Special Feature Webinar: Patient and Family Centered Care for Environmental Exposures: Red Hill Case Study

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13 July 2023

1300-1600 ET

Presenters

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- Col John Oh is Chief, Occupational and Environmental Health Division, Defense Health Agency Public Health, Falls Church, Virginia
- Col Oh trained in internal medicine (Penn State) and general preventive medicine (Johns Hopkins)
- Col Oh's assignments in the Air Force have included flight medicine, international health, preventive medicine, AF Invisible Wounds Initiative, public health
- Previous staff tours have included Pacific Air Forces, Air Force Medical Support Agency (now Air Force Medical Readiness Agency), Air Forces Central Command

CAPT Joshua Morganstein, M.D.

CAPT Joshua Morganstein is Professor and Vice Chair in the Department of Psychiatry and Deputy Director at the Center for the Study of Traumatic Stress (CSTS) in the Uniformed Services University of the Health Sciences. He is a Captain in the Commissioned Corps of the U.S. Public Health Service and Chair of the Committee on the Psychiatric Dimensions of Disaster at the American Psychiatric Association.
CAPT Morganstein leads the Disaster Mental Health and Public Health education and consultation services at CSTS and provides consultation and subject-matter guidance to local, state, national and international partners during war, mass shootings, chem-bio events, and climate-related on actions to protect mental health, foster resilience, and enhance sustainment for individuals, communities, and organizations.
CAPT Morganstein' s recent work included developing resilience programs and adapting protective actions from high-risk occupations to protect workers in New York City and other heavily impacted cities, the National Guard, and NATO during the COVID-19 pandemic, as well as providing consultation, resources, and ongoing peer support to healthcare professionals in Ukraine.
CAPT Morganstein has conducted research on the impacts of stress and trauma on the National Guard, Washington Navy Yard personnel, and other groups impacted by disaster; he has served as a subject-matter expert on the United Nations Sendai Framework for Disaster Risk Reduction, co-authored the "Mental Health and Well-Being" chapter in the Presidential report "The Impact of Climate Change on Human Health: A Scientific Assessment", and served as lead for the only Curriculum Recommendations for Disaster Behavioral Health Professionals, as well as the only online interactive training in Disaster and Preventive Psychiatry. He is a member of the 5Eyes Mental Health Research International Collaboration, authored over a hundred scholarly works, and is internationally known as a prolific educator and clinician.

Diana Felton, M.D.

Dr. Diana Felton is board certified in emergency medicine and medical toxicology. She has recently taken over as Chief of the Hawaii Department of Health's Communicable Disease and Public Health Nursing Division. Prior to that, she was the State Toxicologist with the Hawaii Department of Health Hazard Evaluation and Emergency Response (HEER) Office.

She worked with many state, federal and community partners on issues such as childhood lead poisoning prevention, safe fish consumption, air pollution risks, pesticides, and other environmental health hazards. She is a member of the Hawaii Advisory Committee on Drug Abuse and Controlled Substances and EPA's Children's Health Protection Advisory Committee.

She is a proud graduate of the University of California, Berkeley, attended medical school at the University of California, Davis and completed her emergency medicine residency at Beth Israel Deaconess Medical Center in Boston, Massachusetts. Fellowship training was at the Harvard Medical Toxicology Fellowship at Boston Children's Hospital in conjunction with the Massachusetts and Rhode Island Poison Control Center.

Ms. Debra Colbeck, B.S.

Ms. Debra Colbeck is a former enlisted member of the United States Air Force and senior risk communication consultant at the Defense Centers for Public Health – Aberdeen (DCPH-A) with over 20 years of service with the Department of Defense (DoD).

Ms. Colbeck provides risk communication and crisis support to military leaders and subject matter experts addressing public concerns for a wide variety of environmental, health, and safety issues throughout the Department of Defense.

Ms. Colbeck is an appointed faculty member at the F. Edward Hebert School of Medicine and a regular guest faculty member at the U.S. Army's Medical Center of Excellence and United States Air Force School of Aerospace Medicine.

Disclosures

- Col Oh, CAPT Morganstein, Dr. Felton, and Ms. Debra Colbeck have no relevant financial or non-financial relationships to disclose relating to the content of this activity.
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Learning Objectives

At the conclusion of this activity, participants will be able to:

1. Review the psychological and behavioral impacts of disasters.
2. Identify factors altering risk and resilience in disasters.
3. Describe the framework for early interventions following disasters and practical actions to foster the essential elements that protect mental health.
4. Comprehend the November 2021 release of JP-5 jet fuel into the Joint Base Pearl Harbor Hickam Drinking Water System and the subsequent health impacts.
5. Recognize the limitations of evaluating health impacts and the difficulty in predicting long-term health impacts.
6. Outline the lessons learned and key takeaways from this environmental health disaster to inform future responses.
7. Summarize how risk communication theory and practices are used to improve overall risk management.
8. Analyze and be able to put into practice proven risk communication key elements that should be used to effectively communicate risk information.

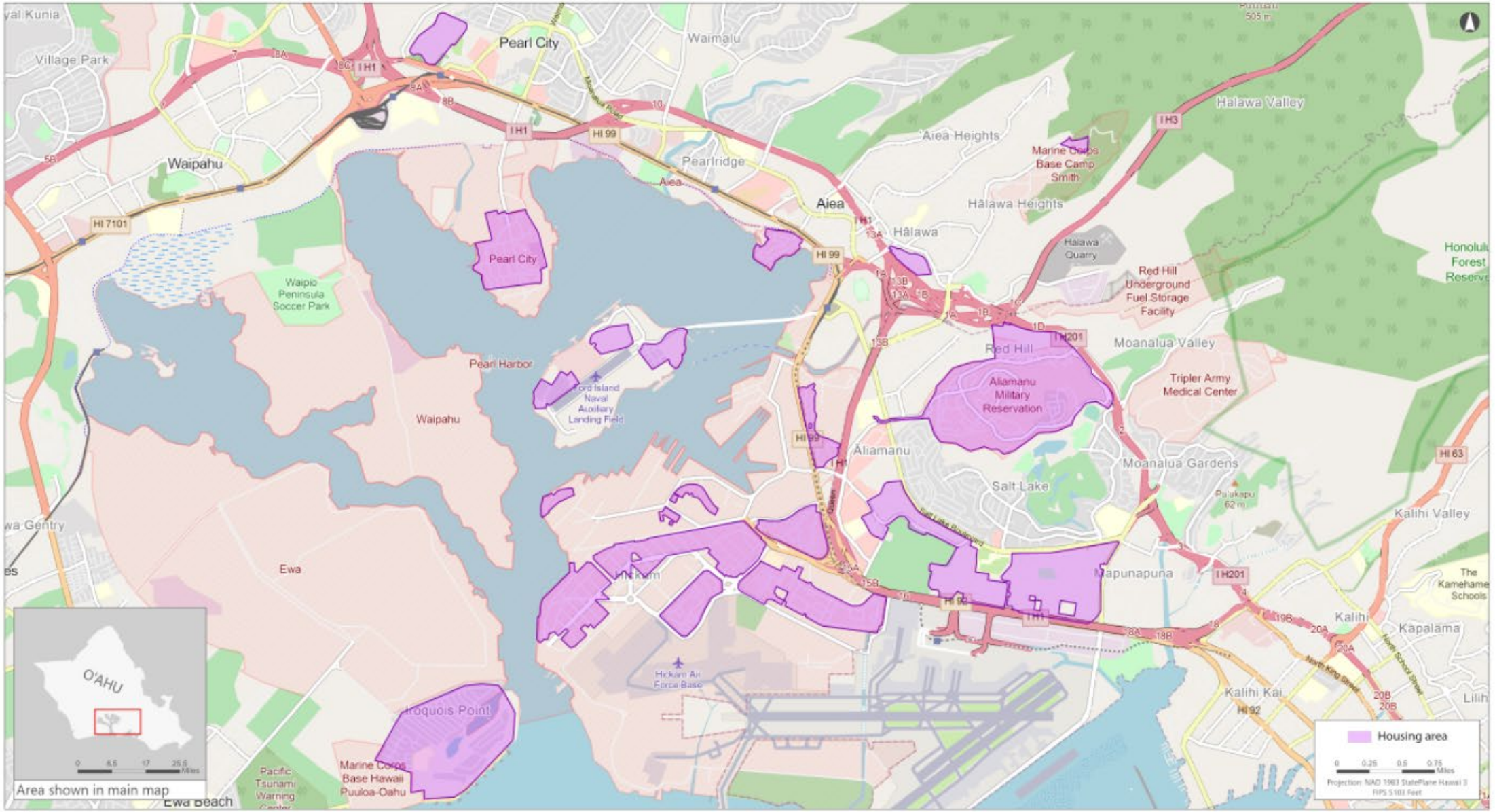
JET FUEL CONTAMINATION OF A HAWAII DRINKING WATER SYSTEM: INTRODUCTION TO RED HILL

Diana Felton, MD
Hawaii Department of Health
July 13, 2023

OUTLINE

- Background on the Red Hill Bulk Fuel Storage Facility.
- Details about the November 2021 release of JP-5 jet fuel into the Joint Base Pearl Harbor Hickam Drinking Water System and the subsequent poisoning of thousands of people
- Massive emergency response
- Current knowledge and further evaluation of health effects
- The difficulty in predicting long-term health impacts
- What's next for the facility and the people affected

Housing areas served by the Joint Base Pearl Harbor-Hickam Water System



Centers for Disease Control and Prevention
Agency for Toxic Substances and Disease Registry

Geospatial Research, Analysis, and Services Program

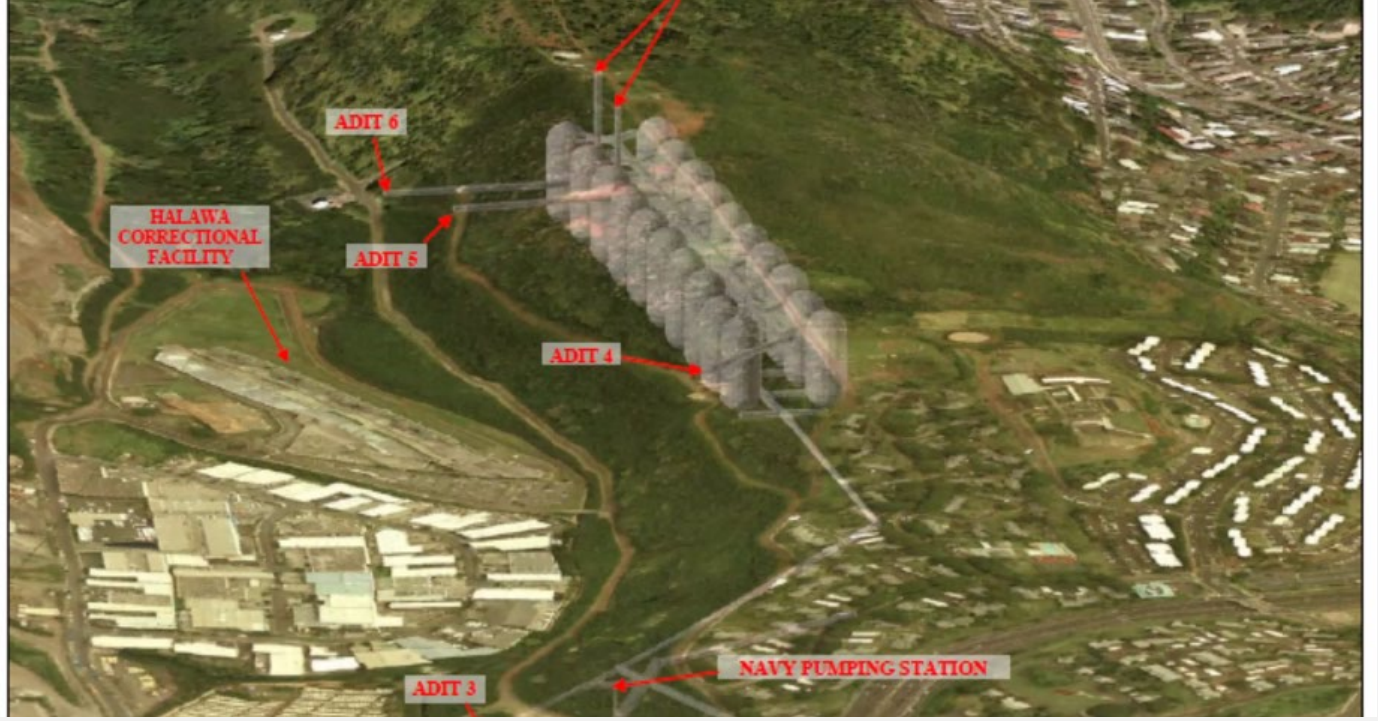
PRJ ID 06195 | AUTHOR Nina Dutton
12/31/2021

FINAL - FOR INTERNAL AND EXTERNAL RELEASE

DATA SOURCES: Housing areas: Naval Facilities Engineering Systems Command Hawaii Asset Utilization Branch, AM4, "Daily Testing Sites with Water System for Joint Based Pearl Harbor Hickam - 12/15/21", Basemaps: OpenStreetMaps, Esri

RED HILL BULK FUEL STORAGE FACILITY

- 20 tanks with 100 million gallons of fuel just 100 feet above Oahu's primary drinking water supply
- Built in the 1940s
- 2.5 miles mauka (uphill) of Pearl Harbor with connecting tunnel and pipes
- History of spills, three reported releases in 2021




Aloha Tower
TO-HAWAII.com

Timeline

January 13, 2014: Navy reported release of approximately 27,000 gallons from Tank 5

March 17 & June 2, 2020: Navy notifies DOH of release into surface water at Hotel Pier

May 6, 2021: Navy reported approximately 38 gallons of JP-5 was released into the environment from pipeline releases near Tanks #18 and #20

July 23, 2021: Navy reported release of approximately 150 gallons at Kilo Pier

2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021

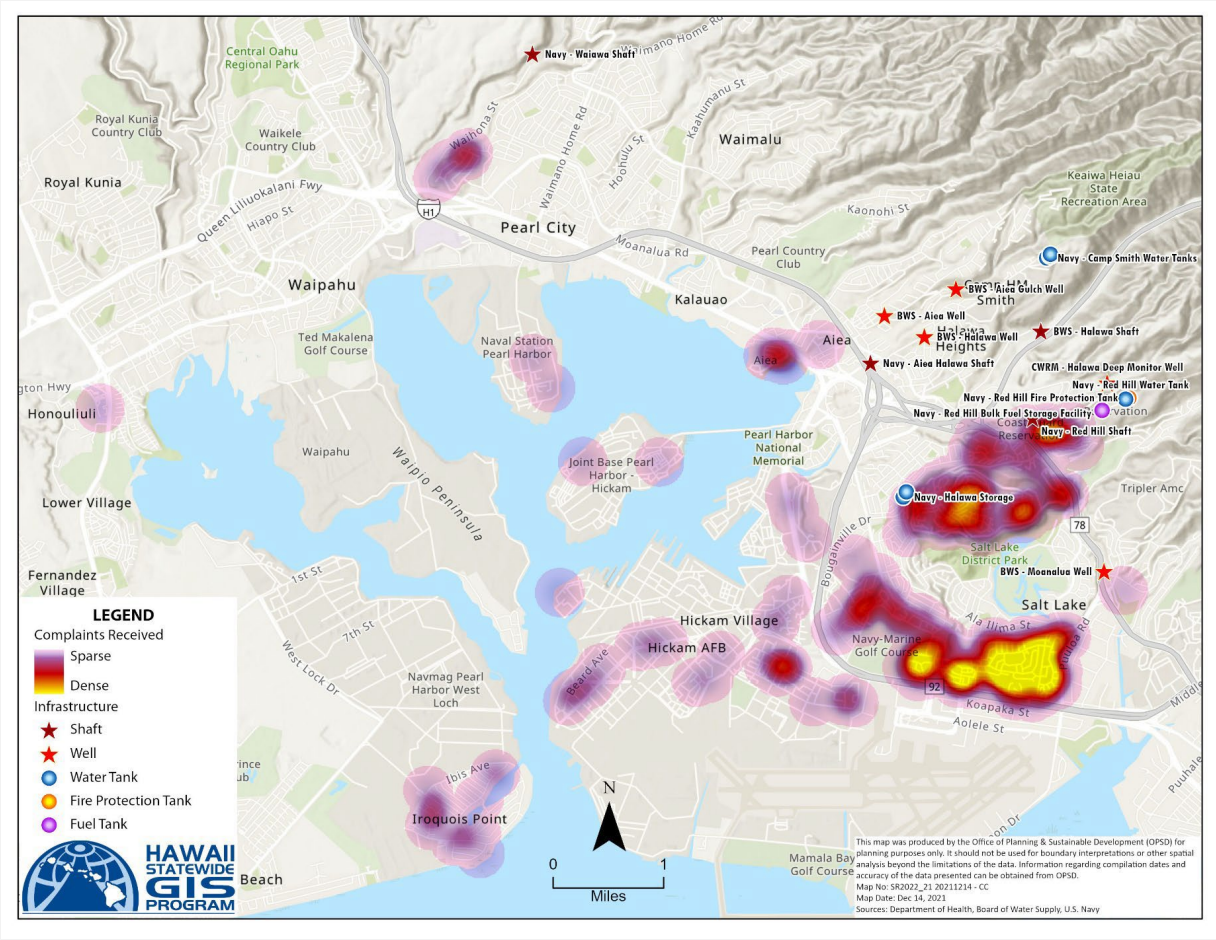
May 2015: DOH, EPA and Navy enter into Administrative Order on Consent

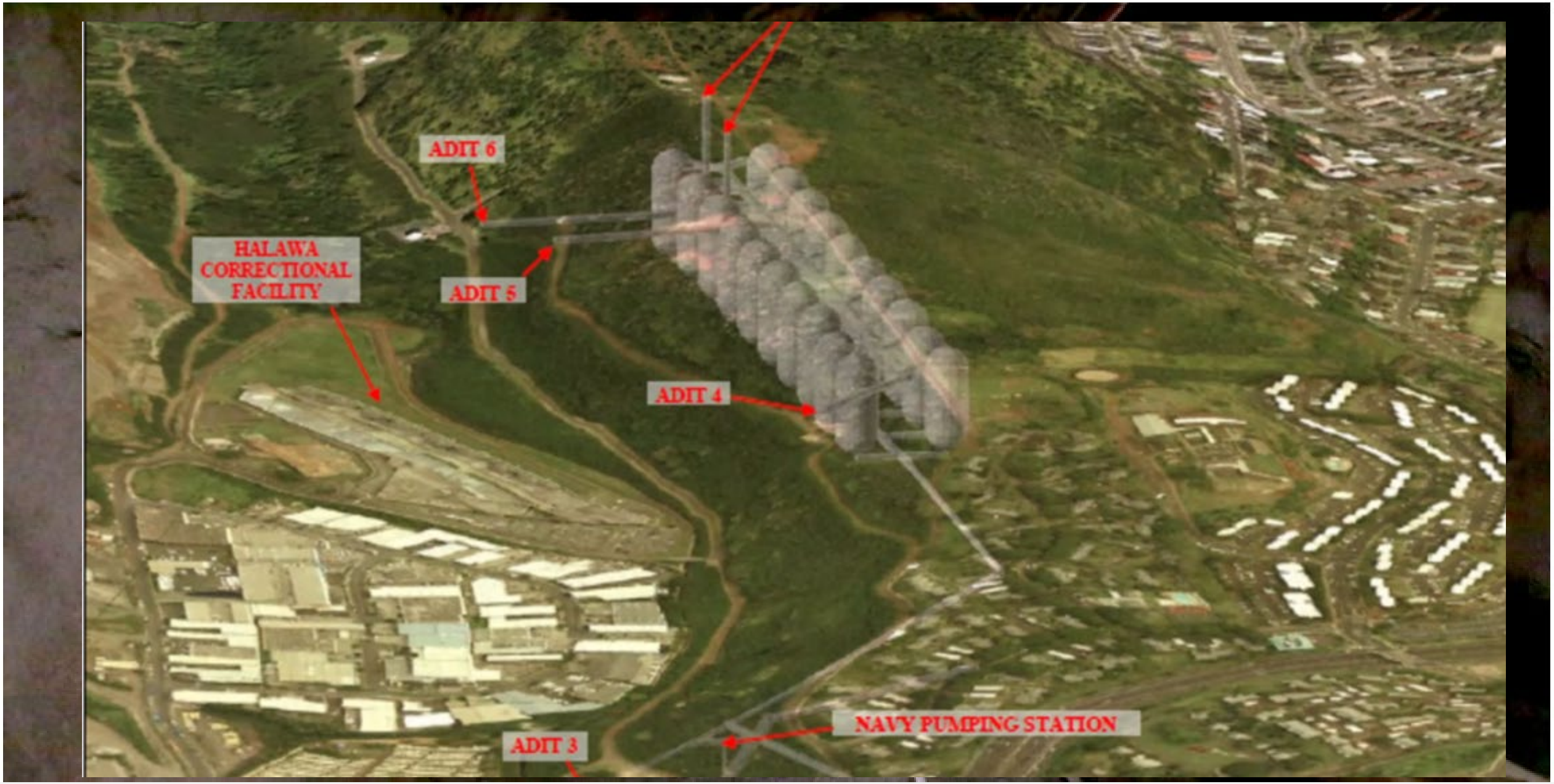
November 20, 2021: Navy reported approximately 14,000 gallons of water and JP-5 were released from a cracked valve in a fire suppression drain line at a location approximately ¼-mile downhill of the bulk fuel tank and contained in a sump located in close proximity to Red Hill Shaft.

November 28, 2021: The Navy and DOH received complaints about fuel-like odors in drinking water.

NOVEMBER 28-29, 2021 IDENTIFICATION OF A PROBLEM

- Hundreds of calls to Hawaii Department of Health (HDOH) Safe Drinking Water Branch reporting fuel-like odor in drinking water and health symptoms
- Hawaii Poison Center received 30 calls and identifies a "sentinel event"
- November 29, 2021 – HDOH issues "Do Not Drink" health advisory for the Navy's Joint Base Pearl Harbor–Hickam (JBPHH) water system




ADIT 6
HALAWA CORRECTIONAL FACILITY
ADIT 5
ADIT 4
NAVY PUMPING STATION
ADIT 3

UNPRECEDENTED EVENT

No historical or experimental model of this type of exposure

Short – Medium term exposure to JP-5 jet fuel in drinking water

How do we assess immediate health impacts?

How do we predict long-term health impacts?

JP-5

- Kerosene-like military jet fuel
- 1000+ different constituents

Contaminant	Estimated Concentration
Benzene	0.2%
Toluene	0.1%
Xylenes	3.5%
Methylnaphthalenes	4.6%
Naphthalene	3.0%
C5-C8 Aliphatics	12%
>C8-C18 Aliphatics	68%
>C18-C32 Aliphatics	0.0%
>C8 Aromatics	9%

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DOI: 10.3109/15563650

MILITARY MEDIC

Jet

[1]*Department of M*
[2]*Department of M*
[3]*Department of E*

Permissible Exposure Levels for Selected Military Fuel Vapors

SUBCOMMITTEE ON PERMISSIBLE EXPOSURE LEVELS FOR MILITARY FUELS

COMMITTEE ON TOXICOLOGY

BOARD ON ENVIRONMENTAL STUDIES AND TOXICOLOGY

COMMISSION ON LIFE SCIENCES

NATIONAL RESEARCH COUNCIL

NATIONAL ACADEMY PRESS
WASHINGTON, D.C., 1996

ESIS

ermatitis

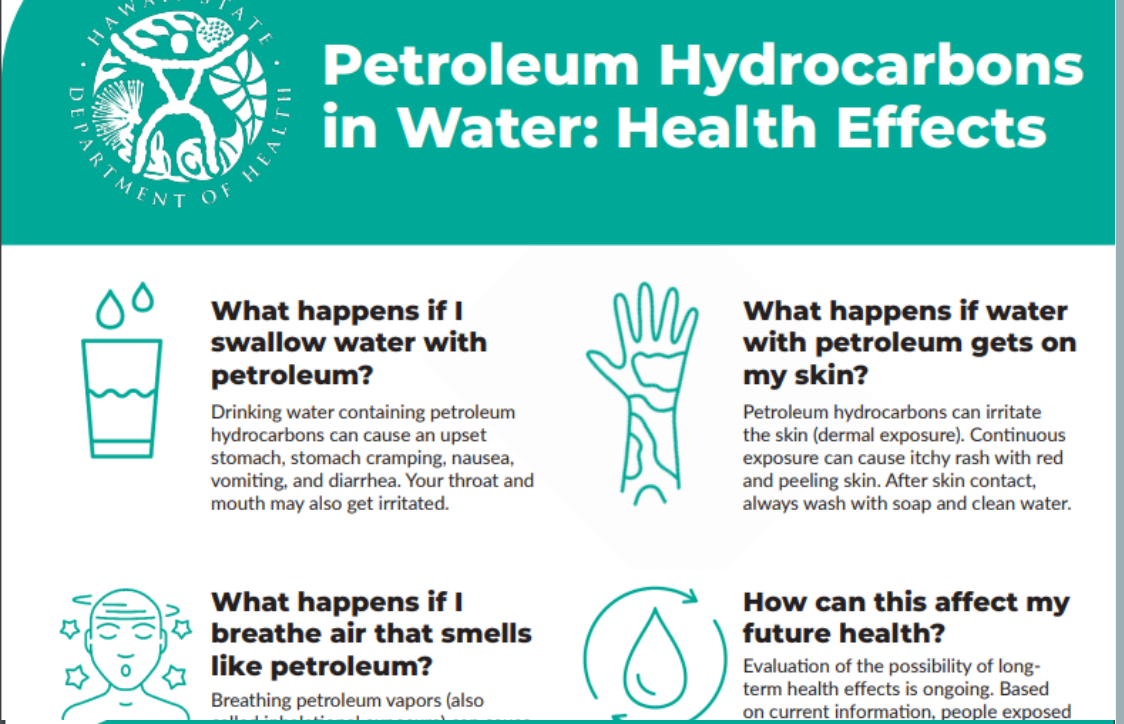
lianapolis, IN, USA

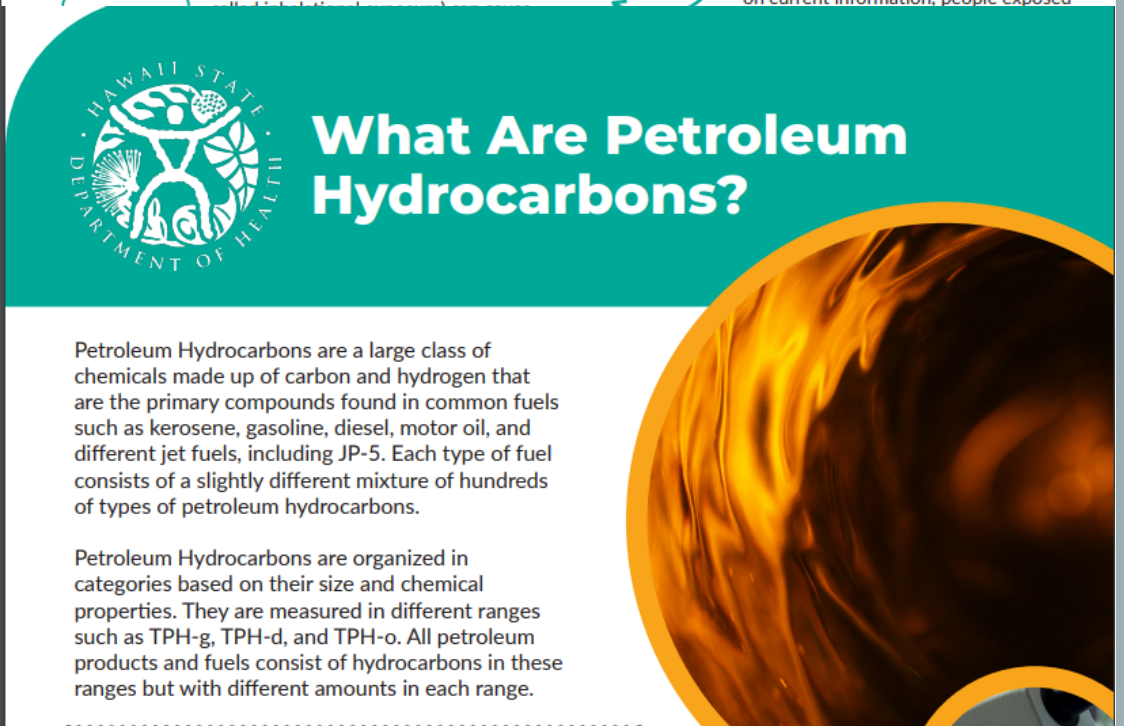
IN, USA USA

HOW MUCH JP-5 DID PEOPLE GET EXPOSED TO?

SYMPTOMS FROM EXPOSURE TO PETROLEUM HYDROCARBONS IN DRINKING WATER

- Stomach upset, nausea, vomiting and diarrhea
- Lightheadedness, headache and difficulty concentrating
- Skin irritation, redness or peeling skin
- Difficulty breathing, coughing and a pneumonia like syndrome





RISK COMMUNICATION

- Complications of different messages from different groups
- HDOH tried to provide consistent, clear messaging
- Targeted public via news releases, TV appearances, fact sheets, website and social media
- Guidance for health care providers

PARTNERSHIPS

FEDERAL	STATE/LOCAL
EPA R9 On-scene Coordinators, Office of Water, Communications, plus	HDOH Safe Drinking Water Branch (SDWB)
US Navy	HDOH Hazard Evaluation & Emergency Response (HEER)
US Army	HDOH Solid and Hazardous Waste Branch (SHWB)
DOD's Defense Health Agency (DHA)	HDOH Clean Water Branch (CWB)
US Air Force, Coast Guard, NOAA	HDOH Communications
CDC/ATSDR/NCEH	Hawaii Department of Land and Natural Resources (DLNR)
USGS	University of Hawaii Water Resources Research Center (UH-WRRC)
Hawaii Congressional Delegation	Hawaii Commission on Water Resource Management (CWRM)
	Honolulu Board of Water Supply (HBWS)

Contamination of Navy Drinking Water System

November 20, 2021
Navy reports approximately 14,000 gallons of water and JP-5 were released from a cracked valve in a fire suppression drain line

November 29, 2021
DOH issues do-not-drink advisory to 93,000 Navy water system users

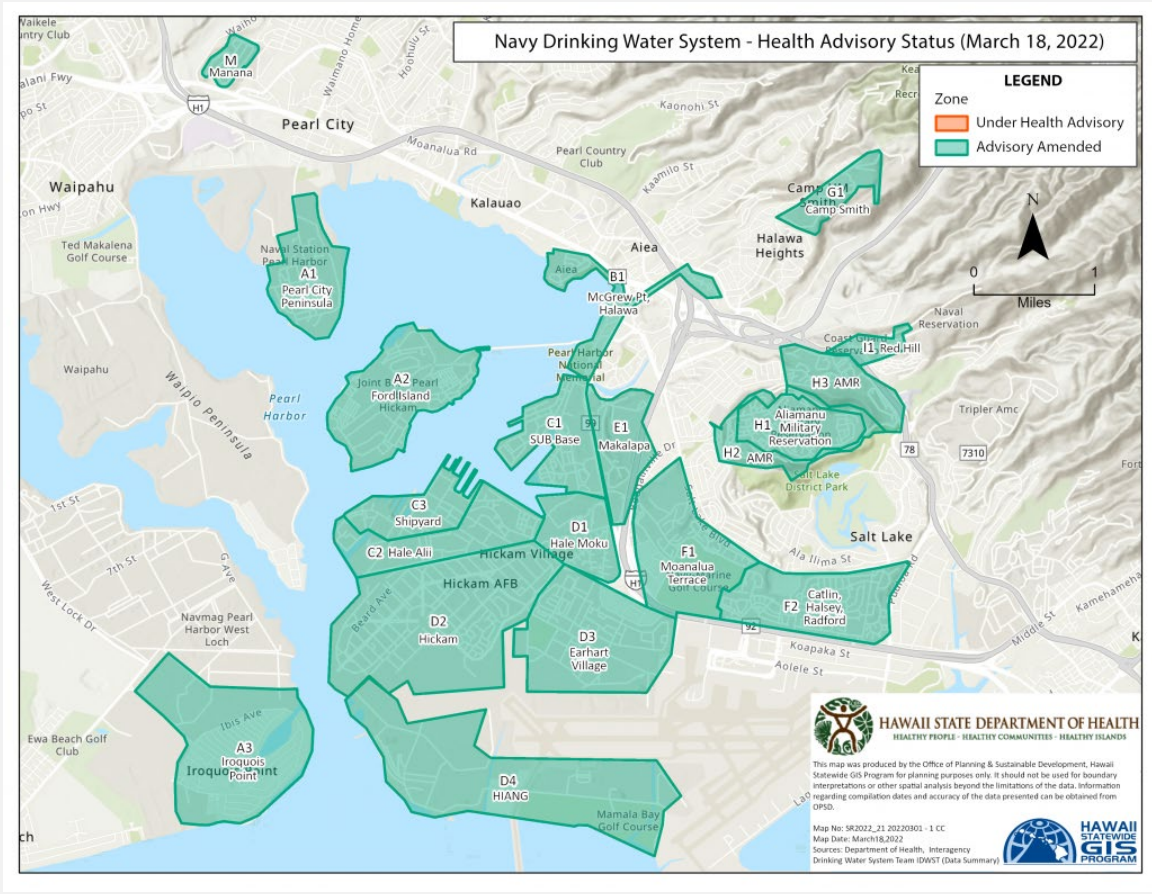
December 17, 2021
DOH, Navy, Army, and EPA enter into Interagency Drinking Water System Team and begin months of work to test and flush the Navy water system

March 18, 2022
DOH declares drinking water in last of 20 zones safe. Long-term monitoring will continue for years

November 28, 2021
DOH receives first complaints of fuel-like odors in drinking water. More than 800 complaints have been received to date

December 6, 2021
DOH issues Emergency Order to immediately suspend operations and defuel the Red Hill storage tanks. The Navy appealed the order in state and federal court

March 7, 2022
Defense Secretary Austin issues memorandum announcing permanent closure of Red Hill. DOD to provide a plan by June 30 and commit to defuel within a year



INTERAGENCY DRINKING WATER SYSTEM TEAM (IDWST)

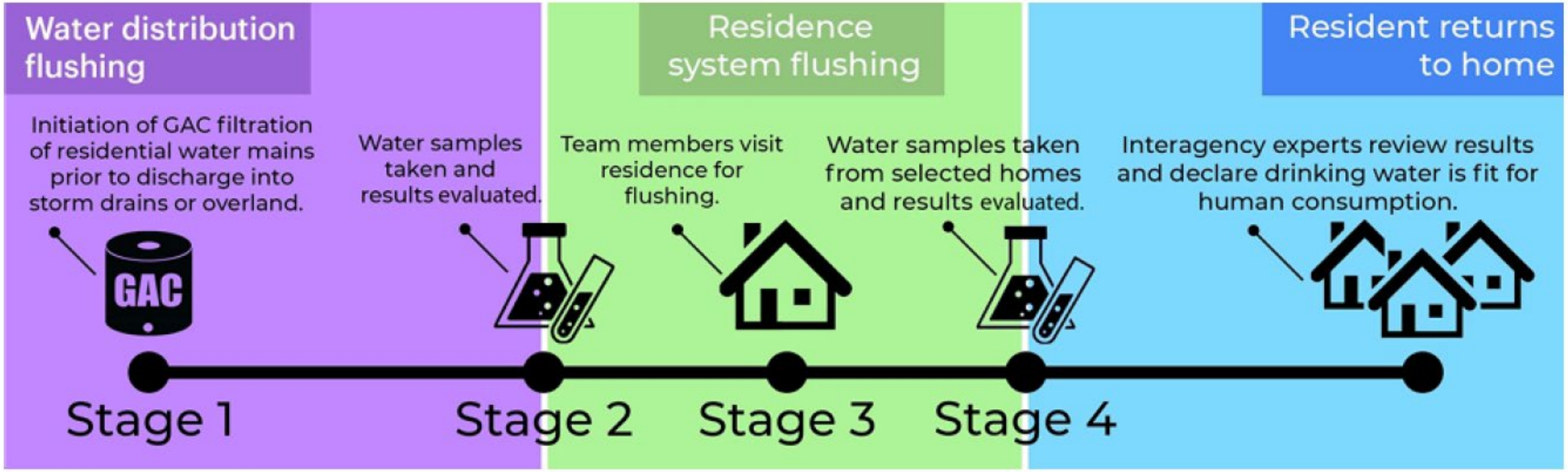
Established December 17, 2021

HDOH, US Navy, US Army, and EPA

IDWST goals:

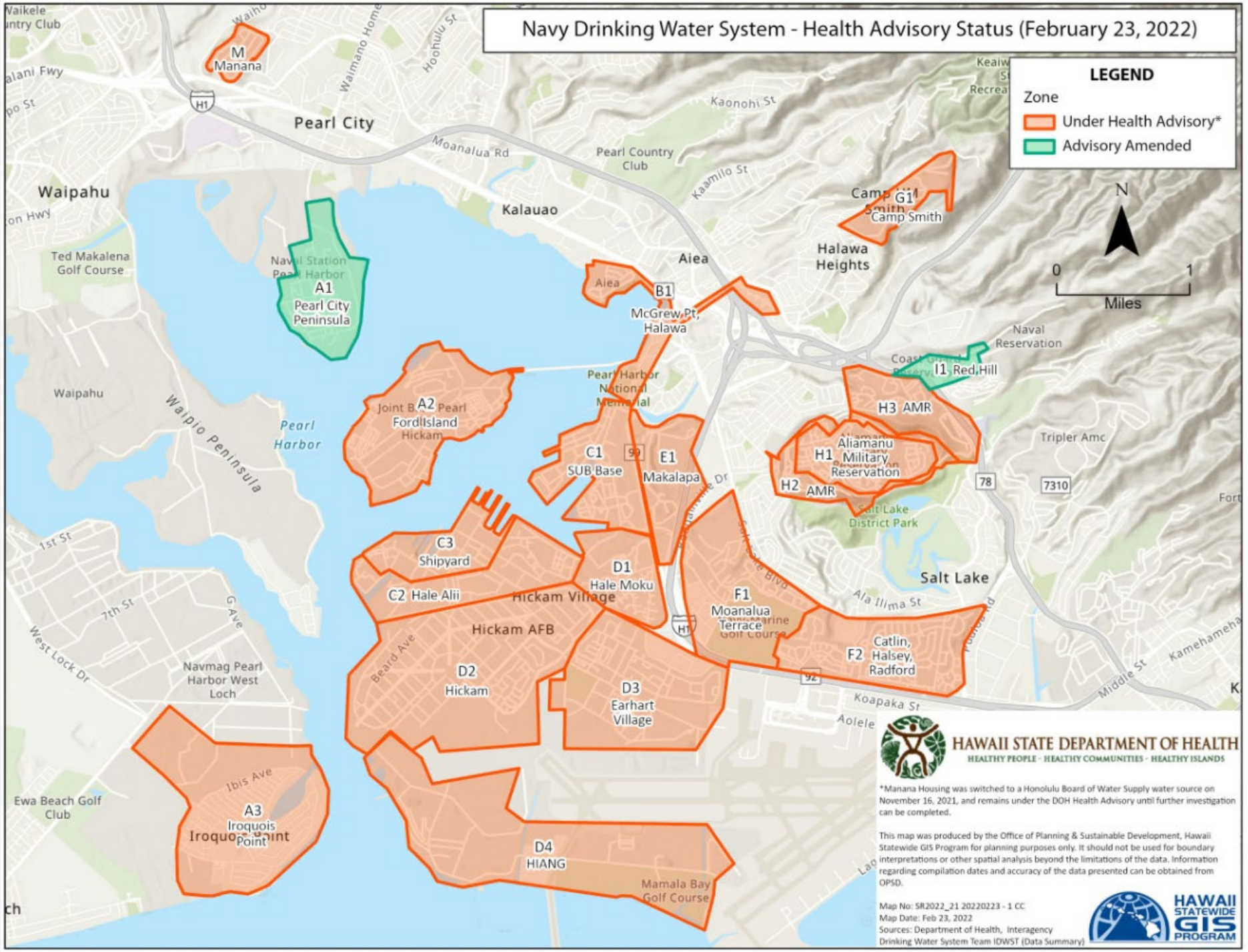
- Protect public health, safety and the environment
- Ensure access to safe drinking water
- Sample and test drinking water consistent with a jointly agreed upon SAP

Drinking Water Distribution System Recovery Plan: Stages 1-4



A Remedial Action Report was prepared for each zone, at the conclusion of Stage 4, documenting the flushing and analytical testing conducted in the distribution system and at buildings and homes. This document included lines of investigation required by the DOH to determine if the advisory for a zone should be amended.

https://www.cpf.navy.mil/Portals/52/Downloads/JBPHH-Water-Updates/Resident_Resources_Guide_V3.pdf


Navy Drinking Water System - Health Advisory Status (February 23, 2022)
LEGEND
Zone
Under Health Advisory*
Advisory Amended
N
0
1
Miles
M Manana
Pearl City
Waipahu
Kalauao
Aiea
Halawa Heights
Camp Smith
G1
A1 Pearl City Peninsula
B1 McGrew Pt, Halawa
A2 Pearl FordIsland Hickam
I1 Red Hill
H3 AMR
H1 Aliamanu Military Reservation
H2 AMR
C1 SUB Base
E1 Makalapa
C3 Shipyard
C2 Hale Alii
D1 Hale Moku
Hickam Village
Hickam AFB
D2 Hickam
D3 Earhart Village
F1 Moanalua Terrace
F2 Catlin, Halsey, Radford
Salt Lake
A3 Iroquois Point
D4 HIANG
Mamala Bay Golf Course
Navmag Pearl Harbor West Loch
Ewa Beach Golf Club
Pearl Harbor
Waipio Peninsula
Moanalua Rd
Kaonohi St
Kaamilo St
Naval Reservation
Tripler Amc
Salt Lake District Park
Ala Ilima St
Koapaka St
Middle St
1st St
7th St
West Loch Dr
Beard Ave
Ibis Ave
HAWAII STATE DEPARTMENT OF HEALTH
HEALTHY PEOPLE - HEALTHY COMMUNITIES - HEALTHY ISLANDS
*Manana Housing was switched to a Honolulu Board of Water Supply water source on November 16, 2021, and remains under the DOH Health Advisory until further investigation can be completed.
This map was produced by the Office of Planning & Sustainable Development, Hawaii Statewide GIS Program for planning purposes only. It should not be used for boundary interpretations or other spatial analysis beyond the limitations of the data. Information regarding compilation dates and accuracy of the data presented can be obtained from OPSD.
Map No: SR2022_21 20220223 - 1 CC
Map Date: Feb 23, 2022
Sources: Department of Health, Interagency Drinking Water System Team IDWST (Data Summary)
HAWAII STATEWIDE GIS PROGRAM

CDC/ATSDR Assessment of Chemical Exposure (ACE) Investigation

- January 7 – February 10, 2022
- Extensive Recruitment
- 2,289 participants

HEALTH IMPACT SURVEY

Water Use

Health Symptoms

Medical Care

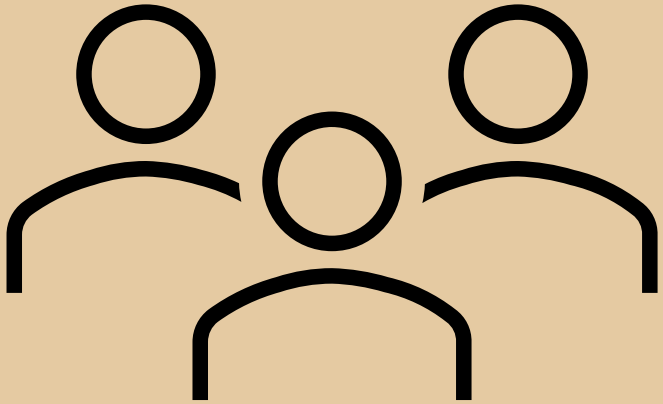
Children

Pets

CDC ATSDR AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY

HAWAII STATE DEPARTMENT OF HEALTH

Participation

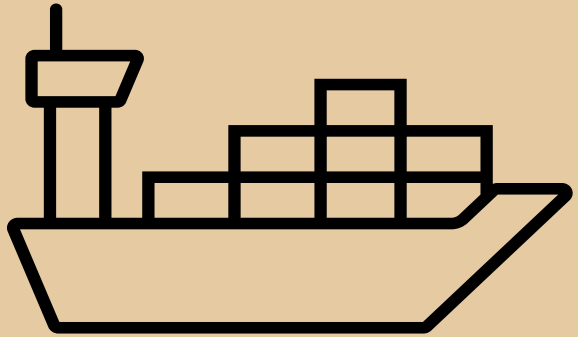


2,289 Baseline
986 Follow-up

participants submitted surveys

14% Baseline
8% Follow-up

of affected households were represented



88% Baseline
90% Follow-up

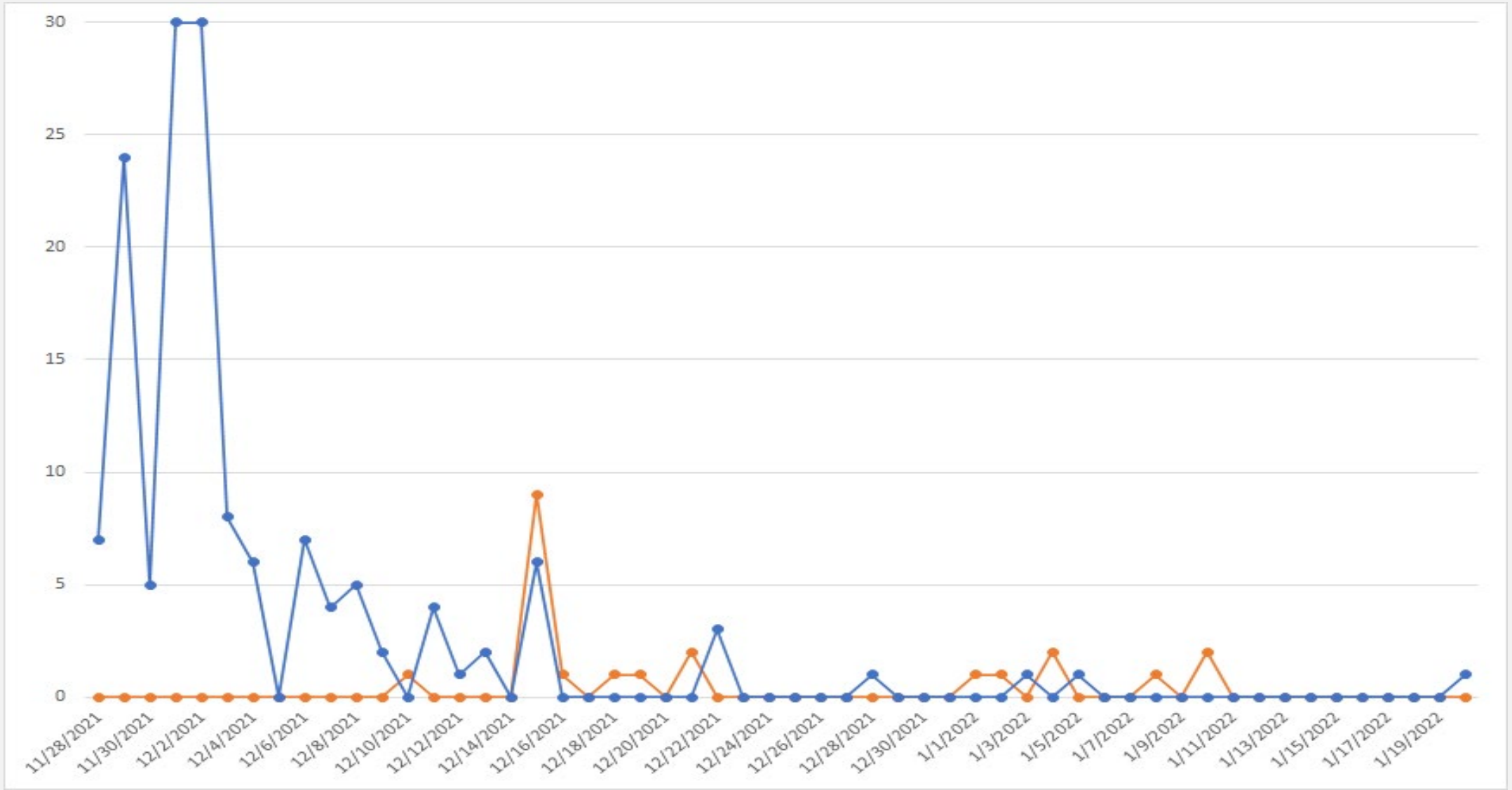
were affiliated with the military

CDC/ATSDR ACE INITIAL RESULTS

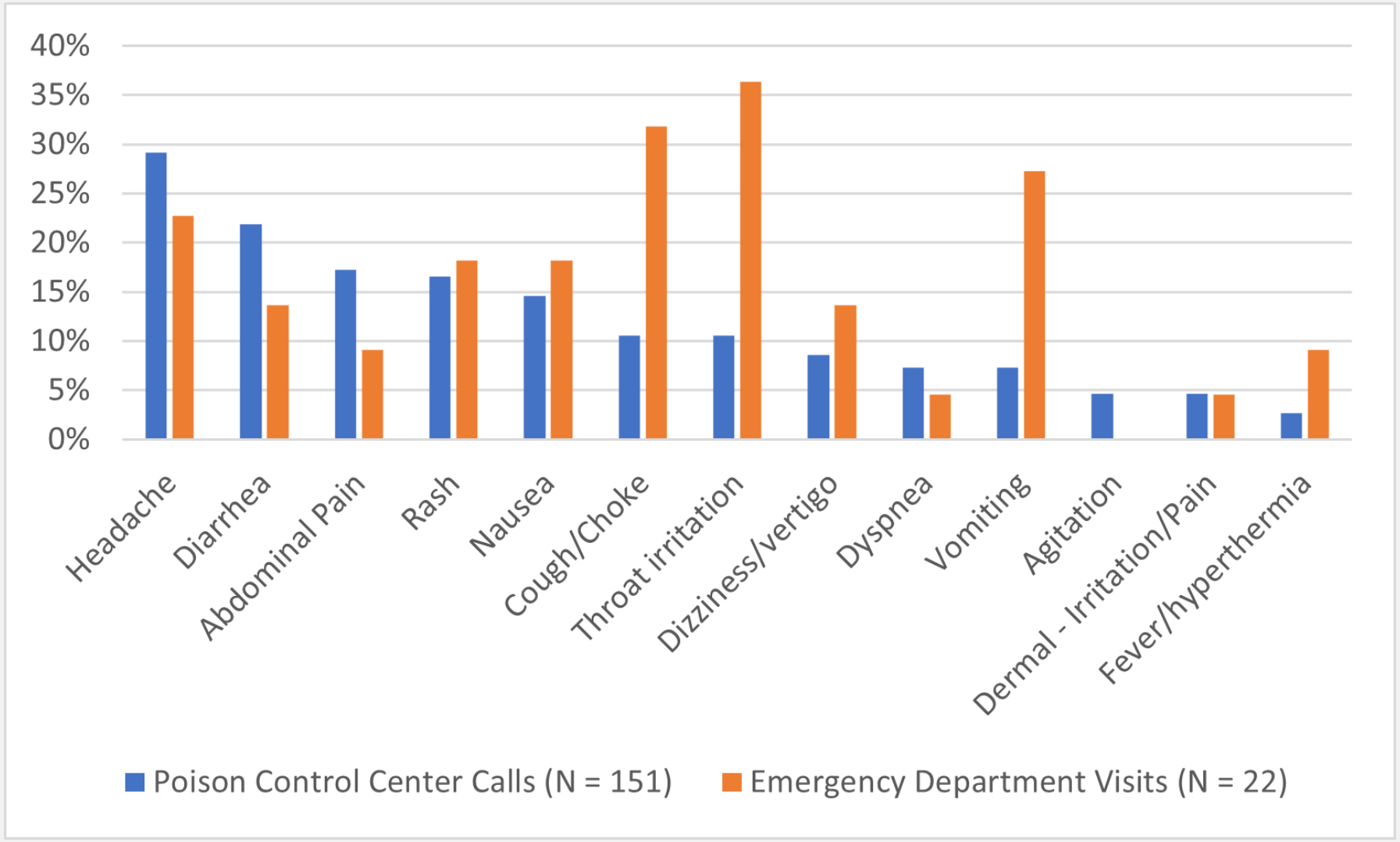
MMWR published 05/27/2022
https://www.cdc.gov/mmwr/volumes/71/wr/mm7121a4.htm?s_cid=mm7121a4_w

- 87% of participants reported symptoms with 80% of those reporting improvement in their symptoms after switching water source
- 37% (853) sought medical care
- Hundreds of people reported new mental health symptoms
- Hundreds reported symptoms in pets
- Majority received information from online sources

Poison Control Calls and Syndromic Surveillance Emergency Department Visits



SYMPTOMS REPORTED IN POISON CONTROL CALLS AND EMERGENCY DEPARTMENT VISITS



LONG-TERM HEALTH EFFECTS

Unknown

Roster vs Registry

Experimental Models

MENTAL HEALTH

Event was an extreme source of stress

Likely to be persistent

Significant reports of mental health impacts in health impact survey, DOH complaints and observed in callers, on social media

8 MONTH FOLLOW UP CDC/ATSDR ACE SURVEY RESULTS

September 2022

health.hawaii.gov/about/files/2022/11/ATSDR-Follow-Up-Survey-One-Pager.pdf

80% of participants reported symptoms in the last 30 days with 65% convinced related to the water

Headaches, Anxiety, dry/itchy skin, fatigue

85% are still using an alternative water source

50% reported worse mental health

Massive concern and frustration with communication, transparency and trust

OVERALL HEALTH AT FOLLOW-UP

55%

reported worse physical health after the incident when compared to before

50%

reported worse mental health after the incident when compared to before

21%

kept from usual activities for 14+ of the past 30 days due to poor health

LIMITATIONS

- Study design
  - Convenience sampling
  - Self-reported/parent reported symptoms
  - Lack of exposure data
  - Outreach Barriers

Strengths

- Widespread partner engagement
- Large number of responses
- Timely data for action

DIRECT IMPACTS OF ACE

Red Hill Clinic set up

DHA sharing of syndromic surveillance data

DHA Epidemiologic Aid for medical record review

DHA to fund 3rd party health registry to include medical records, surveys, communications and referrals.

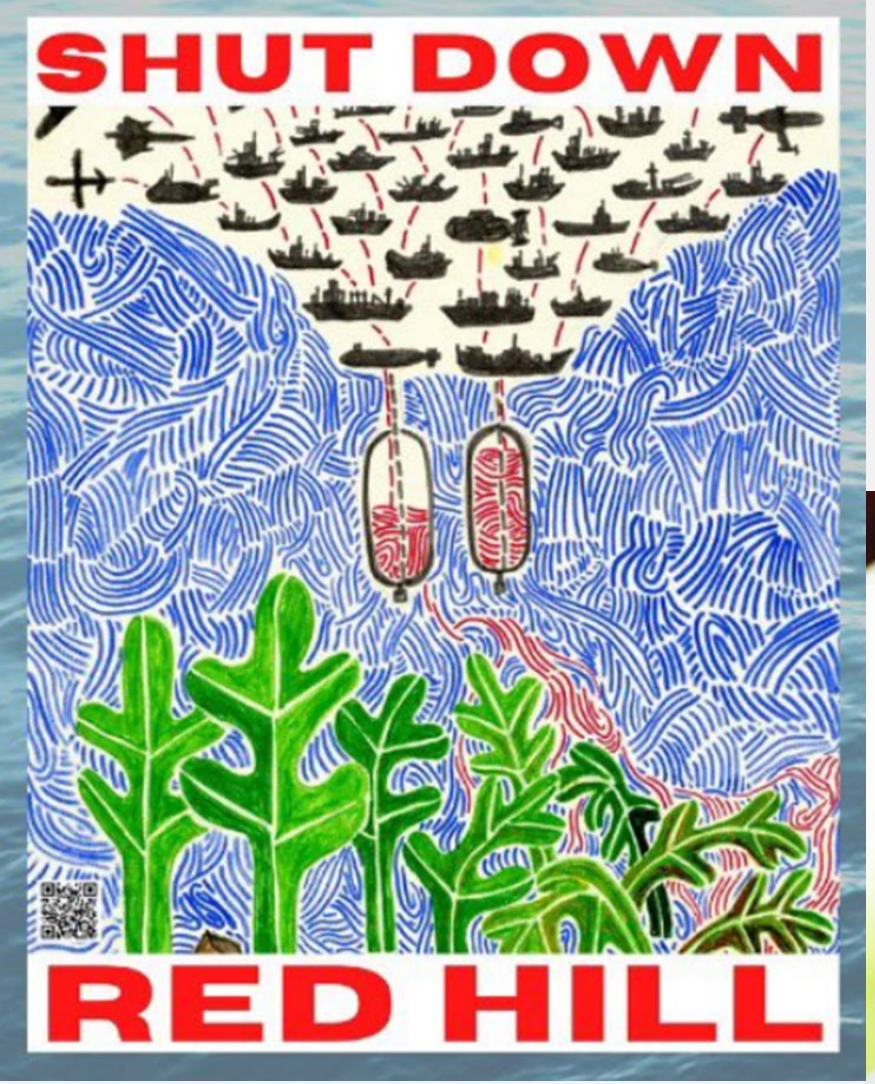
Support for Providers including case conferences, Continuing Medical Education (CME), tele-health Toxicology consults

WHAT'S NEXT – HEALTH

- Tracking health effects
- ATSDR Public Health Assessment Activities

WHAT'S NEXT ENVIRONMENTAL

- Long Term Monitoring of the Drinking Water System
- Defueling
- Facility Closure
- Aquifer recovery
- Environmental Remediation


SHUT DOWN
RED HILL


SHUT DOWN
RED HILL!


SHUT DOWN RED HILL

KEY LESSONS LEARNED

Clear and consistent communication

Marshall resources early

Transparency and data sharing

Remember the goal

PROTECTING HUMAN HEALTH AND THE ENVIRONMENT

REFERENCES

Centers for Disease Control and Prevention. (2022, May 26). Notes from the field: Self-reported health symptoms following petroleum contamination of a drinking water system - Oahu, Hawaii, November 2021–February 2022. Morbidity and Mortality Weekly Report (MMWR). https://www.cdc.gov/mmwr/volumes/71/wr/mm7121a4.htm?s_cid=mm7121a4_w

Contestable, J. J. (2017). Jet fuel–associated occupational contact dermatitis. Military Medicine, 182(3). https://doi.org/10.7205/milmed-d-16-00217

Hawaii Department of Health . (2022, November 8). Follow-up survey results Navy Water Contamination. Navy Water Contamination Follow-Up Survey Results. https://health.hawaii.gov/about/files/2022/11/ATSDR-Follow-Up-Survey-One-Pager.pdf

National Research Council. (1996). Permissible Exposure Levels for Selected Military Fuel Vapors. https://doi.org/10.17226/9133

Tormoehlen, L. M., Tekulve, K. J., & Nañagas, K. A. (2014). Hydrocarbon toxicity: A Review. Clinical Toxicology, 52(5), 479–489. https://doi.org/10.3109/15563650.2014.923904

QUESTIONS?

Photos: Daniel Davila

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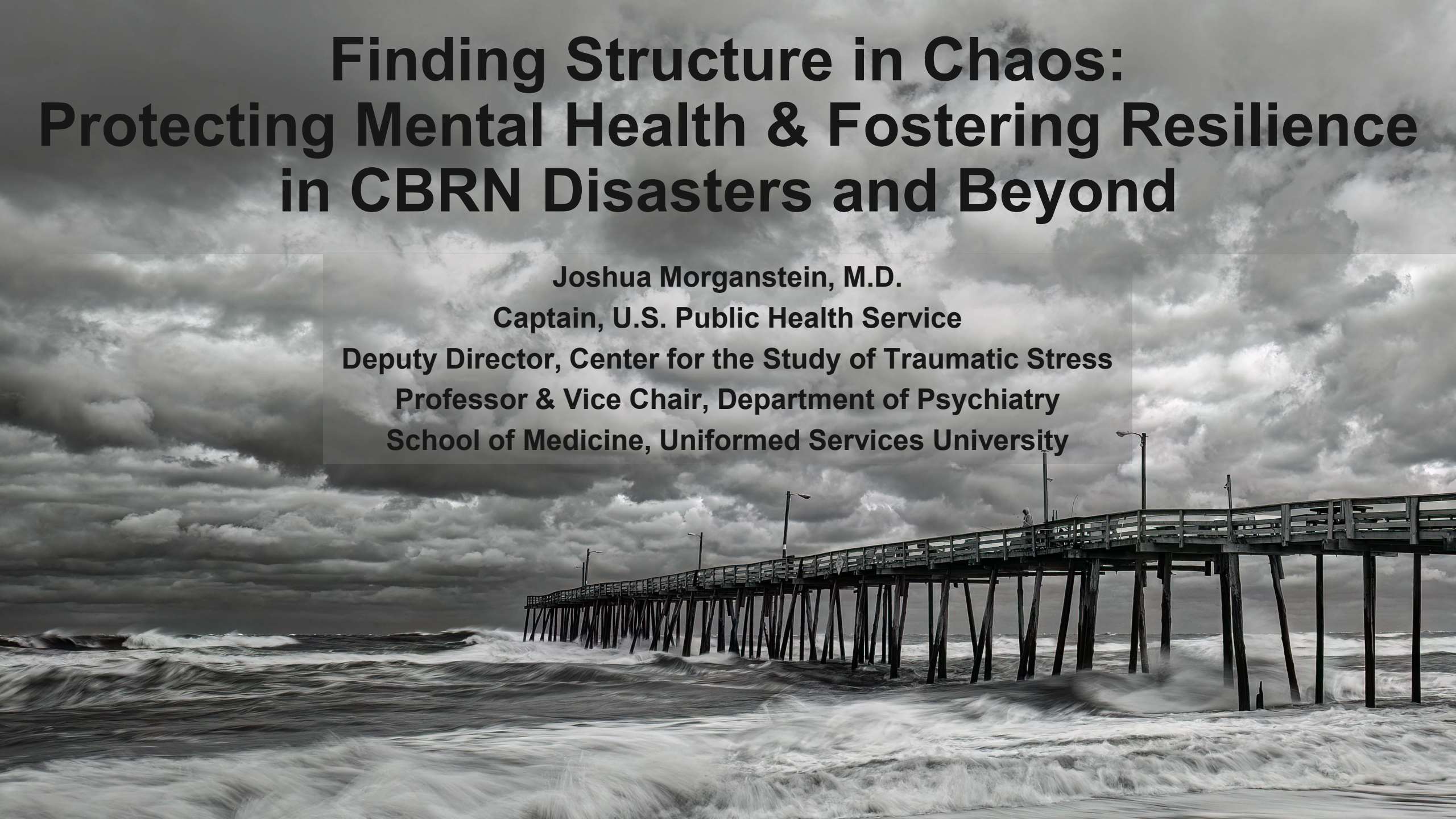
Finding Structure in Chaos: Protecting Mental Health & Fostering Resilience in CBRN Disasters and Beyond



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Disclaimer

The ideas, attitudes, and opinions expressed herein are my own and do not necessarily reflect those of the Uniformed Services University, the U.S. Public Health Service, the Department of Defense, or other branches of the U.S. government. I am not endorsing any of the entities or resources mentioned in this presentation and have no relevant disclosures or conflicts of interest to report.

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Objectives

- Review the psychological and behavioral impacts of CBRN and other disasters.
- List factors affecting risk and resilience in disasters.
- Describe the framework for early interventions following disasters.
- Identify practices to protect mental health in CBRN and other disasters.

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Range of CBRN Events

- Chemical – Red Hill Fuel, Flint Michigan Lead Water, Gulf Water horizon, East Palestine, Gulf War, Tokyo Subway Sarin Gas
- Biological – COVID-19, Anthrax, Ebola, MERS, SARS, HIV
- Radiological & Nuclear – Ukraine???, Fukushima, Goiania, 3 Mile Island, Chernobyl, Hiroshima/Nagasaki

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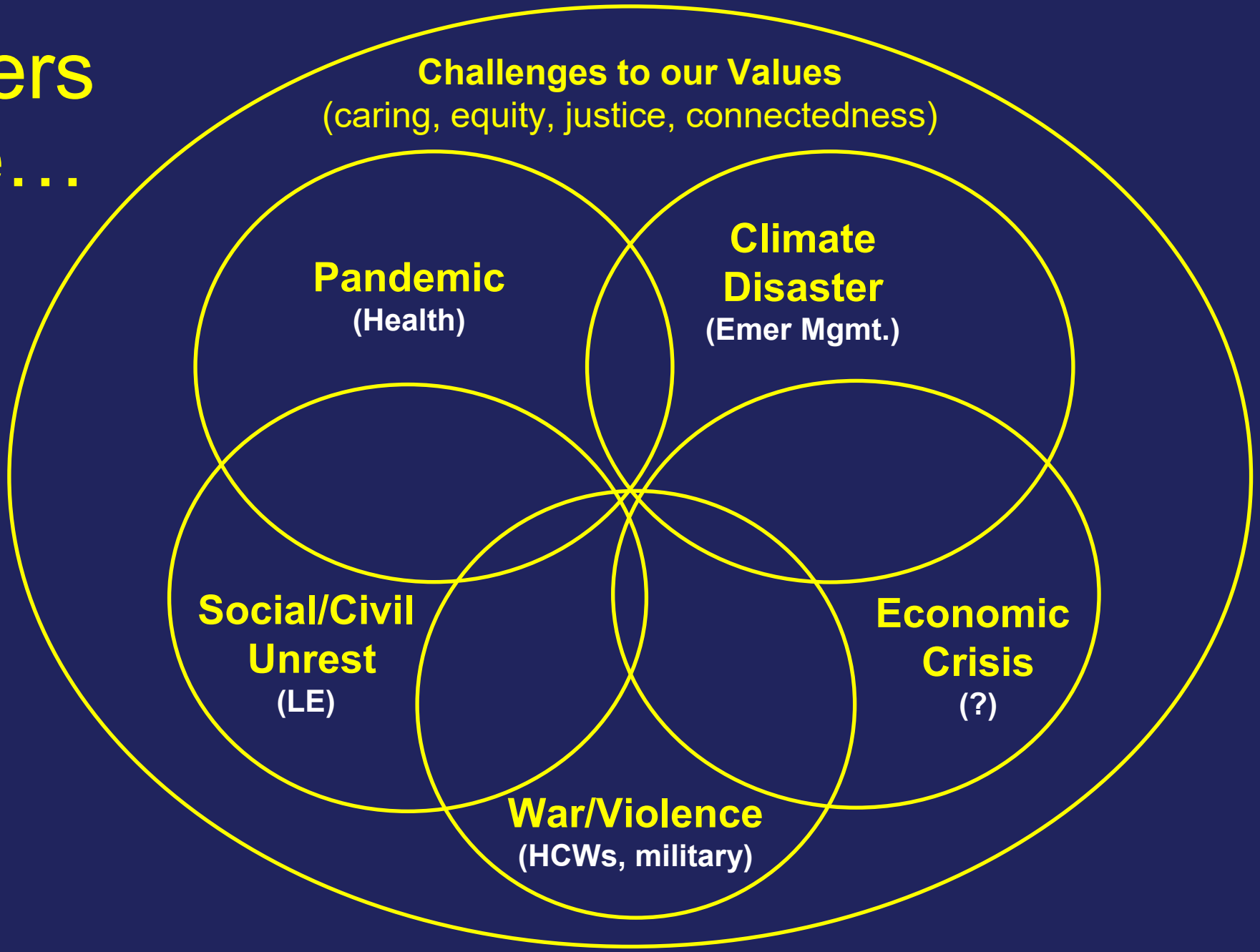
Disasters Collide…



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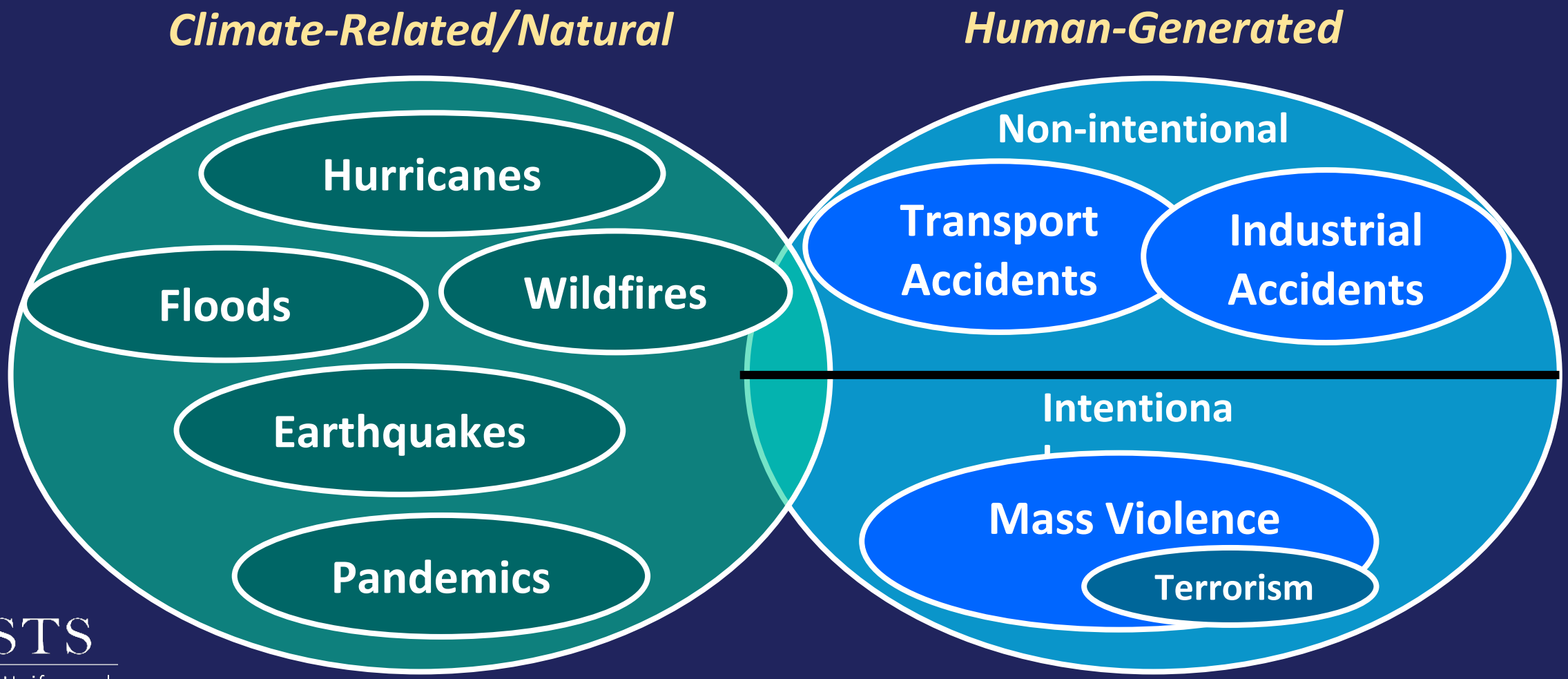
Categories of Disasters



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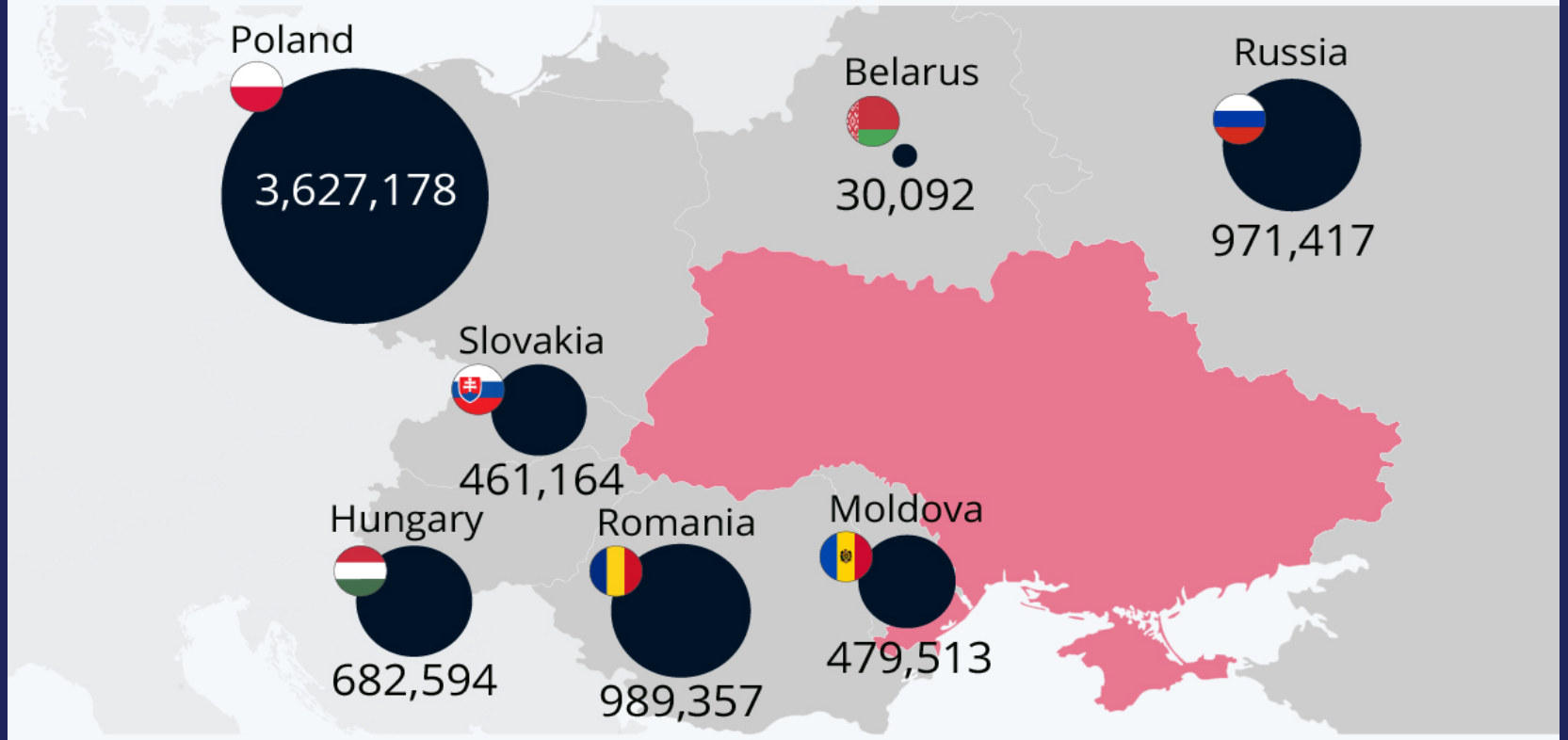
https://www.washingtonpost.com/graphics/2020/world/mapping-spread-new-coronavirus/?no_nav=true&p9w22b2p=b2p22p9w00098

6.8 Million Seeking Refuge from Russia's Invasion

Number of Ukrainian war refugees crossing into neighboring countries*



* Data extracted on June 2, 12 PM CET. Accumulated number higher than total due to border crossings between countries.

Source: UNHCR

https://www.statista.com/chart/26960/number-of-ukrainian-refugees-by-target-country/

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https://www.theguardian.com/us-news/2023/feb/25/revealed-us-chemical-accidents-one-every-two-days-average

Dimensions of Disasters

DIMENSION	FUEL SPILL	WAR	PANDEMIC
Altered sense of safety	+++	++++	++++
Local & National fear	++	+++	+++
Prolonged stress	+++	++++	++++
Consequences over time	+++	++++	++++
Community disruptions	+++	+++	+++
Overwhelm health systems	++	++++	++++
National bereavement	+	++++	+++
Impact societal infrastructure	-	++++	+
Intentional	-	++++	-
Unpredictable	+	++	+++
Institutional trust loss	++	-	++++

PSYCHOLOGICAL AND BEHAVIORAL EFFECTS ON INDIVIDUALS AND COMMUNITIES

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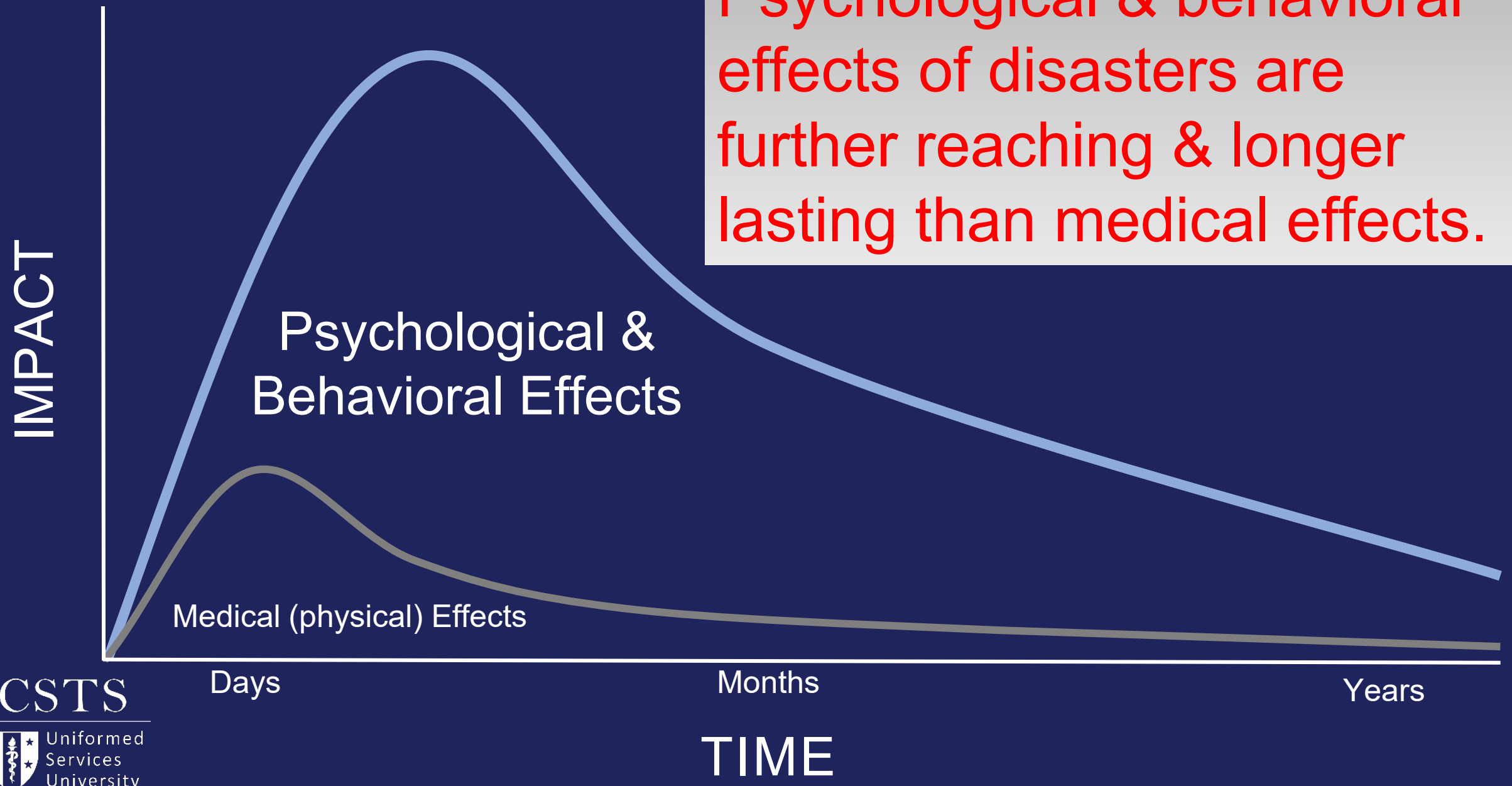
Psychological & behavioral effects of disasters are further reaching & longer lasting than medical effects.



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Psychological & Behavioral Responses to Pandemics & Disasters

- **Sleep difficulties**
- **Decreased Sense of Safety**
- **Physical (Somatic) Symptoms**
- **Irritability, Anger**
- **Distraction, Isolation**

- **Depression**
- **PTSD**
- **Anxiety**
- **Complex Grief**

- **Alcohol, Tobacco, Rx meds**
- **Family Distress**
- **Interpersonal Conflict/Violence**
- **Disrupted Work/Life Balance**
- **Restricted Activities/Travel**

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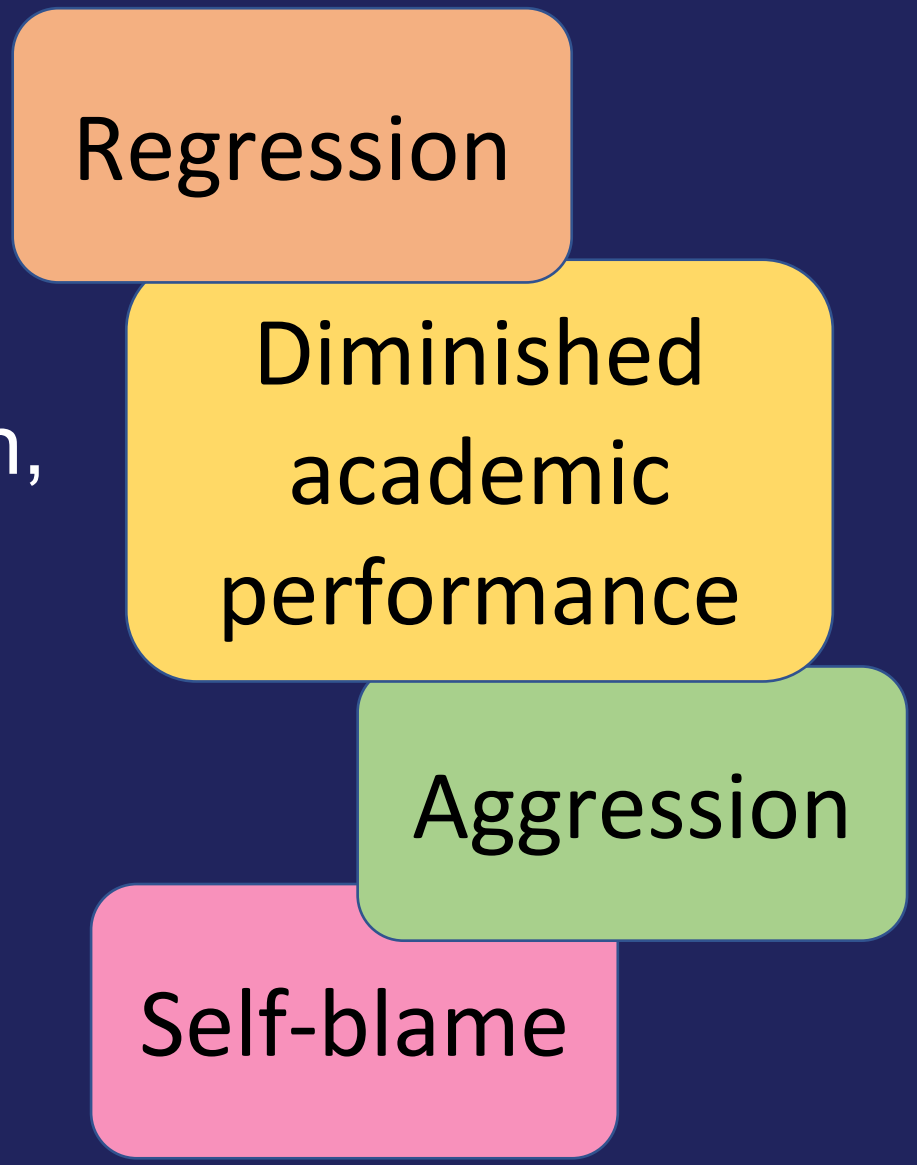
Adapted from: Ursano, R., Fullerton, C., Weisaeth, L., & Raphael, B. (2017). Individual and Community Responses to Disasters. In R. Ursano, C. Fullerton, L. Weisaeth, & B. Raphael (Eds.), *Textbook of Disaster Psychiatry* (pp. 1-26). Cambridge: Cambridge University Press.

Children & Adolescents

- Separation from primary attachment figures
- Parental distraction, preoccupation, strife
- Disruption in schedules & routines
- Induction of fear, erosion of safety
- Self blame, helplessness



Stress Continuum

READY	REACTING	INJURED	ILL
DEFINITION • Adaptive coping • Effective functioning • Well-being FEATURES • In control • Calm and steady • Getting the job done • Playing • Sense of humor • Sleeping enough • Ethical and moral behavior	DEFINITION • Mild and transient distress or loss of function FEATURES • Anxious • Irritable, angry • Worrying • Cutting corners • Poor sleep • Poor mental focus • Social isolation • Too loud and hyperactive	DEFINITION • More severe and persistent distress or loss of function TYPES • Trauma • Fatigue • Grief • Moral injury FEATURES • Loss of control • Can't sleep • Panic or rage • Apathy • Shame or guilt	DEFINITION • Clinical mental disorders • Unhealed stress injuries TYPES • PTSD • Depression • Anxiety • Substance abuse FEATURES • Symptoms persist > 60 days after return from deployment

Stressor

Self Help

Leadership/Organizational Support
Peer Support

Screening/Referral

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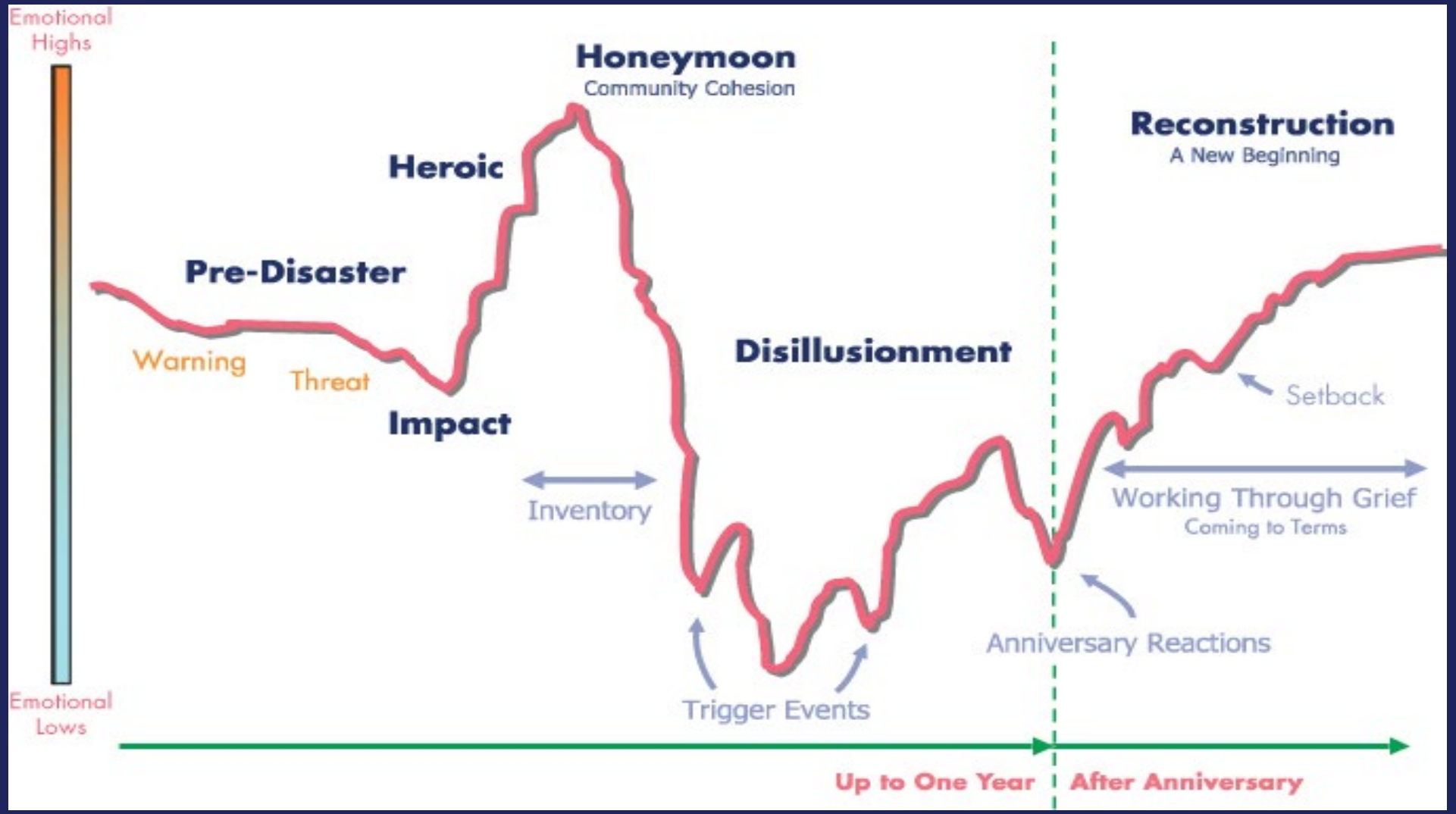
Adapted from: Nash WP. US Marine Corps and Navy combat and operational stress continuum model: a tool for leaders. In: Ritchie EC, ed. Combat and Operational Behavioral Health. Fort Detrick, MD: Borden Institute; 2011

Community Phases



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https://www.samhsa.gov/programs-campaigns/dtac/recovering-disasters/phases-disaster

UNIQUE ASPECTS OF CHEMICAL, BIOLOGICAL, RADIOLOGICAL, AND NUCLEAR (CBRN) EVENTS

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CBRN Events Factors

- ***Novelty*** (for patients and providers)
  - Anthrax postal attacks post-9/11
- ***Uncertainty*** of Exposure
  - Sarin gas in Tokyo subway attack
  - Goiania C137 leak
- ***Non-Specific*** Symptoms
  - Nuclear accidents (Fukushima, Chernobyl)
  - Battlefield (Agent Orange, Gulf War, Burn Pits)

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Morganstein, J. C., Fullerton, C. S., Ursano, R. J., & Holloway, H. C. (2017). Pandemics: Health Care Emergencies. In *Textbook of Disaster Psychiatry* (2nd ed., pp. 270–284). Cambridge University Press.

Sarah, D., R, S. C., John, K., J, F. A. L., Gabriel, R., van der Bles Anne Marthe, et al. (2021). Risk perceptions of COVID-19 around the world. *Journal of Risk Research*, *23*(7-8), 994–1006.

Ning, L., Niu, J., Bi, X., Yang, C., Liu, Z., Wu, Q., et al. (2020). The impacts of knowledge, risk perception, emotion and information on citizens' protective behaviors during the outbreak of COVID-19: a cross-sectional study in China. *BMC Public Health*, *20*(1), 1751.

Post-CBRN Event Factors

- Misinformation spreads rapidly
- Surge in healthcare demand
- Isolation and quarantine
- Shortages & scarcity (prophylaxis, tx, supplies)
- Anger, stigma, scapegoating
- Faltering confidence in govt/institutions

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Morganstein, J. C., Fullerton, C. S., Ursano, R. J., & Holloway, H. C. (2017). Pandemics: Health Care Emergencies. In *Textbook of Disaster Psychiatry* (2nd ed., pp. 270–284). Cambridge University Press.

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CBRN Health Behaviors

- Result of:
  - ***Perception of Threat & Risk***
  - ***Belief in Exposure***
- Impacted by:
  - Communication
  - Trust in Institutions

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Morganstein, J. C., Fullerton, C. S., Ursano, R. J., & Holloway, H. C. (2017). Pandemics: Health Care Emergencies. In *Textbook of Disaster Psychiatry* (2nd ed., pp. 270–284). Cambridge University Press.

Sarah, D., R, S. C., John, K., J, F. A. L., Gabriel, R., van der Bles Anne Marthe, et al. (2021). Risk perceptions of COVID-19 around the world. *Journal of Risk Research*, *23*(7-8), 994–1006.

Ning, L., Niu, J., Bi, X., Yang, C., Liu, Z., Wu, Q., et al. (2020). The impacts of knowledge, risk perception, emotion and information on citizens' protective behaviors during the outbreak of COVID-19: a cross-sectional study in China. *BMC Public Health*, *20*(1), 1751.

Flint Lead Water Crisis: Beliefs and Health

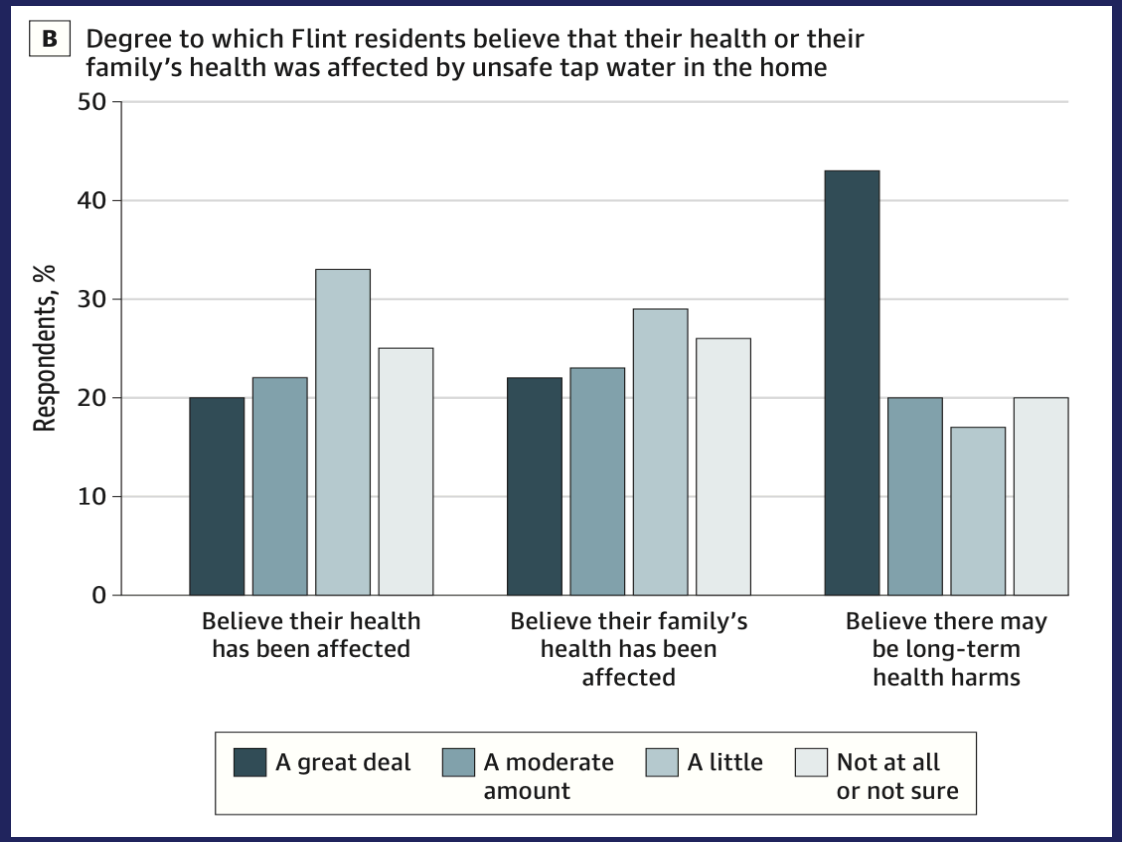

Table 2. Weighted Prevalence of and Factors Associated With Presumptive Depression, PTSD, and Comorbidity Among Flint Residents 5 Years After the Onset of the Water Crisis

	RR (95% CI)		
Factor	Depression	PTSD	Comorbidity
Prevalence, No. (%)	435 (22.1)	480 (24.4)	276 (14.0)
Sociodemographic characteristics			
Race			
Black	0.83 (0.68-1.01)	0.94 (0.78-1.13)	0.81 (0.63-1.05)
>1 Race	1.52 (1.05-2.21)[a]	1.31 (0.89-1.94)	1.90 (1.21-2.97)[a]
Other[b]	1.07 (0.67-1.70)	0.86 (0.51-1.45)	1.20 (0.68-2.12)
White	1 [Reference]	1 [Reference]	1 [Reference]
Sex			
Female	1 [Reference]	1 [Reference]	1 [Reference]
Male	0.72 (0.59-0.89)[c]	0.80 (0.65-0.97)[a]	0.69 (0.52-0.91)[c]
Income, per year, $			
≥25 000	1 [Reference]	1 [Reference]	1 [Reference]
<25 000[c]	1.39 (1.14-1.69)	1.65 (1.36-2.01)	1.72 (1.32-2.25)
Water crisis-related factors[d]			
Believe that health was harmed by exposures[c,e]	2.23 (1.80-2.76)	1.66 (1.36-2.03)	2.06 (1.56-2.71)
Have low confidence in official information[c,f]	1.47 (1.17-1.83)	1.44 (1.16-1.78)	1.50 (1.12-2.02)

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Reuben, A., Moreland, A., Abdalla, S. M., Cohen, G. H., Friedman, M. J., Galea, S., . . . Kilpatrick, D. G. (2022). Prevalence of Depression and Posttraumatic Stress Disorder in Flint, Michigan, 5 Years After the Onset of the Water Crisis. JAMA Netw Open, 5(9), e2232556.

Deepwater Horizon Oil Spill: Illness Anxiety

- DHOS and *Illness Anxiety*
  - *"worry about having serious illness"*
- 2,520 participants; 56 Gulf Coast counties in 5 states
- Examined demographics, alcohol use, depression, anxiety, and trauma history
- Only Illness Anxiety predicted solely by DHOS exposure

Sample Characteristics (N = 2,520)

Variable	N (unweighted)	% (unweighted)	% (weighted)	Mean (SE) (unweighted)	Mean (SE) (weighted)
Gender					
Male	997	39.6	49.2	N/A	N/A
Female	1,523	60.4	50.8	N/A	
Age	2,520	n/a	n/a	57.8 (0.36)	48.1 (0.37)
Race/ethnicity					
Black	478	19.0	15.9	N/A	N/A
Hispanic	264	10.5	20.7	N/A	
White	1,665	66.1	58.5	N/A	
Other	113	4.5	4.8	N/A	
Education					
Graduate degree	367	14.6	9.0	N/A	N/A
Bachelor's degree	468	18.6	16.6	N/A	
Associate's degree	232	9.2	5.9	N/A	
Some college	519	20.6	23.5	N/A	
Vocational/technical diploma	116	4.6	2.1	N/A	
High school diploma or GED	619	24.6	29.6	N/A	
No HS diploma	199	7.9	13.3	N/A	
DHOS exposure	2,520	N/A	N/A	1.7 (0.04)	1.3 (0.04)
Trauma history	2,520	N/A	N/A	3.6 (0.04)	3.5 (0.05)
Depression	2,520	N/A	N/A	1.0 (0.03)	1.0 (0.03)
Anxiety	2,520	N/A	N/A	1.2 (0.04)	1.3 (0.04)
Alcohol abuse	2,520	N/A	N/A	1.8 (0.04)	2.1 (0.05)
Illness anxiety	2,520	N/A	N/A	4.8 (0.11)	4.6 (0.11)

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Ayer, L., Engel, C., Parker, A., Seelam, R., & Ramchand, R. (2018). Behavioral Health of Gulf Coast Residents 6 Years After the Deepwater Horizon Oil Spill: The Role of Trauma History. Disaster medicine and public health preparedness, 2, 1-7.

Goiania: Fear of Exposure

- Goiania C137 accident (September 13, 1987)
- Compared stress response in:
  - Goiania exposed, Abadia feared exposure, Control
- Exposed & Feared Exposure vs Control:
  - Greater overall fear response
  - Higher stress hormone levels
  - Diminished task performance
- Among **unexposed** awaiting assessment… 1 in 9 (~12k) w/ classic radiation sxs

IMAGE: https://en.wikipedia.org/wiki/Goi%C3%A2nia_accident

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Collins, D. L., & de Carvalho, A. B. (1993). Chronic stress from the Goiania 137Cs radiation accident. Behavioral Medicine, 18(4), 149-157.

Chernobyl: Long-Term Health

- Chernobyl Nuclear Plant accident (April 26, 1986)
- Examined the impact of ***perceived health*** on mental health symptoms in national sample of residents ***12 years after the accident***
- Lower "perceived health" predicted sxs of:
  - PTSD
  - Anxiety
  - Depression
  - Fear of Future Illness

IMAGE: https://www.usatoday.com/story/opinion/2019/06/17/hbo-chernobyl-tragic-nuclear-power-safe-clean-vital-column/1409096001/

Bromet, E. J., & Havenaar, J. M. (2007). Psychological and perceived health effects of the Chernobyl disaster: a 20-year review. Health physics, 93(5), 516-521.

Fukushima: Worker Stigma

- Fukushima Nuclear Plant damage (March 11, 2011)
- Assessment of stigma experienced by power plant workers and impact on mental health at 2-3 mom and 14-15 months after the event
- N=968, Response rate 55%
- Higher perceived stigma a/w:
  - Psychological Distress
  - Posttraumatic Stress sxs

IMAGE: https://www.scmp.com/week-asia/health-environment/article/3124725/fukushima-daiichi-nuclear-disaster-10-years-tsunami

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Tanisho, Y., Shigemura, J., Kubota, K., Tanigawa, T., Bromet, E. J., Takahashi, S., . . . Collaborators, F. N. E. W. S. P. (2016). The longitudinal mental health impact of Fukushima nuclear disaster exposures and public criticism among power plant workers: the Fukushima NEWS Project study. Psychological Medicine, 46(15),

Scope and Impact of CBRN Events

- Crosses geopolitical boundaries
- Crosses demographic groups
- Impacts many life domains
  - Personal life
  - Community and social life
  - Memorialization
  - Could span generations

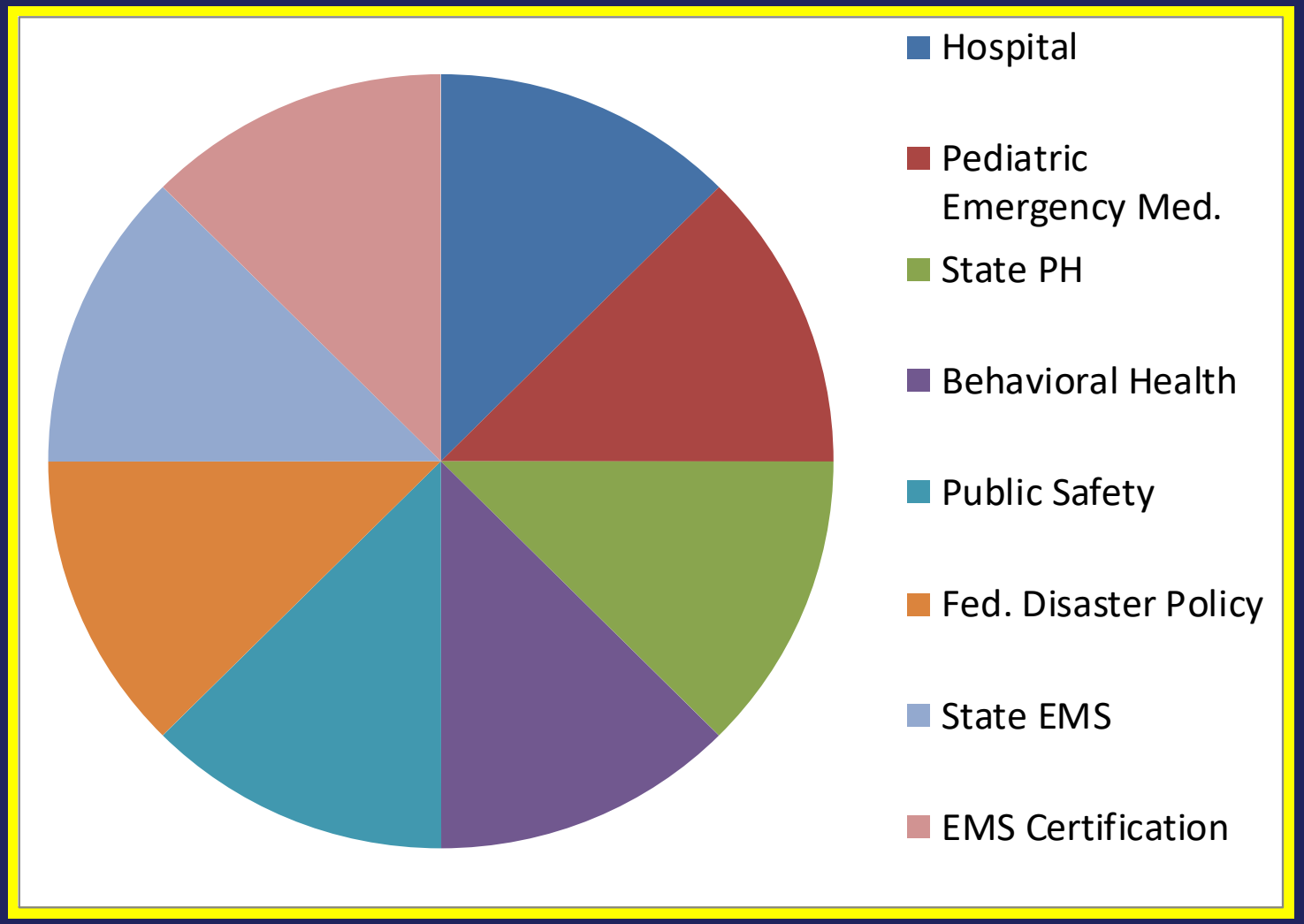
Harsh Reality…

We Lack Models & Preparedness for *National and Transnational* Disasters with Behavioral & Other Health Consequences (Such As Pan Flu)

And…
Who Owns the Responsibility for Preparedness, Response, and Recovery?

Integrated Response

- The problems are too large and complex to manage alone (e.g., IOM Crisis Standards of Care)



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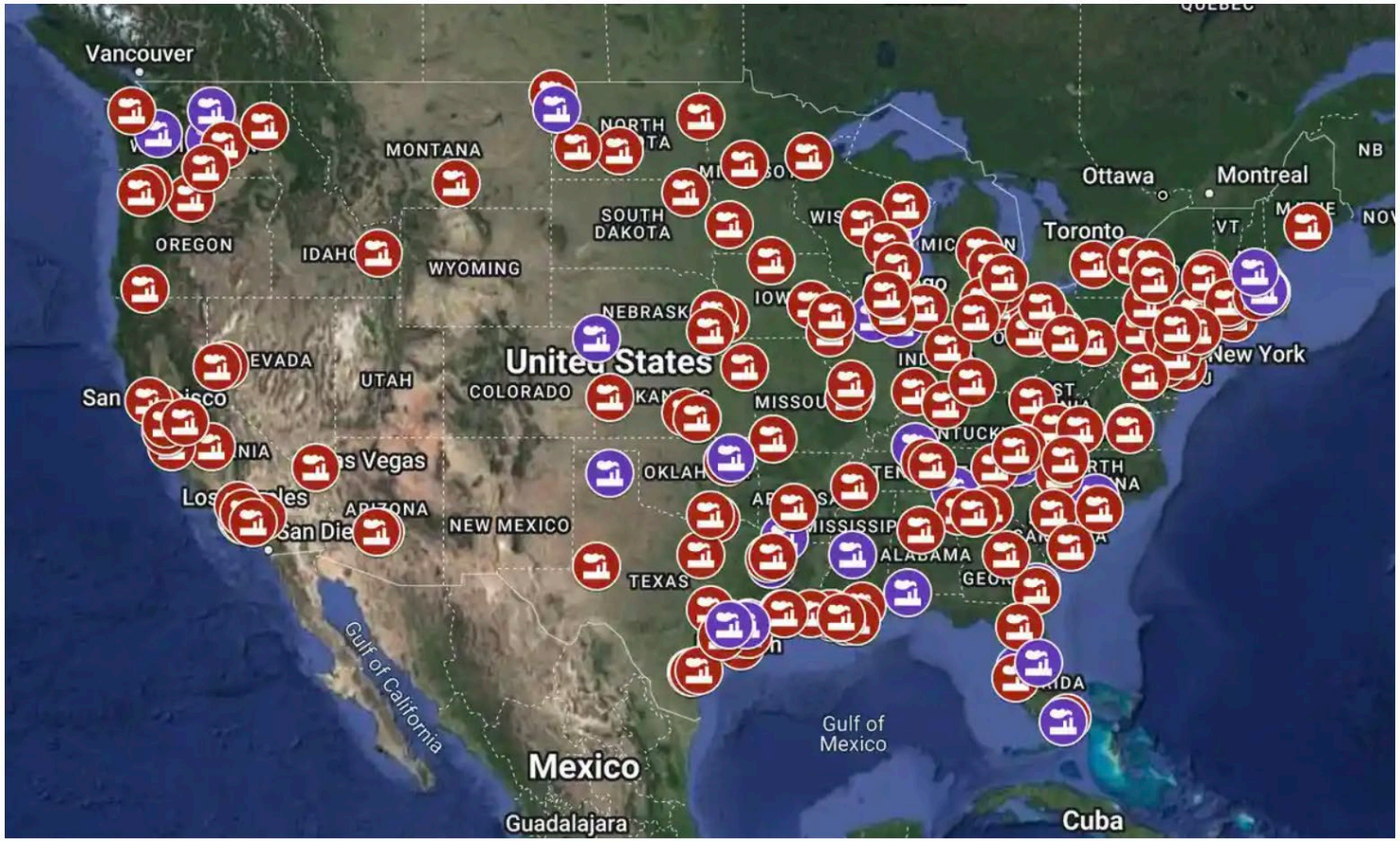
Institute of Medicine. 2012. Crisis Standards of Care: A Systems Framework for Catastrophic Disaster Response: Volume 1: Introduction and CSC Framework. Washington, DC: The National Academies Press.

Chemical Spills in the US 01Jan-31Dec 2022

Revealed: the US is averaging one chemical accident every two days

Guardian analysis of data in light of Ohio train derailment shows accidental releases are happening consistently

EPA emergency response member agitates water to check for chemicals settled at the bottom after a train derailment in Ohio. Photograph: Michael Swensen/Getty Images



Map of reported chemical accidents in the US created by Coalition To Prevent Chemical Disasters. Red icons indicate accidents from 1 January to 31 December 2022. Purple icons indicate accidents since 1 January 2023. Photograph: Coalition To Prevent Chemical Disasters

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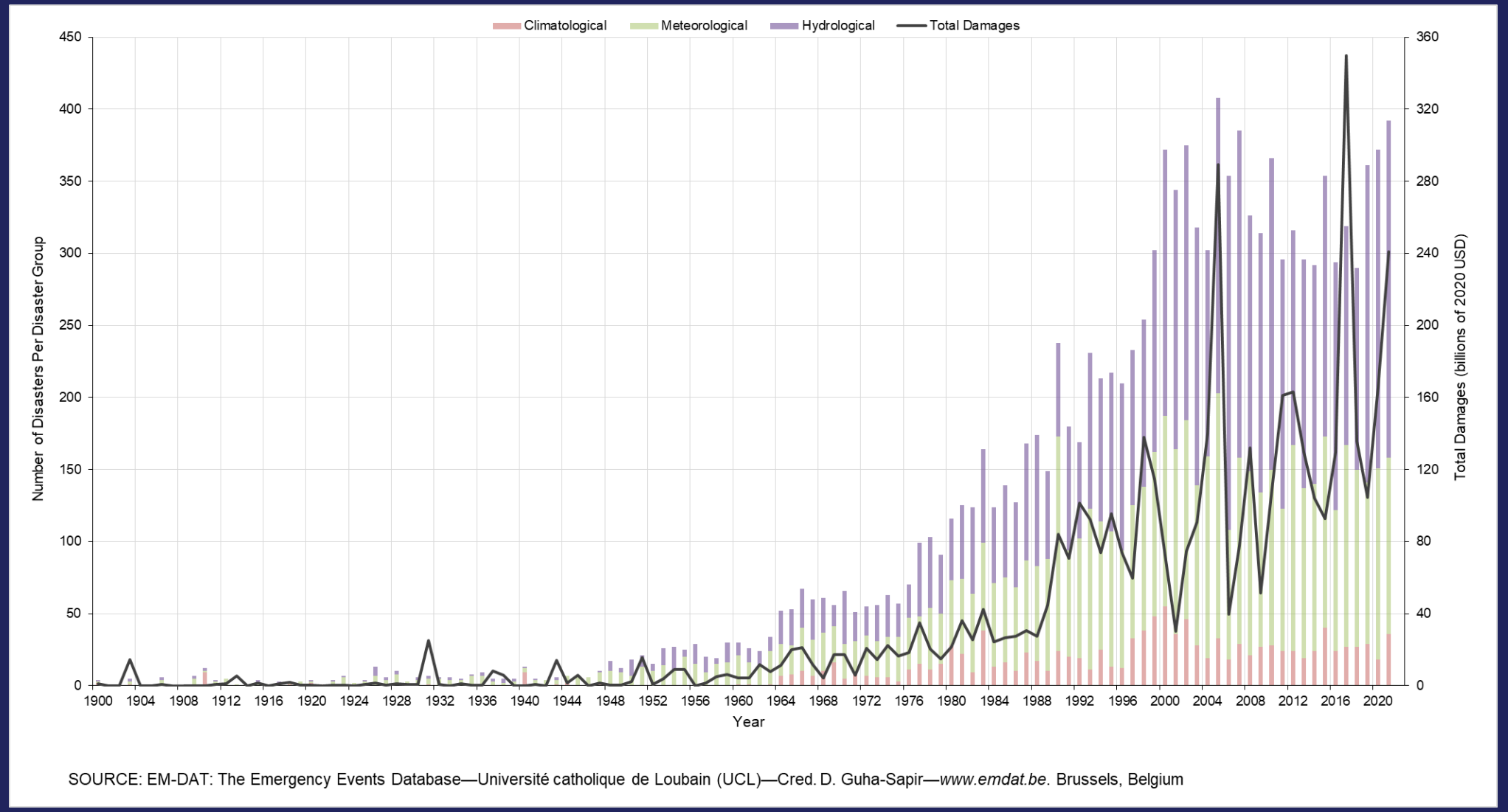
https://www.theguardian.com/us-news/2023/feb/25/revealed-us-chemical-accidents-one-every-two-days-average

Global Climate-Related Disaster Annual Incidence & Cost 1900-2021



SOURCE: EM-DAT: The Emergency Events Database—Université catholique de Loubain (UCL)—Cred. D. Guha-Sapir—*www.emdat.be*. Brussels, Belgium

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CBRN + Changing Climate = ??????

https://www.gao.gov/assets/gao-22-104494.pdf

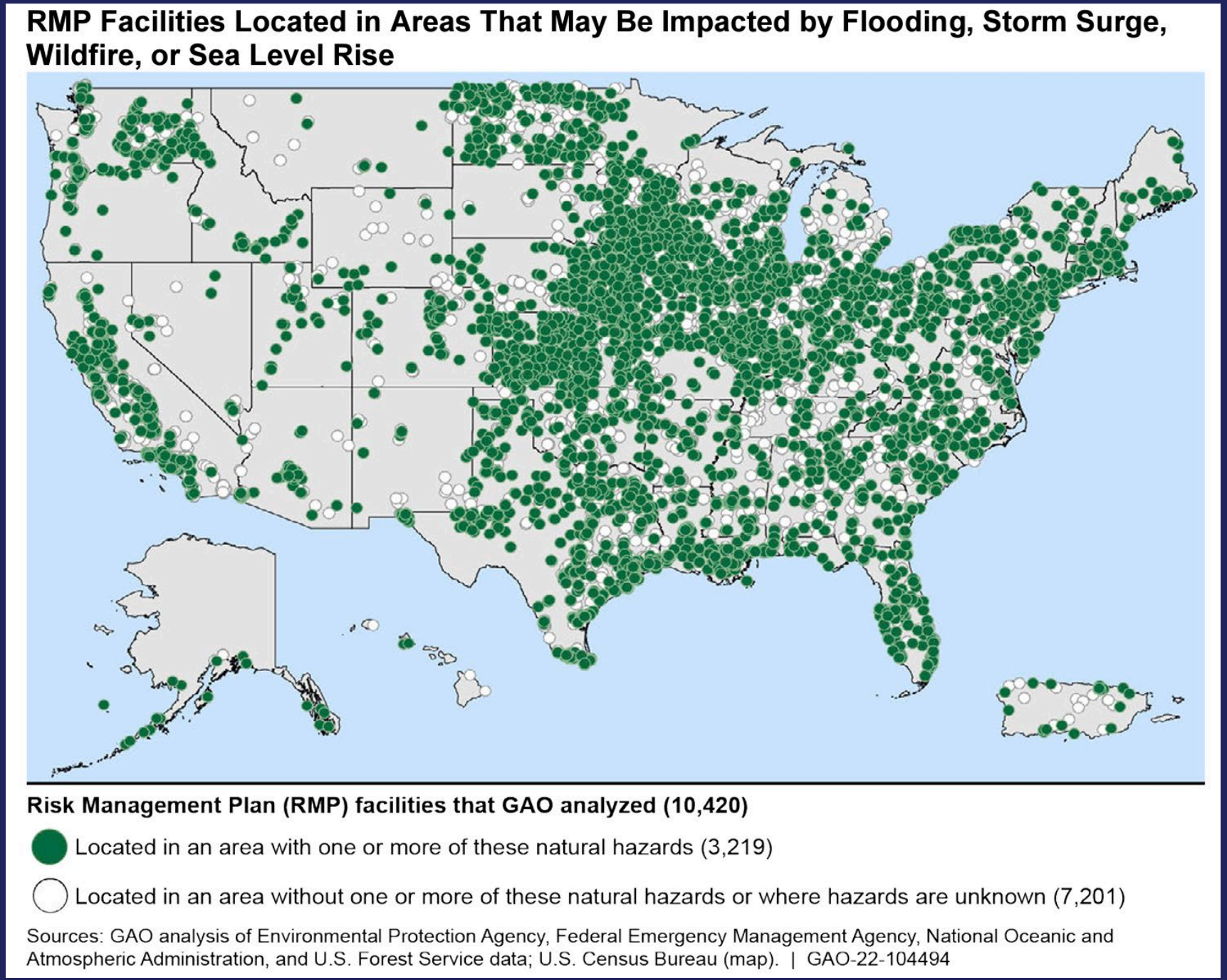

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IMAGE: https://www.smithsonianmag.com/history/journal-plague-year-180965222/)

Army hospital, Camp Funston, Kansas (1918) -- the first victims of the Spanish influenza epidemic that eventually would kill at least 50 million worldwide.

- 1918 – Spanish Flu
- 1957 – H2N2
- 1968 – H3N2
- 1981 – HIV/AIDS
- 2002-2004 – SARS
- 2009 – H1N1
- 2014 – Ebola
- 2015 – Zika
- 2019 – SARS CoV2
- ??????????????

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RISK & RESILIENCE IN DISASTERS

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Psychological/Behav Intervention Matrix

	HOST	AGENT/ VECTOR	PHYSICAL ENVIR	SOCIAL ENVIR
PRE-EVENT	-Risk Assessment -Risk Communication -Surveillance -Primary Prevention -Training	-Fear -Uncertainty -Misinformation	-Existing care services -Proximity to exposures	-Culture of readiness -Knowledge of roles -Baseline trust -Culturally based risk perceptions
EVENT	-Crisis & Risk Communication -Prophylaxis	-Exposure to illness, death -Isolation -Loss -Stress	-Identification of risk indicators -Knowledge of care services (where/how) -Barriers to care	-Comm/Org response to communication -Grief leadership -Access to crisis resources
POST-EVENT	-Lessons learned -Surveillance -Mitigation/Care	-Decreased access to care -Loneliness	-Availability of resources -Application of lessons learned	-Help-seeking -Comm/Org trust in health/other

Who is at Risk?

PRE-EVENT

- Socioeconomic Status
- Social Support
- Training Status
- Work Environment
- Underlying Health Conditions
- Help-Seeking Behaviors

EVENT

- Duration & Severity of Exposure
- Psychological Identification
- Illness
- Bereavement
- Moral injury

RECOVERY

- Job Loss, Financial Hardship, Housing Instability
- Social Support Loss
- Low Organizational Support
- Poor Leadership
- Lack of Rest & Recovery

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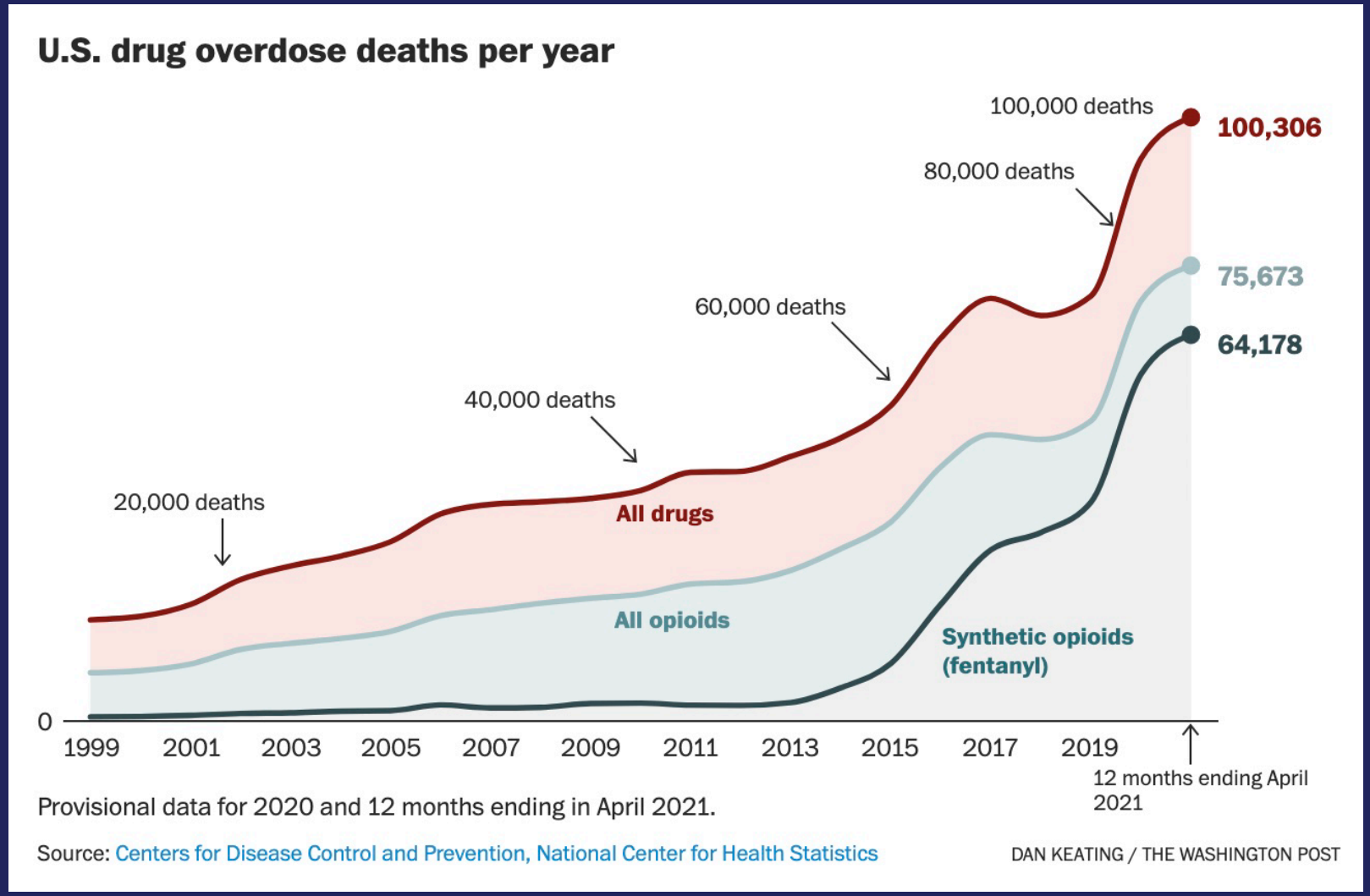
Morganstein, J. C., West, J. C., & Ursano, R. J. (2019). Work-Associated Trauma. In M. B. Riba, S. V. Parikh, & J. F. Greden (Eds.), *Mental Health in the Workplace* (pp. 161–180). Springer International Publishing.

Norris, F. H., Friedman, M. J., Watson, P. J., Byrne, C. M., Diaz, E., & Kaniasty, K. (2002). 60,000 disaster victims speak: Part I. An empirical review of the empirical literature, 1981-2001. *Psychiatry*, *65*(3), 207–239.

Somasundaram and van de Put (2006). Management of Trauma in Special Populations after a Disaster. J Clin Psychiatry;67(suppl 2):64-73

U.S. Drug Overdose Deaths Exceeds 100,000 per year During COVID-19 (April 2021)

https://www.washingtonpost.com/health/2021/11/17/overdose-deaths-pandemic-fentanyl/



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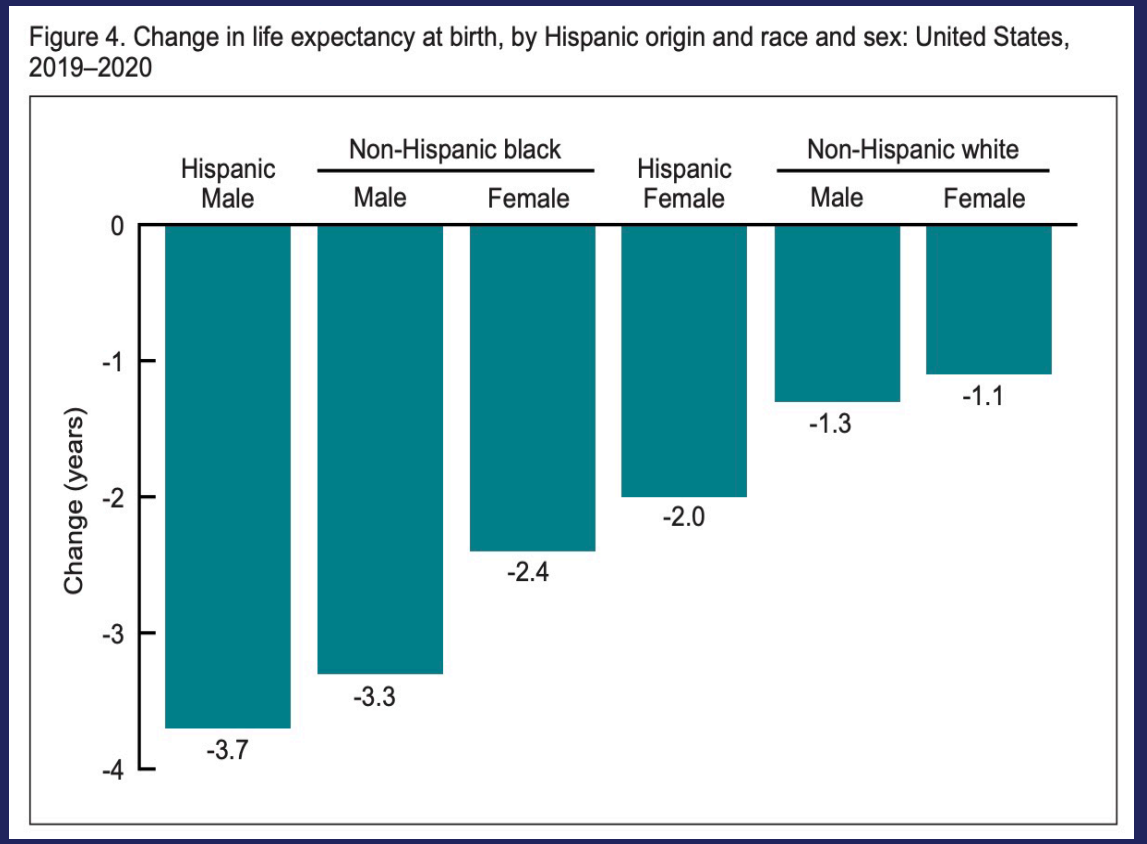
COVID-19 Impact on Life Expectancy in the U.S.



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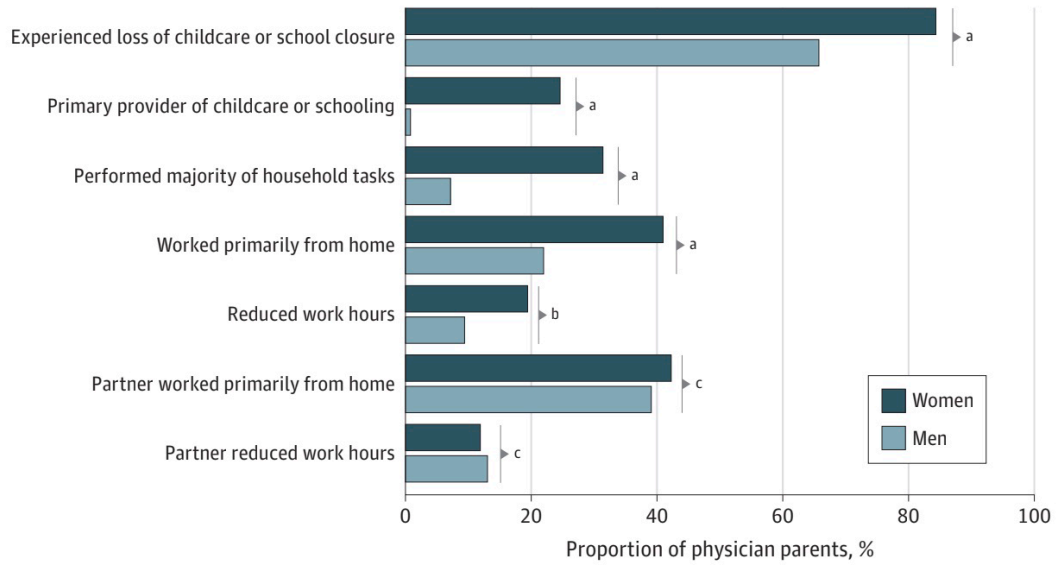
https://www.nytimes.com/2021/07/22/briefing/life-expectancy-falling-covid-pandemic.html

https://www.cdc.gov/nchs/data/vsrr/VSRR015-508.pdf?campaign_id=9&emc=edit_nn_20210722&instance_id=35950&nl=the-morning&regi_id=101836454&segment_id=64106&te=1&user_id=7151e2d5a64434318b38695cd27e17f8

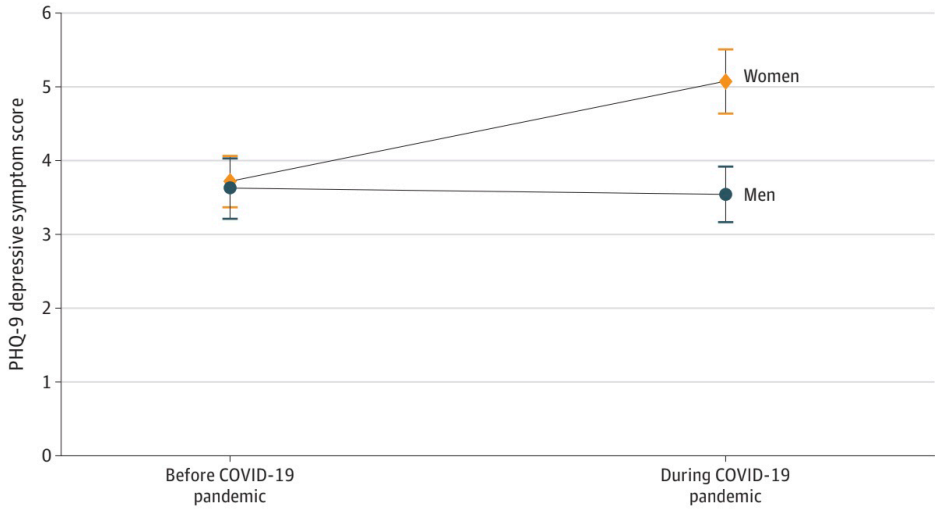
Gender Differences in Work-Family Conflict & Mental Health for Physician Parents in COVID-19

Figure 1. Family and Work Experiences of Physician Parents During the COVID-19 Pandemic by Gender



[a] $P < .001$.
[b] $P = .007$.
[c] $P > .99$.

Figure 2. Patient Health Questionnaire–9 (PHQ-9) Depressive Symptoms Among Physician Parents Before and During the COVID-19 Pandemic by Gender



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Frank, E., Zhao, Z., Fang, Y., Rotenstein, L. S., Sen, S., & Guille, C. (2021). Experiences of Work-Family Conflict and Mental Health Symptoms by Gender Among Physician Parents During the COVID-19 Pandemic. JAMA Network Open, 4(11), e2134315.

http://paulaphoto.com/ukraines-war--elderly-lives-frozen-by-conflict/ukraine_elderlypaulabronstein_29

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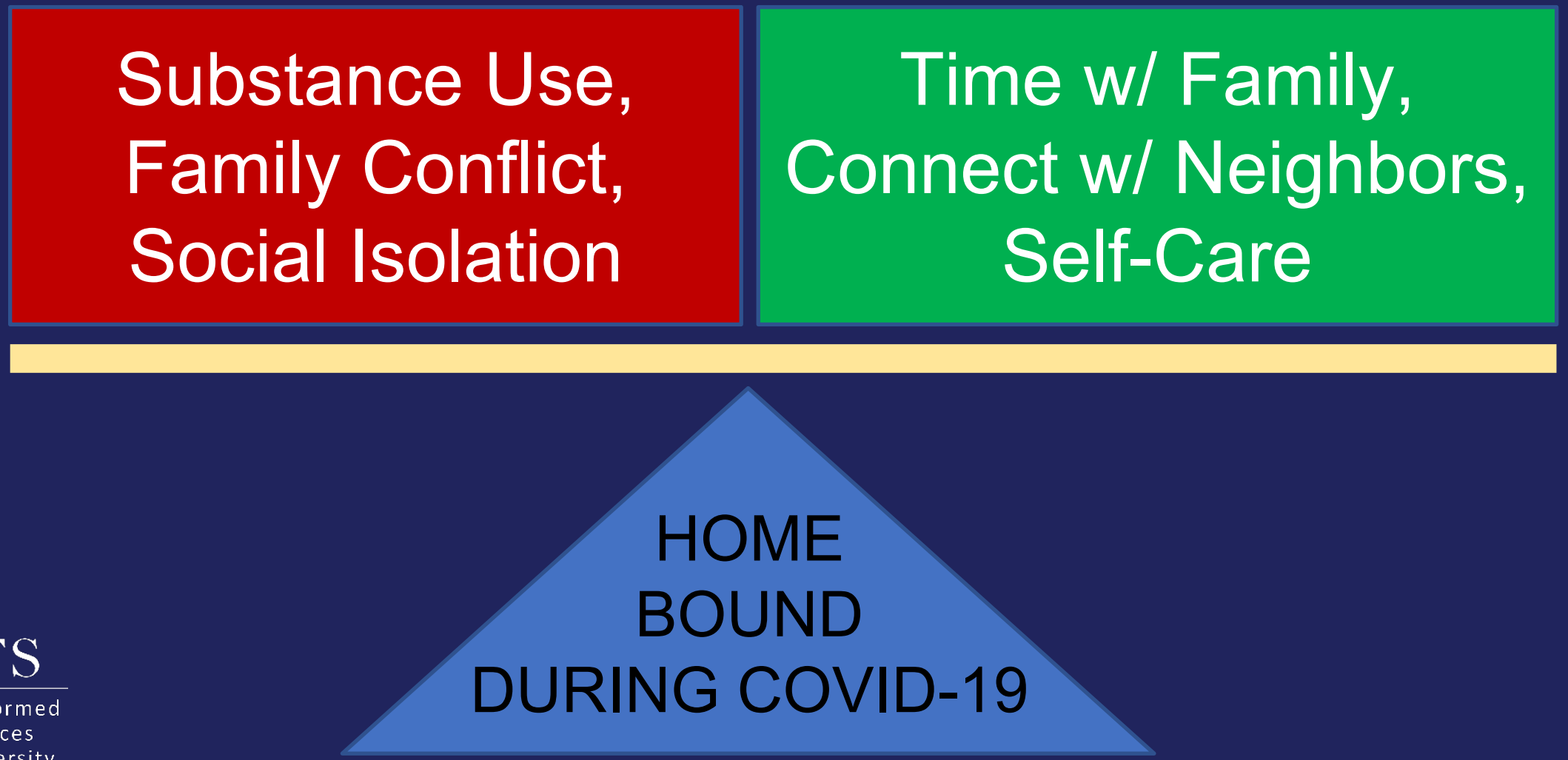
Look for strengths/resilience in everyone…



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INTERVENTIONS FOLLOWING DISASTERS TO PROTECT COMMUNITY MEMBERS & WORKERS

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Psychological First Aid (PFA)

Five Essential Elements:

Safety
Calming
Self/Community Efficacy
Connectedness
Hope/Optimism

- Analogous to "First Aid"
- Population-based "framework"
- "Do no harm" approach
- Resilience-focused
- NOT a cure/tx for illness
- MAY mitigate illness/dz

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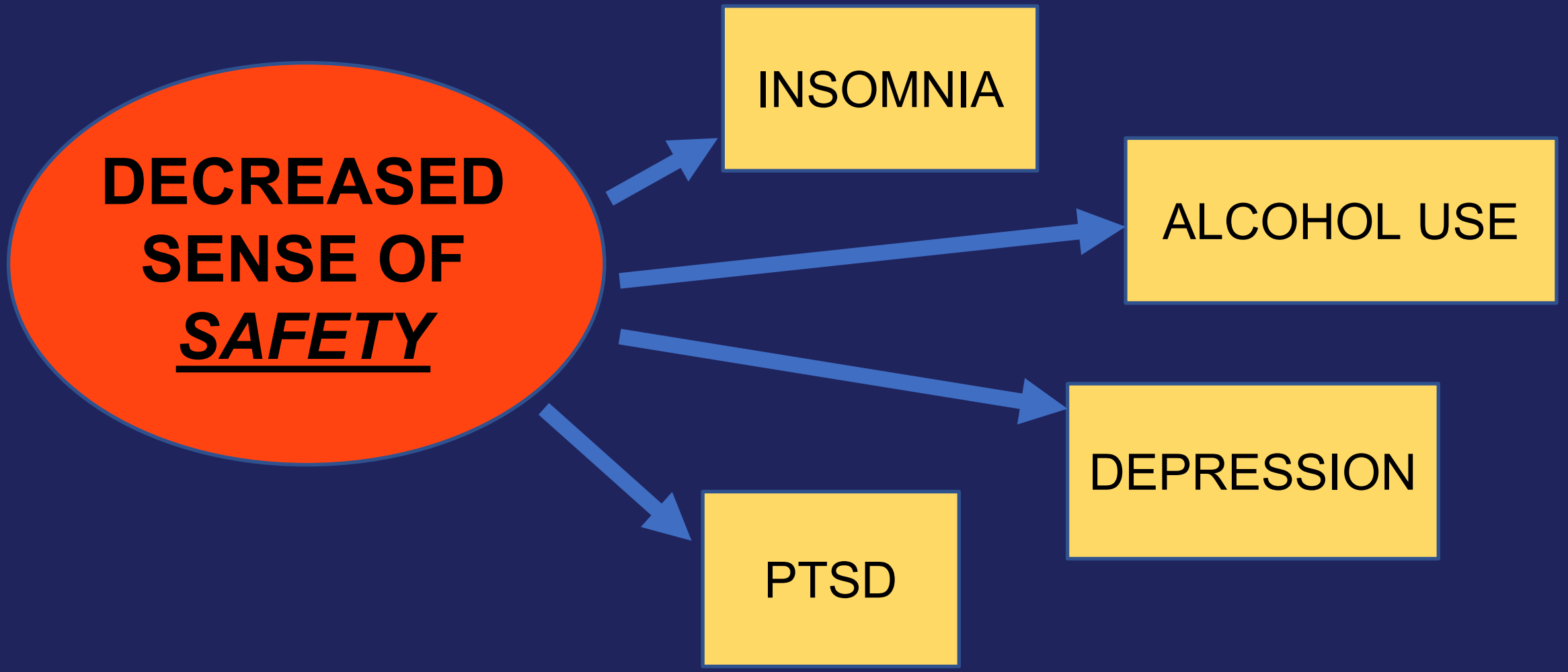
Hobfoll, S. E., Watson, P., Bell, C. C., Bryant, R. A., Brymer, M. J., Friedman, M. J., et al. (2007). Five essential elements of immediate and mid-term mass trauma intervention: empirical evidence. *Psychiatry*, *70*(4), 283–315– discussion 316–69.



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Fullerton, C. S., Herberman Mash, H. B., Benevides, K. N., Morganstein, J. C., & Ursano, R. J. (2015). Distress of Routine Activities and Perceived Safety Associated with Post-Traumatic Stress, Depression, and Alcohol Use: 2002 Washington, DC, Sniper Attacks. *Disaster Medicine and Public Health Preparedness*, *9*(5), 509–515.

Abramson, D., Stehling-Ariza, T., Garfield, R., & Redlener, I. (2008). Prevalence and predictors of mental health distress post-Katrina: findings from the Gulf Coast Child and Family Health Study. *Disaster Medicine and Public Health Preparedness*, *2*(2), 77–86.

Community Collective Efficacy

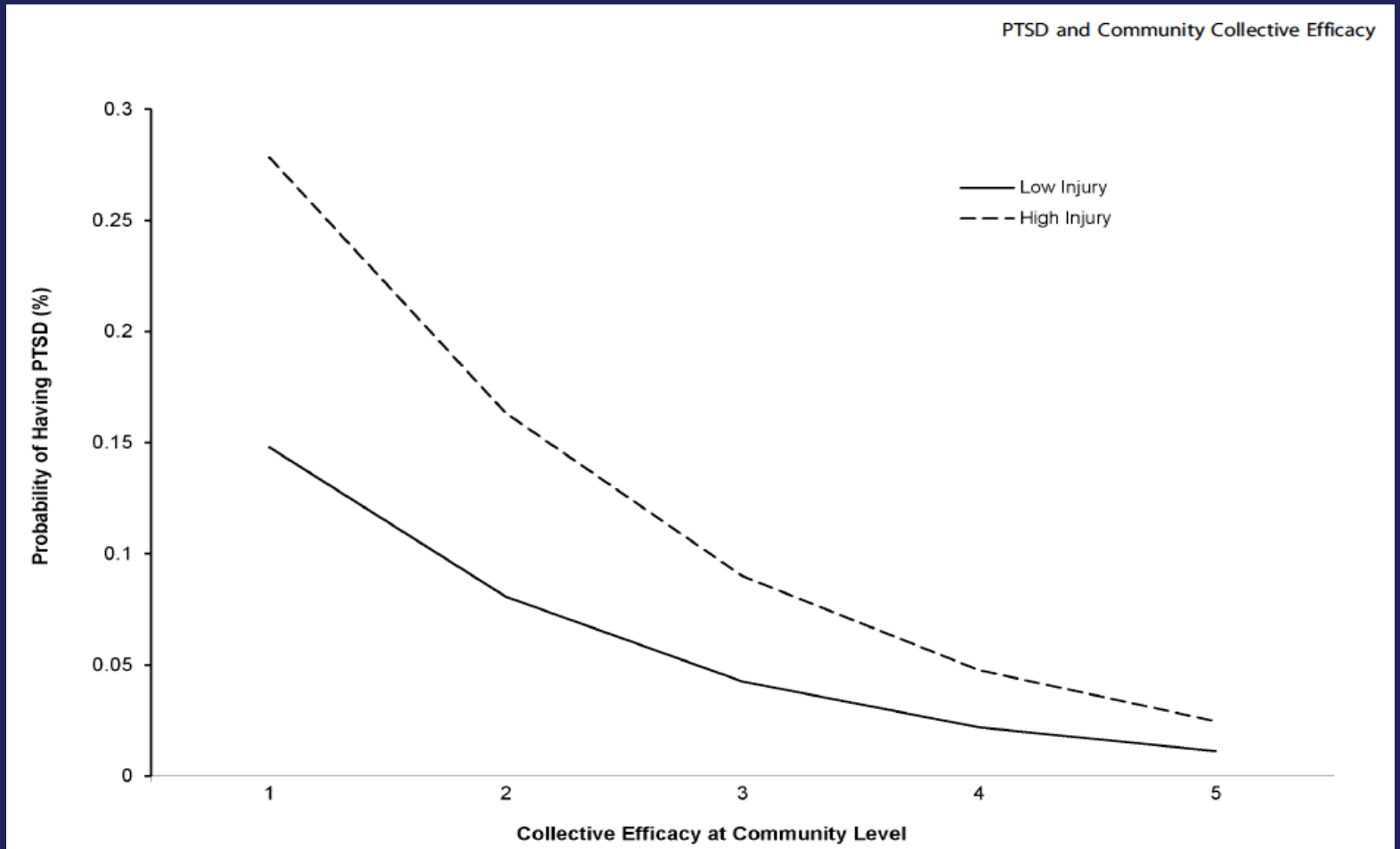

Figure 1. Changes in probability of having PTSD over two injury/damage groups and five community-level efficacy levels.
doi:10.1371/journal.pone.0088467.g001

Ursano, R. J., McKibben, J., Reissman, D. B.,&Liu, X. (2014). Posttraumatic stress disorder and community collective efficacy following the 2004 Florida hurricanes.*PLoS ONE*.

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Safety, Recovery and Hope after Disaster

Helping Communities and Families Recover

Following a disaster, governments and relief organizations play an important role in reducing distress for both victims and the broader society.

Disasters can present a cascade of impacts to those affected — individuals, families and communities. These disasters often promote feelings of fear, confusion, grief, helplessness, anxiety, anger, guilt and even diminished confidence in self or others. A variety of helpful interventions can assist individuals and communities to recover.

Following a disaster, governments and relief organizations play an important role in reducing distress for both victims and the broader society. Ensuring equitable distribution of resources (such as food, clothing and shelter) and prompt access to healthcare increase trust and improve outcomes. Adhering to ethical principles when providing interventions and relief efforts enhances community well-being.

When interacting with individuals affected by a disaster event, there is consensus among international disaster experts and researchers that Psychological First Aid (PFA) can help alleviate painful emotions and reduce further harm from initial reactions to disasters. Your actions and interactions with others can help provide PFA to people in distress, by creating and sustaining an environment of (1) safety, (2) calming, (3) connectedness to others, (4) self-efficacy—or empowerment, and (5) hopefulness. Consider the following suggestions:

DO:

- Help people meet basic needs for food and shelter, and emergency medical attention. Provide, simple and accurate information on how to obtain these (safety).
- Listen to people who wish to share their stories and emotions; remember there is no wrong or right way to feel (calming).
- Be friendly and compassionate even if people are being difficult (calming).
- Continue to provide accurate information about the disaster or trauma and the relief efforts. This will help people understand the situation (calming).Help people contact friends or loved ones (connectedness).
- Keep families together; keep children with parents or other close relatives whenever possible (connectedness).
- Give practical suggestions that encourage people towards helping themselves and meeting their own needs (self-efficacy).
- Direct people to locations of available government and non-government services (hopefulness).
- If you know that more help and services are on the way, remind people of this when they express fear or worry (hopefulness).

DON'T:

- Force people to share their stories with you, especially very personal details (may decrease calming).
- Give simple reassurances like "everything will be ok" or "at least you survived" (often diminishes calmness).
- Tell people what you think they should be feeling, thinking or doing now or how they should have acted earlier (decreases s
- Tell people why yo reasons about their decreases self-effic
- Make promises tha
- Criticize existing se people in need of th calming).

I'm doing all right, ha

- Check in with frien especially those wh
- Donate food, mone
- Find ways to help o
- Get to know those together and rebuil

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Helping Students After a Disaster

The death and destruction that accompany disaster events warrant special attention to communicating with children and adolescents.

The death and destruction that accompany disaster events warrant special attention to communicating with children and adolescents. It is difficult to predict the kinds of psychological problems that children and adolescents will have; however, the following steps may help minimize later difficulties:

- Engage your students in conversations of their choosing — not necessarily about their feelings or the scene. Talking about the normal events of life is central to health.
- Remind students they are safe. Issues of physical safety and security take priority.
- Explain to children that these are actually rare and unlikely events. Tell them that there are warning systems in place.
- Everyone has a different way of responding to trauma.
- Allow children to respond their own way and listen to their stories.
- Maintain daily routines to the extent possible; avoid starting new ones. Stability can be reassuring.
- Your response to the disaster will affect your children's ith other adults

lming feelings in g about the event ey wish and not

l "stirred up". or and setting limits

istracted or having uld be tolerated

havior (e.g., drop mework, increased nselves, weight loss

and mastery. pants in disaster

For Younger Children:

- Discuss the event in an open honest manner with kids. Children might want to talk intermittently; younger kids might need concrete information to be repeated.
- Limit exposure to television and other sources of information about the disaster and its victims.
- Filter the information students receive by restricting or limiting their access to traditional and social media.
- Excessive information about victims increases distress through personalizing or over identification; reduce this by providing concrete information about how they differ from the people involved in the disaster.
- Reassure younger children that they are safe and that their family and other adults will take care of them.
- Fearful younger children may need to touch base from time to time throughout the day during the early stages following a crisis.
- Acknowledge questions about the death and the destruction.
- Acknowledge y angry/worried.
- Remind them t
- Acknowledge t

For Older Studen

- Acknowledge t reestablish nor
- For many teens than their emo situations. Expe
- Remember the support by "na sadness, numb how seemingly or callousness becoming over

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Managing a Workplace or an Organization after a Crisis

Disasters that impact the workplace, whether natural or human-made, create unusual challenges for management. You and your staff may be impacted by its effects. Emotional stress, physical injury, grief, and disruption of normal routines may limit the availability and energy of your work group. At the same time, the group may face new responsibilities — caring for its own members and facilitating community recovery. Besides meeting customers' special needs for assistance following a crisis, personnel may have other unique requirements and stressors. Much of the human suffering associated with a disaster happens after the event itself, and can be mitigated by effective management. The following can help you structure your response.

Disasters that impact the workplace, whether natural or human-made, create unusual challenges for management. You and your staff may be impacted by its effects.

Take care of your people first. First, locate your staff and assure that they and their families have medical care and other necessities so they can be effective in the workplace. This task will be easier if you have planned for it in advance. Modify office rules and procedures that are counterproductive after a crisis. Dress codes, rules about children in the office, and restrictions on using telephones for personal business, for example, may need to be adjusted in the post-crisis period.

ss. Reinstate nications for help. necessary steps etraining can be sks recognizing al. an initial crisis ary, develop ork too many t to prevent s people throw s. alertness, impair to accidents. en it is away from any new usual as a result of an make a big ifying work that sure that no

employee has an essential task that no one else knows how to do, or that person will surely be overworked.

Train managers to monitor their subordinates. Ensure that personnel are not working excessive hours, and check for signs of exhaustion. In stressful times, leaders and highly dedicated employees are more likely to overwork than other personnel. It may seem ironic but, after a crisis, senior leaders need to pay more attention to the conscientious individuals who normally need the least supervisory attention. Point out to subordinate leaders that they need to model healthy behaviors; this will help them monitor their own tendencies to overwork.

Encourage and facilitate healthy, safe behavior. Remind employees of the importance of getting adequate sleep and rest, drinking enough water, and taking whatever precautions are necessary in the environment.

Most people are resilient and will recover from their traumatic experiences. To facilitate the recovery process, individuals often need to talk about what they have gone through, compare their reactions with those of others, exchange information, and provide one another with support and consolation.

The most effective way is usually to make it easy for people to do it when they feel ready, not to pressure them to talk about the traumatic situation at a time when they feel the need to be silent.

Provide an informal break area where employees can gather for snacks or lunch and spend a little time talking with their co-workers. Whenever possible, try to keep established work groups together to build on the strength of existing ties among co-workers. If an employee must work alone or with strangers, find a way for them to communicate with the larger organization, get information about how their co-workers are faring, and be assured they are still part of the group.

If you have a mental health caregiver such as an employee assistance professional (EAP), make that person available in an informal way to talk with employees where they work. Most people will not need extensive personal counseling, but will appreciate information and advice about issues such as how to deal with their children's reactions to the crisis. A few people may need more extensive mental health assistance. EAPs are traditionally well informed and resourceful about locating professional care for those who need it.

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Psychological and Behavioral Issues Healthcare Providers Need to Know when Managing a Chemical, Biological, Radiological or Nuclear (CBRN) Event

Following widespread exposure to a CBRN agent, the management of acute psychological and behavioral responses will be as important as the treatment of any CBRN-related injuries and illnesses.

Introduction

An event involving exposure or potential exposure to CBRN agents will create fear and uncertainty. While CBRN agents have occasionally been used for malicious purposes, such as by terrorists, most exposures are unintentional and result from the failure of or damage to man-made systems designed to contain and safeguard the population. The man-made nature of a CBRN event often increases the likelihood and severity of adverse psychological effects. Following widespread exposure to a CBRN agent, the management of acute psychological and behavioral responses will be as important as the treatment of any CBRN-related injuries and illnesses.

CBRN exposure is often a dreaded threat seen as catastrophic with the potential for severe illness, injury or death. Radiation is invisible, odorless and unknown. These ingredients stimulate worst-case fantasies. People must often rely on health care providers and scientists to determine whether or not a person has been exposed and/or the extent to which the exposure occurred. Exposure to a CBRN agent may not be manifest immediately. The health effects of CBRN exposure can be delayed in time, not only affecting those exposed but also future generations, both physiologically as well as psychologically. Those who have been exposed or anticipate possible exposure feel a sense of vulnerability, anxiety, and a lack of control. The common lack of consensus among experts can increase public fear and anger.

After a CBRN event there are three groups of psychological responses: those who are distressed; those who manifest behavioral changes; and those who may develop psychiatric illness. Distress following a CBRN event will be common and manifest as sadness, anger, fear, difficulty sleeping, impaired concentration, and disbelief. These symptoms may be amplified if those effected believe something could have been done to prevent the exposure or that concerns raised about exposure were not adequately addressed in a timely manner.

Psychological distress after a CBRN incident may also manifest as somatic complaints for which no diagnosis can be found (often referred to as "MIPS" — Multiple Idiopathic Physical Symptoms. These patients should be managed by general health care providers. Some individuals will manifest changes in their behavior such as decreasing travel, staying at home, refusal to send children to school as well as increased smoking and alcohol use.

For the vast majority of people, distress and psychological and behavioral symptoms related to the traumatic event exposure will diminish over time.

For others, however, symptoms will persist and affect function at home and work, and may result in psychiatric illness. While Acute Stress Disorder (ASD) and Post-Traumatic Stress Disorder (PTSD) are the disorders most people think of in connection with trauma, major depression, increased substance use, family conflict, and generalized anxiety disorder are also encountered.

It is important to remember that people with no prior history of psychiatric illness are vulnerable to psychiatric illness after a CBRN exposure.

Those at high risk of developing psychiatric disorders include those:

- Those directly exposed,
- Those with existing mental illness,
- Those who suffered resource losses and disruption of their social supports after the event.

Continued

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Restoring a Sense of Well-Being in Children After a Disaster

It is important for parents, caregivers, and professionals to answer children's questions and reassure them about their safety.

Children are often exposed both directly and indirectly to the effects of disasters. While some will live in close proximity to an area or community directly impacted by disaster, many others will learn about it through the media or from their parents or friends. It is important for parents, caregivers, and professionals to answer children's questions and reassure them about their safety.

Communicate effectively with your children.

- Keep your statements simple, factual, clear and sensitively worded.
- Do not overwhelm children with too much information.
- Children may have ideas or beliefs that are difficult to know unless you ask them what they have heard and what they have questions about.
- Children will get information from other children, adults and the media. Make sure your children do not misunderstand this information by asking them what they have heard.

If children are anxious or fearful, let them know that you understand and will help them with their feelings.

- Children's distress may be based on a different event. Inquire what their distress is about.
- Distress in such situations is usually transient. If children's distress persists, seek help from a trusted provider such as their pediatrician.
- Some children may react by acting out or becoming very quiet. Talk to your child about what is troubling them. Avoid reprimanding or punishing them for their reactions. Let them know that talking may help.

A common question is "Why do these things happen?" Here are some possible responses.

- We usually cannot be sure what led a specific individual to act in such a way.
- Such events can result from many causes including mental illness, rage, extreme political or religious beliefs, and hatred.
- Avoid stigmatizing people within the same or similar demographic as an alleged offender.
- Help children understand that government authorities work hard to identify and stop dangerous events before they happen.

You can increase your child's sense of safety by:

- Knowing where they are and their return time.
- Having a clear method of communication with your child in both normal (e.g. cell phone) and emergency situations (e.g. designated meeting place if phone doesn't work).
- Keeping them away from places or situations that are likely to put them in danger.
- Being aware of community changes about risks that might surface.

How do you plan for an emergency?

- Discuss possible emergency situations with your children and plans for responding.
- Talk calmly with them about what they can do if they feel they are in danger.
- Instruct them to trust and seek help from police and other authorities.
- Tell your children to say something to an adult when they see something suspicious.

Additional resources on back

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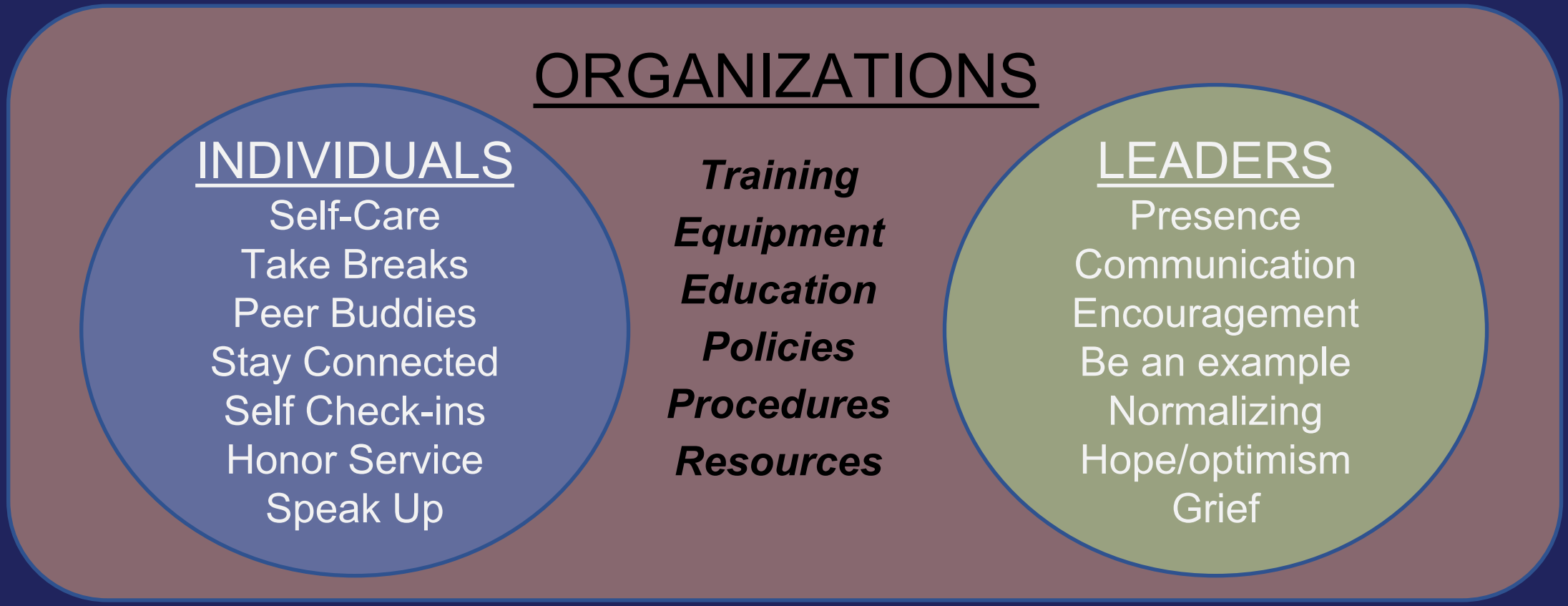
https://www.cstsonline.org/fact-sheet-menu/fact-sheet-search

Sustaining Workers in Disasters



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Morganstein, J. C., & Flynn, B. W. (2021). Enhancing Psychological Sustainment & Promoting Resilience in Healthcare Workers During COVID-19 & Beyond: Adapting Crisis Interventions From High-Risk Occupations. J Occup Environ Med, 63(6), 482-489.

Birkeland, M. S., Nielsen, M. B., Knardahl, S., & Heir, T. (2015). Time-lagged relationships between leadership behaviors and psychological distress after a workplace terrorist attack. *International Archives of Occupational and Environmental Health*.

Wood, M. D., Walker, T., Adler, A. B., Science, C. C. O. H., & Jahangiri, K. (2020). Post-Traumatic Growth Leadership: Mitigating Stress in a High-Risk Occupation. *Occupational Health Science*.

Media Exposure

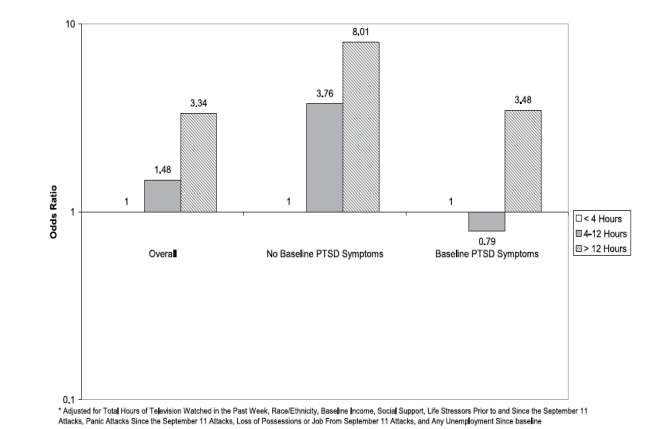

FIGURE 1. Odds ratios for the relation between hours of WTCD anniversary television viewing and new-onset probable PTSI in an adjusted model.*

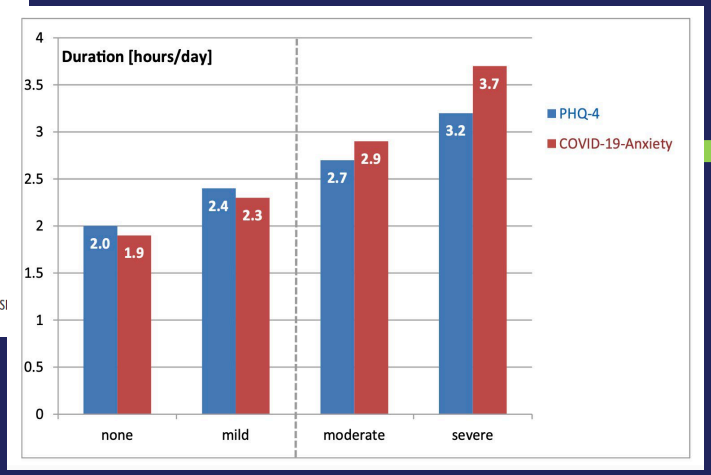

IMAGE:https://www.quoteinspector.com/images/texting-while-driving/put-your-phone-down-sign/

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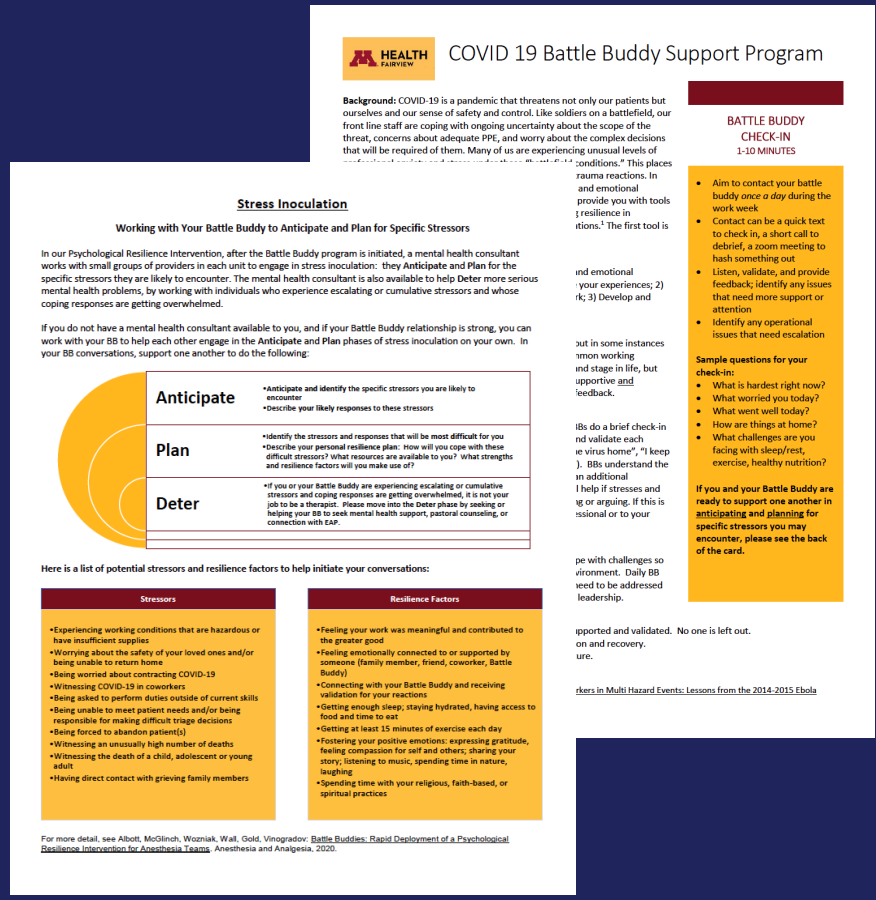
Bendau, A., Petzold, M. B., Pyrkosch, L., Maricic, L. M., Betzler, F., Rogoll, J., et al. (2020). Associations between COVID-19 related media consumption and symptoms of anxiety, depression and COVID-19 related fear in the general population in Germany. *European Archives of Psychiatry and Clinical Neuroscience*, 1–9.

Pfefferbaum, B., Newman, E., Nelson, S. D., Nitiéma, P., Pfefferbaum, R. L., & Rahman, A. (2014). Disaster Media Coverage and Psychological Outcomes: Descriptive Findings in the Extant Research. *Current Psychiatry Reports*, *16*(9), 464.

Bernstein, K. T., Ahern, J., Tracy, M., Boscarino, J. A., Vlahov, D.,& Galea, S. (2007). Television watching and the risk of incident probable posttraumatic stress disorder: a prospective evaluation. *The Journal of Nervous and Mental Disease*,*195*(1), 41–47.

Buddy Systems… Helping the Helpers

- Formal (vs ad hoc) peer support
- Battle Buddies, Swim Buddies
- Safety, social support, efficacy
- Daily check-ins:
  - Self-care
  - Emotional health
  - Camaraderie
- Buddy assignments
  - Military vs Healthcare



HEALTH FAIRVIEW

COVID 19 Battle Buddy Support Program

Background: COVID-19 is a pandemic that threatens not only our patients but ourselves and our sense of safety and control. Like soldiers on a battlefield, our front line staff are coping with ongoing uncertainty about the scope of the threat, concerns about adequate PPE, and worry about the complex decisions that will be required of them. Many of us are experiencing unusual levels of

BATTLE BUDDY CHECK-IN
1-10 MINUTES

- Aim to contact your battle buddy *once a day* during the work week
- Contact can be a quick text to check in, a short call to debrief, a zoom meeting to hash something out
- Listen, validate, and provide feedback; identify any issues that need more support or attention
- Identify any operational issues that need escalation

Sample questions for your check-in:

- What is hardest right now?
- What worried you today?
- What went well today?
- How are things at home?
- What challenges are you facing with sleep/rest, exercise, healthy nutrition?

If you and your Battle Buddy are ready to support one another in anticipating and planning for specific stressors you may encounter, please see the back of the card.

Stress Inoculation

Working with Your Battle Buddy to Anticipate and Plan for Specific Stressors

In our Psychological Resilience Intervention, after the Battle Buddy program is initiated, a mental health consultant works with small groups of providers in each unit to engage in stress inoculation: they **Anticipate** and **Plan** for the specific stressors they are likely to encounter. The mental health consultant is also available to help **Deter** more serious mental health problems, by working with individuals who experience escalating or cumulative stressors and whose coping responses are getting overwhelmed.

If you do not have a mental health consultant available to you, and if your Battle Buddy relationship is strong, you can work with your BB to help each other engage in the **Anticipate** and **Plan** phases of stress inoculation on your own. In your BB conversations, support one another to do the following:

Anticipate	•Anticipate and identify the specific stressors you are likely to encounter •Describe your likely responses to these stressors
Plan	•Identify the stressors and responses that will be most difficult for you •Describe your **personal resilience plan**: How will you cope with these difficult stressors? What resources are available to you? What strengths and resilience factors will you make use of?
Deter	•If you or your Battle Buddy are experiencing escalating or cumulative stressors and coping responses are getting overwhelmed, it is not your job to be a therapist. Please move into the Deter phase by seeking or helping your BB to seek mental health support, pastoral counseling, or connection with EAP.

Here is a list of potential stressors and resilience factors to help initiate your conversations:

Stressors	Resilience Factors
•Experiencing working conditions that are hazardous or have insufficient supplies •Worrying about the safety of your loved ones and/or being unable to return home •Being worried about contracting COVID-19 •Witnessing COVID-19 in coworkers •Being asked to perform duties outside of current skills •Being unable to meet patient needs and/or being responsible for making difficult triage decisions •Being forced to abandon patient(s) •Witnessing an unusually high number of deaths •Witnessing the death of a child, adolescent or young adult •Having direct contact with grieving family members	•Feeling your work was meaningful and contributed to the greater good •Feeling emotionally connected to or supported by someone (family member, friend, coworker, Battle Buddy) •Connecting with your Battle Buddy and receiving validation for your reactions •Getting enough sleep, staying hydrated, having access to food and time to eat •Getting at least 15 minutes of exercise each day •Fostering your positive emotions: expressing gratitude, feeling compassion for self and others; sharing your story; listening to music, spending time in nature, laughing •Spending time with your religious, faith-based, or spiritual practices

For more detail, see Albott, McGlinch, Wozniak, Wall, Gold, Vinogradov: Battle Buddies: Rapid Deployment of a Psychological Resilience Intervention for Anesthesia Teams. Anesthesia and Analgesia, 2020.

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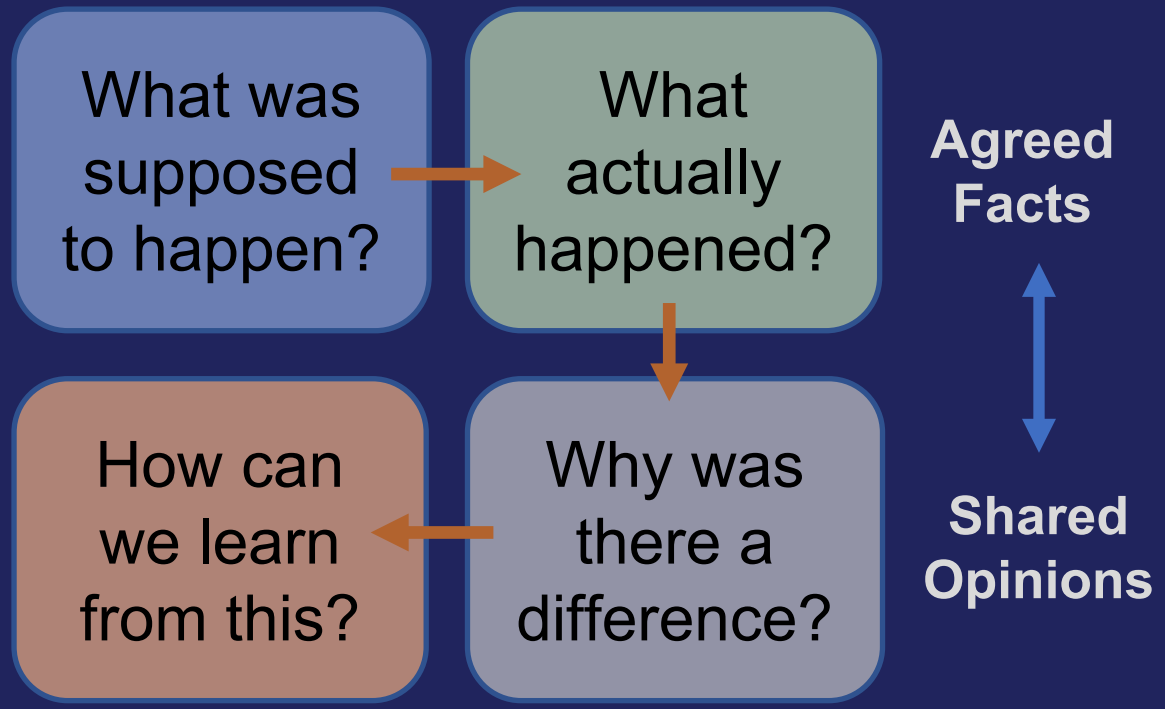
Albott, C. S., Wozniak, J. R., McGlinch, B. P., Wall, M. H., Gold, B. S., & Vinogradov, S. (2020). Battle Buddies: Rapid Deployment of a Psychological Resilience Intervention for Health Care Workers During the COVID-19 Pandemic. Anesthesia and analgesia, 131(1), 43-54.

Ramsberger, P. F., Mills, L., & Legree, P. (2002). *Evaluation of the Buddy Team Assignment Program* (p. 60). United States Army Research Institute for the Behavioral and Social Sciences.

Post-Shift Huddles / After Action Reviews

- Culture of learning
- Organizational improvement
- Strengthen the team
- Enhance morale
- Correct distorted thoughts
- Informal “check in”
- Make “meaning” of event



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Tannenbaum, S. I., & Cerasoli, C. P. (2013). Do team and individual debriefs enhance performance? A meta-analysis. *Human Factors*, *55*(1), 231–245.

Stoto, M. A., Nelson, C., Piltch-Loeb, R., Mayigane, L. N., Copper, F., & Chungong, S. (2019). Getting the most from after action reviews to improve global health security. *Globalization and Health*, *15*(1), 58.

Reintegration… Returning from the “hot zone”

- Transition from prolonged high stress back to “normal life”
- Loss of meaning and purpose
- Tight knit teams dissolve
- Lack of a shared experience
- Others don’t understand
- Usual ”problems” seem trivial
- Family expectations collide

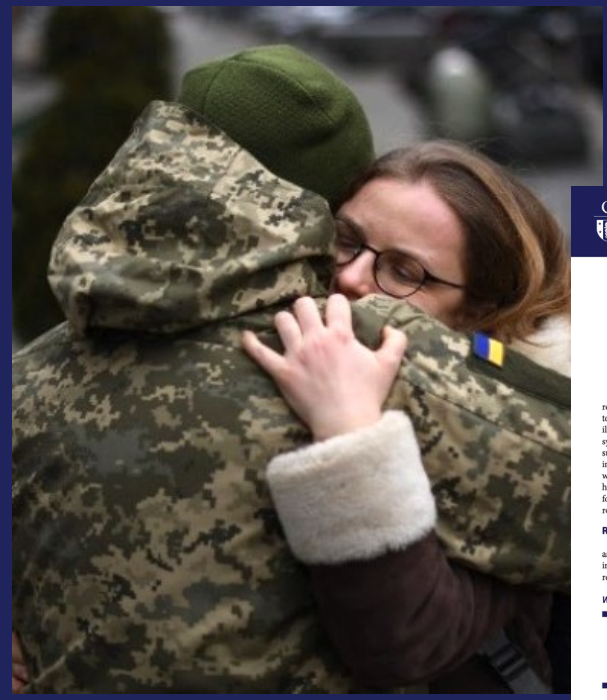
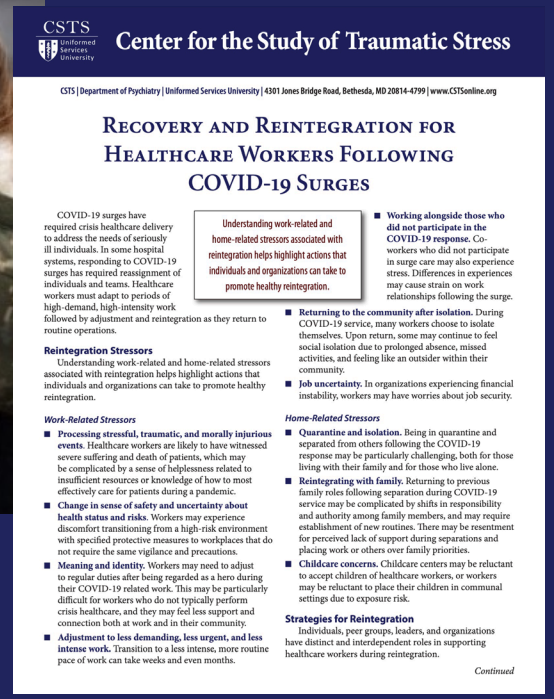


IMAGE: https://www.newagebd.net/print/article/164281



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Recovery and Reintegration for Healthcare Workers Following COVID-19 Surges

COVID-19 surges have required crisis healthcare delivery to address the needs of seriously ill individuals. In some hospital systems, responding to COVID-19 surges has required reassignment of individuals and teams. Healthcare workers must adapt to periods of high-demand, high-intensity work followed by adjustment and reintegration as they return to routine operations.

Understanding work-related and home-related stressors associated with reintegration helps highlight actions that individuals and organizations can take to promote healthy reintegration.

Reintegration Stressors

Understanding work-related and home-related stressors associated with reintegration helps highlight actions that individuals and organizations can take to promote healthy reintegration.

Work-Related Stressors

- **Processing stressful, traumatic, and morally injurious events.** Healthcare workers are likely to have witnessed severe suffering and death of patients, which may be complicated by a sense of helplessness related to insufficient resources or knowledge of how to most effectively care for patients during a pandemic.
- **Change in sense of safety and uncertainty about health status and risks.** Workers may experience discomfort transitioning from a high-risk environment with specified protective measures to workplaces that do not require the same vigilance and precautions.
- **Meaning and identity.** Workers may need to adjust to regular duties after being regarded as a hero during their COVID-19 related work. This may be particularly difficult for workers who do not typically perform crisis healthcare, and they may feel less support and connection both at work and in their community.
- **Adjustment to less demanding, less urgent, and less intense work.** Transition to a less intense, more routine pace of work can take weeks and even months.
- **Working alongside those who did not participate in the COVID-19 response.** Co-workers who did not participate in surge care may also experience stress. Differences in experiences may cause strain on work relationships following the surge.
- **Returning to the community after isolation.** During COVID-19 service, many workers choose to isolate themselves. Upon return, some may continue to feel social isolation due to prolonged absence, missed activities, and feeling like an outsider within their community.
- **Job uncertainty.** In organizations experiencing financial instability, workers may have worries about job security.

Home-Related Stressors

- **Quarantine and isolation.** Being in quarantine and separated from others following the COVID-19 response may be particularly challenging, both for those living with their family and for those who live alone.
- **Reintegrating with family.** Returning to previous family roles following separation during COVID-19 service may be complicated by shifts in responsibility and authority among family members, and may require establishment of new routines. There may be resentment for perceived lack of support during separations and placing work or others over family priorities.
- **Childcare concerns.** Childcare centers may be reluctant to accept children of healthcare workers, or workers may be reluctant to place their children in communal settings due to exposure risk.

Strategies for Reintegration

Individuals, peer groups, leaders, and organizations have distinct and interdependent roles in supporting healthcare workers during reintegration.

Continued

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Creech, S. K., Hadley, W., & Borsari, B. (2014). The Impact of Military Deployment and Reintegration on Children and Parenting: A Systematic Review. *Professional Psychology: Research and Practice*, *45*(6), 452–464.

Danish, S. J., & Antonides, B. J. (2013). The challenges of reintegration for service members and their families. *American Journal of Orthopsychiatry*, *83*(4), 550–558.

https://www.cstsonline.org/assets/media/documents/CSTS_FS_Recovery_and_Reintegration_for_Healthcare_Workers_Following_COVID_19_Surges.pdf

RISK AND CRISIS COMMUNICATION IN CBRN AND OTHER DISASTERS

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Communication is a behavioral health intervention

"Better than any medication we know, information treats anxiety in a crisis."

Source: Saathoff, 2002

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Communication & Messaging

- Risk and Crisis Communication principles
- An antidote for distress
- ”Concern” vs “Anxiety”, ”Being Prepared” vs “Hoarding”
- Limiting use of medical/other jargon
- Normalizing of experiences is calming & connecting
- Use of trusted messengers
- Influence community behaviors and recovery

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Fischhoff, B. (2013). The sciences of science communication. *Proceedings of the National Academy of Sciences of the United States of America*, *110 Suppl 3*, 14033–14039.

Eyre, A. (1999). In remembrance: post-disaster rituals and symbols. *Austrailian Journal of Emergency Management*, (Spring), 23–29.

Reynolds, B. S., & Seeger, M. (2012). Crisis and Emergency Risk Communication. Centers for Disease Control and Prevention.

Focus of Communication

What People Want **To Know**
In Addition To
What We Want **Them To Know**

"Therapeutic rapport" on a population level

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Forms of Communication

- Written and spoken word
- Behavior
- Imagery
- Rituals & Symbols

IMAGE: http://img.timeinc.net/time/photoessays/reaction/mideast.jpg

IMAGE: https://www.washingtonpost.com/national/images-from-911-and-the-aftermath/2015/09/10/f952ce14-da50-11e0-9dca-a4d231dfde50_gallery.html

IMAGE: https://www.sun-sentinel.com/entertainment/theater-and-arts/sf-charles-porter-iv-pulitzer-palm-beach-photographic-centre-20160513-story.html

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CRISIS LEADERSHIP ACTIONS TO PROTECT MENTAL HEALTH IN DISASTERS

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Crisis Leadership Behaviors

- Communicate Effectively
- Model Self-Care
- Enhance Cohesion
- Support Emotion Regulation
- Foster Purpose
- Facilitate Help-Seeking
- Encourage Growth
- Promote Reintegration
- Address Grief
- Sustain Morale

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Harms, P. D., Credé, M., Tynan, M., Leon, M., & Jeung, W. (2017). Leadership and stress: A meta-analytic review. The leadership quarterly, 28(1), 178-194.

Birkeland, M. S., Nielsen, M. B., Knardahl, S., & Heir, T. (2016). Time-lagged relationships between leadership behaviors and psychological distress after a workplace terrorist attack. *International Archives of Occupational and Environmental Health*, *89*(4), 689–697.

Wood, M. D., Walker, T., Adler, A. B., Science, C. C. O. H., & Jahangiri, K. (2020). Post-Traumatic Growth Leadership: Mitigating Stress in a High-Risk Occupation. *Occupational Health Science*.

Leadership Through Walking Around

- Walk around, be present, listen to concerns
- Engage in protective leadership behaviors
- Make time for “face-to-face” activities
- Enhance communication and connection
- Facilitate team building activities
- Pandemic/other factors caused leaders to “hunker down”… creates challenges

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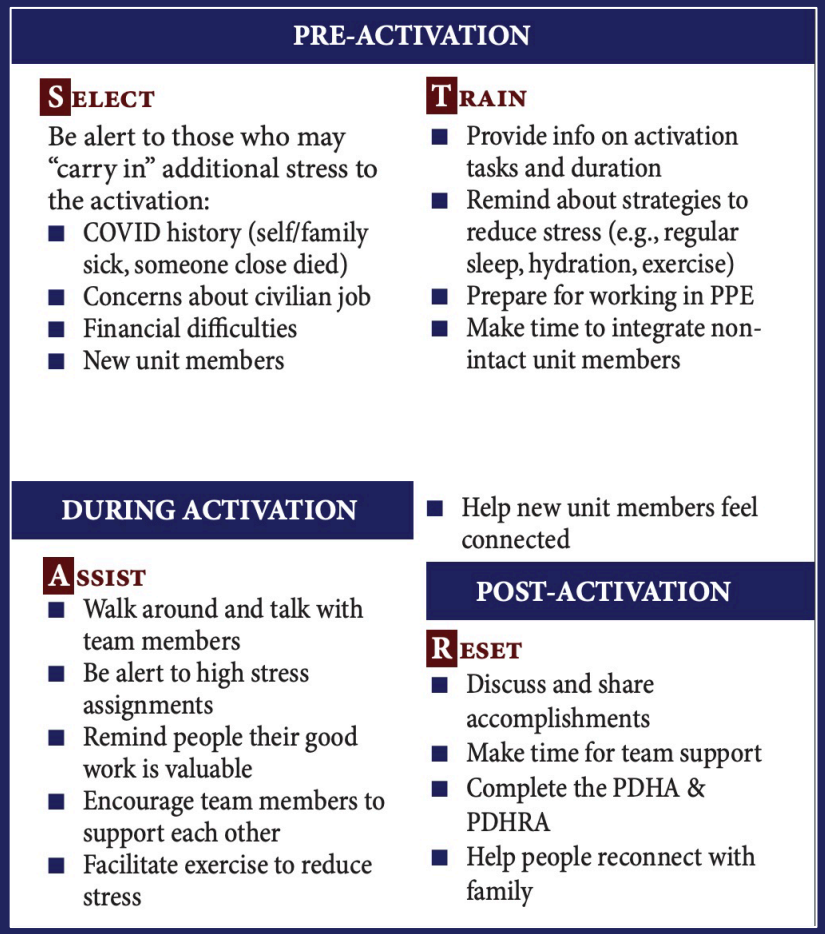
Foster Purpose

- Fosters meaning & understanding of individual/shared sacrifices
- Connect the present to the future
- New York National Guard (4k) following COVID-19 missions
  - Leaders reminding people of the <u>purpose of their work</u> a/w:
    - ***Better health***
    - ***Better mental health***
    - ***Greater unit cohesion***



PRE-ACTIVATION

SELECT

Be alert to those who may "carry in" additional stress to the activation:

- COVID history (self/family sick, someone close died)
- Concerns about civilian job
- Financial difficulties
- New unit members

TRAIN

- Provide info on activation tasks and duration
- Remind about strategies to reduce stress (e.g., regular sleep, hydration, exercise)
- Prepare for working in PPE
- Make time to integrate non-intact unit members

DURING ACTIVATION

- Help new unit members feel connected

ASSIST

- Walk around and talk with team members
- Be alert to high stress assignments
- Remind people their good work is valuable
- Encourage team members to support each other
- Facilitate exercise to reduce stress

POST-ACTIVATION

RESET

- Discuss and share accomplishments
- Make time for team support
- Complete the PDHA & PDHRA
- Help people reconnect with family

https://www.cstsonline.org/education-and-training/health-campaigns/leader-support-for-service-members-working-during-covid-19

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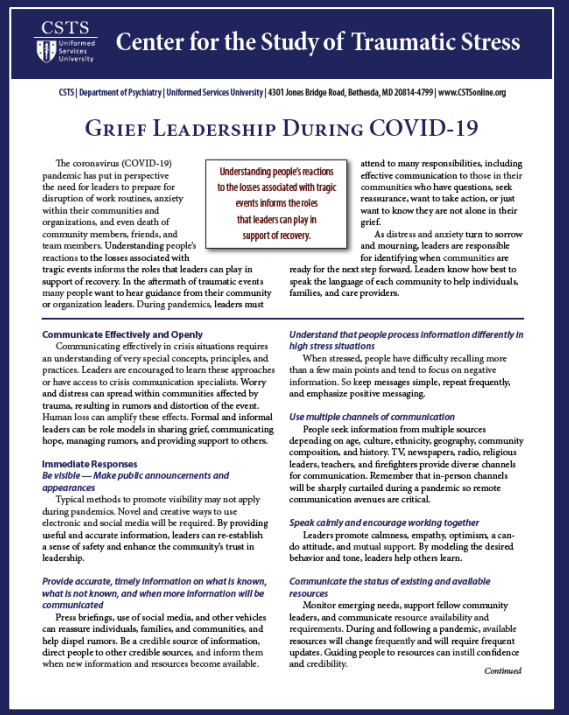
Mash, H. B. H., Fullerton, C. S., Adler, A. B., Morganstein, J. C., Biggs, Q. M., & Ursano, R. J. (2023). National Guard Deployment in Support of COVID-19: Psychological and Behavioral Health. Mil Med, n. doi:10.1093/milmed/usad177

Grief Leadership

- Communicate effectively and openly
- Being visible and present
- Provide accurate and timely info
- Encourage working together
- Promote cohesion
- Anticipate and acknowledge grief
- Honor losses; make meaning
- Look to the future
- Encourage growth and a “new normal”

Scene at Dover Air Force Base, Delaware, after military plane crash at Gander, Newfoundland

IMAGE: https://history.amedd.army.mil/booksdocs/historyofusarmymsc/page374.jpg



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Center for the Study of Traumatic Stress

CSTS | Department of Psychiatry | Uniformed Services University | 4301 Jones Bridge Road, Bethesda, MD 20814-4799 | www.CSTSonline.org

Grief Leadership During COVID-19

The coronavirus (COVID-19) pandemic has put in perspective the need for leaders to prepare for disruption of work routines, anxiety within their communities and organizations, and even death of community members, friends, and team members. Understanding people's reactions to the losses associated with tragic events informs the roles that leaders can play in support of recovery. In the aftermath of traumatic events many people want to hear guidance from their community or organization leaders. During pandemics, leaders must attend to many responsibilities, including effective communication to those in their communities who have questions, seek reassurance, want to take action, or just want to know they are not alone in their grief.

Understanding people's reactions to the losses associated with tragic events informs the roles that leaders can play in support of recovery.

As distress and anxiety turn to sorrow and mourning, leaders are responsible for identifying when communities are ready for the next step forward. Leaders know how best to speak the language of each community to help individuals, families, and care providers.

Communicate Effectively and Openly

Communicating effectively in crisis situations requires an understanding of very special concepts, principles, and practices. Leaders are encouraged to learn these approaches or have access to crisis communication specialists. Worry and distress can spread within communities affected by trauma, resulting in rumors and distortion of the event. Human loss can amplify these effects. Formal and informal leaders can be role models in sharing grief, communicating hope, managing rumors, and providing support to others.

Immediate Responses

Be visible — Make public announcements and appearances

Typical methods to promote visibility may not apply during pandemics. Novel and creative ways to use electronic and social media will be required. By providing useful and accurate information, leaders can re-establish a sense of safety and enhance the community's trust in leadership.

Provide accurate, timely information on what is known, what is not known, and when more information will be communicated

Press briefings, use of social media, and other vehicles can reassure individuals, families, and communities, and help dispel rumors. Be a credible source of information, direct people to other credible sources, and inform them when new information and resources become available.

Understand that people process information differently in high stress situations

When stressed, people have difficulty recalling more than a few main points and tend to focus on negative information. So keep messages simple, repeat frequently, and emphasize positive messaging.

Use multiple channels of communication

People seek information from multiple sources depending on age, culture, ethnicity, geography, community composition, and history. TV, newspapers, radio, religious leaders, teachers, and firefighters provide diverse channels for communication. Remember that in-person channels will be sharply curtailed during a pandemic so remote communication avenues are critical.

Speak calmly and encourage working together

Leaders promote calmness, empathy, optimism, a can-do attitude, and mutual support. By modeling the desired behavior and tone, leaders help others learn.

Communicate the status of existing and available resources

Monitor emerging needs, support fellow community leaders, and communicate resource availability and requirements. During and following a pandemic, available resources will change frequently and will require frequent updates. Guiding people to resources can instill confidence and credibility.

Continued

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Wright, K. S., Sparacino, L., Bartone, P., Cervantes, R. A., Jr, & Ingraham, L. H. (1987). *The human response to the Gander military air disaster: A summary report* (p. 60). Defense Technical Information Center.

Stockdale Paradox

"You must never confuse faith that you will prevail in the end – which you can never afford to lose – with the discipline to confront the most brutal facts of your current reality, whatever they might be."

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”We will meet again…”

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References

Abramson, D., Stehling-Ariza, T., Garfield, R., & Redlener, I. (2008). Prevalence and predictors of mental health distress post-Katrina: findings from the Gulf Coast Child and Family Health Study. Disaster Medicine and Public Health Preparedness, 2(2), 77–86.

Albott, C. S., Wozniak, J. R., McGlinch, B. P., Wall, M. H., Gold, B. S., & Vinogradov, S. (2020). Battle Buddies: Rapid Deployment of a Psychological Resilience Intervention for Health Care Workers During the COVID-19 Pandemic. Anesthesia and analgesia, 131(1), 43-54.

Bendau, A., Petzold, M. B., Pyrkosch, L., Maricic, L. M., Betzler, F., Rogoll, J., et al. (2020). Associations between COVID-19 related media consumption and symptoms of anxiety, depression and COVID-19 related fear in the general population in Germany. European Archives of Psychiatry and Clinical Neuroscience, 1–9.

Bernstein, K. T., Ahern, J., Tracy, M., Boscarino, J. A., Vlahov, D., & Galea, S. (2007). Television watching and the risk of incident probable posttraumatic stress disorder: a prospective evaluation. The Journal of Nervous and Mental Disease,195(1), 41–47.

Birkeland, M. S., Nielsen, M. B., Knardahl, S., & Heir, T. (2015). Time-lagged relationships between leadership behaviors and psychological distress after a workplace terrorist attack. International Archives of Occupational and Environmental Health.

Birkeland, M. S., Nielsen, M. B., Knardahl, S., & Heir, T. (2016). Time-lagged relationships between leadership behaviors and psychological distress after a workplace terrorist attack. International Archives of Occupational and Environmental Health, 89(4), 689–697.

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References

Center for the Study of Traumatic Stress. (2021). Recovery and Reintegration for Healthcare Workers Following COVID-19 Surges. https://www.cstsonline.org/assets/media/documents/CSTS_FS_Recovery_and_Reintegration_for_Healthcare_Workers_Following_COVID_19_Surges.pdf

Creech, S. K., Hadley, W., & Borsari, B. (2014). The Impact of Military Deployment and Reintegration on Children and Parenting: A Systematic Review. Professional Psychology: Research and Practice, 45(6), 452–464.

Danish, S. J., & Antonides, B. J. (2013). The challenges of reintegration for service members and their families. American Journal of Orthopsychiatry, 83(4), 550–558.

Frank, E., Zhao, Z., Fang, Y., Rotenstein, L. S., Sen, S., & Guille, C. (2021). Experiences of Work-Family Conflict and Mental Health Symptoms by Gender Among Physician Parents During the COVID-19 Pandemic. JAMA Network Open, 4(11), e2134315.

Fullerton, C. S., Herberman Mash, H. B., Benevides, K. N., Morganstein, J. C., & Ursano, R. J. (2015). Distress of Routine Activities and Perceived Safety Associated with Post-Traumatic Stress, Depression, and Alcohol Use: 2002 Washington, DC, Sniper Attacks. Disaster Medicine and Public Health Preparedness, 9(5), 509–515.

CSTS

Uniformed Services University

References

Harms, P. D., Credé, M., Tynan, M., Leon, M., & Jeung, W. (2017). Leadership and stress: A meta-analytic review. The leadership quarterly, 28(1), 178-194.

Hobfoll, S. E., Watson, P., Bell, C. C., Bryant, R. A., Brymer, M. J., Friedman, M. J., et al. (2007). Five essential elements of immediate and mid-term mass trauma intervention: empirical evidence. Psychiatry, 70(4), 283–315– discussion 316–69.

Mash, H.B.H., Fullerton, C.S., Morganstein, J.C., Liu, A.G., Vance, M.C., Wang, L., Mullins-Hussain, B., & Ursano, R.J. (2022). Responding to repeated disasters: Time to recovery in public health workers. Disaster Medicine & Public Health Preparedness. https://doi.org/10.1017/dmp.2022.130

Morganstein, J. C., & Flynn, B. W. (2021). Enhancing Psychological Sustainment & Promoting Resilience in Healthcare Workers During COVID-19 & Beyond: Adapting Crisis Interventions From High-Risk Occupations. J Occup Environ Med, 63(6), 482-489.

Morganstein, J. C., Fullerton, C. S., Ursano, R. J., & Holloway, H. C. (2017). Pandemics: Health Care Emergencies. In Textbook of Disaster Psychiatry (2nd ed., pp. 270–284). Cambridge University Press.

Morganstein, J. C., West, J. C., & Ursano, R. J. (2019). Work-Associated Trauma. In M. B. Riba, S. V. Parikh, & J. F. Greden (Eds.), Mental Health in the Workplace (pp. 161– 180). Springer International Publishing.

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References

Nash WP. (2011). US Marine Corps and Navy combat and operational stress continuum model: a tool for leaders. In: Ritchie EC, ed. Combat and Operational Behavioral Health. Fort Detrick, MD: Borden Institute.

Ning, L., Niu, J., Bi, X., Yang, C., Liu, Z., Wu, Q., et al. (2020). The impacts of knowledge, risk perception, emotion and information on citizens' protective behaviors during the outbreak of COVID-19: a cross-sectional study in China. BMC Public Health, 20(1), 1751.

Norris, F. H., Friedman, M. J., Watson, P. J., Byrne, C. M., Diaz, E., & Kaniasty, K. (2002). 60,000 disaster victims speak: Part I. An empirical review of the empirical literature, 1981-2001. Psychiatry, 65(3), 207-239.

Pfefferbaum, B., Newman, E., Nelson, S. D., Nitiéma, P., Pfefferbaum, R. L., & Rahman, A. (2014). Disaster Media Coverage and Psychological Outcomes: Descriptive Findings in the Extant Research. Current Psychiatry Reports, 16(9), 464.

Ramsberger, P. F., Mills, L., & Legree, P. (2002). Evaluation of the Buddy Team Assignment Program (p. 60). United States Army Research Institute for the Behavioral and Social Sciences.

Sarah, D., R, S. C., John, K., J, F. A. L., Gabriel, R., van der Bles Anne Marthe, et al. (2021). Risk perceptions of COVID-19 around the world. Journal of Risk Research, 23(7-8), 994–1006.

Somasundaram and van de Put (2006). Management of Trauma in Special Populations after a Disaster. J Clin Psychiatry;67(suppl 2):64-73

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References

Stoto, M. A., Nelson, C., Piltch-Loeb, R., Mayigane, L. N., Copper, F., & Chungong, S. (2019). Getting the most from after action reviews to improve global health security. Globalization and Health, 15(1), 58.

Tannenbaum, S. I., & Cerasoli, C. P. (2013). Do team and individual debriefs enhance performance? A meta-analysis. Human Factors, 55(1), 231–245.

Trachik, B., Tucker, R. P., Ganulin, M. L., Merrill, J. C., LoPresti, M. L., Cabrera, O. A., & Dretsch, M. N. (2019). Leader provided purpose: Military leadership behavior and its association with suicidal ideation. Psychiatry Research, 112722.

Ursano, R., Fullerton, C., Weisaeth, L., & Raphael, B. (2017). Individual and Community Responses to Disasters. In R. Ursano, Fullerton, C.; L. Weisaeth, & B. Raphael (Eds.), Textbook of Disaster Psychiatry (pp. 1-26). Cambridge: Cambridge University Press.

Ursano, R. J., McKibben, J., Reissman, D. B.,&Liu, X. (2014). Posttraumatic stress disorder and community collective efficacy following the 2004 Florida hurricanes. PLoS ONE.

Wood, M. D., Walker, T., Adler, A. B., Science, C. C. O. H., & Jahangiri, K. (2020). Post-Traumatic Growth Leadership: Mitigating Stress in a High-Risk Occupation. Occupational Health Science.

Wright, K. S., Sparacino, L., Bartone, P., Cervantes, R. A., Jr, & Ingraham, L. H. (1987). The human response to the Gander military air disaster: A summary report (p. 60). Defense Technical Information Center.

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Questions?

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Health Risk Communication

Debra Colbeck
Col John Oh
July 13, 2023

What is Risk Communication?

Risk Communication is a science-based approach for communicating effectively in high-stakes, emotionally charged, controversial situations.

-Dr. Vincent Covello

Effective communication is a two-way street

Evolution of Risk Communication

- Stage 1: Ignore the public
- Stage 2: Provide the risk data
- Stage 3: Dialogue with the community
- Stage 4: Involve the public as a cooperating partner

Fundamental Challenges

1. Getting the public to pay **attention** to what you have to say
2. Getting the public to **believe** what you tell them
3. Getting the public to **remember** what you have said long enough for them to act on it

Risk Perception

Aristotle taught us that "*facts alone, no matter how compelling, will rarely persuade an audience, especially a fearful or skeptical audience*"

- David Bartlett, Making Your Point

Effective communication demands that you look at every situation from the stakeholder's perspective.

Defining Risk

Technical expert's definition

- Risk = probability x consequences
- Relies upon research and statistics
- Characterized by risk assessments
- The larger the **denominator**, the less risk we face

Public's definition

- Consequences of hazards
- Individual feelings about likelihood that something bad will happen to them
- **Numerator** is more important than the denominator

How the Public Views Risk/Outrage Factors

Less Risky	**More** Risky
High trust in Source	*Low trust in Source*
Individual Control	No/little **control**
Affects everyone	*Affects children*
Familiar	**Unfamiliar**
Voluntary	*Involuntary*
Clear Benefits	**Benefits** unknown
Fair	Unfair
Naturally Occurring	Created by humans
Chronic	*Catastrophic*
Positive Historical Associations	Negative Historical Associations
Responsive*	Non-Responsive*

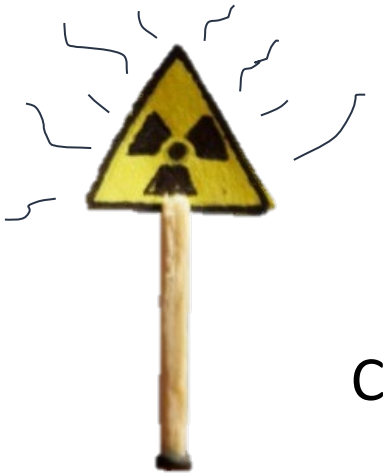
Words Matter

Survival Rates

	Surgery (%)	Radiation (%)
Treatment	90	100
One year	68	77

Mortality Rates

	Surgery (%)	Radiation (%)
Treatment	10	0
One year	32	23



Choice of radiation therapy = 18%

Choice of radiation therapy = 44%

(McNeil, Pauker, Sox and Tversky, 1982)

Hazard + Outrage = Risk

- Hazard is the technical assessment
- Outrage is the public assessment

Hazard and Outrage

Outrage/Fear

Emotional Response of target audience

Apathy

Low

Hazard

High

Outrage Management

Listen
Echo
Validate

Crisis Communication

Validate
Guide Precautions

Sweet Spot

Health Education
Stakeholder Relations

Precaution Advocacy

Short
Interesting
Stay on Message

5 Characteristics of Trust

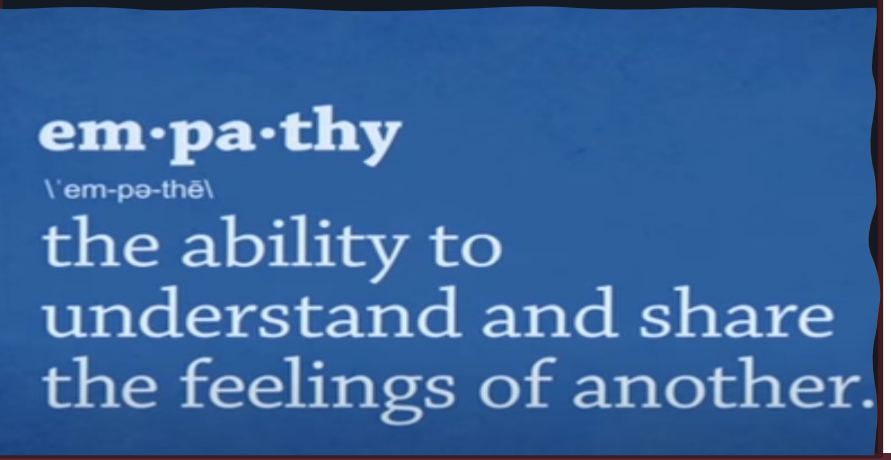
Express Empathy/Good Will

Competence/Expertise

Open & Honesty

Commitment/Accountability

Identification



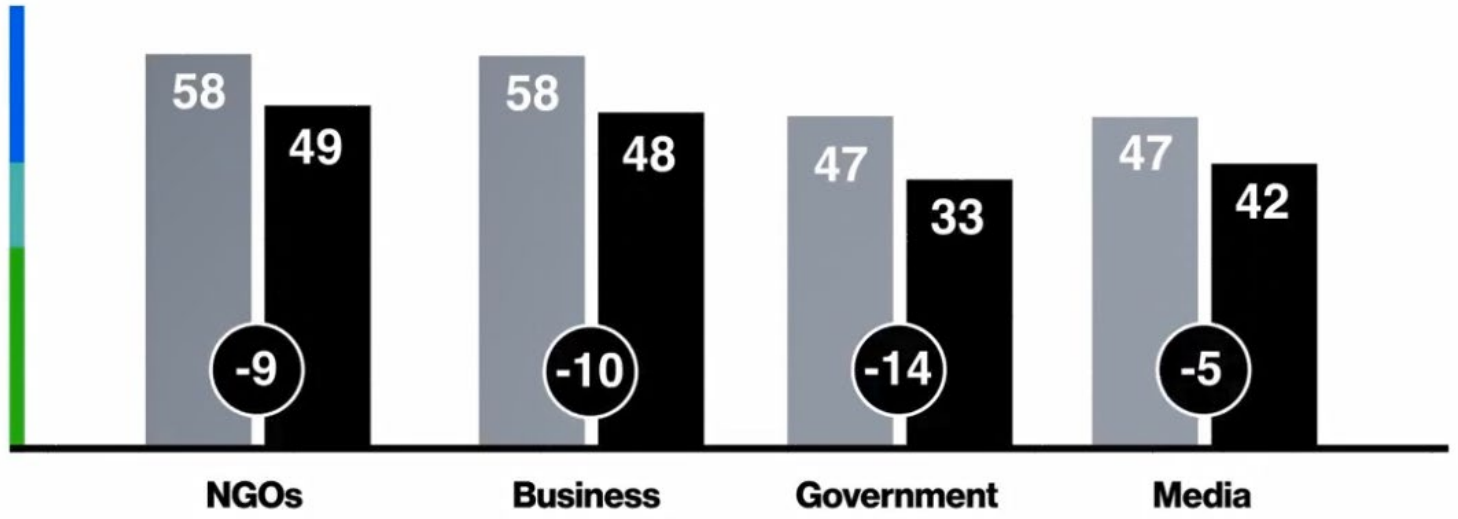
"Nobody cares how much you know, until they know how much you care"

— Theodore Roosevelt

www.Edelman.com/trustbarometer

Trust in Institutions, U.S.

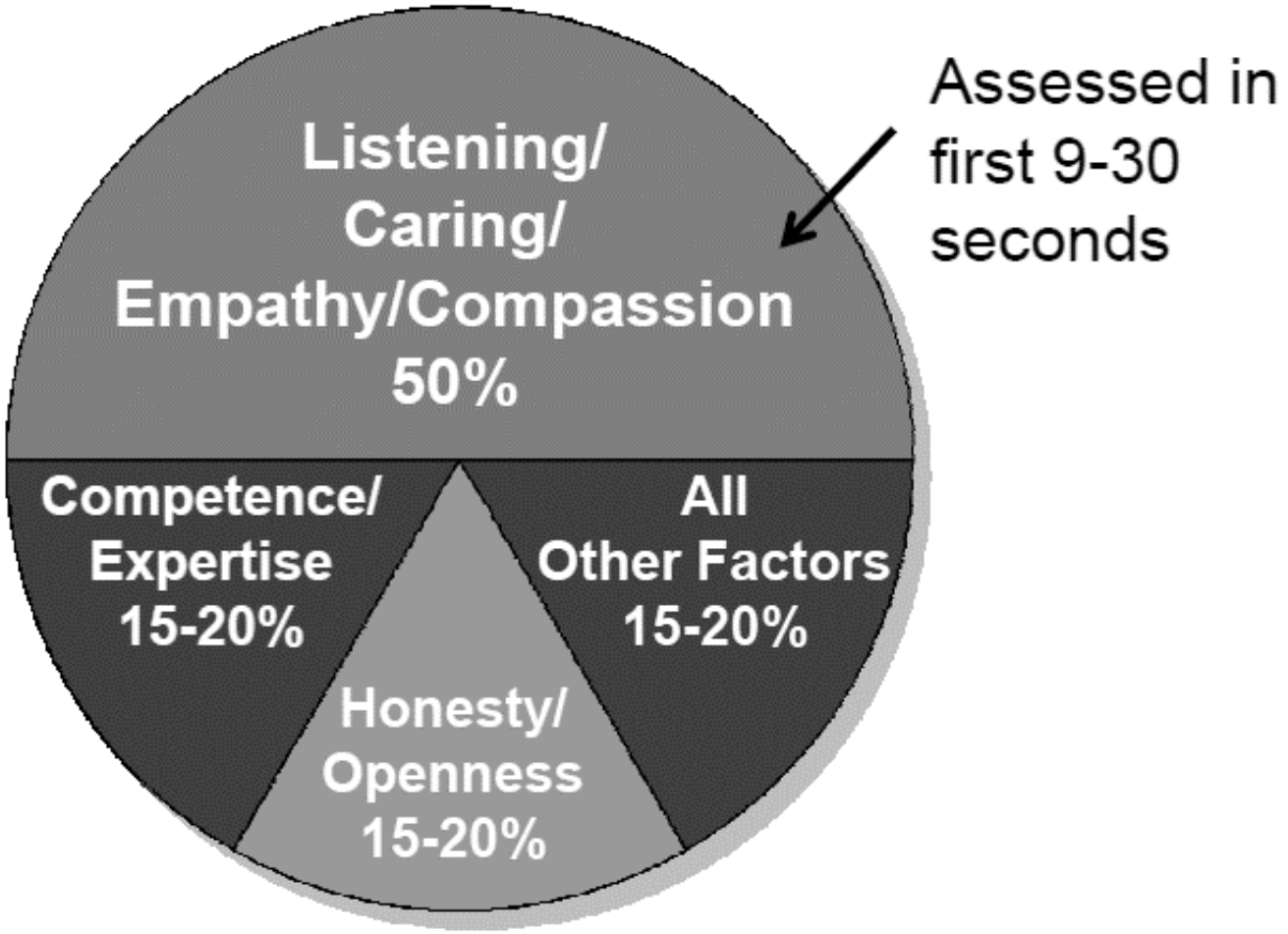
General population, 2017 vs. 2018



Edelman trustbarometer 2018 | ANNUAL GLOBAL STUDY

Edelman's Trust Barometer® is an annual global trust survey which measures attitudes about the state of trust in business, government, NGOs and the media. Now in its 16th year, the Trust Barometer, powered by Edelman Intelligence, surveys over 33,000 respondents from 28 different countries.

Trust Factors in High Stress Situations



(Vincent Covello, n.d.)

Listening

"The greatest compliment that was ever paid me was when someone asked me what I thought and attended to my answer." – *Henry David Thoreau*

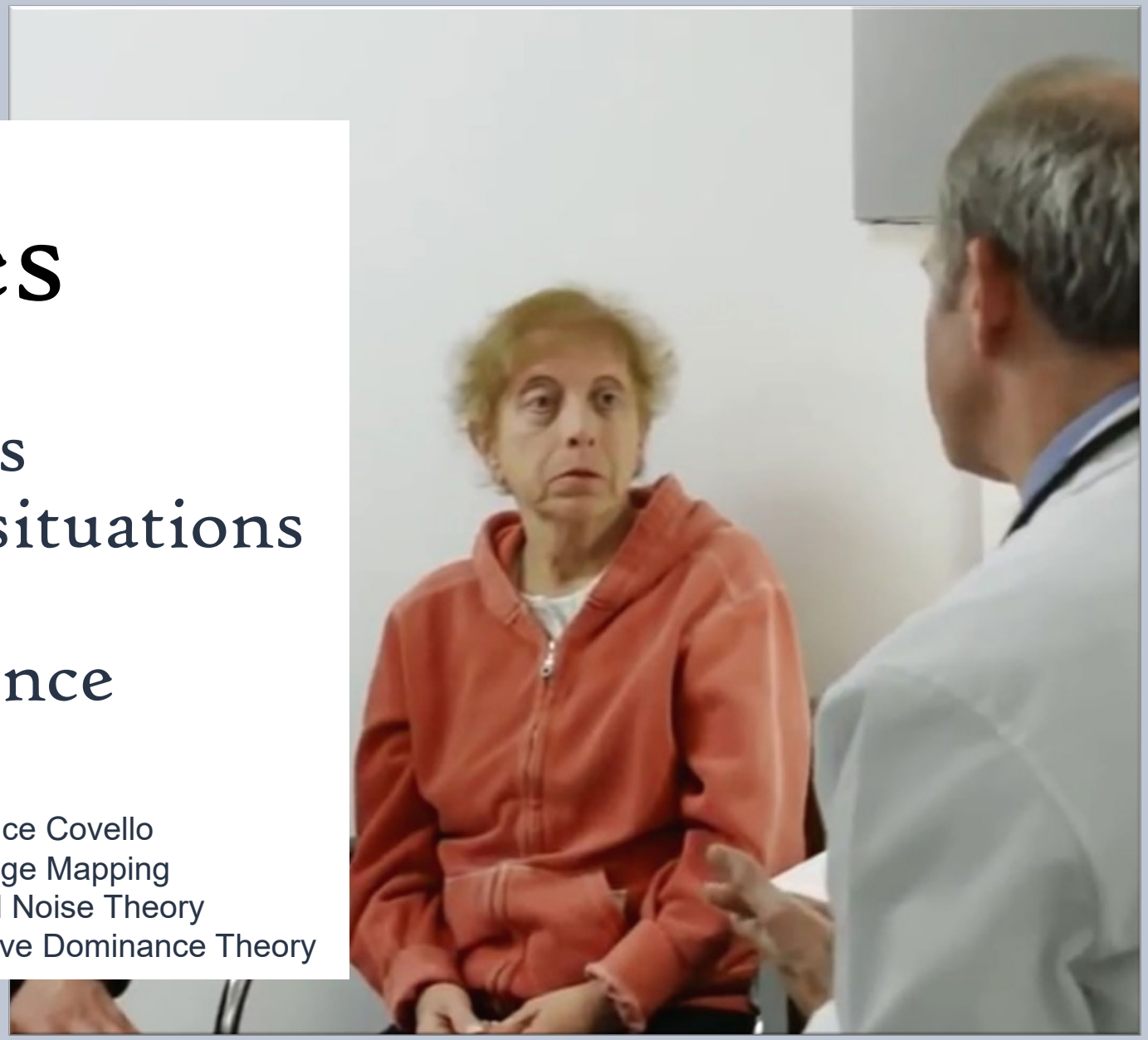
Active Listening

- Time and attention
- Who is doing most of the talking?
- Avoiding early conclusions
- Showing the party that we are listening without judging
- Focus on feelings, not just facts
- Respecting Pauses

Messages

Retention-items
80% loss in high stress situations
Primacy
Negative Dominance

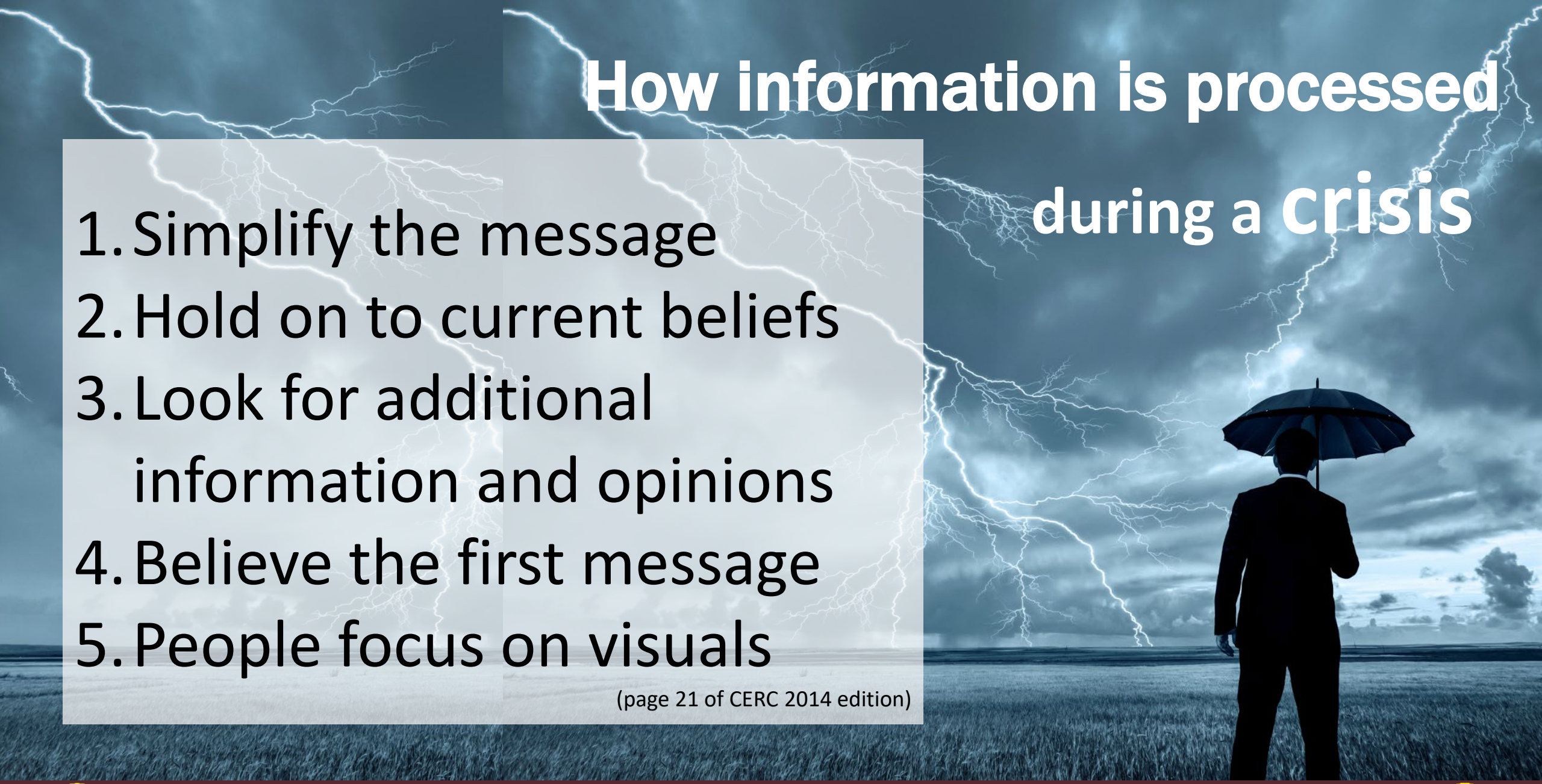
Dr. Vince Covello
Message Mapping
Mental Noise Theory
Negative Dominance Theory



How information is processed during a crisis

1. Simplify the message
2. Hold on to current beliefs
3. Look for additional information and opinions
4. Believe the first message
5. People focus on visuals

(page 21 of CERC 2014 edition)



Messaging

- Express wishes
- Give people things to do
- Ask more of people
- Use personal pronouns for the organization
- Repeat Important Information
- Under Promise Over Deliver

Avoid

- Technical Jargon
- Condescending or judgmental phrases
- Discussions of money or liability
- Humor
- Inappropriate Comparisons
- Over Reassurance
- Unrealistic Communications

Risk Communication Support

Defense Centers for Public Health – Aberdeen
Defense Health Agency (DHA) Public Health
Health Risk Communication Division

Debra Colbeck
(410) 322-0831
usarmy.apg.medcom-aphc.mbx.hrcp-office@health.mil

Key Takeaways

- Lessons learned from Red Hill include the need to: communicate clearly and consistently; marshal resources early; commit to transparency and share data; and remember the overarching goal to protect human health and environment
- The Center for the Study of Traumatic Stress (cstsonline.org) contains resources and a framework for protecting mental health and promoting resilience during environmental and other disaster events
- Risk communication, a science-based approach for communicating effectively in high-stakes, emotionally charged, controversial situations, is distinct from public affairs and warrants early consultation with experts

Questions?

Closing Remarks

Special Feature Webinar: Patient and Family Centered Care for Environmental Exposures: Red Hill Case Study

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Falls Church, Virginia

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How to Obtain CE/CME Credits

To receive CE/CME credit, you must register by 1300 ET on 14 July 2023 to qualify for the receipt of CE/CME credit or certificate of attendance. You must complete the program posttest and evaluation before collecting your certificate. The posttest and evaluation will be available through 27 July 2023 at 2359 ET. Please complete the following steps to obtain CE/CME credit:

1. Go to URL: https://www.dhaj7-cepo.com/content/special-feature-webinar-patient-and-family-centered-care-environmental-exposures-red-hill
2. Search for your course using the **Catalog**, **Calendar**, or **Find a course** search tool.
3. Click on the REGISTER/TAKE COURSE tab.
   a. If you have previously used the CEPO CMS, click login.
   b. If you have not previously used the CEPO CMS click register to create a new account.
4. Follow the onscreen prompts to complete the post-activity assessments:
   a. Read the Accreditation Statement
   b. Complete the Evaluation
   c. Take the Posttest
5. After completing the posttest at 80% or above, your certificate will be available for print or download.
6. You can return to the site at any time in the future to print your certificate and transcripts at: https://www.dhaj7-cepo.com/
7. If you require further support, please contact us at: dha.ncr.j7.mbx.cepo-cms-support@health.mil

Special Feature Webinar:

Patient and Family Centered Care for Environmental Exposures: Red Hill Case Study

Home Study

Opens: 28 August 2023| Closes: 28 August 2024

This 3-hour special feature webinar will aid Military Health System staff members and civilian health care providers who care for TRICARE beneficiaries better care for patients potentially exposed to environmental hazards using Red Hill as a case study.

Presenters:

Col John Oh, M.D., M.P.H.
CAPT Joshua Morganstein, M.D.
Diana Felton, M.D.
Debra Colbeck, B.S.

Learning Objectives:

1. Review the psychological and behavioral impacts of disasters.
2. Identify factors altering risk and resilience in disasters.
3. Describe the framework for early interventions following disasters and practical actions to foster the essential elements that protect mental health.
4. Comprehend the November 2021 release of JP-5 jet fuel into the Joint Base Pearl Harbor Hickam Drinking Water System and the subsequent health impacts.
5. Recognize the limitations of evaluating health impacts and the difficulty in predicting long-term health impacts.
6. Outline the lessons learned and key takeaways from this environmental health disaster to inform future responses.
7. Summarize how risk communication theory and practices are used to improve overall risk management.
8. Analyze and be able to put into practice proven risk communication key elements that should be used to effectively communicate risk information.

Target Audience

Physicians (ACCME) • Nurses (ANCC) • Pharmacists/Pharmacy Technicians (ACPE) • Physician Assistants (AAPA) • Healthcare Executives (ACHE) •Social Workers (ASWB) •Psychologists (APA) • American Board of Internal Medicine (ABIM) •American Board of Pediatrics (ABP) •and other health care professionals who support/ care for U.S. active-duty service members, reservists, Coast Guard, Public Health Service, National Guardsmen, military veterans and their families.

This Continuing Education (CE)/Continuing Medical Education (CME) activity is provided through DHA, J-7, CEPO and is approved for 3.00 CE/CME credits.
To register, participate and complete the posttest and evaluation, please visit the following link: https://www.dhaj7-cepo.com/
You have to complete the posttest and evaluation to earn your CE certificate. For more information, please contact: dha.ncr.j7.mbx.continuing-education-office@health.mil

Thank you!

Thank you for your attendance and participation.

Email the DHA J-7 CEPO Team:

dha.ncr.j7.mbx.continuing-education-office@health.mil