2024 West Virginia Risk Assessment

State Report

West Virginia Department of HEALTH

WEST VIRGINIA CENTER FOR THREAT PREPAREDNESS

WVU Medicine

RESILIENCY & CLINICAL PREPAREDNESS

Office of Epidemiology & Prevention Services

EMERGENCY MANAGEMENT DIVISION WVEMD WEST VIRGINIA

WV Healthcare Coalitions

WEST VIRGINIA HOSPITAL ASSOCIATION

2024 West Virginia Risk Assessment

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Executive Summary

The Centers for Disease Control and Prevention (CDC) Public Health Emergency Preparedness (PHEP) cooperative agreement requires states to conduct a risk assessment (RA) every five years to advance a jurisdiction's capabilities to prepare for and respond to public health threats.

More than 450 professionals from public health, health care, behavioral health, emergency management, and other agency sectors responded to the electronic survey that was open from September 26 to October 25, 2024. This survey was developed to consider how hazards apply specifically to county health and health systems and explore how impact, probability, and mitigation change risk calculations. Other considerations include which hazards may be unique to a county or community, what specific areas (health and public health services and infrastructure, physical and emotional health, etc.) would be impacted by the top hazards, and the levels of resources and assistance needed to address the top hazards. This information helps to identify partnership strengths and opportunities for improvement.

Top hazards in West Virginia were found to be diverse, spanning natural, technological, and human causes. The top hazards ranked by risk to public health and health systems are cybersecurity, natural disasters/severe weather events, infrastructure, violence, chemical events, and biological emerging disease events. Inter-agency county discussions concerning hazards, impacts, and resource needs reflect a whole community approach to preparedness planning. This report makes recommendations to guide future public health-led risk assessments, with specific considerations made for West Virginia's unique demography and geography.

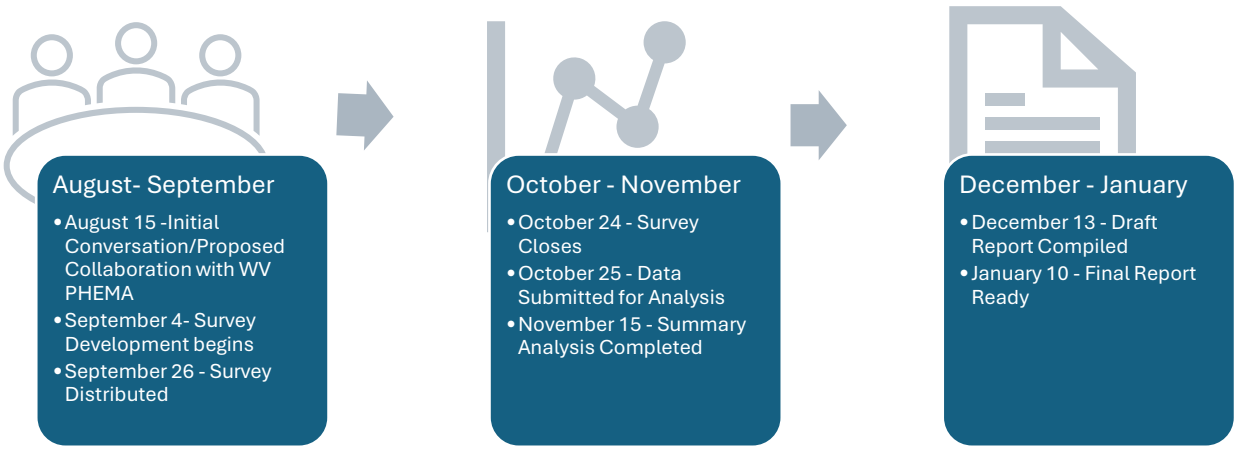
Introduction

The Centers for Disease Control and Prevention (CDC) allocates funding for preparedness activities to state and local public health departments through the Public Health Emergency Preparedness (PHEP) cooperative agreement. PHEP funds build and strengthen a jurisdiction's abilities to effectively respond to a range of public health threats. Preparedness activities funded by the PHEP cooperative agreement specifically target the development of emergency-ready public health departments. The Administration for Strategic Preparedness and Response (ASPR) Hospital Preparedness Program (HPP) cooperative agreement complements PHEP programs, with a primary focus on strengthening health care delivery system readiness through the development and maturation of Health Care Coalitions (HCCs). To guide state and local health and medical preparedness planning, CDC published and adopted 15 Public Health Preparedness capabilities in 2011, and ASPR revised and published four Health Care Preparedness and Response capabilities in 2016.

Participation in or completion of a Risk Assessment (RA) at least once every five years is a joint grant requirement of the 2024 HPP-PHEP Cooperative Agreement for Budget Period 1 Supplemental. As detailed in PHEP Capability 1, Community Preparedness, these public health-focused risk assessments seek to identify potential hazards, vulnerabilities, and risks to the community related to the public health, medical, and mental/behavioral health systems; the relationship of these risks to human impact and to the interruption of public health, medical, and

mental/behavioral health services, and the impact of those risks on public health, medical, and mental/behavioral health infrastructure. At a minimum, RAs are required to include a definition of risk, use of Geospatial Informational System (GIS) or other mechanism to map locations of at-risk populations, evidence of community involvement in determining areas for risk assessment or hazard mitigation, and an assessment of potential loss or disruption of essential services (i.e., clean water, sanitation, health care, public health services), as well as considering the functional needs of at-risk individuals.

In 2024, the West Virginia Department of Health Center for Threat Preparedness (CTP), in collaboration with the West Virginia Public Health Emergency Management Association (WV PHEMA), the West Virginia Department of Health Office of Epidemiology and Prevention Services, and the West Virginia University Health System developed the state's third RA, previously referred to as the Jurisdictional Risk Assessment (JRA). The concept for assessment was developed using an integrated public/private partnership through a segmented collaborative process that engaged expertise at the local, regional, and state levels to collect, analyze, and synthesize data into prioritized PHEP Core Capability planning and mitigation action items. An electronic survey was compiled for local health departments (LHDs) to distribute to their community partners. Analysis of the results, along with identified limitations and challenges of the RA process, serve to inform recommendations for future state risk assessments. The 2024 RA aimed to address all functions of PHEP Capability 1 Community Preparedness to determine risks to the health of the jurisdiction, build community partnerships, engage community organizations, and coordinate training of guidance to ensure community engagement in preparedness efforts.



West Virginia is one of the smallest states by land area and least populated in the nation; however, it faces a number of infrastructure challenges as a very rural state. The state, located within the Appalachian Region, is almost entirely mountainous. This geography can impact transportation, access to essential needs and utilities, and internet access. West Virginia has an average FEMA Community Resilience Challenges Index (CRCI) percentage of 72%. The CRCI is a compilation of 22 commonly used indicators across methodologies for prioritizing locations needing support regarding emergency management planning and operations. These indicators look at potential challenges for resilience for communities, the higher the index percentage, the more difficult

building resilience could be. The FEMA Resilience Analysis and Planning Tool[1] provides access to various data and GIS mapping that can help public health better understand the communities they serve.

According to the Centers for Disease and Control (CDC), approximately 545,678 West Virginians older than 18 have a disability, which is about 37 percent of the state's population.

The West Virginia Developmental Disabilities Council[2] states:

- **33,000** Number of West Virginians with developmental disabilities (1.8%).
- **45,566** Number of school students receiving special education services (17%).
- **71** Percent of individuals on the I/DD Waiver program who live with their families or specialized family care providers.
- **18** Percent of working age adults with cognitive disabilities who have jobs in the community.

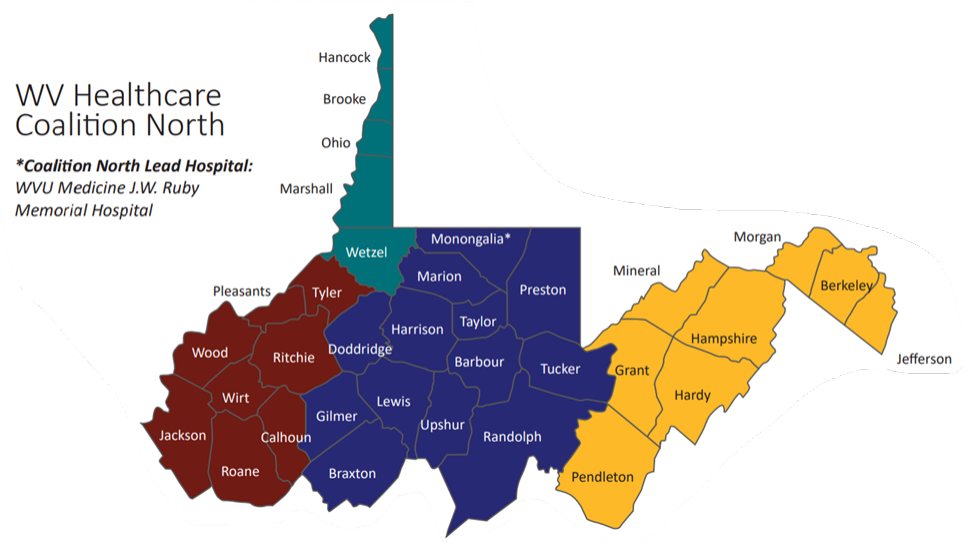
Some of the challenges the state encounters include that West Virginia has a large aging population, with more than 21% being aged 65 or older, and 37% of the population are living with a disability. Based on the HHS emPOWER data, there are over 36,000 individuals in the state who have an electricity dependent device or durable medical equipment (DME).

Data Set Summary

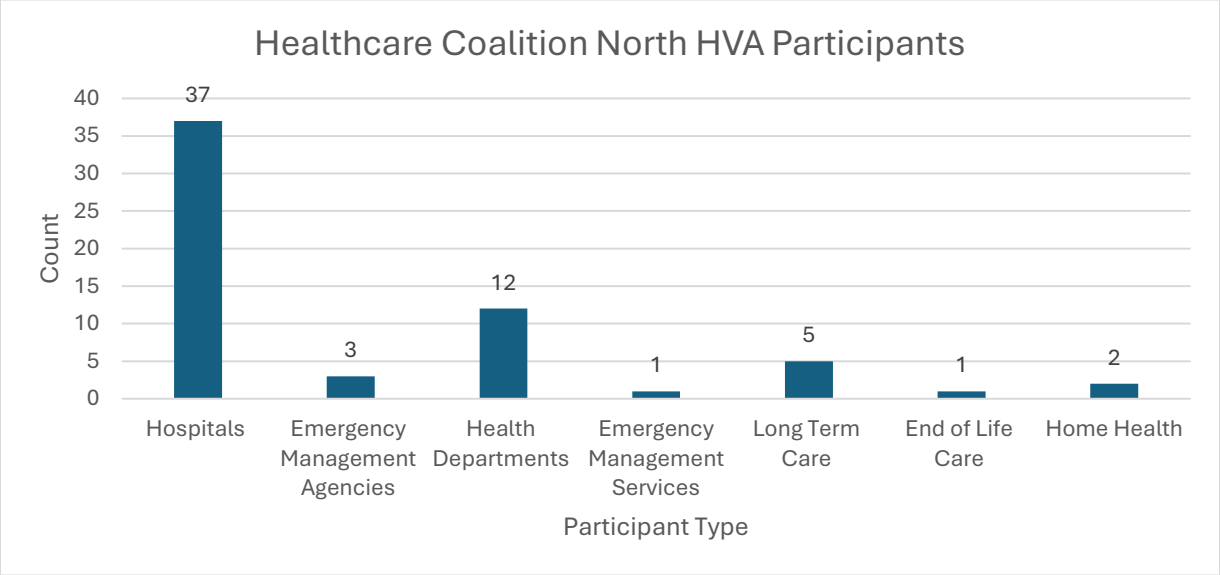
This summary was compiled by analyzing four data sets provided to the state, including two HVAs from the West Virginia Healthcare Coalition, the survey conducted by CTP, and the WV Fusion Center statewide assessment.

West Virginia Healthcare Coalition North Hazard Vulnerability Analysis

The West Virginia Healthcare Coalition North[3] conducted a hazard vulnerability analysis for 2024 involving the county participants in the north region.



All coalition members were invited to participate in the 2024 HVA and were documented as participants in the report. The results of the coalition's HVA are shared with all coalition members and stored electronically for future reference. One of the top five ranked hazards are to be used as a scenario in the annual coalition surge exercise in the 2024-2025 grant year. Participants in the survey included 61 individuals.



West Virginia applied the Kaiser Permanente (KP) HVA methodology to the Coalition HVAs. During the virtual session each participant scored the probability, impact, and preparedness on a scale of zero to three for each of the 25 hazard types for their facility. For each hazard type and question, respondent's scores were totaled and divided by the number of respondents. Those averages are provided in the table above/below. Severity and Risk were then calculated using the KP methodology. The hazards were ranked on Risk (relative threat) with higher scores indicating higher threat risk for the coalition region. The formulas utilized to arrive at the risk score include:

Severity = Magnitude – Mitigation = ((Human Impact + Property Impact + Business Impact + Preparedness + Internal Response + External Response)/18)

Note: while the formula states magnitude *minus* mitigation, the scale for mitigation is reversed; therefore, all six questions are added, then divided by the total possible points, in this case, 18.

Risk = Probability * Severity

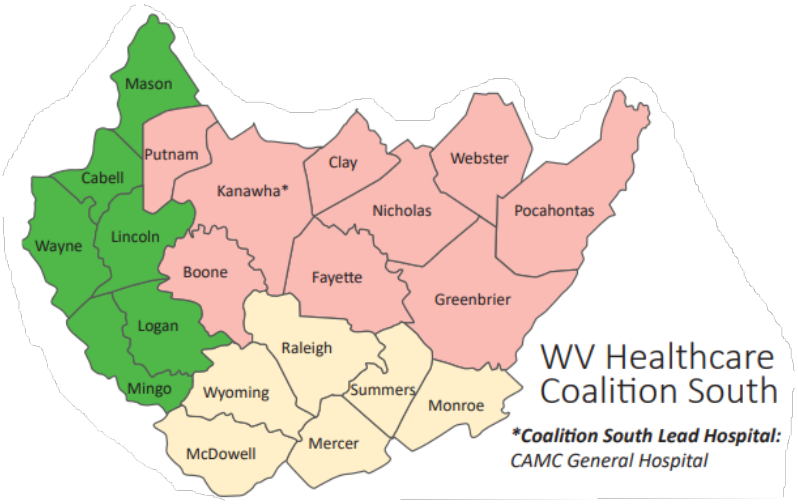
Risk = (Probability/3) * ((Human Impact + Property Impact + Business Impact + Preparedness + Internal Response + External Response)/18)

Based on the survey data, the top five hazards were identified.

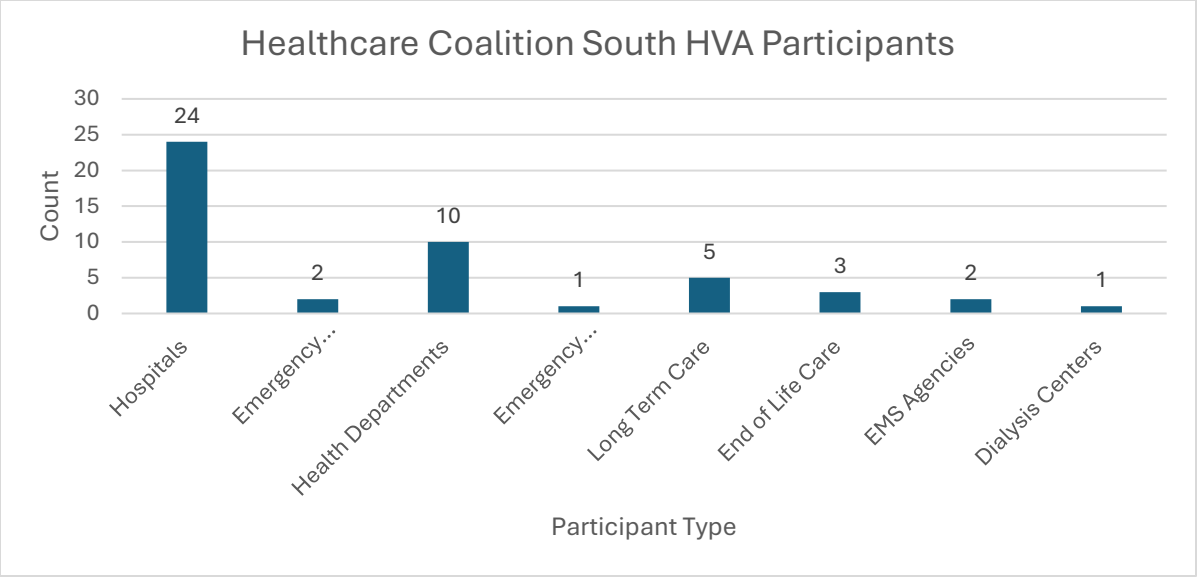
Rank	Hazard	Risk
1	Severe weather, including tornado	47.97%
2	Cyber Attack	38.10%
3	Power Failure	38.09%
4	Flood, External	35.37%
5	Communications/Information System Failure	35.24%

West Virginia Healthcare Coalition South Hazard Vulnerability Analysis

The West Virginia Healthcare Coalition South[4] conducted a hazard vulnerability analysis for 2024 involving the county participants in the south region.



All coalition members were invited to participate in the 2024 HVA and were documented as participants in the report. The results of the coalition's HVA are shared with all coalition members and stored electronically for reference. One of the top five Hazard Ranks is to be used as a scenario in the annual coalition surge exercise in 2025. Participants in the survey included 48individuals.



West Virginia applied the KP HVA methodology to the Coalition HVAs. During the virtual session each participant scored the probability, impact, and preparedness on a scale of zero to three for each of the 25 hazard types for their facility. For each hazard type and question, respondent's scores were totaled and divided by the number of respondents. Those averages are provided in the table above/below. Severity and Risk were then calculated using the KP methodology. The hazards were ranked on Risk (relative threat) with higher scores indicating higher threat risk for the coalition region. The formulas utilized to arrive at the risk score include:
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Note: while the formula states magnitude *minus* mitigation, the scale for mitigation is reversed; therefore, all six questions are added, then divided by the total possible points, in this case, 18.

Risk = Probability * Severity

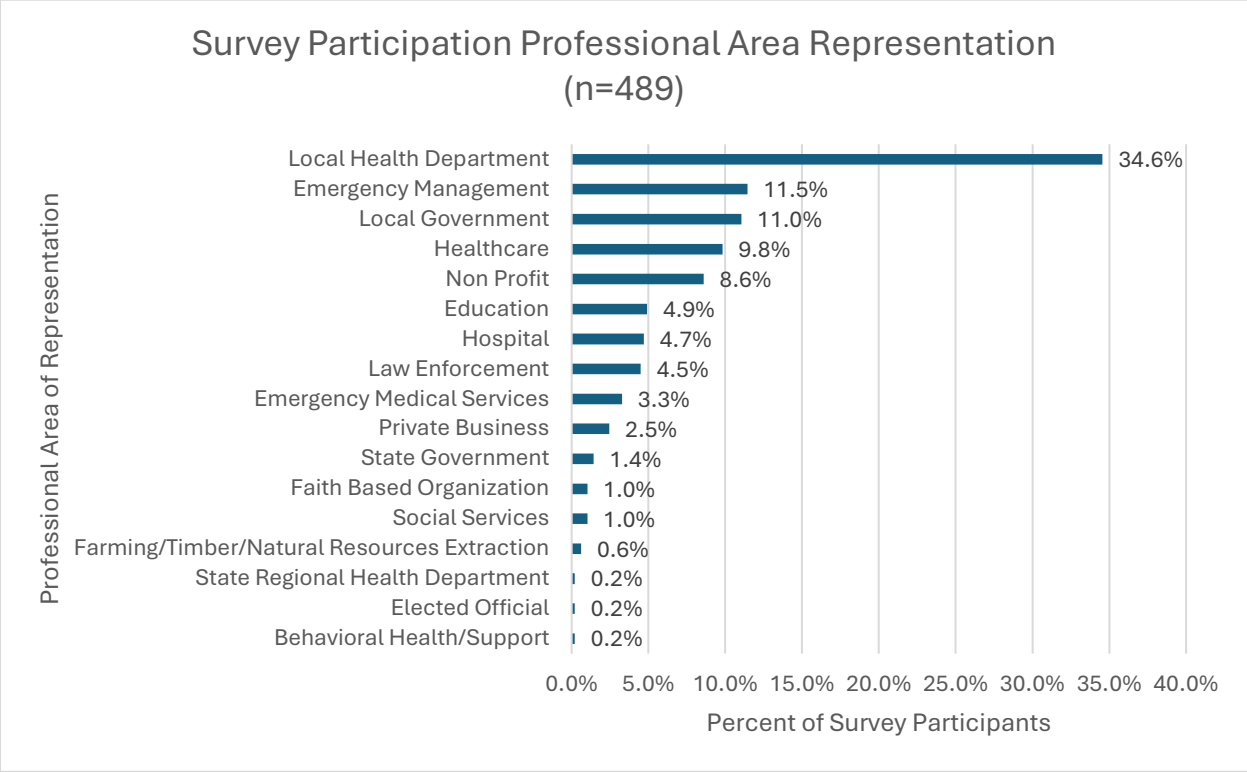
Risk = (Probability/3) * ((Human Impact + Property Impact + Business Impact + Preparedness + Internal Response + External Response)/18)

Based on the survey data, the top five hazards were identified.

Rank	Hazard	Risk
1	Severe Weather, Including Tornado	40.18%
2	Cyber Attack	38.83%
3	Communication & Information System Failure	36.67%
4	Flood, External	35.51%
5	HazMat	33.74%

West Virginia Center for Threat Preparedness Public Health Risk Assessment Survey

As required by the CDC PHEP cooperative agreement, West Virginia conducted a risk assessment to advance a jurisdiction's capabilities to prepare for and respond to public health threats. These public health-focused risk assessments seek to identify potential hazards, vulnerabilities, and risks to the community related to the public health, medical, and mental/behavioral health systems, the relationship of these risks to human impact and to the interruption of public health, medical, and mental/behavioral health services, and the impact of those risks on public health, medical, and mental/behavioral health infrastructure. A total of 489 participants from public health, health care, behavioral health, emergency management, and other agency sectors responded to the survey, which was open from September 26 through October 25. There were respondents from 54 of the 55 counties in West Virginia.



This data was collected utilizing a survey that was emailed out to various stakeholders for further distribution to the targeted recipients. Responses could be recorded as an individual or group assessment. The calculations utilized to develop the risk score are as follows.

Risk = Probability x (Impact – Mitigation)

Impact = Daily Operations + Emergency Response Scores

Mitigation = Emergency Response Planning + Community Engagement Scores

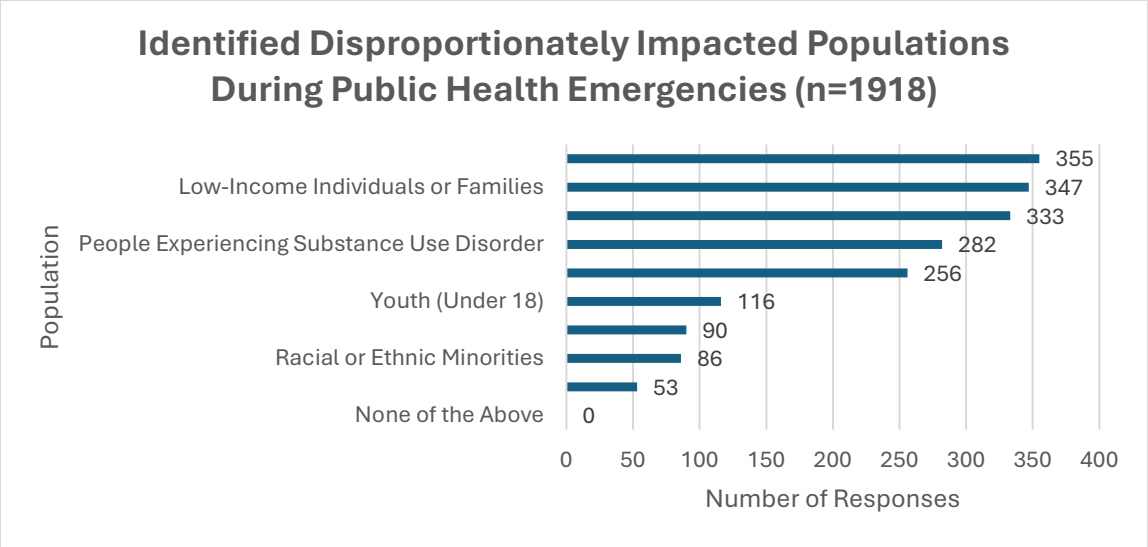
The formula Risk = Probability*(Impact-Mitigation) was used to keep in line with the 2018 JRA report. The formula was originally chosen due to its inclusion of mitigation and its relative

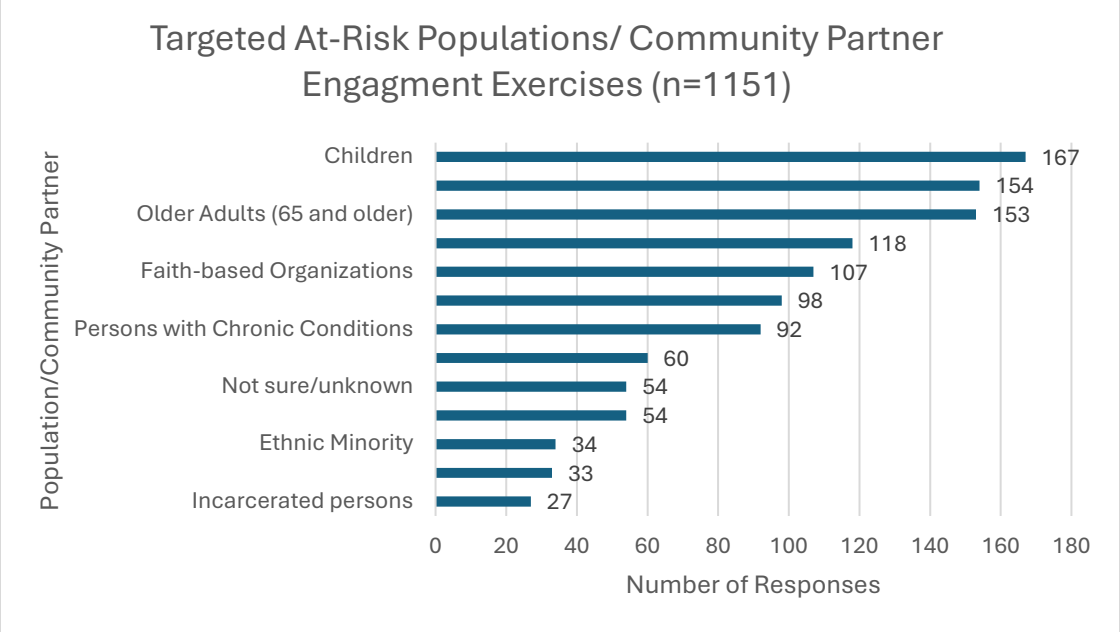
simplicity for use in a community setting. Hazard event probability, impact, and mitigation/ preparedness questions used a scale of zero to four. Hazards were ranked on Risk (relative threat) with higher scores indicating a higher risk. Impact indicators were ranked such that higher scores indicated a greater level of impact. Preparedness/mitigation indicators were ranked such that higher scores indicated a higher level of preparedness. Negative values defaulted to zero when impact was less than or equal to mitigation. This was under the key assumption that the jurisdiction was equipped to mitigate the hazard. To determine the overall state ranking of risk for each hazard, the survey response scores in each category of probability, impact, and mitigation were averaged before applying them to the formula. This survey assessed a total of 26 areas. Of the twenty-six, 16 risk events were calculated to have a risk score greater than 0. Areas of identified risk, in order:

Rank	Event	Risk Score
1	Biological Event Emerging Disease or Intentional Release	4.7
2	Large scale accident	3.9
3	Chemical Release Accidental/Intentional	3.4
4	Cyberattack/loss of digital infrastructure	3.2
5	Acts of violence	2.8
6	Need for Staff Surge (all reasons)	2.4
7	Large scale Fire	2.1
8	Natural Disaster	2.0
9	Infrastructure Damage	1.9
10	Radiation/Nuclear Release	1.8
11	Biological Event Severe Illness	1.7
11	Supply chain/delivery disruption	1.7
13	Severe Weather Event	1.4
14	Homelessness	1.1
15	Mistrust, Hesitancy, Misinformation	0.8
16	Civic Health	0.7

Respondents also had the opportunity to write about other risks not contained in the survey. Those responses included: food contamination, coal impoundment breach, climate change, oil and gas wells/ plants/ pipelines, lack of collaboration and leadership from county and state agencies and elected officials, aging experience workforce, and funding.

The survey also asked respondents to identify what groups they felt were disproportionally impacted or face unique challenges in their communities during public health emergencies, as well as identifying training and exercises that incorporated those at-risk groups.





West Virginia Statewide Threat Assessment

The West Virginia Fusion Center (WVFC)[5] prepared a statewide threat assessment to provide public safety personnel with information regarding threats or risks facing the State of West Virginia. This product provides situational awareness of the current threat environment related to Drugs and Related Activity, Public Health, Natural Disasters, Cybersecurity, Critical Infrastructure, Terrorism/Domestic Extremism/Violent Opportunists, and Mass Casualty Incidents in West Virginia.

The WVFC identified potential threats from discussions and questionnaires with state, local, tribal, and territorial (SLTT) and private sector partners, primarily those within the WVFC Fusion Liaison Officer (FLO) program, finished intelligence products, and information received by the WVFC. The WVFC is an all-crimes, all-hazards fusion center, and as such no potential risk was excluded from

discussions. Threat issues were prioritized by using a matrix weighing current impact to West Virginia and effectiveness of mitigation efforts, which includes the likelihood of continued impact. Threat Band I identifies the highest prioritized threats while Threat Band V identifies the lowest. Of those identified, the top five are drugs and related activity, gang activity, natural disasters, cybersecurity, and terrorism, domestic extremism, and violent opportunities.

Threat Band I	
None Identified	
Threat Band II	
Drugs and Related Activity	Gang Activity
Threat Band III	
Natural Disasters	Cybersecurity
Threat Band IV	
Terrorism, Domestic Extremism, and Violent Opportunists	
Threat Band V	
Critical Infrastructure	Mass Casualty Incidents

Drugs and Related Activity

The United States continues to experience an increase in both the use of prescription and non-prescription opioid drugs across the nation, maintaining the status of an epidemic. As current as 2022 data, the Centers for Disease Control and Prevention (CDC) determined West Virginia remains the center of the opioid epidemic with the highest rate of overdose mortality in the nation at a death rate of 80.9 per 100,000 total population, compared to the national average of 31.6 per 100,000.

Human trafficking is often hidden in plain sight; although some may be publicly advertised, the crime is frequently undetected. Although human trafficking is still likely underreported, West Virginia has seen an increase in human trafficking reporting, likely a result of the prevalence of opioid and illicit drug use in the state[29], as well as the economic decline impacting many communities.

Gang Activity

The primary street gangs with the greatest presence in West Virginia are Bloods, Crips, and Gangster Disciples. Activity consistent with the Bloods, identified through West Virginia Division of Corrections and Rehabilitation (WVDCR), open-source, and law enforcement reporting, has been identified in 23 of 55 counties (41.8%); Crips 24 of 55 (43.6%), Gangster Disciples 25 of 55 (45.5%).

The most notable prison gangs active in West Virginia include Dead Man Incorporated (DMI), which also maintains a street presence and has been identified in approximately 70% of WV counties, as well as numerous white-supremacy prison gangs, including the Aryan Brotherhood.

Natural Disasters

The following table breaks down fatalities, injuries, and damages for the State of West Virginia based on information obtained from the NOAA Storm Events Database. Total numbers include the time period from 1 January 2014 through 1 January 2024, while FY24 numbers are from 1 October 2023 through 31 May 2024. Damage amounts are a broad estimate by the National Weather Service (NWS) using all available data from a variety of sources, including county, state, and federal emergency management officials, local law enforcement officials, sky warn spotters, NWS damage surveys, newspaper clipping services, the insurance industry, and the general public, among others.

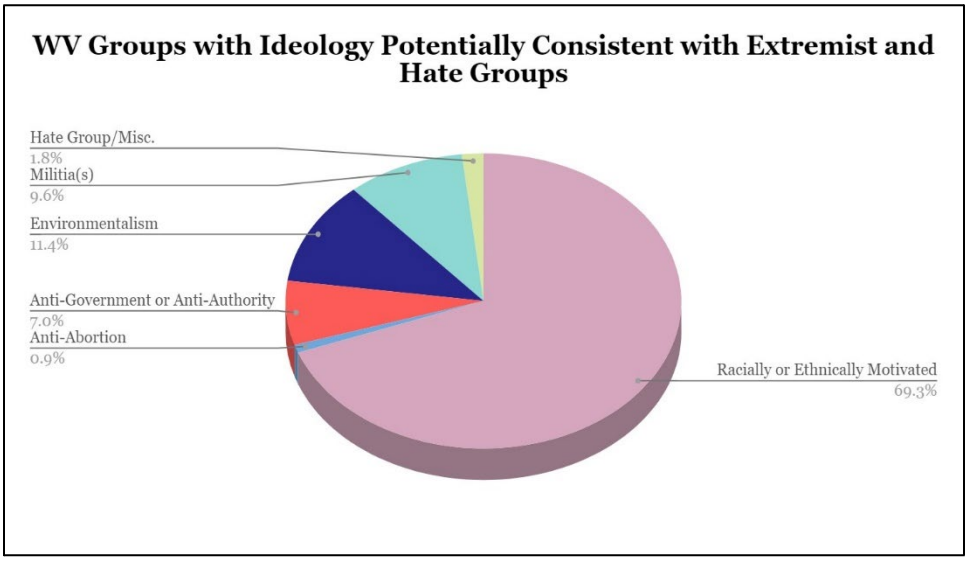
Event Type	10 YR Fatalities	FY24 Fatalities	10 YR Injuries	FY 23 Injuries	10 YR Damages	FY24 Damages
Flood/Flash Flood	38	3	0	0	$230,292,000	$9,759,000
Thunderstorm	3	0	11	0	$22,677,100	$1,744,500
Winter Storm	0	0	10	0	$7,844,000	$0
Non-Thunderstorm Wind	2	0	3	1	$6,039,550	$654,550
Tornado	0	0	7	2	$4,164,000	$1,188,000
Drought	0	0	0	0	$2,995,000	$0

Cybersecurity

West Virginia will likely continue to experience malware, phishing, ransomware, and spoofing attacks against government, private, and public sectors. West Virginia's election cyber infrastructure remains an attractive target to foreign and domestic actors. The energy sector could be viewed as a target by nefarious actors due to its potential impacts on other critical infrastructure. West Virginia's elderly population continues to be a prime target for phishing attacks. The healthcare, manufacturing, and educational systems may be targeted in attempts to collect information and disrupt key functions of everyday life. West Virginia would benefit from advancing cybersecurity infrastructure to further protect systems already in place and prepare for future threats in this constantly evolving environment.

Terrorism, Domestic Extremism and Violent Opportunist

The majority of those detained on terrorism-related charges in West Virginia were found to be residents, according to analysis of those arrested. This may indicate that domestic terrorism could occur in West Virginia.



Critical Infrastructure

In 2020, the American Society of Civil Engineers (ASCE) gave West Virginia's bridges, roads, dams, drinking water and wastewater systems grades D to D+. Grade D is defined as "*infrastructure is in poor to fair condition and mostly below standard, with many elements approaching the end of their service life. A large portion of the system exhibits significant deterioration. Condition and capacity are of significant concern with strong risk of failure.*"

- Of 7,291 bridges, 21% (1,531) are structurally deficient, a much higher percentage than the national average of 7%.
- There are more than 38,000 miles of public roadway in West Virginia. However, only 16% of major roads are in good condition, while 55% are fair, and 9% are in poor condition.
- 75% of the state's dams are classified as high hazard potential, essentially even with the national average of 74%. Approximately 89% of these dams are rated to be in fair or satisfactory condition, compared to approximately 71% nationwide.
- Some drinking water systems are losing more than half of their treated water through their distribution systems. To address this lost water, investment in infrastructure replacement and technology improvements is required to locate then replace sections of leaking water lines. However, West Virginia's rough topography with many streams and rivers make locating leaks difficult.
- A lack of preventative maintenance has resulted in significant failures in wastewater infrastructure across the state. Significant portions of the state's wastewater systems have deteriorated including 59 combined sewer systems requiring $1.2 billion to address state and federal requirements.

Mass Casualty Incidents

Mass casualty incidents will still likely occur within the United States, but there are little to no sources of information available relating to the planning of a mass casualty attack in West Virginia. Attacks targeting special events remain a concern; however, mass casualty incidents can occur regardless of location. Foreign terror organizations continue to encourage simple planning attacks in Western countries, including mass shootings and vehicle ramming attacks. These styles of attack are expected to continue.

Based on the information collected by the WVFC, identified threats to West Virginia include drugs and related activity, gang activity, natural disasters, cyber security, terrorism, domestic extremism, and violent opportunities, critical infrastructure, and mass casualty incidents.

Analysis

Upon reviewing the various data sets, a list was compiled of identified risks and compared against each other. It was evident there were a number of common risks that appeared in each of the respective reports. Based on that information, the list of the top 6 risks with potential impacts to West Virginia were identified.

WV Healthcare Coalition South HVA	**WV Healthcare Coalition North HVA**
Severe Weather, including tornado	Severe Weather, including tornado
Cyber Attack	Cyber Attack
Communication/Information System Failure	Power Failure
Flood, External	Flood, External
Hazmat	Communications/Information System Failure
West Virginia Threat Preparedness Public Health Risk Assessment Survey	**West Virginia Statewide Threat Assessment**
Biological Event Emerging Disease or Intentional Release	Drugs & Related Activity
Large scale accident	Gang Activity
Chemical Release Accidental/Intentional	Natural Disasters
Cyberattack/loss of digital infrastructure	Cybersecurity
Acts of violence	Terrorism, Domestic Extremism, & Violent Opportunists
Need for Staff Surge (all reasons)	Critical Infrastructure
Large scale Fire	Mass Casualty Incidents
Natural Disaster	
Infrastructure Damage	
Radiation/Nuclear Release	
Biological Event Severe Illness	
Supply chain/delivery disruption	
Severe Weather Event	
Homelessness	
Mistrust, Hesitancy, Misinformation	
Civic Health	

Top Risks

The top risks identified from the data include:

- Cyber
- Natural Disaster/Severe Weather Event
- Infrastructure
- Violence
- Chemical
- Biological Emerging Disease Event

Cyber

Foreign and domestic actors have demonstrated continuing interest in compromising the United States critical infrastructure sector for a variety of reasons. West Virginia, including the energy sector, can be viewed as a target due to the potential impacts on other critical infrastructure. Medical/healthcare systems, universities and schools, banks, state and local governments have all also experienced ransomware attacks that caused disruptions or shutdowns due to losing control of their network.

West Virginia will likely continue to experience malware, phishing, ransomware, and spoofing attacks against government, private, and public sectors. Regions of the state and some sectors remain vulnerable to attacks due to limited resources, trained personnel, and minimal upkeep. This lack of trained individuals carries a growing risk as industries attempt to implement digital currencies and AI technologies. While there are multiple trainings and software available, the largest vulnerability continues to be social engineering/human error.

Natural Disaster/Severe Weather Event

National Oceanic and Atmospheric Administration (NOAA) assesses West Virginia's geographic location and topography making it vulnerable to many weather hazards ranging from winter storms and the occasional blizzard to tornadoes and flooding. With all severe weather events, urban areas are at risk for large numbers of evacuated/displaced populations and damage to infrastructure. Rural communities face great risk with limited resources to respond, recover, and rebuild from climate events. Poor, elderly, historically marginalized, recent immigrants, linguistically or socially isolated individuals, as well as those with existing health disparities are more vulnerable due to a limited ability to prepare for and cope with such events.

While improvements have been made to forecasting, warning infrastructure, and preparedness plans over the past few decades, a severe storm today would have a crippling impact on the state and produce widespread hardships. Over the past 10 years, it is estimated that winter storms and flooding have caused millions of dollars of damage. A severe weather event that is not talked about as much are tornadoes. West Virginia set a record in 2024 with 15 tornados occurring in this calendar year causing more than $1 million in damages.

Infrastructure

West Virginia has a large amount of critical infrastructure (CI) predominantly in energy, manufacturing, and transportation, which if disrupted could have significant impact to the state. Much of the state's physical infrastructure continues to deteriorate without repair or replacement efforts that are halted by lack of funding.

West Virginia is a top leader among the nation's total energy, gas, and coal production. These sectors can be seen as a target due to the potential impact of other industries within the state.

When looking at West Virginia's transportation sector, most large industries and businesses within the state rely heavily on one or more of the services. There are also national commerce implications surrounding transportation within the state.

Communication towers within West Virginia remain vulnerable due to limited physical security and hard-to-access terrain. Many of the rural areas of West Virginia rely on a single communication provider which presents an issue if their tower is impacted. With West Virginia becoming a popular destination for those who can work from home, losing communications could be detrimental to the work force.

Violence

Violence within the State of West Virginia can look different depending on location. Gang violence is prevalent in most of the 55 counties, whether that be street violence or prison violence. There are three major gangs within the state with more members joining frequently. Another form of violence that is shared is violence surrounding drug related activities, with fentanyl and methamphetamine being the leading drugs trafficked throughout the state. Law enforcement is continuously responding to reports of violence that occur because of drug use, including larceny, prostitution, and human trafficking. It is believed that human trafficking is still underreported, however West Virginia has seen an increase in human trafficking reporting, likely a result of the prevalence of opioid and illicit drug use. While each of these activities can cause separate risks, their combined risks pose a large threat to the state.

Chemical

Chemical risks within the state of West Virginia can be from spills within water causing residents to lose access to clean water, to a chemical leak in a large facility that halts production, to a train derailment. With WV interstates being used to transport goods nationally, the risk of having a chemical/HazMat spill increases greatly. A chemical or HazMat disaster that closes the interstate to traffic can not only affect those in close proximity to the incident but also those who are attempting to travel through the area.

Biological Event Emerging Disease or Intentional Release

Emerging diseases have caused concern across the state for decades. There are multiple ways these diseases are arising within the state. Climate change is increasingly becoming a concern as a factor in the emergence of infectious diseases. As Earth's climate warms and habitats are altered, diseases can spread into new geographic areas. Another factor that is prevalent in the re-emergence of diseases is the acquired resistance of pathogens to various antibiotics. Bacteria, viruses, and other microorganisms can change over time and develop a resistance to the drugs used to treat diseases caused by the pathogens. Therefore, drugs that were effective in the past are no longer useful in controlling disease.

In addition, vaccine fatigue is a factor. When a safe and effective vaccine exists, a growing number of people choose not to become vaccinated. While the state has put in effort to combat these risks

over the past years since the latest outbreak of the Coronavirus, they still pose a large threat to the population if not planned for.

Other Identified Risks

A reoccurring theme found across all surveys was Mass Casualty and Need for Staff Surge. When looking at the top risks, there can be a case made that each risk can be tied to those reoccurring themes.

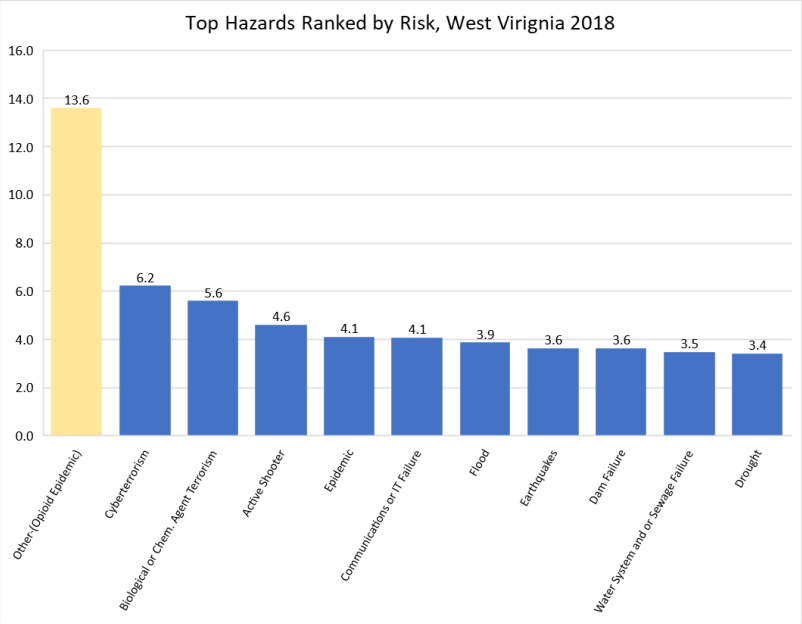
Just outside the top risks within the state are homelessness, mistrust or misinformation, civic health and supply chain concerns. As stated with mass casualty and staff surge, each of these risks can be tied to one of the top five. Poor infrastructure could pose threats to supplies within the state while emerging diseases could lead to an increase in mistrust.

2018 Comparison

In the 2018 risk assessment, the top identified risks for West Virginia were:

- Cyberterrorism
- Biological or Chemical Agent Terrorism
- Active Shooter
- Epidemic
- Communications or IT Failure

In 2018, fifteen counties wrote in drug addiction, opioid overdose, drug abuse, opioid epidemic, substance abuse, drug epidemic, and mass drug overdose as an “other” hazard in the RA tool. These were collectively coded as the hazard “opioid epidemic.” The opioid epidemic was a topic identified by respondents as an additional risk so frequently that it overtook the previously identified risks. Since the opioid epidemic was not a risk that was listed on the survey, the methodology behind that risk was different than those listed within the survey. While the terminology may be different, many of the risks identified in 2018 are still very high on the risk register for 2024.



Planning & Mitigation

Communities use the Threat and Hazard Identification and Risk Assessment (THIRA)[6] to assess their risk and set capability targets that reflect their preparedness goals by answering three key questions:

- What threats and hazards can affect our community?
- If they occurred, what impacts would those threats and hazards have on our community?
- Based on those impacts, what capabilities should our community have?

The THIRA and Stakeholder Preparedness Review (SPR) go beyond evaluating risk, as it also identifies what communities need to do to address that risk.

By completing the THIRA process, communities can better understand what they need to prepare for and how to translate that information into action. Communities begin by identifying the threats and hazards that would most challenge their capabilities. They then provide context for those threats and hazards, developing scenarios that describe how they may affect the community. The scenarios include factors and conditions that would make those threats and hazards especially challenging for delivering capabilities.

Communities then set capability targets that are specific, measurable, actionable, relevant to potential threat and hazard impacts, and time bound. Setting preparedness goals for addressing the impacts of their most challenging threats and hazards every three years helps communities to track progress over time and describe their preparedness in specific, measurable terms. Communities then use the SPR to answer the following questions:

- What are our current capabilities?
- What gaps exist between our targets and the capabilities we currently have?
- How can we address our capability gaps and sustain our current capabilities?

The SPR is an outcome-oriented assessment that helps communities intuitively compare their current capabilities with their targets, identify gaps, and prioritize investments and other preparedness activities to address those gaps. Communities quantify the gap between their current capabilities and their targets, and then indicate whether that gap is related to any of the five following areas: Planning, Organization, Equipment, Training, and Exercises (POETE).

Communities also indicate whether achieving, or sustaining, each of their capability targets is a high, medium, or low priority. This produces actionable information, providing clear direction on where communities need to focus their efforts and resources to have the biggest impact on achieving their specific preparedness goals and addressing the impacts of their most challenging threats and hazards. Communities also rate their degree of confidence in their estimates of their current capabilities using a five-point scale, with a five indicating higher confidence. This provides valuable context for better understanding that data. Communities can use the THIRA/SPR results to support a variety of preparedness activities, including planning, training, and exercises. The THIRA/SPR also makes it easier for communities to direct resources where they will be most effective, be more deliberate in their planning efforts, and better understand their capabilities and gaps in general.

Additionally, when planning for preparedness activities, it is crucial to keep at-risk individuals in mind. At-risk individuals are people with access and functional needs (AFN) (temporary or permanent) that may interfere with their ability to access or receive medical care before, during, or after a disaster or public health emergency. Examples of at-risk populations may include but are not limited to children, pregnant women, older adults, people with disabilities, people from diverse cultures, people with limited English proficiency, people with limited access to transportation, people with limited access to financial resources, people experiencing homelessness, people who have chronic health conditions, and people who have pharmacological dependency. These groups also fall into the category of underserved communities.

During a disaster or emergency, public health and medical professionals need to take action to protect the health of at-risk individuals. Local health organizations, hospitals, emergency managers, local emergency planning committees (LEPC), and first responders should work collaboratively reviewing local data to determine and identify where in their communities those populations are located. There are non-profit organizations that are associated with some if not all these populations and can be great assets in times of one of the identified risks and hazards in this report.

There are many resources that can be utilized to help planning committees to prepare to help these populations during these events. For example, during the statewide derecho in 2014, and even as recently as the 2024 Hurricane Helene, massive power outages affected anyone who used medical devices requiring electricity or batteries, such in-home oxygen or other devices for health needs. Planning can include working with local and state agencies, vendors, and others to incorporate a backup plan to augment oxygen delivery and other essentially needed medical equipment. Local health officers can find information for their local communities by checking the HHS emPOWER map tool[8]. The West Virginia Center for Threat Preparedness has a working AFN group which meets quarterly to educate and plan for the needs of these various groups discussed in this article. The CDC AFN Toolkit[9] was developed to help emergency planners achieve effective communications and organize planning for broad groups of people with disabilities and others with access and functional needs (AFN), utilizing recommended action steps and noteworthy practices from the field.

The 2023 THIRA/SPR capabilities with percentage gaps greater than 75% include:

- Core Capability - Housing
    - Number of people requiring long-term housing
- Core Capability – Risk Management for Protection Programs and Activities
    - Number of publicly managed and/or regulated critical infrastructure facilities
- Core Capability – Long Term Vulnerability Education
    - Number of jurisdictions
- Core Capability – Threats and Hazard Identification
    - Number of jurisdictions
- Core Capability – Mass Care Services
    - Number of animals requiring shelter, food, and water
    - Number of people with access and functional needs requiring accessible, temporary, non-congregate housing

- Core Capability – Public Information and Warning
    - Number of people with limited English proficiency effected
    - Number of people with access and functional needs effected
    - Number of people effected
- Core Capability - Forensics and Attribution
    - Number of personnel
- Core Capability – Natural and Cultural Resources
    - Number of damaged and cultural resources and historic properties registered in the jurisdiction

Planning for crises is not a one-dimensional task; public health is just one piece of the puzzle. When comparing the risks identified in this report to the capabilities and planning focuses across FEMA, ASPR, and PHEP, there is a clear alignment. Collaborating with partners across the various sectors can greatly enhance public health's ability to mitigate and respond to adverse events.

Risk	Planning Focus	PHEP Capability	ASPR Capability	NPG Core Capability
Cyber	Infrastructure Resiliency Communication Surge Management Alternate Care	#1 Community Preparedness #4 Emergency Public Information and Warning ##3 Emergency Operations Coordination	#1 Foundation for Health Care and Medical Readiness	Cybersecurity
Natural Disaster/ Severe Weather Event	Infectious Disease Vector Borne Disease Environmental Health Infrastructure resiliency Surge Management Mass Evacuation/sheltering Mass Care Communication Alternate Care	#13 Public Health Surveillance and Epidemiological Investigation #7 Mass care # 15 Volunteer Management, # 14 Responder Health and Safety, #4 Public Information and Warning	#1 Foundation for Health Care and Medical Readiness #7 Medical Surge	Long-term Vulnerability Reduction Threats and Hazards Identification
Infrastructure	Administration, Emergency Operations, Information technology, Continuity of Operations, Health and Safety, Surge Management, Resiliency, Volunteer Management, Information and	#14 Responder Safety and Health #2 Community Preparedness #2 Community Recovery	#3 Continuity of Health Care Service Delivery	Environmental Response/Health and Safety Threats and Hazards Identification

	Warning, Fatality Management			
Violence	Acts of Violence Hesitancy Mistrust Mass Care Communication Employee Safety	#14 Responder Safety and Health #2 Community Preparedness #2 Community Recovery, # 4 Emergency Public Information and Warning	#3 Continuity of Health Care Service Delivery	Environmental Response/Health and Safety
Chemical	CBRNE Infrastructure resiliency Surge Management Mass Evacuation/sheltering Mass Care Communication Alternate Care Employee Safety	#13 Public Health Surveillance and Epidemiological Investigation #7 Mass care #14 Responder Safety and Health, # 4 Public Information and Warning	#1 Foundation for Health Care and Medical Readiness #7 Medical Surge #3 Continuity of Health Care Service Delivery	Long-term Vulnerability Reduction Threats and Hazards Identification
Biological Emerging Disease Event	Infectious Disease Outbreaks Communication Alternate Care Surge Management Mass Care MCM	#13 Public Health Surveillance and Epidemiological Investigation #7 Mass care # 15 Volunteer Management, # 14 Responder Health and Safety, #4 Public Information and Warning	#1 Foundation for Health Care and Medical Readiness #7 Medical Surge	Long-term Vulnerability Reduction Threats and Hazards Identification Mass Care Services

Conclusion

The risks to public health identified through this Risk Assessment will drive integrated preparedness planning for West Virginia at the state and local levels. This report provides community collaborative derived data for planning and response decisions will allow jurisdictions to document their preparedness priorities and activities, while promoting efficient use of limited resources to maximize partnerships in developing community-based mitigation planning and response strategies. In a multi-step approach to long term threat preparedness and response capability and capacity development, this report is the first step in building collaborative disaster resilience through the identification of hazard priorities linked to the 15 Public Health Emergency Preparedness and Response Capabilities and Partners Core Capabilities. Integrated Preparedness Planning Workshops (IPPW) is the next step for utilization of this report to build

Integrated Preparedness Plans for jurisdictions to delineate action steps for the next budget period and establish focus areas for emergency planning, exercise and response development.

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