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Our United States government currently:

- Has NO Department of Civil Defense
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- Has NO fallout shelters for the general public
- Has NO directives on how to build hardened fallout shelters
- Has NO information for post-war survival
- Has NO government directed warning systems, sirens, evacuation plans, or general preparations for nuclear attack available for the general public

Here are three easy ways to find and contact your Senators:

1. By Email

Go to <https://www.senate.gov/general/contacting.htm>, locate your state's senators with the provided links, and email them.

2. By Telephone

Call the United States Capitol Switchboard at (202) 224-3121.

3. By Postal Mail

You can direct postal correspondence to your senator or to other U.S. Senate offices at the following address:

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United States Senate
Washington, D.C. 20510

For Correspondence to Senate Committees:

(Name of Committee)
United States Senate
Washington, D.C. 20510

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PRESIDENT'S MESSAGE



There are many legitimate reasons to be concerned about the overall security of the United States of America. Our potential enemies continue to gain strength while our military is being weakened by distractions promoted by the government and the military leadership in this country. Priorities such as environmental concerns and social issues are now taking precedence over basic military functions and objectives. Our military preparedness is also being eroded by the significant expenditure of US ordnance and munitions in the war in Ukraine.

Our political leadership is also working against many countries that have been longtime allies and creating new relationships with many countries that have been largely hostile to US interests in the past. Potential adversaries such as China and Russia are on a war time military buildup with significant investments in new weapon systems and stockpiling of existing weapon systems.

The US military is having trouble meeting recruitment targets due to the issues with the senior leadership in the military. The average patriotic American does not want to be part of a military with such poor leadership that is not focused on protecting this country.

The great empires of the past have crumbled from internal strife and overall weakness rather than direct external threats. It appears that we have not learned the lessons that history could teach us and are repeating many mistakes of the past. Hopefully it is not too late to reverse course and address the problems outlined above.

Be watchful!

Sincerely,

FROM THE DIRECTOR

How Do We Deal with Stressful Times? We Prepare!

*By Roseanne Hassett,
Executive Director*

It seems to me that the state of the world is becoming more unstable and increasing in stress and violence. From war, to threats of war, to devastating fires and other severe natural disasters, to hunger, to economic distress, to political unrest, and more. You may be feeling uneasy and wondering what will happen in the days ahead and how you will endure these challenges.

Some people desperately want to survive and look forward to the future with hope and determination. Others feel there is nothing they can do but run toward the bomb to get it over with or wait for someone (i.e., a prepper neighbor, the government, a rich uncle) to save them. I have heard this statement many times and wonder, what if that plan fails?

At TACDA, we teach our members to be self-sufficient. We know that we must do the hard work and take care of our own needs and not depend on others to come to our rescue. To prepare ourselves for emergencies, we make arrangements for rescue ahead of time, and we look after our loved ones who are disabled and plan for them. We prepare, we sacrifice, we work hard, and that brings us peace of mind as we go forward and live in this unpredictable world.

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Electronics can often get damaged during natural disasters, and having the right information at your fingertips could be crucial to your survival.

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\$12/yearly



ONE OF OUR NATION'S GREATEST SECURITY THREATS: FENTANYL AND XYLAZINE

By Colonel Jim Smith, MSS, NRP,
FABCHS, CPC, CLEE

Photo by Hal Gatewood on Unsplash

Overdoses involving synthetic opioids like fentanyl kill more than 150 people every day in the US (ref. National Institute of Occupational Safety and Health, NIOSH). A rising number of overdose deaths have also been linked to xylazine; a tranquilizer not approved for use in humans. Xylazine, also known as “tranq,” is a powerful sedative that the U.S. Food and Drug Administration has approved for veterinary use only. Xylazine is not safe for use in humans and may result in serious and life-threatening side effects that appear to be like those commonly associated with opioid use, making it difficult to distinguish opioid overdoses from xylazine exposure.

Xylazine is especially dangerous when combined with opioids like fentanyl. With its impact on the opioid crisis, fentanyl mixed with xylazine has been declared an emerging threat by the White House’s Office of National Drug Control Policy. On July 11, 2023, the White House released a National Response Plan to fight against this threat. A National Safety Council survey found that 75 percent of employers say opioid use has impacted their workplace. However, only 17 percent report being extremely well-prepared to address the issue. The FDA recently communicated to health care providers about the risks to patients exposed to xylazine in illicit drugs. A copy of that communication can be found [here](#) and at the end of this article.

Routine toxicology screens do not detect xylazine, which makes treating overdoses difficult. The drug naloxone has been developed as an antidote to reverse opioid overdoses from drugs like fentanyl. It is not effective against xylazine, however, as it is not an opioid. According to the CDC, 107,735 Americans died between August 2021 and August 2022 from drug poisonings, with 66

percent of those deaths involving synthetic opioids like fentanyl. The Sinaloa Cartel and Jalisco Cartel in Mexico, using chemicals sourced from China, are primarily responsible for most of the fentanyl trafficked in communities across the United States.

Drug Threat Analysis

The use of “pill mills” has increased the production of these drugs where raw materials are assembled into a finished pill. Many of these illicit pills are well made and indistinguishable from legitimate products. Fentanyl has exploded on the market nationwide. The Drug Enforcement Agency (DEA) has reported that, nationwide, roughly 23 percent of illicit pills contain fentanyl, fentalogs (analogs of fentanyl, i.e., fluorofentanyl or para-fluorofentanyl), xylazine, or combinations of said drugs.

Para-fluorofentanyl (4-fluorofentanyl or pFF) is a Schedule I synthetic opioid analgesic first synthesized for research purposes in the 1960s. pFF has a similar chemical structure and synthesis route to fentanyl. Clinical research evidence indicates pFF is more potent than fentanyl but can be 50 to 100 times more potent depending upon the manufacturing process. However, pFF has recently reemerged in the illicit drug market. It has been detected in heroin packets, fentanyl compounds, and counterfeit pills. It has also been linked to multiple overdose deaths across several US states. Unlike other opioid analgesics (ex., heroin, morphine, fentanyl), pFF is not detected during routine toxicology testing and requires specialized forensic toxicology testing (CDC).

“Fentanyl is the most urgent drug threat facing our communities, and the cartels are one of our greatest security threats,” said DEA Acting Special Agent in Charge, David Olesky. “The relationship between the cartels and

the local street gangs and criminal groups drives the drug trade and the violence associated with it” (DEA, June 2023). In many areas, xylazine and fentanyl have supplanted methamphetamine, cocaine, and heroin as the drugs of choice.

“Fentanyl is the most urgent drug threat facing our communities, and the cartels are one of our greatest security threats.”

The U.S. Drug Enforcement Administration is warning the American public of a sharp increase in the trafficking of fentanyl mixed with xylazine. “Xylazine is making the deadliest drug threat our country has ever faced even deadlier,” said Administrator Milgram. “DEA has seized xylazine and fentanyl mixtures in 48 of 50 States. The DEA Laboratory System is reporting that, in 2022, approximately 23 percent of fentanyl powder and seven percent of fentanyl pills seized by the DEA contained xylazine.” Xylazine and fentanyl drug mixtures place users at an even higher risk of suffering fatal drug poisoning.

Because xylazine is not an opioid, naloxone does not reverse its effects. No human-approved antidote exists for xylazine. Still, health care professionals should continue to administer naloxone for opioid overdoses and consider xylazine exposure if patients are not responding to naloxone or when there are signs or symptoms of xylazine exposure. People who inject drug mixtures containing xylazine can develop severe wounds – including necrosis, the rotting of human tissue – that may lead to amputation.

What Can be Done?

The increase in overdose deaths highlights the need to ensure people most at risk of overdose can access care, as well as the need to expand prevention and response activities. CDC issued a [Health Alert Network Advisory](#) to medical and public health professionals, first responders, harm reduction organizations, and other community partners recommending the following actions as appropriate based on local needs and characteristics:

- Expand distribution and use of naloxone and overdose prevention education.
- Expand awareness about and access to and availability of treatment for substance use disorders.
- Intervene early with individuals at highest risk for overdose.
- Improve detection of overdose outbreaks to facilitate more effective response.

Myths Associated with Fentanyl

Several myths are circulating among the public and public safety personnel. This information can make citizens and public safety personnel less likely to treat those suspected of an opioid overdose. Debunking the myths and teaching the correct use of personal protective equipment (PPE) by first responders is critical.

The College of Medical Toxicology and American Clinical Toxicology issued a joint report asserting the risk of fentanyl overdose via incidental transdermal exposure (through the skin). It is a myth, and the risk is very low.

Why is it important to know that fentanyl cannot be absorbed through the skin? Because of social media posts and other erroneous reporting, some people believe that they may be harmed if they touch someone who is expected to have overdosed on fentanyl. It is not true. Likewise, breathing fentanyl dust from exposure to a user will not result in breathing issues or fatalities. It would take 200 minutes of breathing fentanyl at the highest airborne concentrations to yield a therapeutic dose, but not a potentially fatal one.¹ People who overdose on fentanyl have only minutes to live. They need immediate medical attention, and it is safe to help them. Call 911 immediately and administer CPR if the individual is not breathing.

Myth Summary

- Touching fentanyl will result in intoxication, immediate incapacitation, collapse, and death – NOT TRUE! Dermal (skin) absorption is difficult and rare.
- Breathing fentanyl “dust” will cause immediate death – NOT TRUE! It takes prolonged exposure to fentanyl dust to cause breathing issues.
- Touching fentanyl patches on a patient will cause immediate incapacitation, unconsciousness, and death – NOT TRUE! Patches release small amounts of fentanyl over a specified time.

Procedures to Prevent Contamination for the Public and First Responders

- For law enforcement: do not field test suspected fentanyl because of collateral contamination issues.
- Double bag (at least) suspected fentanyl to prevent any potential contamination spread.
- Double glove using nitrile gloves exclusively to prevent any contact with fentanyl or other substances with the skin to prevent the remote possibility of secondary contamination.
- Do not allow law enforcement canines near a potential fentanyl site.
- Decontaminate footwear to prevent tracking contami-



Photo by Myriam Zilles on Unsplash

nation into your vehicle and home.

- Use proper methods to don/doff PPE to avoid secondary contamination.
- Use Narcan® or naloxone on canines exposed to fentanyl (same dosing as for humans, consult a veterinarian immediately).

Personal Protective Equipment (PPE) Recommended for Fentanyl

- If observed, personnel should utilize, at a minimum, nitrile gloves, eye protection, a water resistant gown, and an N-95 dust mask (which should be part of their PPE kit).
- Do not handle pills or potentially contaminated objects without wearing double nitrile gloves.
- For visible, suspected fentanyl in a pill mill or lab or a heavily contaminated location, use at least a Level B fully encapsulated suit PPE.
- Laboratories may need Level A PPE. (Per DEA Website)

Recognition of an Opioid Drug Overdose

- Decreased level of consciousness
- Does not respond to tactile or verbal stimuli
- Slowed or no respirations (do CPR for no respirations)
- Cyanosis (bluish- or gray-colored mucous membranes)
- Pinpoint pupils

**Naloxone is not useful in cardiac arrest as no circulation is present.*

Brand Names of Naloxone

- Kloxxado™: one spray delivered by intranasal administration into one nostril; delivers 8 mg of naloxone HCl.

- Narcan™: one spray delivered by intranasal administration into one nostril; delivers 4 mg of naloxone HCl.
- RiVive™: one spray delivered by intranasal administration into one nostril; delivers 3 mg of naloxone HCl.

Administration of Naloxone

Naloxone is available over the counter in many locales. One needs to ensure that state law allows citizens to administer naloxone and protects citizens from civil or criminal sanctions.

Most forms of Naloxone come in a nasal spray. Follow the package directions. However, the general methods are to determine if the person appears to be in opioid overdose. They must be breathing. Prepare the naloxone instillation device and gently spray into a nostril. Results should be seen in one to two minutes as the patient inhales the antidote.

If the patient recovers and then lapses back into unresponsiveness, consider a second dose of naloxone in the other nostril. According to the CDC, few side effects occur with naloxone. However, some people become combative because their “drug high” was reversed.

Reference:

1. Moss et al., del Pozo, B., Sights, E., Kang, S. et al. 2018. Can touch this: training to correct police officer beliefs about overdose from incidental contact with fentanyl. Health Justice, (9)34. <https://doi.org/10.1186/s40352-021-00163-5>.

Links:

Risks to patients exposed to xylazine in illicit drugs: <https://www.fda.gov/drugs/drug-safety-and-availability/fda-alerts-health-care-professionals-risks-patients-exposed-xylazine-illicit-drugs>

Health Alert Network Advisory: <https://emergency.cdc.gov/han/2020/han00438.asp>

Training video for Narcan™ (Naloxone) administration: <https://www.youtube.com/watch?v=KEOq6fUWNtA>

Colonel Jim Smith has been working in public safety since 1972. He was co-author of Tactical Medicine Essentials and teaches this program. Smith graduated from the University of Southern California with a master's degree in safety and has a BS in chemistry and biology. He has authored several texts in the WMD and emergency medical fields. He served on a federal law enforcement task force for several years. Smith serves as the public safety director of the Town of Cottonwood, a small rural community in southeast Alabama. Smith teaches at the University of Phoenix.



WHAT'S A TRILLION AMONG FRIENDS\$?

By Dr. Ben Kim

Photo by Adam Nir on Unsplash

Interest owed on the US's \$32 trillion and growing debt is going parabolic and is about to pass 1 trillion dollars - it's the fastest growing US federal expense.

Please take a second to digest this: interest payments alone on US debt are about to pass one thousand billion dollars.

With tax revenues down significantly, the US has only one way to continue to make payments on its growing debt: issue more debt, also known as treasury bills, notes, and bonds.

To put the situation into numbers that us mortals can wrap our brains around, the US federal government is like a "friend" who has \$3.2 million worth of debt which is growing by the day, and they are increasingly having trouble making just the interest payments on their debt, so can they please borrow \$250,000 from you?

What will they do with the \$250K loan? They need it to make interest payments on their existing loans. Even if you had the \$250K to lend, would you feel good about making the loan?

Why doesn't your friend just spend less and sell some of their assets to pay down some of their debt, thereby decreasing their monthly interest payments? They don't want to, and they also need to keep up with appearances so they don't risk losing their job. Austerity is no fun! Our imaginary friend's situation is the same one that the US federal government is in, as are governments around the world, including those of Canada, the UK, and Japan.

Looking out over the next 6-12 months, it's difficult to see how the US avoids entering a sharp recession. Equity markets can rally furiously before a recession is declared - it's called a melt-up, and we've been in one since early this year. But at some point, I expect a severe downturn in most markets, possibly precipitated by an implosion of the commercial real estate market as entities look to refinance

at much higher rates.

Global bond markets are under significant pressure, as "smart money" is avoiding most bonds. Those who truly understand finance know that all fiat currencies are melting ice cubes, designed to be debased over time via money printing in order for governments to continue to spend more than they bring in but still afford to make interest payments on their growing debts - this is the primary reason why we've been told by the "experts" that a bit of inflation is necessary and healthy.

While higher interest rates have been effective in destroying enough demand to bring inflation down from last year, sometime in the next 6-12 months, I expect inflation to head north again as money printers around the globe go full brrr to bail out insolvent governments, corporations, and people. This is why we must prepare to the best of our ability to protect our purchasing power for the years ahead.

1. Oil and Gas

As the wealthiest countries continue the push to use "cleaner" sources of energy, the need for oil and gas will increase. It's a simple matter of the least expensive hydrocarbons being essential to mining minerals and other resources needed to have "clean" energy.

2. Uranium

Companies in the uranium ecosystem will see increased activity as countries are forced to recognize and acknowledge that generating more nuclear energy is absolutely essential to increasing quality of life for the masses, and is much more environmentally friendly than burning fossil fuels.

3. Semiconductors

The world will continue to dematerialize everything

possible, as digitization lowers costs and improves quality of life in countless ways. The digital world requires chips, lots of chips. So the top fabricators of semiconductors will thrive as the need for memory and microprocessing continues to increase, fueled in part by exponential growth in robotics and use of artificial intelligence.

4. Bitcoin

More than ever, people need a way to store their hard earned wealth in a global asset that has a fixed supply, that they can take full custody of, and that cannot be seized by a government that may not agree with one's view of the world. There is only one truly decentralized asset that meets these needs, and with more monetary debasement coming our way in the coming months, notwithstanding temporary corrections that invariably occur, I see Bitcoin increasing in value by at least ten times over the next decade.

Here's the thing about investing and protecting one's purchasing power that I've come to learn over decades: we cannot rely on others to tell us what to choose. We must do the work ourselves to deeply understand anything we ultimately decide to allocate funds to, as without this work, we won't have the conviction needed to hold onto

an asset as it goes through the many ups and downs that are inevitable in a free market.

If we buy an asset because our friend or sibling told us to, how will we know when to sell it? We don't want to rely on anyone but ourselves to decide what we think an asset's fair value is, and accordingly, rational entry and exit prices.

Any questions on these observations can be sent directly to me at benkim@drbenkim.com.

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Dr. Ben Kim studied at the University of Toronto before earning his Doctor of Chiropractic degree in 1997 at the National University of Health Sciences in Illinois. He graduated summa cum laude and class salutatorian with a strong foundation of basic and clinical sciences. He is also a graduate of the Contemporary Medical Acupuncture Program at McMaster University. His website has been visited by millions of people, and he hopes to continue to share his knowledge through that platform as well as his newsletter.



Photo by Ehud Neuhaus on Unsplash

RISK ASSESSMENT

By TACDA Staff

People do not like to think about disaster. In the minds of most people, comfort, health, and plenty remain the rule throughout all time, and they live their lives accordingly. When crisis looms in any form that announces warning, they rush in panic to the grocery store to purchase a few extra supplies. This scene re-plays for most of the population prior to every major storm. Few places in the United States have suffered a long-term disaster. Help in the form of shelter, food, and water have most always been provided within a few days. We anticipate and expect this help to arrive and have grown dependent and apathetic because of it.

In many other parts of the world, help is not readily available. Vast populations in areas affected by war, pandemics, earthquakes, landslides, and floods are left to their own devices for weeks and even months. Modern-day threats have the potential to leave our local population in the same condition. Fear, panic, and sheer terror would overwhelm the masses during and immediately after a major disaster. Panic is soon replaced by overwhelming depression and apathy. Our survival is dependent upon a change of attitude and the acknowledgment that we are at risk.

Assessing Your Risk

Most people consider the risk of a long-term, natural or man-made disaster to be very small. No such crisis has ever occurred in our country; therefore, they consider the probability of such an event to be near zero. Keep in mind, however, that a true risk assessment must include both “probability” and “consequence”.

Risk = Probability x Consequence

Our country is prone to earthquakes. The consequences from earthquakes in loss of property and human life vary widely. Historically, earthquakes in the United States have caused relatively few deaths. There is great potential and growing concern, however, for tsunamis and earthquakes affecting high population density areas. It has happened before and could easily happen again. In February of 1965, Alaska experienced a magnitude 8.7 earthquake that triggered a 32-ft. high tsunami! Records show that impacts of the tsunami were experienced as far away as California, Ecuador, Peru, Mexico, Japan, and even



Russia. In December of 1811, a 7.2-8.2 quake occurred in what is now Memphis, Tennessee from a rupture of the new Madrid North Fault. Many areas were heavily damaged by soil liquefaction. Intense shaking was observed in a 230,000 sq. mile area. Six hours later, they experienced a 7.4 quake in the same location. In January of 1813, they experienced a 7.0-8.0 quake in the same general area, and the next month there was a 7.4-8.6 quake.

Extreme weather patterns have increased significantly over the past decade. The possibility of an electromagnetic pulse (EMP) attack by a rogue country has become a frightening reality. Most of our national security strategists agree that the possibility of a nuclear attack from terrorist countries and organizations grows daily. The technology is well known, and the nuclear fuel for such weapons is available on the black market. China and North Korea have made “veiled” nuclear threats against our borders; terrorist organizations claim to have ‘suitcase bombs’; and Russia and China continue to modernize every aspect of their strategic nuclear arsenal. The probability of a major disaster is much greater than most people are willing to imagine.

Terrorist attacks have claimed thousands of lives and billions of dollars in collateral damage. A nuclear attack could claim tens of millions of lives and could totally destroy our economy and possibly our sovereignty.

When multiplying the growing probability factor for these threats by the consequence factor, we see a resulting risk factor that is huge. We believe this assessment justifies the expense and effort of preparing for these disasters.

Threat Assessment

- List the number of primary targets (major airports, military bases, etc.) within a 10-mile radius.
- How close are you to a large city of population over 200,000?
- List the number of secondary targets (dams, power plants, refineries, etc.) within a 10-mile radius.
- List the number of major highway interchanges within a 10-mile radius.
- Would you need to evacuate in any of these emergencies? Have you planned several alternative evacuation routes?
- Does your location have a history of large earthquake potential?
- Is your area prone to tornados, hurricanes, or flooding?
- Is your area prone to fires?

A Change of Attitude

After completing an honest risk assessment, attitudes often change. There are mental exercises that help with this process. Preparation is a natural result of attitude change.

- Accept the possibility that disasters can and do occur on a regular basis.
- Worry can be a constructive tool. Role-play various disasters and plan what actions should be taken.
- Exercise hope for the future. Spiritual anchors provide the will to survive.

There are fundamental necessities required for each person to feel comfortable, safe, and secure. By closely attending to these needs before the disaster, the occupants will feel less stress, and they will be more likely to remain emotionally stable during the incident.

A great deal of time and money is put into preparations for natural and man-made disaster. These preparations will be lost if the plan is not worked and the equipment maintained. Do your risk assessments and prepare accordingly.



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HOW INFRAGARD IS PROTECTING AMERICA

By Dave Christensen, CISSP, CCSA, NDRG, INFGP, INFG-InT, DevSecOps, Author, TACDA Member



Logo courtesy of InfraGard.org

The Mission of InfraGard

Directly from the FBI fact sheet: “InfraGard is a unique partnership between the Federal Bureau of Investigation (FBI) and individuals in the private sector for the protection of U.S. critical infrastructure and the American people. As one of the nation’s largest public/private partnerships, InfraGard connects critical infrastructure owners, operators, and stakeholders with the FBI to provide education, networking, and information-sharing on security threats and risks. InfraGard’s membership includes corporate security managers, directors and C-suite executives, cybersecurity and IT professionals, and Chief Information Security Officers for industries such as finance, healthcare, and education, as well as with government agencies on a national, state, and local level — all dedicated to contributing industry-specific insight to advance national security. Today, there are members in more than 77 local InfraGard Member Alliances (IMAs), represented nationally by the InfraGard National Members Alliance (INMA). Each IMA is affiliated with the FBI Field Office in its region.” (U.S. DOJ 2018).

I started with InfraGard NJ shortly after I received my Certified Information Systems Security Professional (CISSP) certification. I wanted to be more involved in security awareness but also support national objectives for people’s safety. My journey with InfraGard has been quite challenging because, in the early years, I struggled to find a place I could fit in while trying to make time to volunteer and being unsure if my skills and experience would be beneficial to the team. Over time, I met some fabulous, like-minded people who focused on the protection of the American people, and we immediately connected. From those few relationships, I started focusing on my areas of strengths, which were security (in general), engineering

(software and infrastructure), and electrical systems (as a licensed electrician). I joined the regional Electromagnetic Pulse Special Interest Group (EMP SIG) within InfraGard, which connected me to several multi-state InfraGard members from NJ, NY, CN, MA, and more. These relationships flourished, supporting outreaches on education and awareness in the utilities sector, including private/public companies and various national and local agencies.

Some background on InfraGard can be found on our national office webpage: “Founded in 1996, the InfraGard National Members Alliance, or InfraGard National, is an FBI-affiliated nonprofit organization dedicated to strengthening national security, community resilience, and the foundation of American life. InfraGard is one of the FBI’s longest-running outreach programs and its largest public/private partnership, with over 80,000 members representing 78 InfraGard chapters nationwide. All InfraGard chapters are geographically linked with one of the FBI’s 56 Field Offices, enabling law enforcement and the American business community to collaborate on localized educational programs, training events, and information-sharing initiatives that help mitigate threats and promote safety and security. Exemplifying leadership, patriotism, and purpose, InfraGard’s vision is to provide meaningful contributions towards preserving human life and making our nation a safer, more resilient place for all.”

(InfraGard National Members Alliance 2023).

Public and Private Sector Partners

As noted previously, I progressed in my experience within InfraGard slowly but productively. Relationships and partnerships build over time, as with any organization. Since we are sponsored by the FBI, they support us in many ways, such as analyst briefings on almost any topic (public data only, no classified information is ever shared) and company-based security reviews in physical and cyber sector areas at no cost. Our relationship with the FBI has allowed InfraGard members the unique opportunity to be trained at Quantico where we can connect with other agencies to support our common goal: to protect the American people. Some chapters and even national InfraGard use a memorandum of understanding (MOU) to establish common goals and communication with various agencies so continuity can be maintained should InfraGard members leave. This agreement provides a mechanism for how partners will cooperate on events or activities (Chapman 2005). Interagency partners also use the MOU, so it's a useful tool when partnerships need to be maintained.

These relationships, whether formalized by an MOU or a handshake, are the glue that supports our mission. Our ongoing joint efforts provide the fuel to connect and

execute together. A project I was involved with at the national level was the annual National Defense Research Committee (NDRC) meetings in Washington. I helped educate state and federal leaders on the risks to utilities from EMP and other natural occurring phenomena and how to protect against them. Since many of us are from engineering or IT backgrounds, we discuss real issues along with actionable solutions. As we present problems and solutions, leaders have recognized many members as experts in our fields and have invited some of us to participate in congressional investigative boards.

The NDRC is just one (although one of our best!) of many teams inside InfraGard focused on national security. Each state has local chapters, and each chapter has its unique skill sets. For example, NCR and San Diego have been excellent in providing online education to members and companies. From that model, national InfraGard is now providing ongoing online education via a new training platform called the National Infrastructure Security and Resilience U (NISRU), with reduced-cost or no-cost training for members on critical infrastructure protection (InfraGard National 2020). Local chapters like ours in NJ also conduct outreach programs to connect with members of the community on various topics such as fraud prevention. These outreaches support work across groups at the local, state, and federal levels by using our personal and partnership connections.

Education and Risk Awareness through Networking and Information Sharing

With the NDRC, I participated in creating a reference for critical infrastructure protection focused on utilities. We started this book roughly ten years ago, with the latest version published in 2020. Tom Moran, Executive Director of the All-Hazards Consortium, summarized it best:

“Powering Through: Building Critical Infrastructure Resilience provides the most comprehensive review of threats, impacts, consequences, and preventative measures any organization can take to be more resilient to extended power outages that we have seen in our 16 years in the disaster management and business continuity field” (Lasky 2020).

After the book was published, several of us started teaching from it at national conferences, local workshops, and any venue we could find to educate community members on the critical infrastructure risks along with preventative measures. The NDRC holds a conference each year in Washington, DC to connect leaders with resources on critical issues with relevant solutions.

Education on this myriad of topics takes place on both the local chapter level and the national level. Local



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chapters connect with local companies, local agencies, state agencies, and global companies if the headquarters are in their region. It might be an elder fraud outreach, as we do in NJ, or education on active shooters by the FBI field office. InfraGard discusses any topic that supports national security for the protection of all people living in the United States (not just citizens).

Local chapters and national groups are constantly looking for new ways to connect with partners or support ongoing projects that meet our common objectives. Agencies and private partners welcome the support and, in some cases, reach out to us to help execute common goals. With private and public companies involved, as well as colleges and universities, chapters provide a wide net to capture ideas, issues, and solutions. Our main challenge is coordinating the work to make the biggest impact.

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IS IT SERIOUS, DOC?

ANXIETY AND HOW TO DEAL WITH IT

By Brialyn Carlsen, CSW

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The 24-hour news cycle of today's world can be, at times, informative and uplifting, spreading stories far and wide of the good deeds of those around us. Other times – and I would venture to say, most times – it is fear provoking and stress inducing. There is no shortage of crime, warfare, scandals, pessimism, and natural disasters. Some BBC headlines as I write today include, “Florida hunkers down for ‘unprecedented’ hurricane”, “Dying by the dozens every day – Ukraine losses climb”, and “US ex-marine seen in Russian labor camp video”. If there was ever a time for anxiety to be at an all-time high, it's now.

The purpose of this article is threefold: first, to make it clear that you are not alone in feeling stressed, anxious, or afraid; second, to differentiate between common, rational anxiety and generalized anxiety disorder (GAD), a clinical diagnosis which requires professional help; and three, to provide some coping skills that you can utilize to help alleviate anxiety symptoms.

Non-clinical Anxiety versus Generalized Anxiety Disorder

There are several requirements that must be present for a person to be diagnosed with generalized anxiety disorder (GAD). This article will briefly discuss them but should not replace professional therapeutic counsel in obtaining a formal diagnosis or subsequent treatment. According to the Diagnostic

and Statistical Manual of Mental Disorders-5 (DSM-5), for anxiety to merit a GAD diagnosis, the following must be present (in adults):

1. excessive worry, more days than not, for at least six months
2. difficulty controlling worry
3. at least three of the following:
 - restlessness
 - fatigue
 - difficulty concentrating
 - irritability
 - muscle tension
 - sleep disturbance

If these symptoms are present, they must also be significant enough to cause distress or impairment in various areas of one's life¹. If you recognize these symptoms in yourself, please speak with a medical or psychological professional. Treatment may include psychotherapy (talk therapy) or prescription medication. It should be noted that “GAD increases the risk of major depressive disorder”, so seeking help is critical to maintaining good mental health².

If you experience stress or worry without meeting the requirements for GAD, many of the following techniques (which are often part of psychotherapy treatment for GAD) can help.

Techniques to Lessen Anxiety

One helpful way to reduce stress and anxiety is first to

understand it. Why does stress beget more stress? If you ever find yourself worrying about one thing which turns into worrying about ten things, this is why. It's called a negative feedback loop (Figure 1). For you, the loop may begin in any of the three spots, but we'll start with stress in general. Feeling stressed or anxious promotes a fight or flight response. This is the body's sympathetic nervous system kicking in and telling us to either fight our way to safety or get the heck out of there. The response is crucial in situations where we are actually in danger like our car hitting black ice or encountering a bear in the woods. In everyday life, however, this response can sometimes exaggerate our perception of how threatening a stressor really is. For example, being ten minutes late to kindergarten pick up may feel very serious even though no one is in danger of losing life or limb. This fight or flight response results in physical and/or physiological symptoms such as the ones listed above (muscle tension, fatigue, poor sleep, etc.). These symptoms, in turn, can generate or increase one's stress. For example, if you slept poorly last night, the bickering of coworkers next to you may feel much more stressful than it otherwise would. In short, mental stress/anxiety goes hand in hand with physical stress symptoms, and they perpetuate each another³.

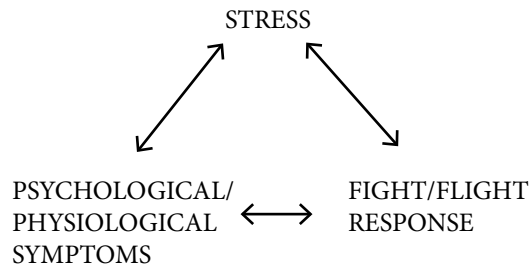


Figure 1. Negative Feedback Loop

Technique 1: Four-Step Approach

With an understanding of how anxiety is affecting your body and mind, you can now interrupt it. One technique, used in “The Wellness Book: The Comprehensive Guide to Maintaining Health and Treating Stress-Related Illness”, is the four-step approach: stop, breathe, reflect, choose³. Quite simply, it means:

1. Stop – When you recognize stress coming, pause for a moment. Do not let your thoughts escalate into what-ifs and catastrophizing.
2. Breathe – Take a deep breath. This helps calm the mind and the body.
3. Reflect – Once calm and in control, you can more

easily see what's causing you stress and how you can alleviate it.

4. Choose – Now you can decide what to do with your stressor or how to cope with your anxious feelings.

This four-step method breaks the negative feedback loop of stress. Instead of spiraling deeper and deeper, you are interrupting the cycle so you can realistically face the issue at hand.

Technique 2: Mindfulness

Another widely used technique for treating anxiety is mindfulness. Like meditation, mindfulness is a mental act that brings you into the present moment and keeps your mind focused. It is especially convenient since you can practice this during almost any activity, for example, while driving to work. Mindfulness is simply paying attention to each and every detail of something. While driving, you would notice the position of your body on the seat. Are you slumping or sitting up straight? Can you feel the seat against your back? How tightly are you gripping the steering wheel? Are your elbows resting on anything? Is one knee bent more than the other?

There is no limit to what kind of things you can be mindful about: eating a bite of food, sitting on the couch, watching a tree outside, etc. This practice provides your mind with something to concentrate on other than your anxiety. It also interrupts the negative feedback loop of stress. Once in a calm and settled place, you can address the stressor more easily.



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Technique 3: Light Exercise

Exercise is often cited as a reliable and consistent activity to reduce stress. Walking, jogging, yoga, light to moderate weightlifting, swimming, cycling, aerobics, and many others are all helpful ways of keeping your

mental health in check. This is because “exercise can improve the way the body handles stress, and it can provide a time-out from stressors”⁴.

Technique 4: Progressive Muscle Relaxation

This technique gives both the mind and the body a chance to step away from the stressor for a moment. When used immediately upon feeling anxiety levels rise, it can prevent the body from going into a fight or flight response, which gives the brain a chance to evaluate how threatening the stressor truly is. To do progressive muscle relaxation, find a comfortable sitting position with arms relaxed and legs uncrossed. Close your eyes. Starting from your toes, flex as hard as you can for a few seconds then relax for a few seconds. Slowly move up the body, including every major muscle group: toes, feet and ankles, calves, thighs, glutes, abdominals, chest, fingers and hands, biceps, shoulders, neck, chin and mouth, nose, eyes, and forehead.

This is also a helpful technique to try if you struggle falling asleep at night.

Technique 5: Deep Breathing

While there are many more anxiety-reducing techniques, the last one I will discuss is deep breathing. Get into a comfortable position and simply inhale for five seconds and exhale for seven seconds. There are myriad ways to do this, but the key is to exhale for longer than you inhale. This is because inhaling triggers the sympathetic nervous system (fight or flight response), while exhaling triggers the parasympathetic nervous system (calming and regulating). A longer exhale tells your body that it does not need to prepare to face a threat but can remain calm and in control.

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HOSPITALS FOR DISASTER

Title screen from "Hospitals for Disaster," 1965 film.

The U.S. Emergency Medical Stockpile Program Termination 50 Years Later

By **Nicholas M. Studer, MD, Director, Museum of Civil Defense**

On 19 February 1973, the New York Times published a brief article entitled "U.S. to Dispose of Huge Medical Supplies," reporting on the sudden termination of a little-known U.S. Government office known as the Division of Emergency Health Services (DEHS).¹ Formerly known as the Office of Health Mobilization, DEHS was not part of the Defense Civil Preparedness Agency (DCPA) that then administered the bulk of the nation's emergency preparedness programs. During the mid-1950s, the Federal Civil Defense Administration (FCDA, a DCPA predecessor) recognized it was best to distribute wartime responsibilities to agencies with similar peacetime responsibilities and the subject matter expertise to administer those aspects of the program rather than create duplication within FCDA. Created on 11 April 1953 as the first (and later only) Cabinet Department established by executive decree, the Department of Health, Education, and Welfare became the Executive Branch's lead for medical care in peacetime.² FCDA's Delegation No. 1 was directed at DHEW and approved by President Eisenhower on 14 July 1954, giving "10 specific duties dealing principally with health and welfare problems under attack conditions" and various other related training and research tasks.³

Berlin Tensions Lead to Civil Defense Reorganization

Tensions over the divided city of Berlin (surrounded by East Germany) increased after President Kennedy entered office in January 1961. Over the night of 12 August 1961, East German forces began barring transit between Soviet-aligned East and Western-aligned West portions of the city and erected barriers that would soon become the Berlin Wall.⁴ On 14 August 1961, President Kennedy signed Executive Order 10958 that delegated full responsibility to DHEW for requirements, plans, and operation procedures for the attack-related medical stockpile

program formerly administered by FCDA's successor, the Office of Civil and Defense Mobilization (OCDM).⁵ This Order followed 20 July 1961's Executive Order 10952, which directed the start of the National Fallout Shelter Program and reassigned the overall Civil Defense program authorities from OCDM to the Department of Defense (DoD).⁶ These actions corresponded to a significant boost in civil defense funding for the following fiscal year, as the DoD's new Office of Civil Defense (OCD) sent engineering students throughout the nation to survey for public fallout shelter space. DHEW established the Division of Health Mobilization (DHM) to manage the medical stockpile program. Rather than being provided funds by another agency, DHM was directly appropriated \$12 million dollars by congress for the year.⁷

On 20 February 1962, President Kennedy signed Executive Order 11001 and gave almost all medical-related attack preparedness responsibility to DHEW, which in turn delegated to its DHM component.⁸ DHM became the focal point of wartime- and disaster-related medical programs, as opposed to the OCD, which was almost singularly focused on the public fallout shelter program. DHM had both a headquarters staff as well as personnel at each of ten DHEW Regional Offices and 38 states' health offices.

Division of Health Mobilization Efforts

The DHM had three primary programmatic arms: medical disaster planning and on-site assistance, medical stockpiling, and disaster-related medical training.⁷

DHM field staff would interact with state and local health departments, hospitals, and ambulance services to develop area disaster plans and coordinate training and drills. During natural disasters, the federal "on-site assistance" relating to medical components of disaster response was coordinated by DHM. The Medical Self-Help Training program intended to train one lay individual

per household in first aid relevant to major disasters.

By 1971, they trained over 14 million people, many of whom were only in high school. The Medical Education for National Defense focused on physicians with the support of the American Medical Association.

The medical stockpile program's cornerstone by the early 1960s was the 200-bed Packaged Disaster Hospital (PDH), originally called the "Improved Hospital." The concept of portable, self-contained, emergency hospitals had developed over 1952-1953 with New York (the first in Saratoga Springs) and other northeastern states essentially developing their own with FCDA guidance.⁹ By 1956, FCDA renamed the setup as the "Civil Defense Emergency Hospital" (CDEH) and standardized the contents with plans to distribute them to the states which would administer and maintain them (Figure 1). FCDA required that "storage sites are to be not closer than 15 miles to a Critical Target Area nor farther than 50 miles from the area to be supported."¹⁰ Renamed by 1965, the

sorting, wards, operating rooms, X-ray, laboratory, pharmacy, general stores, engineering, and administrative sections. Fifteen thousand square feet would be required to operate the hospital with 316 personnel including at least 10 physicians and 34 professional nurses that were expected to present themselves from the surrounding community's outpatient settings. By 1972, there were 3,000 PDH's distributed around the U.S. In the summer of 1969, 12 PDH sets were sent to Nigeria after their civil war, as humanitarian aid and to serve as a test.¹² The PDH performed remarkably well, even when used for longer than the expected 30-day duration and for purposes outside its designed intent. In the summer of 1969, 12 PDH sets were sent to Nigeria after their civil war, as humanitarian aid and to serve as a test.¹² The PDH performed remarkably well, even when used for longer than the expected 30-day duration and for purposes outside its designed intent.

Supplementing the PDH component of the effort was the Hospital Reserve Disaster Inventory (HRDI), which provided government-funded stocks of drugs and supplies necessary to support continuous operation of existing hospital beds for 30 days. Each hospital with at least 50 beds was targeted to be provided an HRDI set (in 50-, 100-, and 200-bed increments) at no cost to the institution, so long as the hospital would agree to properly store the materials. A maximum of 1,353 sets were distributed, for a total of 135,300 supported beds.

Lastly, speaking to the increasing interest of DHM in non-attack related programs, the Natural Disaster Hospital (NDH) consisted of a 50-bed, short-duration hospital capability that was designed to be used in the event of hurricanes, flooding, etc. Only 25 sets were maintained in areas suspected to be most at risk for these types of events. The PDH, HRDI, and NDH sets were supported with 12 General Services Administration Depots spread throughout the country, with procurements actioned by the Defense Personnel Supply Center.

Emergency Medical Services Ends Medical Disaster Planning

In 1968, DHM was renamed the Division of Emergency Health Services – and now also included the "Hospital and Ambulance Services Branch" that concerned itself with peacetime emergency medical responses. By 1973, popular support for improving peacetime emergency response to medical emergencies led to the passage of the Emergency Medical Services Systems Act of 1973 (Public Law 93-154).¹³ This act designated DHEW as the lead agency for emergency medical service (EMS), which authorized funding for "demonstration projects"



Figure 1.
Typical
Emergency
Hospital
supplies.

PDH was to provide "improved mass casualty care" with a complete portable hospital designed to support 30 days of continuous operations for an expected 6-day inpatient stay of up to 1,000 persons with expected injuries from nuclear attack.¹¹ The PDH was centered around providing surgical capabilities, as patients would be expected to be traumatically injured in the early phases post-attack (Figure 2). The hospital was divided into receiving and



Figure 2. Example
Packaged
Disaster Hos-
pital receiving
and sorting
unit.

where federal funds were supplied to improve local EMS programs. While the act authorized a “Disaster Linkage” with EMS, in practice, it terminated the funding and organization support for DEHS. The aforementioned New York Times article spoke to the rapid dissolution of the office, with then-Director of DEHS Dr. Henry C. Huntley reporting a deadline of 01 July 1974 for it to be complete – just over a year. The result was that PDH and HRDI stocks were essentially abandoned in place, and the U.S. went without any clear form of medical disaster planning until 1984 with the development of the National Disaster Medical System (NDMS). However, NDMS is primarily a hospital-focused program and does not have the same focus on community-based medical stockpiling as previous DEHS programs did. The legacy of DEHS is of a “Whole of Government” effort to medical preparedness, with federal authorities dictating roughly standardized planning by state and local government.

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Dr. Studer is a practicing Emergency Medicine physician and the founding Director of the National Museum of Civil Defense, the only 501(c)(3) nonprofit museum dedicated to the historical preservation and interpretation of the United States Civil Defense program. The terrorist attacks of 9/11 first catalyzed Dr. Studer's interest in the history of our Nation's Civil Defense program, which grew into a desire to share his research with others. He volunteered for the Brevard County (FL) Office of Emergency Management during the early 2000s, and later served at the Florida Department of Health - Bureau of Radiation Control's Radiological Instrument Maintenance & Calibration Laboratory prior to attending medical school at the University of South Florida. Dr. Studer's primary interests within Civil Defense history include the Chemical/Biological Warfare, Radiological Defense, and Packaged Disaster Hospital programs.

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EMERGENCY COMMUNICATIONS

Part 5: Repeaters & CB, FRS, GMRS and MURS

By Dr. Randall Smith



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This is the fifth communications article in a series of articles that are being published in the Journal of Civil Defense (JCD). If you have not studied parts 1 through 4 of this article, please refer to the previous four issues of the JCD. After we complete all six of the communication articles, the entire series will be available to you in the TACDA Academy on our [TACDA web site](#).

REPEATERS

During the discussion of V/UHF handi-talkies and mobile radios, repeaters were mentioned as one means of extending the range of low-output power radios. A repeater is designed to operate on one frequency band. The most commonly used bands are 144-148 MHz. and 440-450 MHz. Repeaters are basically a combination of a receiver and a transmitter, each operating on slightly different frequencies. The amount by which the frequencies differ varies depending upon the band for which the repeater was designed. When a low-powered radio “keys” or accesses the repeater, the radio automatically shifts to a pre-determined input frequency. It may also send a specialized code in the form of a tone that “unlocks” the repeater for use. This activates the repeater’s transmitter which instantaneously re-broadcasts the information received from the operator of the low-powered handi-talkie or mobile radio unit. Whereas the output power of handi-talkies ranges from .5 to 10 watts, most repeaters offer an output power of 25 to 50 watts. In addition, repeaters and their antennas are normally located atop hills, mountains, water towers, tall buildings, etc. to increase their coverage range. Many repeaters offer the ability to place telephone calls with dialers and telephone circuitry built into the repeaters. By coordinating frequencies, it is possible to “chain” or link repeaters so that they can provide coverage over large portions of a state, if not an entire state. These repeater networks multiply the range of individual handi-talkies or mobile radio units greatly and can be a tremendous asset during times when the need for emer-

gency communications over large areas is needed.

CB, FRS, GMRS and MURS

The Federal Communications Commission (FCC) has jurisdiction over a wide range of commercial (broadcasting), public safety, and communications services. While their purview does not extend to the regulation of military communications, the FCC does manage several other radio services in addition to the amateur radio service.

CB - Citizens Band

Very few people are completely unfamiliar with Citizens Band radio. It is likely that many serviceable CB radios are gathering dust on a shelf. Today, Citizens Band has taken on a new role of providing reliable communications in the event of a disaster or emergency situation. While more popular in years past, CB radio continues to enjoy a sizeable following and hold its place in the world of electronic communications. There are no licensing requirements for CB radio operators. Their FCC frequency allocation begins at 26.965 MHz. and ends at 27.405 MHz. Unlike amateur radio frequency allocations, the CB spectrum is “channelized”, i.e., it is divided into 40 discreet frequency channels numbered 1 to 40. By convention and decades of mutual agreement, some channels have taken on specialized functions. For example, channel 9 is reserved as an emergency travel channel (though it is monitored less today than in years past). This flags channel 9 as a channel which any radio operator with a shortwave receiver or radio scanner can monitor and respond to if and when a distress message

is heard. Channel 19 has historically been the “truckers” channel and is used for chit-chat, reporting on the locations of traffic accidents, dangerous driving conditions, road construction or closures, law enforcement vehicles, etc. Since CB radios are limited to an output power of only 4 watts when in AM mode, their range is limited to perhaps 5-10 miles, depending on terrain and obstacles.

AM and FM modes were mentioned earlier in the discussion of frequencies. Another mode used almost exclusively in amateur and military communications is called single sideband or SSB. A single sideband signal contains no carrier component and lacks half of the information normally carried by an AM signal. The missing information is supplied by the SSB receiver. It is about half the width of an AM signal and therefore takes up less “air space”, permitting more radio operators to work using nearby frequencies without interfering with each other. In the Citizens Band service, the first 23 channels are designated for transmission and reception of AM signals. Channels 24 through 40 are available for both AM and SSB communications. CB operators using SSB transmissions are allowed a maximum of 12 watts of output power by the FCC.

Any discussion of CB radio should include mention of the term “free band”. It is believed erroneously that frequencies below 26.965 MHz. and above 27.405 MHz. are unregulated by the FCC and are therefore available to anyone for personal use without a license. Nothing could be further from the truth. A review of FCC frequency assignments shows that the so-called “free bands” are in regular use by the U.S. Coast Guard, the Department of Homeland Security, the Federal Protective Service, and other governmental and military agencies. With all of the radio spectrum available to amateur radio and emergency communications operators, there is absolutely no need to run the risks that venturing into these frequencies illegally entail.

Another misconception is that amateur radio operators are allowed to transmit on CB channels using their much higher-powered amateur radios. This is absolutely false. All applications for the manufacture of new radios must go through an FCC process called “type acceptance”. This means that certain radios are approved for use only on prescribed frequencies or bands. For example, even if your radio can transmit and receive on public safety frequencies, your radio is type accepted for the amateur radio service, not the public safety service. The converse is also true. FCC rules and regulations governing amateur radio use fall under part 97. Similar rules which prescribe accepted practices concerning CB radios

are found in part 95 of the FCC’s rules and regulations. Frequency allocations are different, as are the types of radio equipment that may be used on those frequencies. Furthermore, the rules and regulations which determine how they may be used are different as well.

FRS - The Family Radio Service

Generally speaking, the Family Radio Service shares some features with the Citizens Band Service. No license is required to transmit on FRS assigned frequencies. As with CB transmitters, the output level is relatively low. At present, the output power of an FRS transmitter is either 500 milliwatts (.5 watts) or 2 watts. Two watts of power output are allowed on all channels with the exception of channels 8 through 14 which are limited to .5 watts of output power. These power levels at FRS frequencies permit ranges of approximately 1 to 4 or 5 miles, depending upon terrain and obstructions. For example, transmitting over open water affords greater range than transmitting in densely forested, hilly locations. Most FRS radios take the form of handi-talkies and there is a vast assortment on the market to choose from. A recommendation is to purchase one that has the greatest number of channels available.

FRS radios operate in the UHF portion of the RF (radio frequency) spectrum. Frequencies range from 462.5625 MHz. to 467.7125 MHz. As with CB frequencies, FRS radios operate on channels, of which there are 14 numbered from 1 to 14. In some parts of the United States, channel 1 has been designated as a “Neighborhood Watch” channel. Note that channels 1 through 7 are used on a shared basis with the General Mobile Radio Service.

GMRS - The General Mobile Radio Service

The GMRS shares features with both the CB and FRS services. For example, GMRS frequencies are “channelized”. They fall in the UHF portion of the electro-magnetic spectrum. The channels are numbered 15 through 38. These represent a continuation of the 14 channels found in the FRS service spectrum. FRS channel 15 is 462.5600 MHz. and channel 38 is 462.7250 MHz. Permitted output power for GMRS radios can be as low as 0.5 watts up to a maximum of 50 watts. Units with output powers of 0.5, 1, and 2 watts are typical of hand-held units. Greater output powers are generated by mobile and base stations – a difference between the GMRS and FRS services in which mobile and base stations are disallowed. Also, unlike the Family Radio Service, an FCC license is required to operate within GMRS assigned frequencies.

MURS - The Multi-Use Radio Service

Another communications option that bears mentioning is the Multi-Use Radio Service or MURS. This is essentially a low-power radio service which operates in the VHF portion of the radio frequency spectrum. There are five FCC designated MURS operating frequencies assigned as channels: (1) 151.820 MHz., (2) 151.880 MHz., (3) 151.940 MHz., (4) 154.570 MHz., and (5) 154.600 MHz. As with CB and FRS, no FCC license is required to operate on any of the above five MURS frequencies. RF output is limited to a maximum of 2 watts. This normally provides reliable communications at distances up to 2 or 3 miles depending upon operating environment.

Software-Defined Radios

A relatively new form of radio communication is the software-defined radio or SDR. SDRs began life as radio receivers controlled by computer hardware and software. A major difference between SDRs and conventional radios is the fact that the former operate using digital technology; the latter rely, for the most part, on analog technology. The knobs and dials usually associated with radio equipment are replaced by mouse operated controls which appear on a computer screen. They resemble a conventional radio control panel. Most pre-SDR radio controls influence the nature of the audio signals that emanate from speakers or headphones. Similar controls for SDRs appear on a computer screen. In addition to audio information, the computer screen displays visual information concerning the electrical characteristics of the signal being received. Other nearby signals are also displayed. As time passes and experience with SDRs increases, so does the amount of free software available for controlling SDRs. This writer is experimenting with SDRs involving a wide range of functions that include both traditional radio reception as well as reception of digital and encrypted radio signals not available on conventional radio receivers. It should be noted that SDRs are available that are capable of transmitting as well as receiving. Two excellent sources of information on SDRs include "The Hobbyist's Guide to The RTL-SDR" by Carl Laufer and "Software Defined Radio" by Andrew Barron, ZL3DW (both volumes published by the authors).

In our coming Spring 2024 issue of the JCD, Dr. Randall Smith will present the sixth and final lesson on communications. This lesson will cover The Channel 3 Project, General Short Wave Listening, and Communication Security.

Dr. Randall Smith has held an FCC license since 1984. He has served as a radio operator in the U.S. Army's Military Affiliate Radio System, and with the IBM Corporation first as a field engineer, then as a systems engineer, and finally as a marketing representative. He participated in the construction of the emergency communications portion of the St. Louis Civil Defense Agency's underground emergency command center.



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RADIATION METERING DEVICES



By Sharon Packer,
MS Nuclear Engineering

Metering Devices

Radiation survey meters are used to monitor radiation exposure rates. Like the speedometer in a car, which tells how many miles per hour the car is traveling, a survey meter would tell how many Roentgens per hour you are receiving. Dosimeters are used to measure the accumulation of radiation, just as your odometer would measure the accumulation of miles traveled in your car. Both instruments are very helpful in a radioactive environment, but I prefer dosimeters because they are small (the size of a pencil) and can be carried by each person.

In order to get accurate readings, the old FEMA survey meters had to regularly be sent out to a technician for calibration. Dosimeters, however, are designed to be charged and calibrated with a simple device available for purchase, or they can be sent to [Arrow-Tech](#) for calibration services. The dosimeter charger/calibrators are powered with readily available batteries. Good metering devices are invaluable in a nuclear environment.

Radiation Levels

Radiation levels are measured in rads, rems, and Roentgens. The term “rem” and “Roentgen” mean the same thing and are used to estimate potential health effects of low levels of ionizing radiation on the human body. In a nuclear environment, however, we would potentially be dealing with large levels of radiation. In this case, the rad and rem are numerically very similar. We will be using these terms interchangeably in this discussion. In other articles, you may also see levels expressed in sieverts (Sv) or grays (Gy). Sieverts and grays are basically the same and are equal to 100 rems/rads.

Low- and High-Rate Meters

Wartime survey meters must measure in rads up to a level of 500 rads per hour, and wartime dosimeters must measure to a minimum total accumulation of 200 rads. Low-rate meters and dosimeters measure only in milli-roentgens (mr). A milli-roentgen is a very small dose and is 1/1000th of a Roentgen. These low rate meters and dosimeters are useful in a “post-war” situation to monitor contamination of food and equipment. The most useful of these low-rate meters will also have a ‘wand’ capable of reading beta contamination. Meters or dosimeters measuring only in milli-roentgens are not useful during an actual wartime, nuclear event.

Reading Your Radiation Metering Devices

Since survey meters give an hourly rate, watch the meters carefully during a nuclear event so that more shielding can be provided as rates become too high. Keep hourly accumulation records for each person, as rates may vary in different areas of the shelter.

Dosimeters give accumulated doses. During the first two days after a nuclear event, the dosimeters should be read continually and meticulous records kept. Two days after a nuclear event, if there are no other detonations, the radiation levels should fall to 1/100th of their original value. Keep children and small adults in lower bunks where there is better shielding. Place the dosimeters in a common area of the shelter. Read and record the levels and recharge them each day. We would suggest that you print the following charts (Figures 1 and 2) and keep them in your shelter or in your emergency supplies. During peace time, keep your dosimeters charged and calibrated. The maintenance of the dosimeters should be part of your regular emergency preparations.

Some of you may have the old FEMA dosimeters and chargers that are still functioning as designed. Charge and check all your dosimeters for leaks. If, during peace time, you are getting a significant reading after a day or two, then they are not functioning correctly and should be discarded. Test your new dosimeters in the same way. If they are leaking a charge, send them back to the distributor for a replacement. Don't discard the old chargers, as the FEMA chargers may work with the new dosimeters.

The TACDA Academy, found on the TACDA website, has a chapter dedicated to nuclear radiation. We hope

you will read this information and teach the concepts to your family and friends.

The TACDA store now has high rate dosimeters for sale (see page 25). We hope you will consider purchasing this valuable tool for your emergency supplies.

Sharon Packer has a bachelor's degree in mathematics with a minor in physics, and a master's degree in nuclear engineering. She has served on the TACDA board of directors for over 20 years in several different capacities. Sharon is an expert in civil defense and in NBC shelter design.

EXPOSURES AT 30 MILES DOWNWIND
(500 KT Surface burst, 15 mph wind)
(Roentgens)

Figure 1

<u>Time</u>	<u>In Open</u>	<u>In Shelter</u> <u>15 PF</u>	<u>In Shelter</u> <u>49 PF</u>
1 Week	3,450	230	86
1 Month	4,100	273	103
4 Months	4,500	300	113

RADIATION PENALTY TABLE

Figure 2

	Accumulated Exposure (Roentgens)		
	1 Week	1 Month	4 Months
Medical Care Not Needed	150	200	300
Some Need Medical Care Few if Any Deaths	250	350	500
Most Need Medical Care More than 50% Deaths	450	600	*

IS THE US READY FOR A NUCLEAR ATTACK?

By Michael DePeau-Wilson

Previously published July 24, 2023 on MedPage Today

Emergency nuclear response programs across several federal agencies have been quietly updating existing preparedness plans in recent months, but one expert warned that the U.S. is still not ready for a potential radiological disaster.

With occasional news reports of hostile nuclear-armed nations and summer blockbusters - like "Oppenheimer" - re-stoking fears of nuclear fallout, dozens of federal and local government agencies have engaged in efforts to address potential shortfalls or gaps in preparedness planning for a potential nuclear emergency.

"We just came out of a pandemic, and you can see that there's a lot of gaps when it comes to coordination [and] messaging," Amesh Adalja, MD, of Johns Hopkins University Center for Health Security in Baltimore, told MedPage Today. "All of that is going to be very critical for response to an IND [improvised nuclear device] explosion."

He noted that the nation's current nuclear and radiological emergency response would be run by a complex combination of government agencies, including HHS's Administration for Strategic Preparedness & Response (ASPR), the CDC's National Center for Environmental

Health, the Environmental Protection Agency, the Federal Emergency Management Agency, the Department of Energy's Nuclear Emergency Support Team, the FDA, and local and state healthcare systems.

Adalja reassured that the steady drum beat of announcements from these agencies about their nuclear emergency preparedness planning should be commonplace, since the nation continually upgrades and maintains these programs.

Quiet Nuclear Preparedness Planning

The availability of medical countermeasures is a key aspect of preparedness for nuclear emergencies, according to Adalja. He noted that maintaining the national stockpile is one way that governmental offices can focus on preparing for such a crisis, and this requires upkeep.

In April, the FDA released draft guidance on developing drugs for acute radiation syndrome (ARS), which came amid numerous announcements related to new and existing treatments for radiation exposure.

Last week, RedHill Biopharma announced that it was awarded nearly \$2 million in U.S. funding to develop opaganib, a novel oral therapy for gastrointestinal ARS,

Photo by RomoloTavani on Pixabay



which will have a 5-year shelf-life for the Strategic National Stockpile.

In May, the first-in-human, NIH-funded clinical trial of an oral drug to remove radioactive contamination began, which will determine the safety and tolerability of the experimental therapy HOPO 14-1.

Both treatments would reportedly be easier to stockpile and deploy during an emergency than the two existing FDA-approved intravenous drugs for removing internal radioactive contamination.

However, the existing treatments for ARS have also been receiving new attention. ASPR announced last year that it would purchase a supply of romiplostim (Nplate), an FDA-approved treatment for blood cell injuries related to ARS in adult and pediatric patients. The agency emphasized that this purchase was “part of long-standing, ongoing efforts to be better prepared to save lives following radiological and nuclear emergencies.”

Local governments have also recently gotten into the planning game. Last year, New York City released a public service announcement that outlined three simple steps for residents to take should a nuclear detonation happen: “Get inside. Stay inside. Stay tuned.”

Sen. Edward Markey (D-Mass.) also announced efforts to increase resources for these preparedness programs and to strengthen rules around the protocols of nuclear weapons in the U.S.

In February, Markey announced in a tweet that he had introduced the Nuclear Meltdown and Fallout Prevention and Preparedness Act on the 1-year anniversary of the war in Ukraine. He also introduced proposed amendments to the National Defense Authorization Act to prohibit the use of artificial intelligence in use of nuclear weapons.

All of these updates were announced or implemented in the past 12 months, but there has been no specific announcement of a larger coordinated government effort to improve nuclear emergency preparedness.

However, Adalja noted that increasing the national stockpile of drugs for ARS is just one piece of a vast, complex preparedness puzzle.

“The medical countermeasures are important,” Adalja said. “It’s part of a portfolio of preparedness that’s necessary, [but] it’s not going to just be medical countermeasures. A lot of it is communication and coordination.”

Constant Need for Preparedness Planning

Adalja noted that it is not surprising that these government agencies and officials would be taking steps to improve overall preparedness.

“When you think about IND, the biggest thing that

you have to think about is the infrastructure needed to be able to deal with that,” he said. “The biggest issue to me is going to be public health communication.”

“It’s a cascade,” he added. “A lot of the stuff that has to happen is communication, and cities have to have a coordinated way of telling the population things that are really important.”

Adalja emphasized that coordination and communication are so important because the wrong information could increase people’s exposure to radiation unnecessarily. While the medical countermeasures are important for people with direct exposure, public health messaging can also reduce the number of people who will ultimately need those measures in the first place.

“People have to know, first of all, that staying in your house will actually probably shield you from radiation for some period of time,” he explained. “Or if you’re outside, taking off your clothes and taking a shower is going to decrease the amount of radiation that resides in your body.”

“Certain individuals may or may not benefit from potassium iodide, although there will probably be a surge in demand, just like there was after the Fukushima nuclear incident,” he said. “The people that actually benefit from that is probably going to be much smaller than the actual people that want it.”

Some people who are exposed to moderate levels of radiation will still need to get blood work to determine whether they might benefit from certain growth factors or antibiotics to prevent infection, he added.

Adalja pointed out that government agencies are likely simply following standard practices, noting that more work should be done to improve the overall infrastructure of communicating with the public in the event of a nuclear emergency.

“Our preparedness is going to be inadequate,” he said. “When you look at the public health infrastructure problems we had during COVID, those same issues would likely crop up in this type of a response.”

TACDA Staff note: The hospital treatments noted in this article may not be available in a full-scale nuclear attack. An EMP would destroy or greatly limit our capability to respond with hospital care in the affected areas.

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https://www.fda.gov/regulatory-information/search-fda-guidance-documents/acute-radiation-syndrome-developing-drugs-prevention-and-treatment?utm_medium=email&utm_source=govdelivery

RedHill Announces Additional U.S. Government Funding for Opaganib Nuclear Countermeasure Development:
<https://www.redhillbio.com/news/news-details/2023/RedHill-Announces-Additional-U.S.-Government-Funding-for-Opaganib-Nuclear-Countermeasure-Development/default.aspx>

Opaganib, selected by the U.S. Government's Radiation and Nuclear Countermeasures Program (RNCP), led by the National Institute of Allergy and Infectious Diseases, part of the National Institutes of Health, for the nuclear medical countermeasures product development pipeline as a potential treatment for ARS (Acute Radiation Syndrome).

<https://www.redhillbio.com/our-programs/pipeline/opaganib/default.aspx>

Michael DePeau-Wilson joined MedPage Today's enterprise & investigative team in May 2022. He covers psychiatry, long covid, and infectious diseases, among other relevant U.S. clinical news. He has also reported on pain medicine, anesthesiology, interventional cardiology and astronomy. He graduated from the Craig Newmark Graduate School of Journalism at CUNY with a focus on health & science reporting, and he received his bachelor's degree from Valdosta State University.



[Link](#) to original article.



Photo by Gerhard Reus on Pixabay

Q & A

Construction of expedient fallout shelter using water containers as a radiation shield.

Question:

Greetings from Texas. Our house, like many houses in Texas, does not have a basement. I have been running some tests on how feasible it would be to construct an expedient fallout shelter using water in barrels and bins as a radiation shield. From the tests I ran outdoors in my driveway, I learned a few things:

1. Cardboard boxes with water in garbage bags do not work. They are easily broken and contents spilled. They just are not feasible.
2. Plastic outdoor barrels can be filled quickly using a garden hose and can provide a fast way to surround a family with 70 inches of water up to a sitting level if layered 2-3 barrels thick.
3. I tested filling and stacking plastic bins with water but found the lowest one can start to deform unless stacked in a staggered pattern.
4. The kitchen area in our house (with an island in the middle) provides an ideal location for a fallout shelter. Barrels surrounding the kitchen area with the shelter between the counter, sink, and dishwasher on one side and the island in the middle is very feasible.
5. Placing bins with water overhead presents more of a challenge. However, with 2 by 4's and/or a prepared wooden frame extending from the kitchen island over the occupants to the counter area, it should be able to hold bins filled with water (this needs more tests).

Given how inexpensive plastic barrels and bins are, and how they can be easily stacked and stored, I consider this type of shelter to have considerable merit.

All of us are pressed for time, but I also consider mini tests/experiments to be essential. I have gained confidence that I can create an effective shelter quickly.

Thank you,

TACDA Member

Answer:

Thank you for your great ideas for an expedient-type shelter. As you know, water is a good attenuator of gamma radiation. It takes approximately twice as much water as packed soil to get the same level of attenuation. I would suggest the use of WaterBricks, which are sold in our TACDA Survival store. They're strong and stack very nicely and can be filled ahead of time. They are not very heavy and can easily be moved into place. Water bins do deform, as you noted.

The 55-gallon water barrels would also be an excellent choice. Once filled, however, they are very heavy and nearly impossible to move. The concern would be the availability of water if there were an EMP.

Cases of canned food also give good attenuation. Bring them out of storage and stack them around or overhead. Your heavy kitchen table would also work for a shelter. The 70 inches of water you suggested should be adequate. The walls and ceiling of the home also give some protection. The ceiling and roof may give a PF of 5 or more (depending on the roofing materials). A two-story home could give a PF of 10.



Books are another good attenuator. Maybe the roof of the shelter could be stacked with boxes of books off the bookshelf.

Shelter entrances are the hardest areas to protect. It would be hard to close the entrance after entering. However, if you get a 90-degree turn going into the shelter, you get 90% attenuation. The entrance should be as far away from the outside walls and windows as possible.

Inner rooms give better shielding, as there are walls between the shelter and the outside. If you have room in your garage, you could possibly build the shelter now, before an event. That way you already have your water barrels full. Build the shelter as far away from the doors as possible.

Store meals that are ready to eat and a camp toilet nearby for quick assembly. Many people will not be affected by the blast or thermal effects and will have a bit of time to get their expedient fallout shelter assembled.

Thanks again for your information. We wish you the best in your preparations.

Best Regards,

Sharon Packer, TACDA Board



TACDA Water Bricks

Available in
the TACDA
[Survival Store](#)



Q & A

Lighting Rods and EMP

Question:

I was watching the zoom presentation “EMP, Our Vulnerability and How to Prepare” (click [here](#) to watch now), and lightning rod set ups were mentioned in regards to an EMP event. I understand that the electrical grid is a large collector of EMP, but would my lightning rod do the same?

Thank you,
TACDA Member

Answer:

Lightning rods are made to slowly dissipate a charge buildup that prevents lightning in the local area. The EMP effects happen much quicker than the lightning rods are made to handle.

The leads on lightning rods are relatively short and go directly to ground, so they will not be damaged by EMP. Whatever energy is collected by the lightning rods will be quickly dissipated and should not have an effect on other items associated with EMP.

Thanks,

Jay Whimpey, TACDA President



Photo by Reza Jahangir on Unsplash

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