket stoves are a popular survival stove because they can be constructed from a variety of materials just lying around.

Making your own rocket stove is fairly easy because you can use readily available materials. Bricks can be stacked to create an opening for a fire and a resting place for a pot. Similarly, a rocket stove can be made by connecting small soup cans into an L-shape and housing them inside a #10 can.

The L-shaped chamber is key. Rocket stoves are designed with an insulated L-tube, or elbow, where the fire of the rocket stove occurs. Sticks are placed on a shelf above the air inlet tube. When the oxygen-rich air meets the wood fuel and the heat created by the insulated tube, the ideal circumstances for combustion occur. Only the ends of the sticks burn in the combustion chamber. As they burn it is necessary to push the sticks into the stove and add more sticks as needed to maintain the desired temperature. There are many variations of this design including a sloped chamber for loading the fuel allowing gravity to help feed the fire.

Air flow is everything. In order for any fire to burn, it needs fuel, oxygen, and heat. And for fires to get very hot, they need plenty of oxygen. Blacksmiths and glass blowers use bellows to blow air into the fires, delivering more oxygen and, therefore, raising the fire to the desired temperature to mold glass and shape steel.

The airflow in rocket stoves works on the same principle: delivering plenty of air to the fire. The chimney, the "rocket" part of the stove, provides oxygen-rich air through the draft created, allowing fuel to be heated with super-efficiency. The airflow within the insulated chamber allows rocket stoves to use very small amounts of fuel that heat to very high temperatures. To maximize airflow, be sure to keep the combustion chamber free of ash.

For me, the bigger the rocket stove, the better. The first rocket stove I built used a steel 5-gallon bucket with a 4-inch stovepipe elbow to form the rocket stove. After building a few of these with my family, I knew I needed to go bigger. My next step was to use 18" x 30" cook top with a 6" stovepipe. It had an 8" hole at the top of the bucket where a wok could easily rest. I still use that rocket stove, but I wanted to develop a method to feed a lot of people using no electricity or propane.

Photos courtesy of WellPrepared.com

I'd found that rocket stoves were perfect for emergency or backyard cooking, but I realized the small stoves I was building could only accommodate one pan. I wanted the ability to feed huge groups should the need ever arise. That's how I came to manufacture Bear River Rocket Stoves, 3-and 4-foot griddles powered by three rocket chambers. Engineering the airflow through the units allows for an oven as well! The combination of a griddle and an oven allows you to prepare just about any dish you can with the stove in your kitchen with one exception, there is no broil function. Given this one weakness, the Bear River Rocket Stoves will cook a whole lot more food once the power goes out and the gas is all gone than the conventional stove in your kitchen.

Bear River Rocket Stoves consume one 5-gallon bucket of sticks per hour while giving off no smoke once the unit is hot. With just three 5-gallon buckets of fuel, we can cook for 100 people with no smoke during the day and no light signature at night.

Although my motivation behind building rocket stoves was to prepare for troubled times, I've found they are a lot of fun to cook with. Big or small, rocket stoves aren't just a smart survival stove, they are a fun way to enjoy outdoor cooking. There is something special about cooking with wood and the outdoors that just makes the food taste better. •

Daniel Weatbrook, a Navy Veteran (Nuclear Submarines), is the founder and CEO of Bear River Rocket Stoves, a heavy-duty rocket stove/oven unit. Anything you can cook with your kitchen range/oven you can prepare with a Bear River Rocket Stove. These heavy-duty oven/stove units can feed a few people or a few hundred people in emergency situations.

Dan can be reached at: 435-730-5160, BearRiverRocketStoves@gmail.com or through his website, www.BearRiverRocketStoves.com.

How to Write a **Business Continuity & Disaster Recovery Plan**

By Bruce Curley
TACDA Board

Why create and use a Business Continuity and Disaster Recovery Plan (BCDRP)? For the same reason you have a health plan, a car insurance plan, or a home owner's policy - to prepare for, respond to, and successfully overcome a disaster. If you experience a major disaster, and man-made and natural disasters happen daily, having a BCDRP may make the difference between your business surviving or going out of business. As importantly, having a plan may mean the difference between who lives and who dies. Think of it as life insurance YOU write that helps ensure that you, your loved ones, your employees, and your business go on.

What follows are some of the major parts of any BCDRP. It is only a guide. Every BCDRP must be custom written and tested to your unique needs and circumstances. Use this for ideas of how to create your plan, but make sure you create a plan that reflects your needs.

Disaster Management Plan Purpose

The purpose of the BCDRP is to ensure that a clearly defined BCDRP structure and accountable and responsible Disaster Management Team is in place to quickly, efficiently and effectively recognize and respond to any business disruption:

- Ensure the safety of our employees and the security of our property
- Coordinate continuity of high quality service to customers
- Coordinate communication

(both external and internal)
- Prioritize recovery efforts
- Activate the BCDRP
- Invoke emergency authorization to procure and allocate resources and support

What is a Disaster

- Anything that causes harm to people or significant damage to property
- Anything that adversely affects the value or financial survival of the company
- Anything that disrupts routine business operations or wastes significant management time or financial resources

BCDRP Guiding Principles

Any good BCDRP includes the following tested and proven principles:

- Describe the business impact
- Identify impacted stakeholders
- Identify who does what and when
- Do not use overly technical information
- Provide an escalation point for issues and concerns
- Test the plan and incorporate lessons learned for future plans

In addition, here are some fundamentals your basic plan should cover:

- Develop and practice a contingency plan that includes a succession plan for your leadership.
- Train backup employees to perform emergency tasks. The employees you count on to lead in an emergency will not always be available.
- Determine off site disaster meeting places and disaster communication plans for all your employees.
- Practice disaster communication with employees, customers, suppliers and the outside world.
- Invest in an alternate means of communication in case the phone networks go down.
- Make sure that all employees are involved in the exercises so that they get practice in responding to an emergency.
- Make business continuity exercises realistic enough to tap into employees' emotions so that you can see how they'll react when the situation gets stressful.
- Form partnerships with local emergency response groups (firefighters, police and EMTs) to establish a good working relationship. Let them become familiar with your company and site.
- Evaluate your company's performance during each test and work toward constant improvement.
- Conduct continuity and disaster recovery exercises to reveal any changes and weaknesses. Technology, personnel and facilities are in a constant state of flux at any company.

BCDR Plan Outline

The most important fact about the BCDRP is that those who need the information can get it quickly, efficiently, and easily. One way to accomplish that goal is to separate the plan into two major sections: the plan itself, and the material that supports the plan that goes into the appendix. Here is a suggested outline that has worked well for many companies.

Disaster recovery planning is the process of creating a document that details how your business will recover from a catastrophic event. These steps include:

- Create a List of Jobs: Know all the office jobs that would have to be relocated to an alternate location.
- Create an Inventory of Necessary Office Equipment: For each employee, list only the essential office equipment and furniture that they need to perform their jobs. Remember, in the event of a disaster, space, time and money will be at a premium.
- Create a Catalog of Supporting Software and Computer Equipment: Create a catalog of the essential office computer software and equipment you use.
- Identify an Alternate Office Space: Now that you have a list of people, furniture and computer software, networks and equipment, you will need a physical place to put them. Find several alternative places to relocate your office.
- Create an Insurance and Budget Document: After you decide where to put people, you will need to start buying them the stuff they need to do their jobs. Estimate how much each piece will cost to buy or lease. The time spent up front on this task will shave days off of the recovery process because you will be able to provide a list to your insurance agent of what you need.
- Share It and Store the Plan Off-site: Share your plan with several people and keep it in several places.

See the following table for a suggested table of contents that should be included in any BCDRP.

RECOMMENDED BCDRP TABLE OF CONTENTS

WHAT	DESCRIPTION
Business Continuity Contact List	Name, phone, email, home address, home numbers. Placing it up front makes it easier to find in an emergency.
Disaster Recovery Contact List	Name, phone, email, home address, home numbers. Placing it up front makes it easier find in an emergency.
Disaster Recovery Escalation Process	Clearly identify who is to be notified and who has the title and responsibility for declaring an event and activating the plan.
If Disaster Recovery Plan is Activated	Concise immediate steps that must be taken once a disaster is declared. Goal is to preserve life, prevent injury, and protect property and to lay the foundation for restoring normal business operations.
Disaster Recovery Plan Major Steps	Clearly identified major steps that must be taken to resume routine business operations
Disaster Recovery Facilities Location	Location of the alternative recovery location along with instructions for whom to contact and what to do when there. It can be held in readiness for use during the disaster to recover technical assets and for recovery of business processes. For small and medium-sized businesses, this can mean employees working from home using their laptops.
Resuming Daily Business Operations	Establish the goals, milestones and metrics that will indicate that the disaster recovery has succeeded and routine business operations have resumed.

See the table below for what material belongs in the appendix to the BCDRP. By organizing your document in this way it is easier to write, organize, and update.

RECOMMENDED BCDRP APPENDIX SECTIONS

WHAT	DESCRIPTION
Appendix A: Disaster Management Team Activation Guide	Rules for the activation and the Incident Commander, Coordinator and the rest of the Disaster Management Team.
Appendix B: Emergency Evacuation Procedure and Safe Assembly Areas	Instructions for when and how to evacuate and where to gather once outside of the building.
Appendix C: Exit, Fire Extinguisher, Fire Alarm and Hose Locations	Description of how to exit the floor and building, and the location of the emergency equipment.
Appendix E: Shelter-in-Place Instructions	Instructions for when and how to shelter in place if necessary.
Appendix F: Reporting Disasters	Instructions for how and to whom to concisely and accurately report disaster.
Appendix G: Floor Plan	Drawing of each floor with employee name, phone, and email on the drawing, along with clearly identified exits.
Additional Appendixes	Add any sections that are necessary to your plan.

Additional Tips

- Make a list of all your software you may need to replace.
- Back up all your files.
- Put your essential files on a thumb drive. You may need them to get restarted.

Using Social Media to Respond to a Disaster

Increasingly, using social media correctly to respond to a disaster is one of the most critical parts of your BCDRP. To ensure your social media presence is ready for a disaster, make sure that you:

- Have a media plan with the tools, skills and resources to promptly execute your media.
- Have accounts with the right social media outlets (Facebook, Twitter, Instagram, etc.) before the disaster.
- Monitor social media before, during and after the disaster.
- Designate one employee to speak for the company through social media outlets because social media is driven by trust in people, not an organization.
- The audience has the tools to investigate, record, and publish, so content accuracy is critical.
- A good response should include negative perceptions and address causes and facts.
- With your posts, tweets, photos etc. a link with more information will always help support your message.

Disaster Management Team Roles and Responsibilities

When the Incident Commander convenes the Disaster Management Team (DMT), he or she also authorizes the BCDRP and declares an emergency. Each member of that team has specific responsibilities that are listed below.

CORE DMT ROLES AND RESPONSIBILITIES

ROLE	RESPONSIBILITIES
Incident Commander	Leads the CMT. Provides guidance to the team and is the final decision maker in the case of conflict or lack of consensus.
CMT Coordinator	Assembles the team at the request of the Incident Commander. Schedules meetings, assists with meeting facilities and general support, and completes additional tasks requested by the Incident Commander. Informs other levels for the Incident Commander.
CMT Member	Participates in discussions and takes ownership of actions to ensure resolution of issues within their area of expertise.
Note Taker	Documents all CMT meetings to capture discussion points, actions, owners and deadlines.
Social Media Liaison	Social media expert who has preexisting accounts on social media platforms who professionally and accurately communicates with external and internal customers..
Trusted Advisor	Provides detailed specialized knowledge to provide additional capacity.

Tabletop Exercise

Every BCDRP requires a test to prove that it works and to identify areas that need improvement, also known as a tabletop exercise. Each participant undertakes the actions and tasks as they would during a real disaster. After the exercise, the team members identify the plan strategies that worked and did not work. Then they identify and implement actions that improve the plan, including adding them to the plan.

BCDRP Terms

Like any field, BCDRP has its own terms used by those who work with it to communicate. To help you better understand some of those terms, the table that follows lists and describes a number of those terms.

BCDRP GLOSSARY

TERM	RESPONSIBILITIES
Awareness	To create understanding of basic BCDRP issues and limitations. This will enable staff to recognize threats and respond accordingly. Examples of creating such awareness include: distribution of posters and flyers targeted at a company-wide audience or conducting specific business contii nuity briefings for executive management.
Backup	A process by which data, electronic or paper based, is copied in some form so as to be available and used if the data from which it originated is lost, destroyed or corrupted.
Backup Generator	An independent source of power, usually fueled by diesel or natural gas.
Business Continuity	Capability of the organization to continue delivery of products or services at acceptable predefined levels following disruptive event.
Business Continuity Plan	Documentation that contains all alternative activities to recover and continue disrupted business activities on an acceptable minimum level, including the transition back to normal operations.
Business Recovery	Recovery steps taken to resume the business within an acceptable timeframe following a disruption.
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Call Tree	A structured cascade process that enables a list of persons, roles or organizations to be contacted as a part of information exchange or plan invocation procedure. Includes a document that graphically depicts the calling responsibilities and the calling order used to contact management, employees, customers, vendors, and other key participants.
Communications Recovery	The restoration or re-routing of an organization's telecommunication network so that it continues to work with few or no interruptions.

TERM	RESPONSIBILITIES
Desktop Exercise	Technique for training emergency teams in which participants review and discuss the actions they would take according to their plans, but do not perform any of these actions; can be conducted with a single team, or multiple teams, typically under the guidance of exercise facilitators.
Disaster Management	Involves the management of an event appropriate to the severity and the impact of the event. It consists of the communication that occurs within the response phase of the continuity event management scenarios.
Disaster Recovery Plan	This refers to the management approved document that defines the resources, actions, tasks and data required to manage the technology recovery effort. It is the result of the Disaster Recovery Planning effort. Documentation that defines the resources, actions, tasks and data required to manage the technology recovery effort. Usually refers to the technology recovery effort.
Emergency Evacuation	The immediate and rapid movement of people to a place of safety away from an area that is subject to a potential imminent major disruption such as natural disasters or terrorist attack.
Emergency Management	Refers to the actions taken in response to an event that has occurred, or is anticipated, and the planning that precedes those actions. This primarily includes safety of employees and security of facilities. Medical alert teams, Floor Warden programs and regular fire drills would all be considered part of Emergency Management.
Emergency Response	The response of an organization to a disaster or other significant event that may significantly impact the organization, its people, or its ability to function productively. Emergency response may include evacuation of a facility, sheltering in place, ensuring the health and safety of employees, performing a damage assessment, and any other measures necessary to bring an organization to a more stable status after an event.
Go Bag	A bag, backpack or other easily transportable carrier, pre-filled with items individuals should have with them if directed to evacuate their home or workplace. The Go Bag should only be taken during the evacuation if it is immediately available and will not create a danger to others during the evacuation.
Loss	Negative consequence, which may be financial, e.g. loss of revenue or cash, or non-financial, e.g. loss of information, goodwill, economic value, function, natural resources, ecological systems, environmental impact, health deterioration, mortality, morbidity.
Off-Site Storage	Any place physically located a significant distance away from the primary site, where duplicated and vital records (hard copy or electronic or equipment) may be stored for use during recovery. Or, the process of storing hard copy or electronic records at a secure location removed from the normal place of use.

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