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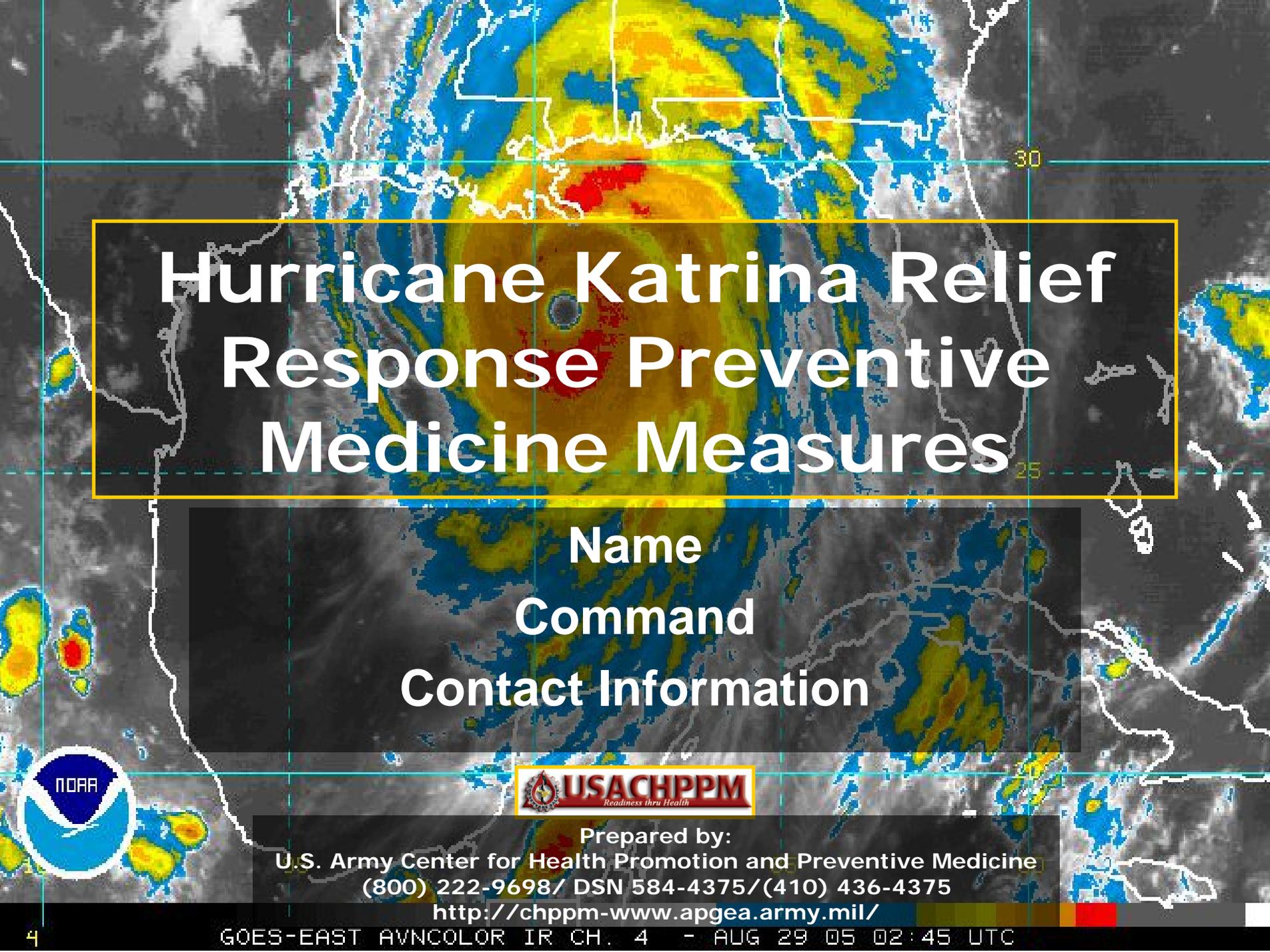
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HIDDEN SLIDE



Hurricane Katrina Relief Response Preventive Medicine Measures

Name
Command
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Agenda

- Purpose
- Background
- Medical Threat
- Summary
- Conclusion



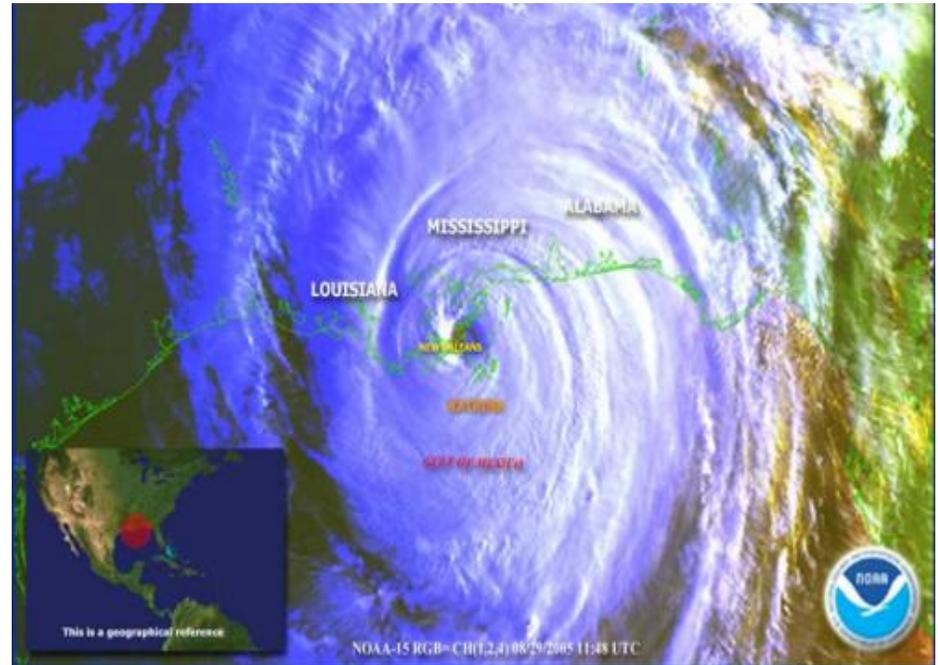
Purpose

Inform Deploying Personnel (Military and Civilian) of the Potential Health Hazards and the Individual Countermeasures Necessary to Assure Personal Safety and Health



Background

- US Forces are mobilizing and deploying in support of hurricane relief efforts
- Environmental and occupational health hazards are a potential medical threat to deployed personnel



Hurricane Katrina left the Louisiana and Mississippi coastlines in ruin. Up to 1 million people are without power, safe food, and safe water.

Southeastern United States

- Katrina caused extensive flooding and widespread devastation
- Health risks rise with
 - Lack of waste disposal
 - Contaminated food
 - Contaminated water
 - Inadequate water for hygiene
 - Increased exposure to the heat



Disease Trends (1999 data)

Louisiana

- Hep A rate – 4.9/100,000 which is half the national rate
- Hep C rate – 7.0/100,000 six times higher than the national rate
- Louisiana had the 10th highest number of AIDS cases in the nation
- 2 confirmed cases of Eastern Equine Encephalitis (EEE) in humans, 97 in horses
- 15 cases of Lyme Disease

Physical Environment

- **Topography**
 - **Mostly flat, coastal, some areas below sea level**
- **Climate** (September)
 - **High Humidity**
 - **90+° F day**
 - **70° F night**
 - **Potential for additional storms**



Heat Injury Prevention

- **Greatest threat is from heat injury**
- Heat Cramps, Exhaustion, or Stroke

COUNTERMEASURES

- Drink fluids continuously (hourly fluid intake should not exceed 1.5 quarts, daily fluid intake should not exceed 12 quarts)
- Maintain acclimatization
- Protect yourself from exposure to sunlight and wind
- Maintain good physical condition
- Establish work/rest schedules
- Wear proper clothing
- Participate in training



HEAT

H: Heat category – WBGT Index

E: Exertion level (prior 3 days)

A: Acclimatization

T: Tables – Water/Work/Rest



REMEMBER

Water requirements are not reduced by any form of training or acclimatization.

Units which have soldiers who do not drink because they do not have opportunities to urinate have a leadership problem.

Work/Rest and Water Consumption Table

Applies to average sized, heat-acclimated soldier wearing BDU, hot weather. (See TB MED 507 for further guidance.)

Easy Work	Moderate Work	Hard Work
<ul style="list-style-type: none"> • Weapon Maintenance • Walking Hard Surface at 2.5 mph, < 30 lb Load • Marksmanship Training • Drill and Ceremony • Manual of Arms 	<ul style="list-style-type: none"> • Walking Loose Sand at 2.5 mph, No Load • Walking Hard Surface at 3.5 mph, < 40 lb Load • Calisthenics • Patrolling • Individual Movement Techniques, i.e., Low Crawl or High Crawl • Defensive Position Construction 	<ul style="list-style-type: none"> • Walking Hard Surface at 3.5 mph, ≥ 40 lb Load • Walking Loose Sand at 2.5 mph with Load • Field Assaults

- The work/rest times and fluid replacement volumes will sustain performance and hydration for at least 4 hrs of work in the specified heat category. Fluid needs can vary based on individual differences ($\pm \frac{1}{4}$ qt/hr) and exposure to full sun or full shade ($\pm \frac{1}{4}$ qt/hr).

- **NL** = no limit to work time per hr.
- **Rest** = minimal physical activity (sitting or standing) accomplished in shade if possible.

- **CAUTION: Hourly fluid intake should not exceed 1½ qts.**

Daily fluid intake should not exceed 12 qts.

- If wearing body armor, add 5°F to WBGT index in humid climates.
- If doing Easy Work and wearing NBC (MOPP 4) clothing, add 10°F to WBGT index.
- If doing Moderate or Hard Work and wearing NBC (MOPP 4) clothing, add 20°F to WBGT index.

Heat Category	WBGT Index, F°	Easy Work		Moderate Work		Hard Work	
		Work/Rest (min)	Water Intake (qt/hr)	Work/Rest (min)	Water Intake (qt/hr)	Work/Rest (min)	Water Intake (qt/hr)
1	78° - 81.9°	NL	$\frac{1}{2}$	NL	$\frac{3}{4}$	40/20 min	$\frac{3}{4}$
2 (GREEN)	82° - 84.9°	NL	$\frac{1}{2}$	50/10 min	$\frac{3}{4}$	30/30 min	1
3 (YELLOW)	85° - 87.9°	NL	$\frac{3}{4}$	40/20 min	$\frac{3}{4}$	30/30 min	1
4 (RED)	88° - 89.9°	NL	$\frac{3}{4}$	30/30 min	$\frac{3}{4}$	20/40 min	1
5 (BLACK)	> 90°	50/10 min	1	20/40 min	1	10/50 min	1

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For electronic versions, see <http://chppm-www.apgea.army.mil/heat>. Local reproduction is authorized.

June 2004

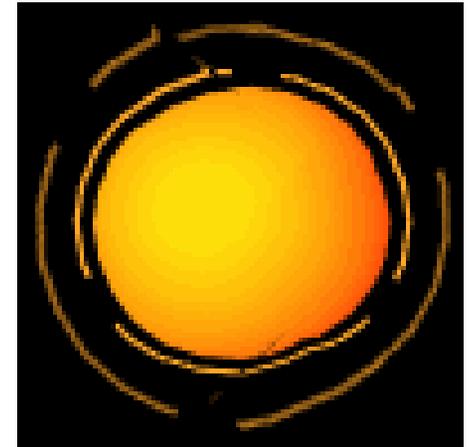


Sunburn

- Prevent overexposing skin and eyes to solar radiation and wind

COUNTERMEASURES

- Use sunscreen and lip balm
- Use protective eyewear
- Limit exposure
- Cover nose and mouth to limit drying



Sunburn reduces soldier readiness and increases the likelihood of skin cancer.

Environmental Health Risk

- Drowning after being trapped in debris / flash floods
- Avoid contact with water near downed power lines
- Ensure facilities are properly inspected prior to entry
- Identify, report and avoid ruptured natural gas lines
- Ensure adequate ventilation when using any carbon monoxide producing device (preferably outdoors)
- Building material hazards: asbestos, lead based paint, etc
- Mold may proliferate in continuously wet conditions and cause adverse reactions in some individuals. Monitor and treat personnel appropriately. Personnel with asthma and allergies are at greatest risk
- Investigate local waste disposal methods

Physical Injury



- Injury was a top diagnosis following Hurricane Andrew
- Walking over and handling debris that is covered with water can cause cuts, scrapes, bruises, sprains, etc.
- Remain current with tetanus vaccination – revaccinate for a dirty wound if current vaccination is over 5 years old
- Consider steel toe/shank footwear if available

Foot Care

Protect your feet by:

- keeping feet clean and dry
- change socks at least every 8 hours or whenever wet and apply foot powder
- bring extra boots to field - alternate boots from day to day to allow boots to dry.
- seek medical care at the first sign of any problems

Industrial Hazards

- Industrial chemicals and fuel contamination of the soil and water
 - Benzene
 - Hydrofluorine and Hydrofluoric acid
- Carbon monoxide poisoning from the burning of any fossil fuel without adequate ventilation
- Building material hazards: asbestos, lead based paint, etc
- Structural and electrical hazards
- Appropriate personnel protective equipment; may require respirator fit-testing



Foodborne and Waterborne Diseases

- Bacterial diarrhea
- Viral diarrhea
- Hepatitis A and E



- Staphylococcus
- Chemicals/Pesticides
- Heavy Metal Poisoning

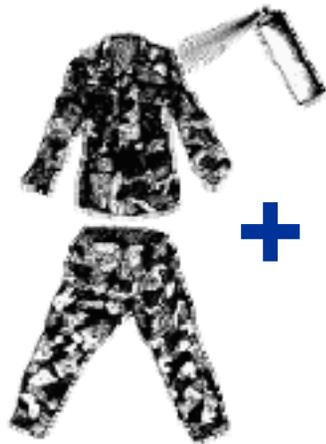
COUNTERMEASURES

- Do not consume any food, ice, water, or beverage (to include bottled water) that have not been approved by the U.S. military
- Assume all non-approved food, ice, and water is contaminated



Even a one-time consumption of these foods or water may cause severe illness

PPM Against Insects



**Permethrin
On
Uniform**

+



**DEET On
Exposed
Skin**

+



**Properly
Worn
Uniform**

=

**MAXIMUM
PROTECTION**

DOD Insect Repellent System

YOU NEED TO KNOW...

Dry cleaning removes permethrin from the uniform

Insect Repellents for Skin and Clothing

DEET lotion



NSN 6840-01-284-3982



- Apply a thin coat to EXPOSED skin
- One application lasts up to 12 hours

Permethrin

- Individual Dynamic Absorption Kit (IDA)
- Treatment lasts for for over 50 launderings



NSN 6840-01-345-0237



NSN 6840-01-278-1336

- Aerosol spray can
- Treatment lasts through 5-6 washes

Water Contact Diseases

- Water-contact Diseases
 - Standing water may persist in the New Orleans area for a month or more
- FHP Priorities
 - avoid unnecessary contact with lakes, rivers, streams, and other surface water
 - water contact in the performance of duties is expected – avoid **unnecessary** contact



Respiratory Diseases

- Respiratory Diseases
 - May increase in displaced civilian camps
- FHP Priorities
 - Avoid close contact when possible
 - Provide at least 72 square feet per person in sleeping areas
 - Provide and emphasize hand washing/sanitizer and proper hygiene



Handling Bodies of Victims

- Unburied human remains not a disease threat
- Cadavers in the water supply rarely transmit diseases.
- Increased number of filth flies can increase shigellosis.
- Mortuary staff, and body retrieval teams risk exposure to hepatitis B virus (HBV) and HIV
- For personnel exposed to blood and body fluids:
 - Use gloves when handling bodies or body fluids
 - Use eye protection, gowns, and masks when large quantities or splashes of blood are anticipated
 - Wash hands frequently
 - Use body bags to reduce the risk of contamination

Universal Precautions

- **“Universal Precautions or Standard Precautions”** are the terms used to describe a prevention strategy in which all blood, potentially infectious materials, and respiratory secretions are treated as if they are, in fact, infectious, regardless of the perceived status of the source individual.
- In other words:
Whether or not you think the blood/body fluid is infected with bloodborne pathogens, you treat it as if it is.

Prevention of Blood/Body Fluid Pathogens

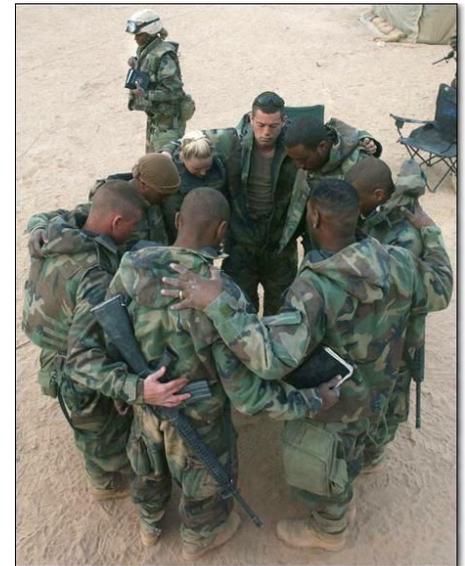
- Personal Protective Equipment (PPE)
 - Gloves (Fluid-Proof)
 - Eyes and Face Protection
 - Body Protection
 - Head and Foot Protection



If you find yourself in a situation where you have to come in contact with blood or other body fluids and you don't have any standard personal protective equipment handy, you can improvise. Use a towel, plastic bag, or some other barrier to help avoid direct contact.

Improve Resistance to Stress

- Fear and physical signs or symptoms of stress are normal reactions before and during dangerous/life-threatening situations
- Talk about what is happening with your buddies
- Learn ways to relax quickly
- Quickly integrate new replacements
- If you must join a new group, be active in establishing friendships
- Give each other moral support
- Care for your buddies and work together



Romeo Garcia / APF

VENOMOUS ANIMALS

- Snakes, Alligators (possibly displaced by floodwaters)
- Bees, wasps, hornets, and ants
- Spiders



COUNTERMEASURES

- Avoid bees, hornets, wasps, ants, and spiders
- Assume ALL snakes are poisonous
- Do not attempt to handle or capture any snakes
- Shake out clothes, shoes, and bedding before use
- Wear foot protection at all times (no barefoot)
- Bring proper medication if allergic to bites/stings

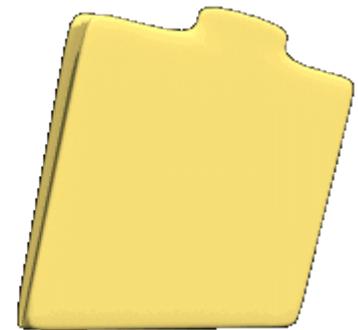
Post-Deployment

- Complete Post-Deployment Medical Health Assessment (DD FORM 2796)
- Receive post-deployment preventive medicine briefing
- Receive post-deployment screening, testing, and follow-up



SUMMARY

- Background
- Physical Environment
- Medical Threat



CONCLUSION

"Preparation through education is less costly than learning through tragedy."

**- MAX MAYFIELD, DIRECTOR
NATIONAL HURRICANE CENTER**





**Contact Your Local
Preventive Medicine
Service or Medical Support
Unit for Additional
Information**



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