
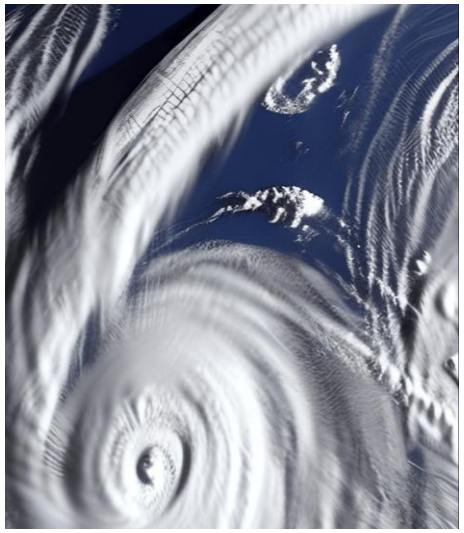




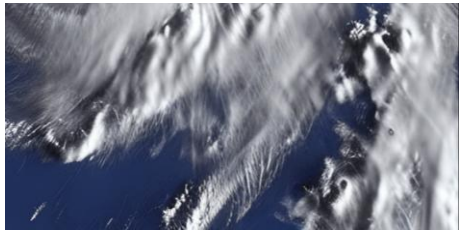

Natural Disaster Preparedness for the Clinical Laboratory

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ASM Webinar
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utmb Health

Emergency vs. Disaster

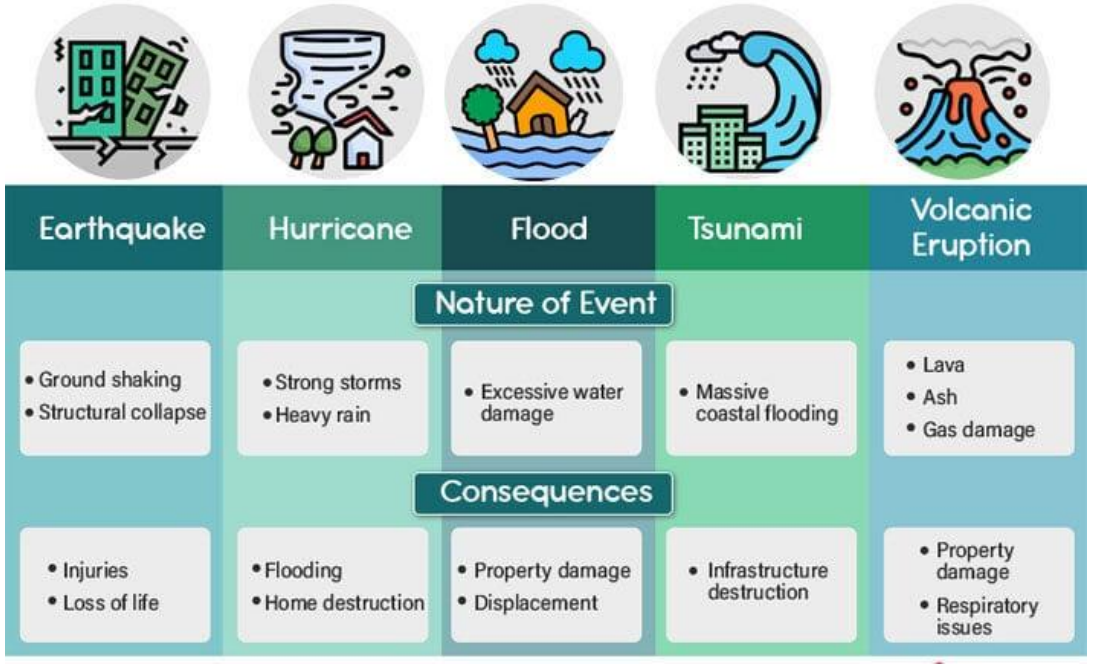
Emergency: Unexpected situation or sudden occurrence of a serious and urgent nature that demands immediate action.

Disaster: Calamitous event, specially one occurring suddenly and causing great loss of life, damage, or hardship.

https://www.merriam-webster.com/dictionary

Natural Disaster

- As defined by **The Stafford Act:**
  - Any natural catastrophe (including any hurricane, tornado, storm, high water, wind-driven water, tidal wave, tsunami, earthquake, volcanic eruption, landslide, mudslide, snowstorm, or drought) or, regardless of cause, any fire, flood or explosion, in any part of the United States.



How a Disaster Gets Declared | FEMA.gov

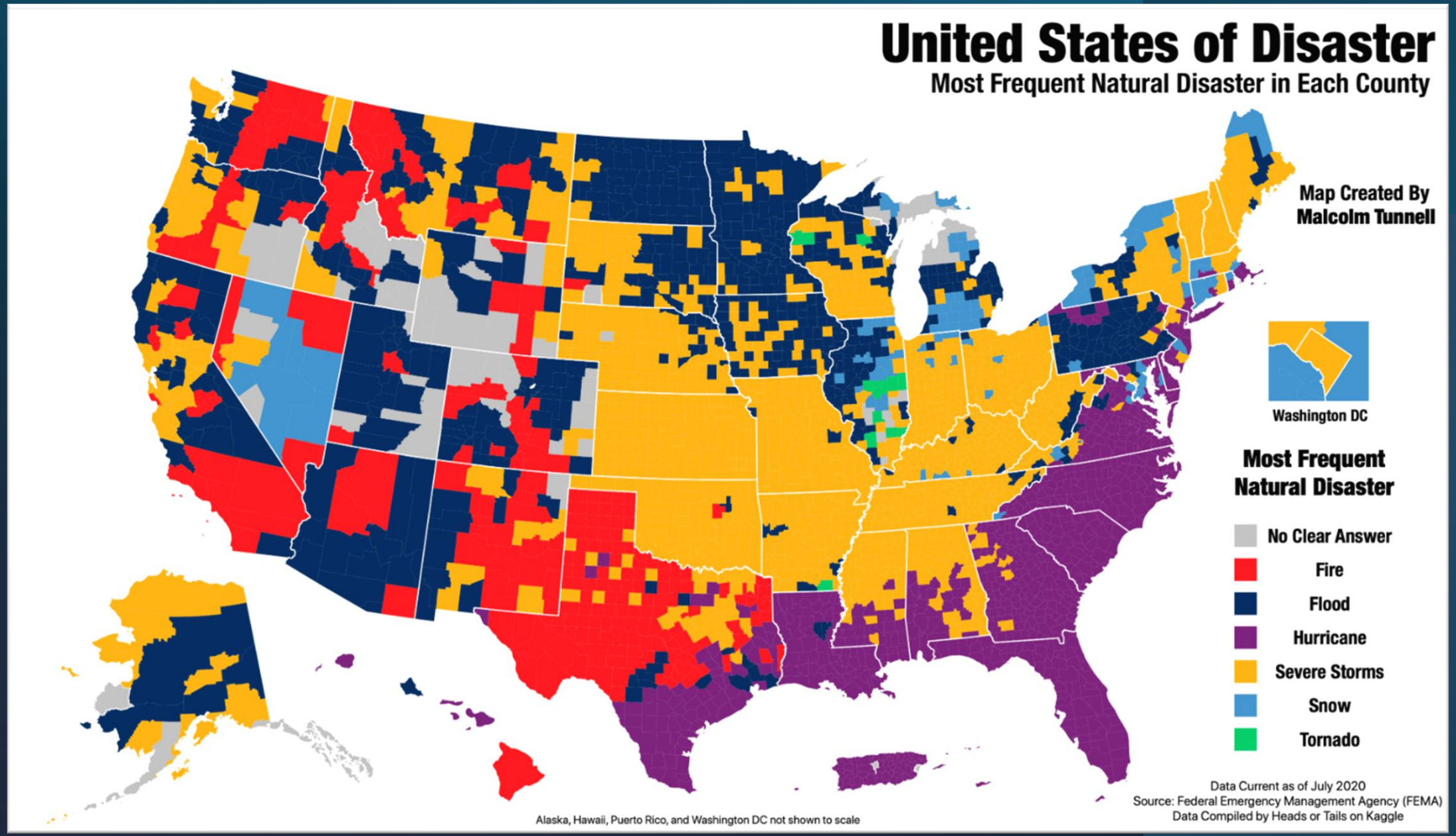
The Stafford Act

- Formally known as the **Robert T. Stafford Disaster Relief and Emergency Assistance Act**

- Primary law that governs how the U.S. federal government provides disaster and emergency assistance to state and local governments.

- Authorizes the President to provide various forms of aid, including financial assistance, to help communities recover from major disasters and emergencies.

How a Disaster Gets Declared | FEMA.gov


United States of Disaster
Most Frequent Natural Disaster in Each County
Map Created By
Malcolm Tunnell
Washington DC
Most Frequent
Natural Disaster
No Clear Answer
Fire
Flood
Hurricane
Severe Storms
Snow
Tornado
Alaska, Hawaii, Puerto Rico, and Washington DC not shown to scale
Data Current as of July 2020
Source: Federal Emergency Management Agency (FEMA)
Data Compiled by Heads or Tails on Kaggle

Emergency Preparedness, Emergency Management, Disaster Planning

The Emergency Management Plan (EMP)

Elements of Emergency Planning

Element	Action
Identify potential disasters and laboratory's response	Prepare list of authorities to notify Identify critical positions and assign individuals Identify critical space and supplies Prepare security measures Develop criteria for evacuation
Define level of service and impact on patient care	Full service (normal operations) Limited service (prioritize testing) Emergency service (prepare minimal test menu) Shut down of laboratory services
Develop communication plan	Identify critical healthcare staff Identify critical laboratory staff (call-back) with all contact information Identify critical suppliers with all contact information
Alternative operations	Identify alternative site of operations Identify alternative laboratory for service work Prepare alternative scheduling or staffing
Drills	Assess performance of emergency plan Modify plan to correct deficiencies

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Phases of the EMP

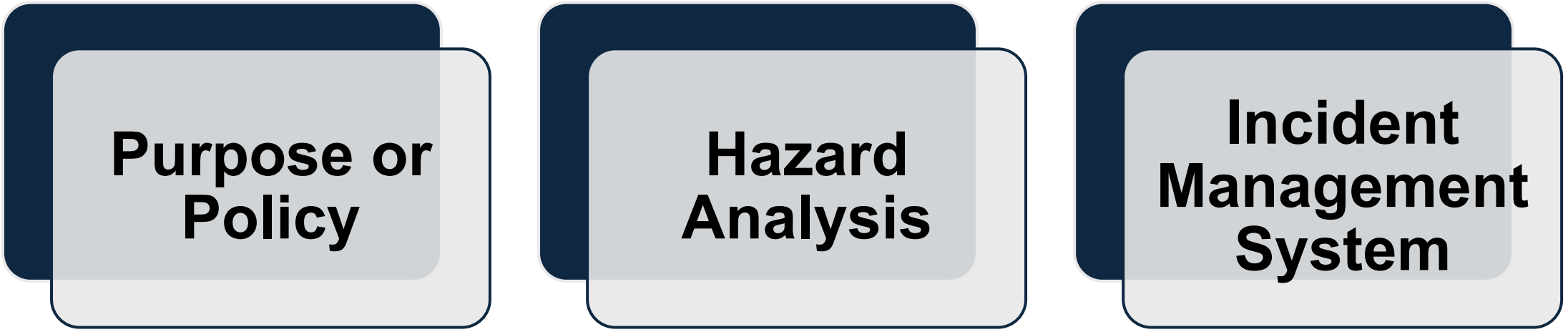
1. Identification of the emergency.

2. Containment (to limit the impact of the disaster).

3. Response (assist victims and confine the physical damage of the event).

4. Recovery (restore the organization’s normal operation).

Basic EMP Sections



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Basic EMP Sections

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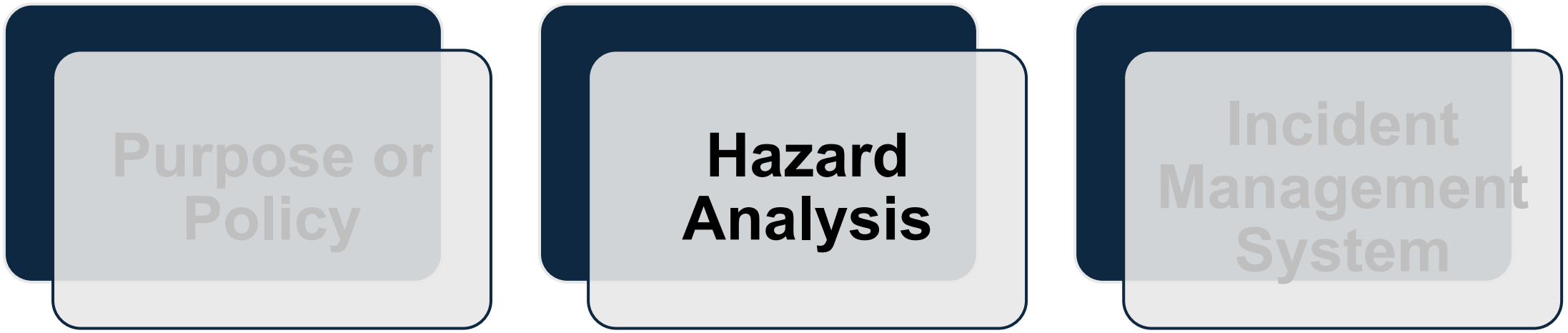
Basic EMP Sections



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Basic EMP Sections

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Elements of an Emergency Management Plan (EMP)

Element	Function
Emergency operation center	Describes leadership hierarchy Constructs emergency call-back list Defines level of service required Deploys laboratory personnel Maintains supply level Establishes communication services
Communication	Defines communication lines Identifies individuals for notification Maintains list of emergency numbers Disseminates information to employees and authorities
Medical treatment areas	Locates medical treatment areas Provides service to the medical treatment areas
Damage assessment	Conducts a damage assessment of laboratory structure, equipment, and reagents Reports assessment to facility's command center Determines need to evacuate
Evacuation	Posts evacuation routes Identifies evacuation leaders Notifies facility's command center
Personnel pool	Assesses availability of personnel Assigns personnel to laboratory or where needed
Locator system	Develops system for tracking location of employees, patients, and visitors Communicates locations to facility's command center
Security	Assigns individual to provide laboratory security until relieved by security personnel Restricts access to laboratory
Training	Addresses personnel responsibility, role in an emergency, communication system, and supply Conducts drills
Monitoring and evaluation	Documents deficiencies during drills Corrects deficiencies

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Examples of Checklists/Forms

Emergency Operations Center (EOC) Checklist

_____ Determine status of the emergency and implement management as appropriate.

_____ Set up EOC in the designated area. Determine the presence of key personnel for EOC and triage area.

_____ Establish command activity and direct all emergency relief activities.

_____ Identify the departments needed to support the relief activity and ensure that each department knows what is expected of them.

_____ Ensure that the triage area is functioning.

_____ Ensure that appropriate call-back is progressing, and all necessary supplies are delivered to the triage area. Utilize personnel pool to ensure that appropriate assistance is maintained.

_____ Request necessary assistance from state or local agencies (i.e., fire, police, ambulance, bomb squad, hazmat team, etc.).

_____ Notify other divisions of the emergency and request aid or place staff on standby.

_____ Brief all individuals reporting to the EOC. Dismiss individuals that are not required for the relief effort.

_____ Ensure that all departments (e.g., security, safety) that automatically respond to external and internal emergencies are notified and responding.

_____ Ensure that internal communication is established.

_____ Ensure that recorders are assigned to key response functions to document activities for the incident manager.

Operating Status Report Form

Name of hospital: _____ Date/time report given: _____

Contact person: _____ Title/location: _____

Contact method: _____ Contact number: _____

			Questions	Comments
1.	Y	N	Can you continue to treat incoming patients?	If no, why not?
2.	Y	N	Any patients evacuated to outside the hospital?	If yes, why? Total # evacuated # unstable or critical patients
3.	Y	N	Any patients or staff injured?	# of injured people. Deaths?
4.	Y	N	Any structural damage?	Partial or total collapse?
5.	Y	N	Any major non-structural problems?	List
6.	Y	N	Power from any source?	
7.	Y	N	Can generator power essential areas?	
8.	Y	N	Can you communicate with the outside world?	
9.	Y	N	Access to all essential areas?	Anyone trapped?
10.	Y	N	Sufficient number of elevators working?	
11.	Y	N	Water lines intact to essential areas?	
12.	Y	N	Natural gas lines intact to essential areas?	
13.	Y	N	Sewage system intact in essential areas?	
14.	Y	N	Adequate staff at the hospital?	What do you need?
15.	Y	N	Adequate supplies and equipment?	What do you need?
16.	Y	N	Have reagents and/or equipment been compromised from disaster (extreme heat or cold, water-damage, etc.)	Reagents and/or instruments will need re-verification studies performed before patient testing can be performed
17.	Y	N	Any outside assistance needed?	What?
18.	Y	N	Need structural engineer?	

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Key Points and Recommendations

Disasters may stem from a variety of root causes but result in consistent impact on operations—failure to provide services.

Emergency Management Plans should be comprehensive and included in laboratory policies and procedures.

Guidelines are available from many resources, based on local, regional, and national regulations.

Foster a culture of safety: Promote a safety-conscious environment and ensure all staff are adequately trained in emergency procedures.

Participate in emergency drills: Regularly engage in drills to identify weaknesses/improve protocols.

Learn from other labs: Explore resources from other institutions.

By taking these steps, clinical laboratories can strengthen their resilience and ensure they are well-prepared to maintain critical functions and protect patient care during and after a natural disaster.

Useful Resources

EMERGENCY PREPAREDNESS WEBSITES

Federal Emergency Management Agency
https://www.fema.gov/ (accessed 9 October 2023)
http://www.ready.gov/are-you-ready-guide
https://www.ready.gov/biohazard
Source of materials for emergency preparedness

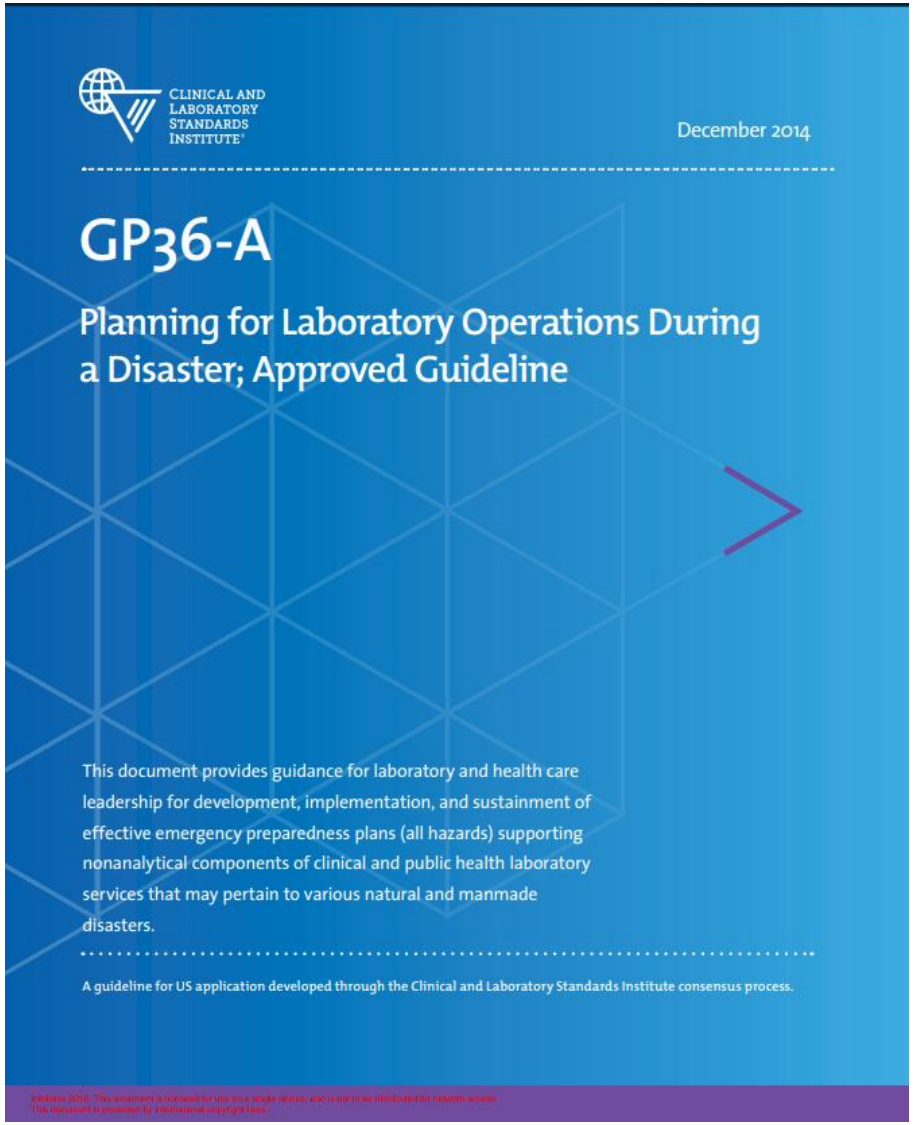
The Joint Commission
http://www.jointcommission.org
Guidelines on emergency management standards

National Institute for Occupational Safety and Health
http://www.cdc.gov/niosh
Resources on chemical agents and emergency preparedness

Occupational Safety and Health Administration
http://www.osha.gov
Training materials, standards, and regulations related to safety in the laboratory

Office of Health and Safety
http://www.cdc.gov/od/ohs
Resources on safety, biosafety, and safety survival

U.S. Government Printing Office
https://www.gpo.gov/
Source for federal regulations




Thank You! Any Questions?