

Disaster Management Challenges for Clinical/Biomedical Engineering Professions

Program Elements and Innovation Resources



World Health Organization

Second Global Forum on Medical Devices
Centre International de Conference Geneve (C)CG)
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Geneva, Switzerland



Fred Hosea III, Ph.D.



Caveats

- This presentation is only illustrative of certain possibilities. It is not authoritative, exhaustive, definitive or scientifically based.
- Depending on your country, there may already be large organizational, professional, and budgetary infrastructures in place that are dedicated full-time to Disaster Management. Get to know them, and take advantage of working with them.

The more homework you do, the better you will understand what kind of contributions you and your organization can make, to fill gaps and to advance the field.

- Do drills regularly, and incorporate Disaster Mgt. tools and processes into your normal daily activities to increase your skill and readiness.
- Don't just plan for small, local events that you can manage successfully. "Test to Fail" so you can discover weaknesses in your program and in your wider system relations.
- Make contingency plans, in case high tech fails, staff members are absent, communication is down, and the disaster occurs at inconvenient times and places.



The Scope of Readiness
required for Disaster Management is vast ...

from Category 5 hurricanes
to microscopic anthrax bacteria and H5N1 viruses...

from the individual family to international regions ...

Despite years of effort, most governments, businesses,
professions, and citizens are poorly prepared.

What are some causes of DISASTERS?

- Nature
- Ignorance
- False expertise
- Technology failure
- Optimistic/faulty assumptions
- Hostility (ethnic, political, economic, religious, national)
- Deception
- Failure to prepare
- Failure to respond
- Inadequate physical infrastructure and human resources
- Human error
- Terrorist acts
- Economic fraud, criminality
- Political motivations
- Etc.....

... and how can we possibly prepare for so many different risks with so many causes?

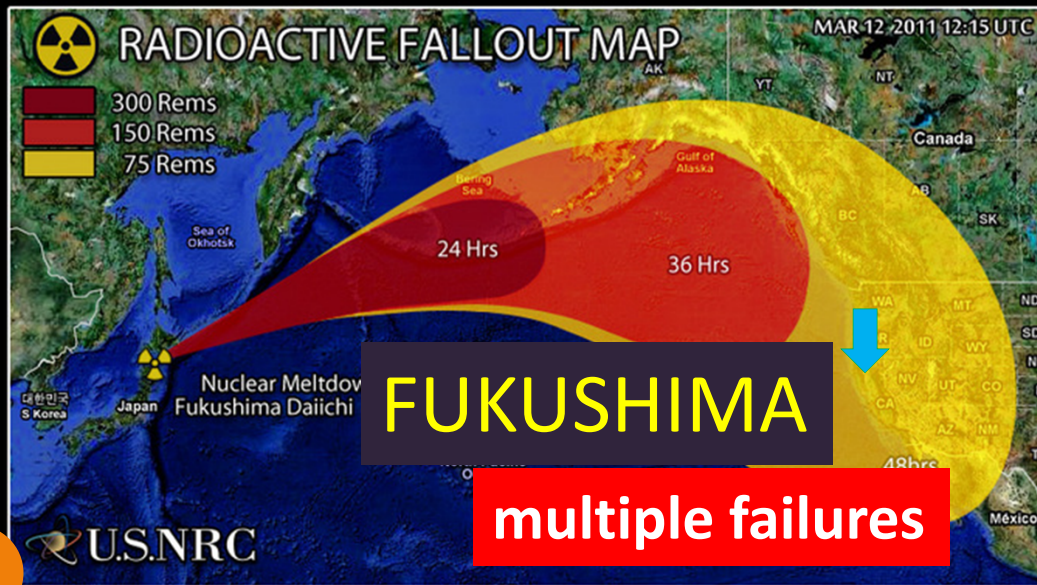
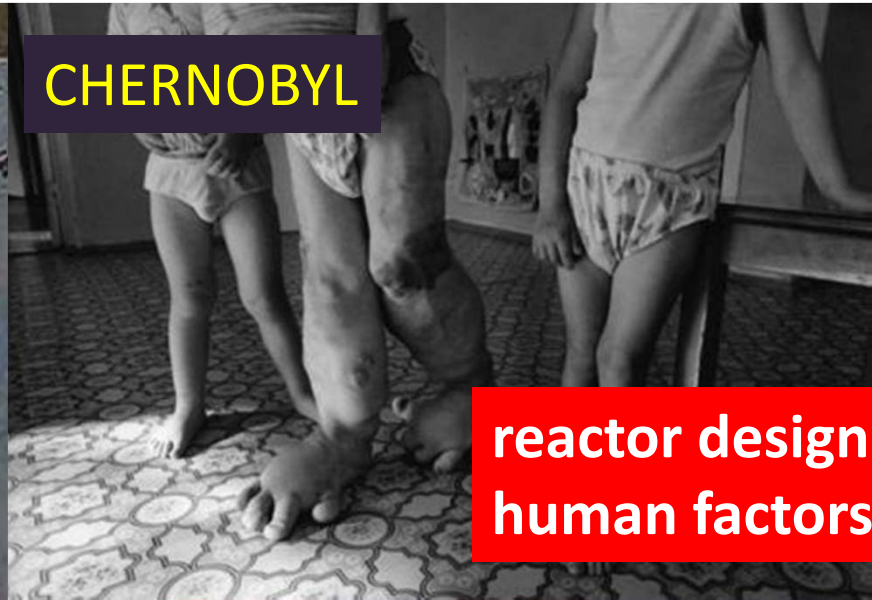
KATRINA

faulty levee construction
failure to evacuate
inexperienced leaders



CHERNOBYL

reactor design
human factors



BHOPAL

negligent design
no alarms



Jurisdictions and Resources often do not match Risk areas



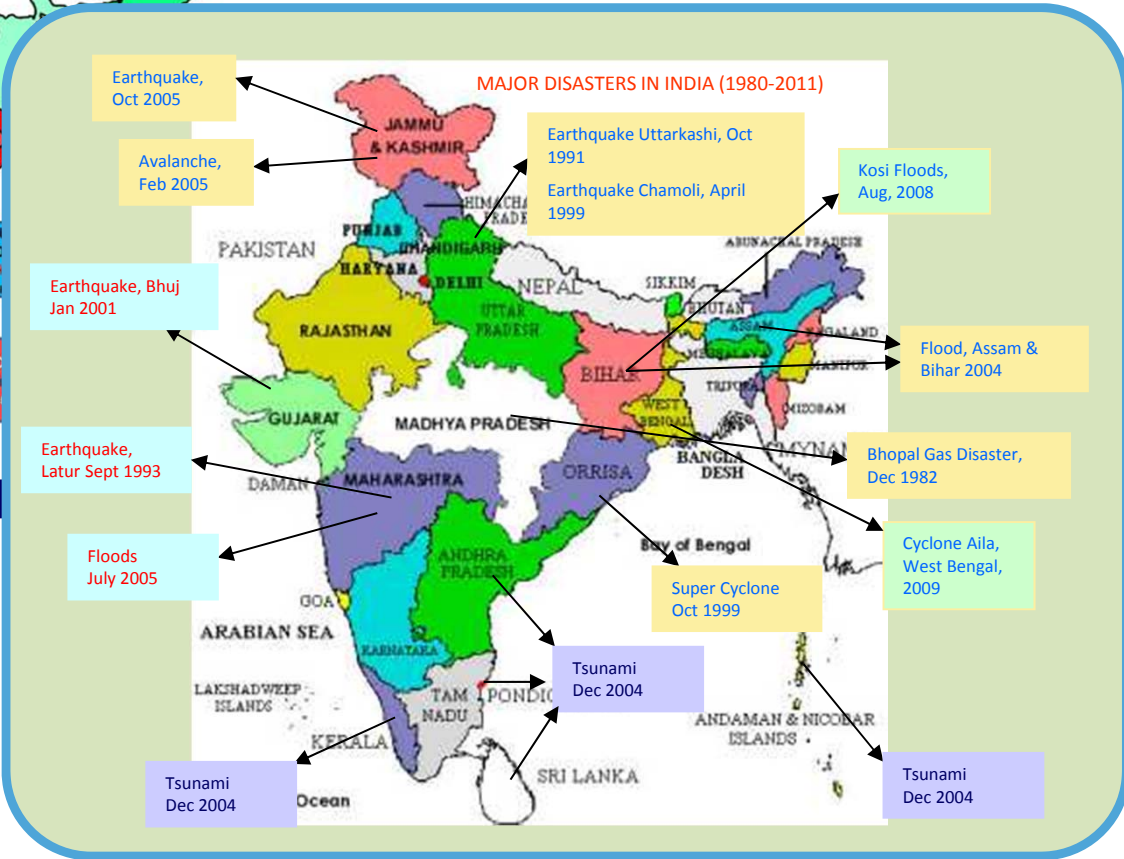
AREA OF RESPONSIBILITY OF NDRF BNS



Disasters often are not limited to a single official jurisdiction. Regional and inter-regional capabilities will require planning and coordination, Mutual Aid agreements, and interoperable technologies.

Types of disasters

- Biological hazards: epidemics
- Biological hazards: animal and insect infestation
- Geophysical hazards: Earthquakes
- Mass movement dry
- Tsunamis
- Volcanic eruptions
- Drought
- Extreme temperatures
- Wildfires / Urban fires
- Floods
- Mass movement wet
- Tropical storms, hurricanes, typhoons and cyclones
- Storms and tidal waves
- Industrial accidents
- Transport accidents
- Complex emergencies
- Famine/ food insecurity
- Displaced populations



DOES THIS QUALIFY AS A DISASTER ?

Some disasters are caused by business experts and credit-rating agencies following financial incentives to intentionally mis-calculate Risk...

Expertise?? $\Pr[T_A < 1, T_B < 1] = \Phi_2(\Phi^{-1}(F_A(1)), \Phi^{-1}(F_B(1)), \gamma)$

Here's what killed your 401(k) David X. Li's Gaussian copula function as first published in 2000. Investors exploited it as a quick—and fatally flawed—way to assess risk. A shorter version appears on this

...faulty or deceptive expertise in assessing risk impacts millions ...

Probability
Specifically, this is a joint default probability—the likelihood that

Survival times
The amount of time between now and when A and B can be

Equality
A dangerously precise concept, since it leaves no room for error.



IMPACTS ON HEALTHCARE:

- bankruptcy
- cutting of services
- international destabilization
- foreclosure, eviction
- layoff and unemployment
- homelessness
- medical indigence
- destitution
- depression
- suicide

HAITI



vulnerable infrastructure

9/11



multiple causes



Chronic Starvation

multiple causes
often not prioritized as a disaster

photo by Filipe Moreira

et cetera

Key Points for Biomedical and Clinical Engineering professions

- Many social institutions around the world have devoted years to planning, preparing, responding, and recovering from disasters. **Many of these plans are outdated, poorly communicated, based on obsolete assumptions and roles, and fail to take advantage of new technologies.**
 - As the next generation of clinical technologies emerge, there will be many **new, gray areas** of professional practice and new responsibilities that will need to be evaluated and assigned to the most appropriate professional group.
 - **Disaster Management is one area among several where the models and technologies of healthcare where Biomedical and Clinical Engineering professions have significant leadership opportunities.**
 - Biomedical and Clinical Engineering professions are often the best informed and most experienced professionals to provide expertise in:
 - Managing the lifecycle of medical devices and systems
 - Understanding clinical workflow vulnerabilities and pragmatic alternatives
 - Managing supply-chain/vendor/manufacture relations
 - Collegial relations with doctors and nurses
 - Biomedical and Clinical Engineering professions will need to expand and update their scopes of practice, their skillsets, their training and service models and their leadership roles.
- This presentation will present an overview of selected organizational and informational resources for Disaster Management, and identify several promising technological innovations that can improve our ability to prepare for disasters, and provide continuity of care when they occur. The field is huge, and careful work is needed to avoid being overwhelmed by the scope of the challenges.
 - Because of the great variation of disaster types, distribution of government and institutional resources, and socio-economic history, it will be necessary for each hospital/clinic to do its own assessment and plans, using the current models and checklists as reference points, to develop the skills, plans, and working alliances best suited to each location.
 - Significant resources are currently available at little to no-cost via public/non-profit programs, government grants, open source software and the internet. **We don't have to re-invent the wheel.**

For your Safety, please fasten your seat belt





Institutional Resources



United Nations Inter-agency Clusters support the Disaster Mgt. cycle



United Nations Hyogo Framework



SUMMARY of the Hyogo Framework for Action 2005-2015: Building the Resilience of Nations and Communities to Disasters (Hyogo Framework)

Expected outcome, strategic goals and priorities for action 2005-2015

Where does your Organization fit?

Expected Outcome
The substantial reduction of disaster losses, in lives and in the social, economic and environmental assets of communities and countries

Strategic Goals

The integration of disaster risk reduction into sustainable development policies and planning

Development and strengthening of institutions, mechanisms and capacities to build resilience to hazards

The systematic incorporation of risk reduction approaches into the implementation of emergency preparedness, response and recovery programmes

Priorities for Action

Key Activities	<p>1. Ensure that disaster risk reduction (DRR) is a national and a local priority with a strong institutional basis for implementation</p> <ul style="list-style-type: none"> • DRR institutional mechanisms (national platforms); designated responsibilities • DRR part of development policies and planning, sector wise and multisector • Legislation to support DRR • Decentralisation of responsibilities and resources • Assessment of human resources and capacities • Foster political commitment • Community participation 	<p>2. Identify, assess and monitor disaster risks and enhance early warning</p> <ul style="list-style-type: none"> • Risk assessments and maps, multi-risk: elaboration and dissemination • Indicators on DRR and vulnerability • Data & statistical loss information • Early warning: people centered; information systems; public policy • Scientific and technological development; data sharing, space-based earth observation, climate modeling and forecasting; early warning • Regional and emerging risks 	<p>3. Use knowledge, innovation and education to build a culture of safety and resilience at all levels</p> <ul style="list-style-type: none"> • Information sharing and cooperation; • Networks across disciplines and regions; dialogue • Use of standard DRR terminology • Inclusion of DRR into school curricula, formal and informal education • Training and learning on DRR: community level, local authorities, targeted sectors; equal access • Research capacity: multi-risk; socio-economic; application • Public awareness and media 	<p>4. Reduce the underlying risk factors</p> <ul style="list-style-type: none"> • Sustainable ecosystems and environmental management • DRR strategies integrated with climate change adaptation • Food security for resilience • DRR integrated into health sector and safe hospitals • Protection of critical public facilities • Recovery schemes and social safety-nets • Vulnerability reduction with diversified income options • Financial risk-sharing mechanisms • Public-private partnership • Land use planning and building codes • Rural development plans and DRR 	<p>5. Strengthen disaster preparedness for effective response at all levels</p> <ul style="list-style-type: none"> • Disaster management capacities: policy, technical and institutional capacities • Dialogue, coordination & information exchange between disaster managers and development sectors • Regional approaches to disaster response, with risk reduction focus • Review & and exercise preparedness and contingency plans • Emergency funds • Voluntarism & participation

Cross Cutting Issues

Multi-hazard approach

Gender perspective and cultural diversity

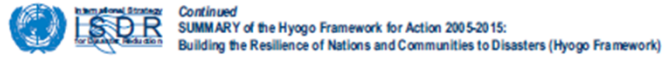
Community and volunteers participation

Capacity building & technology transfer

Contributing to the achievements of the internationally agreed development goals (including the MDGs)

United Nations Hyogo Framework

Who are your local and Regional liaisons into the National model?



Implementation and Follow-Up

In order to achieve the goals and act upon the priorities identified in this Framework, the following tasks have been identified to ensure implementation and follow-up by States, regional and international organizations in collaboration with civil society and other stakeholders. The ISDR partners, in particular the Inter-agency Task Force on Disaster Reduction and secretariat, are requested to assist in implementing this Framework for Action.

General Considerations

Implementation by different stakeholders, multi-sectoral approach; participation of civil society (NGOs, CBOs, volunteers), scientific community & private sector is vital	States primarily responsible; an enabling international environment is vital, incl. strengthened regional capacities	Build multi-stakeholder partnerships	Particular attention to: - Small island developing States; Mauritius Strategy; - Least developed countries; - Africa	States, regional and international organizations to foster coordination among themselves and a strengthened International Strategy for Disaster Reduction (ISDR)	Follow-up integrated with other major conferences in fields relevant to DRR; reviews as appropriate
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Actors

	States	Regional Organizations and Institutions	International Organizations (including UN System and IFIs)
Critical tasks	<ul style="list-style-type: none"> Designate national coordination mechanisms for the implementation and follow up, communicate to the ISDR secretariat; National baseline assessments of the status of DRR; Publish and update a summary of national programme for DRR including international cooperation; Develop procedure for reviewing national progress including systems for cost/benefit analysis and ongoing monitoring on risk; Consider acceding to, approving or ratifying relevant international legal instruments and to make sure they are implemented; Promote the integration of DRR with climate variability and climate change into DRR strategies and adaptation to climate change; ensure management of risks to geological hazards. 	<ul style="list-style-type: none"> Promote regional programmes including for technical cooperation, capacity development, the development of methodologies and standards for hazard and vulnerability monitoring and assessment, the sharing of information and effective mobilization of resources; Undertake and publish regional and sub-regional baseline assessments; Coordinate and publish reviews on progress and support needs, and assists countries in preparation of national summaries; Establish specialized regional collaborative centers; Support the development of regional mechanisms and capacities for early warning, including for tsunami 	<ul style="list-style-type: none"> Engage in the implementation of the ISDR by encouraging integration of DRR into humanitarian and sustainable development fields; Strengthen the capacity of the UN system to assist disaster-prone developing countries in DRR and implement measures for assessment of progress; Identify actions to assist disaster-prone developing countries in the implementation of the Hyogo Framework, ensure their integration and that adequate funding is allocated; assist in setting up national strategies and programmes for DRR; Integrate actions into relevant coordination mechanisms (UNDG, IASC, RCs and UN Country Teams); Integrate DRR into development assistance frameworks such as CCA/UNDAF, PRSP; In collaboration with networks and platform support: data collection and forecasting on natural hazards and risks; early warning systems; full & open exchange of data; Support States with coordinated international relief assistance, to reduce vulnerability & increase capacities; Strengthen international mechanisms to support disaster stricken States in post-disaster recovery with DRR approach Adapt & strengthen inter-agency disaster management training for DRR and capacity building.

ISDR (Inter-Agency Task Force on Disaster Reduction & secretariat)

- | | |
|---|--|
| <ul style="list-style-type: none"> Develop a matrix of roles and initiatives in support of followup to the Hyogo Framework; Facilitate the coordination of effective actions within the UN system and other international and regional entities to support the implementation of the Hyogo Framework, identify gaps, facilitate processes to develop guidelines and policy tools for each priority area; In broad consultation, develop generic, realistic and measurable indicators. These indicators could assist States in measuring progress in the implementation of the Hyogo Framework; | <ul style="list-style-type: none"> Support national platforms & regional coordination; Register relevant partnerships with Commission on Sustainable Development; Stimulate the exchange, compilation, analysis and dissemination of best practices, lessons learnt; Prepare periodic review on progress towards achieving the objectives of the Hyogo Framework and provide reports to the UNGA & other UN bodies |
|---|--|

Resource Mobilization: States, Regional and International Organizations

- | | |
|---|---|
| <ul style="list-style-type: none"> Mobilize resources and capabilities of relevant national, regional and international bodies, including the UN system; Provide and support the implementation of the HFA in disaster prone developing countries, including through financial and technical assistance, addressing debt sustainability, technology transfer, public-private partnership and North-South and South-South cooperation; Mainstream DRR measures into multilateral and bilateral development assistance programmes; | <ul style="list-style-type: none"> Provide adequate voluntary financial contribution to the UN Trust Fund for DR to support follow-up activities to Hyogo Framework; review usage and feasibility for the expansion of this fund; Develop partnership to implement schemes that spread out risks, reduce insurance premiums, expand insurance coverage and increase financing for post-disaster reconstruction, including through public and private partnerships. Promote an environment that encourages a culture of insurance in developing countries. |
|---|---|

United Nations Terminology guide

UNISDR develop these basic definitions on disaster risk reduction to promote a common understanding on the subject for use by the public, authorities and practitioners.

The terms are based on a broad consideration of different international sources. Feedback from specialists and other practitioners to improve these definitions will be most welcome.



UN ORGANIZATIONAL RESOURCES

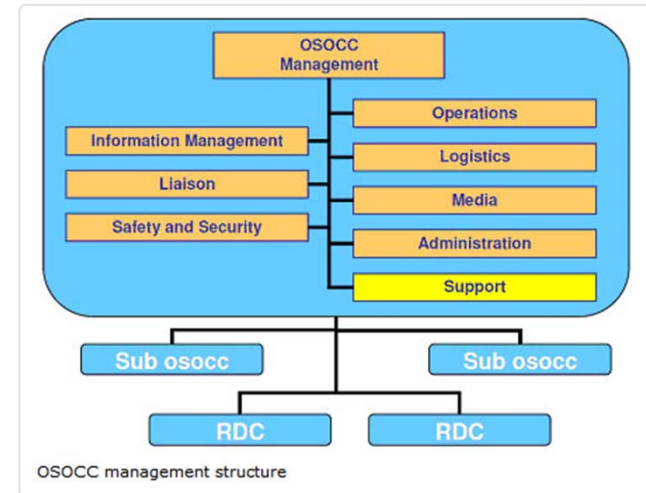
An OSOCC is set up to help local authorities in a disaster-affected country to coordinate international relief. Following a disaster, the OSOCC is established as soon as possible by the first arriving international urban search-and-rescue team or United Nations Disaster Assessment and Coordination team deployed by OCHA.

An OSOCC has three primary objectives:

To be a link between international responders and the Government of the affected country.

To provide a system for coordinating and facilitating the activities of international relief efforts at a disaster site, notably following an earthquake, where the coordination of many international USAR teams is critical to ensure optimal rescue efforts.

To provide a platform for cooperation, coordination and information management among international humanitarian agencies.



Coordination Tools

- Cluster Coordination
- Surge Capacity
- UNDAC
- INSARAG
- OSOCC & RDC
- Logistics Support
- Humanitarian Civil-Military Coordination
- Needs Assessment
- Environmental Emergencies

United Nations Risk Reduction Framework



CADRI is an inter-agency initiative whose mission is to expand existing efforts to develop robust and sustainable capacity for disaster risk reduction worldwide. We cooperate with national and local governments, UN entities, NGOs and other international organizations to advance the five priorities of the Hyogo Framework for Action.

CADRI core organizations

Our core organizations are the United Nations Development Programme (UNDP), the United Nations International Strategy for Disaster Reduction (UNISDR secretariat), and the United Nations Office for the Coordination of Humanitarian Affairs (OCHA).



UNDP

UNDP is a global development network: through this network the UN advocates for change and connects countries to knowledge, experience and resources to help their people build better lives.

► [View UNDP](#)



UNISDR

UNISDR is the inter-agency secretariat of the International Strategy for Disaster Reduction (ISDR). The ISDR system includes all DRR institutions, organizations and practitioners.

► [View UNISDR](#)



OCHA

OCHA is an entity within the United Nations Secretariat whose role is to strengthen the international community's collective effort, particularly the United Nations System, to make emergency response more effective.

United States: National Incident Management System - NIMS

NIMS Resource Center

Information & Documents

- About the National Incident Management System (NIMS)
- NIMS Document [2.7MB PDF]
- NIMS Brochure [2.3MB PDF]
- National Response Framework Resource Center
- Related Guides, Annexes & Documents
- NIMS Rollout Materials

NIMS Implementation & Compliance Guidance

- Implementation and Compliance Guidance by FY
- Implementation and Compliance Guidance for Stakeholders
- NIMS Compliance Assistance Support Tool (NIMSCAST)
- Grants Information

NIMS Components

- Preparedness
- Communications & Information Management
- Resource Management
- Command & Management
 - Incident Command System
 - Multiagency Coordination Systems
 - Public Information
- Ongoing Management & Maintenance

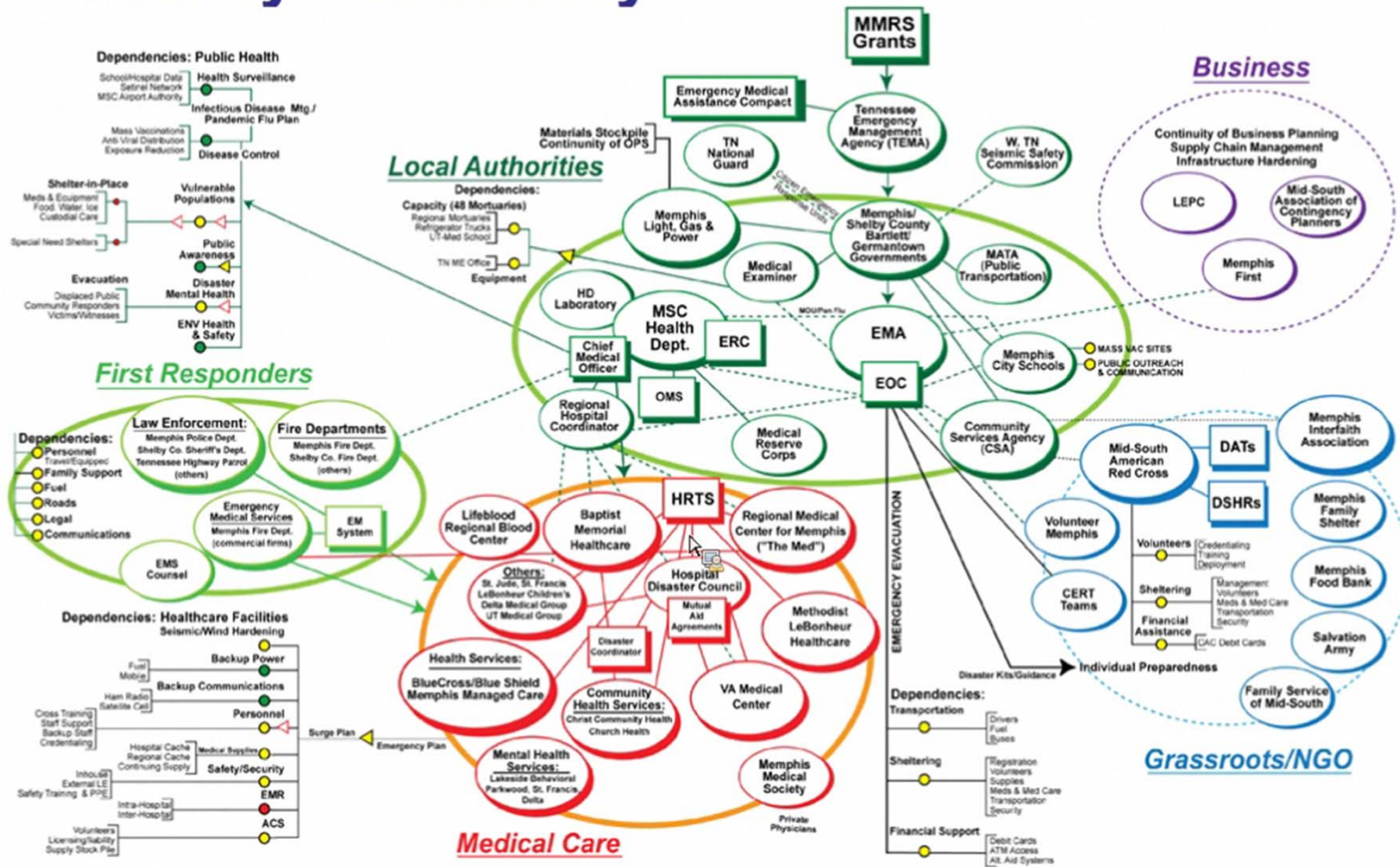
Briefings, Training & Other Resources

- NIMS Briefings
- NIMS Alerts and FAQs
- NIMS Training
- ICS Resource Center
- Smart Practices & Lessons Learned
- Forms/Job Aids, Tools & Templates
- Glossary/Acronyms
- Additional Resources



Coordinating Multiple Relationships is a Key to Success

Community Relationships: Health Security Taxonomy



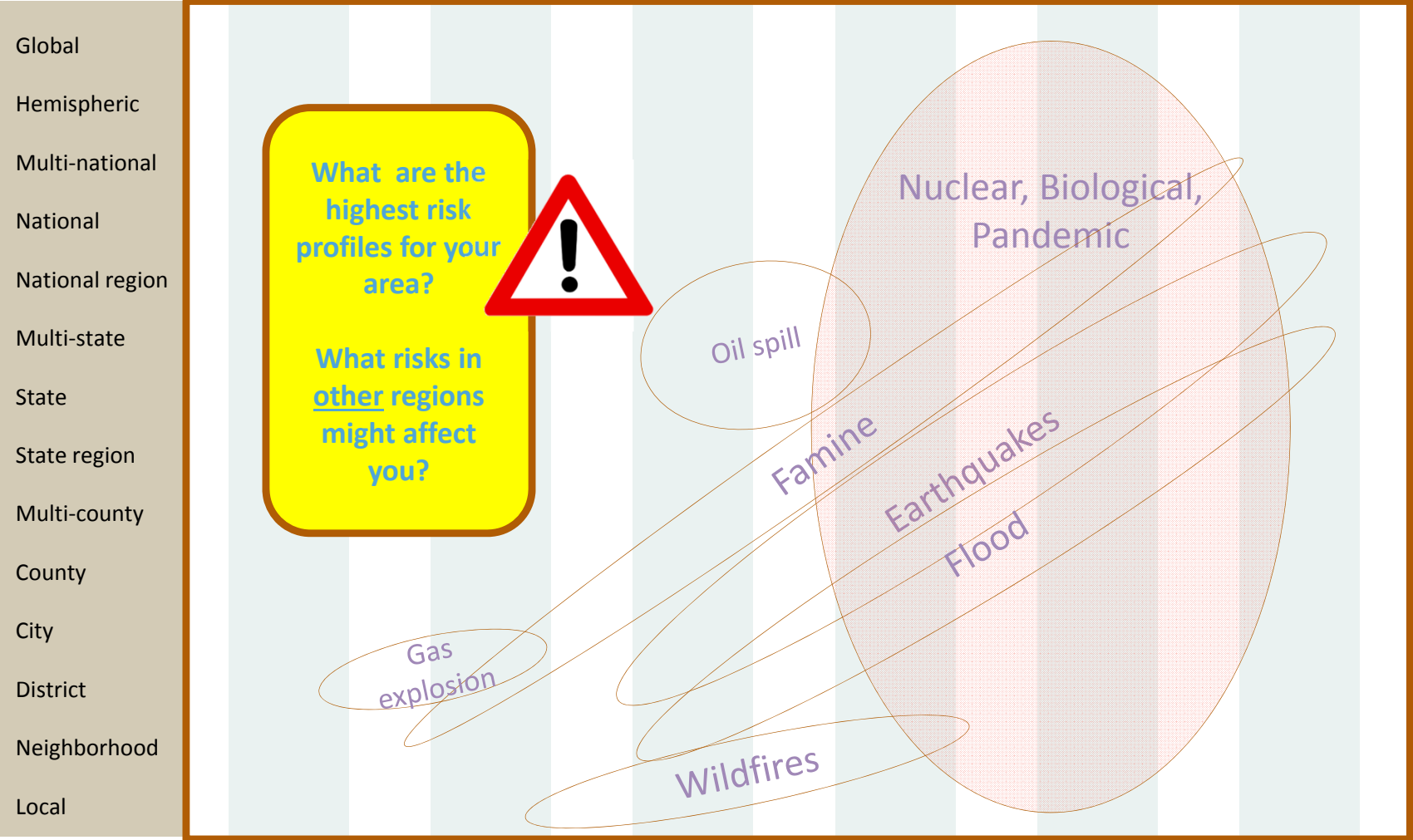
Who else might need to be involved in your planning?

Building Science Professionals
Contractors and Vendors
Children's Working Group
Disaster Survivors
Emergency Managers and Personnel
Fire Service
Government (Federal, local, and state)
HAZUS User Groups
Home (Property) Owners
Individuals
Institutions
Kids
Language translators
Livestock Owners
Parents and Teachers
Pet Owners
Individuals with Access & Functional Needs

Press Resources
Private Sector
Tribal Representatives
Universities
Volunteers
Language translators
Livestock Owners
Parents and Teachers
Pet Owners
Individuals with Access &
Functional Needs
Press Resources
Private Sector
Tribal Representatives
Universities
Volunteers

ORGANIZATIONAL RESOURCES

Scale of Risk



Resources

- Individuals, Neighborhoods
- Small Organizations
- Large Organizations
- State and County agencies
- National
- International

A City-based program run by the Fire Department

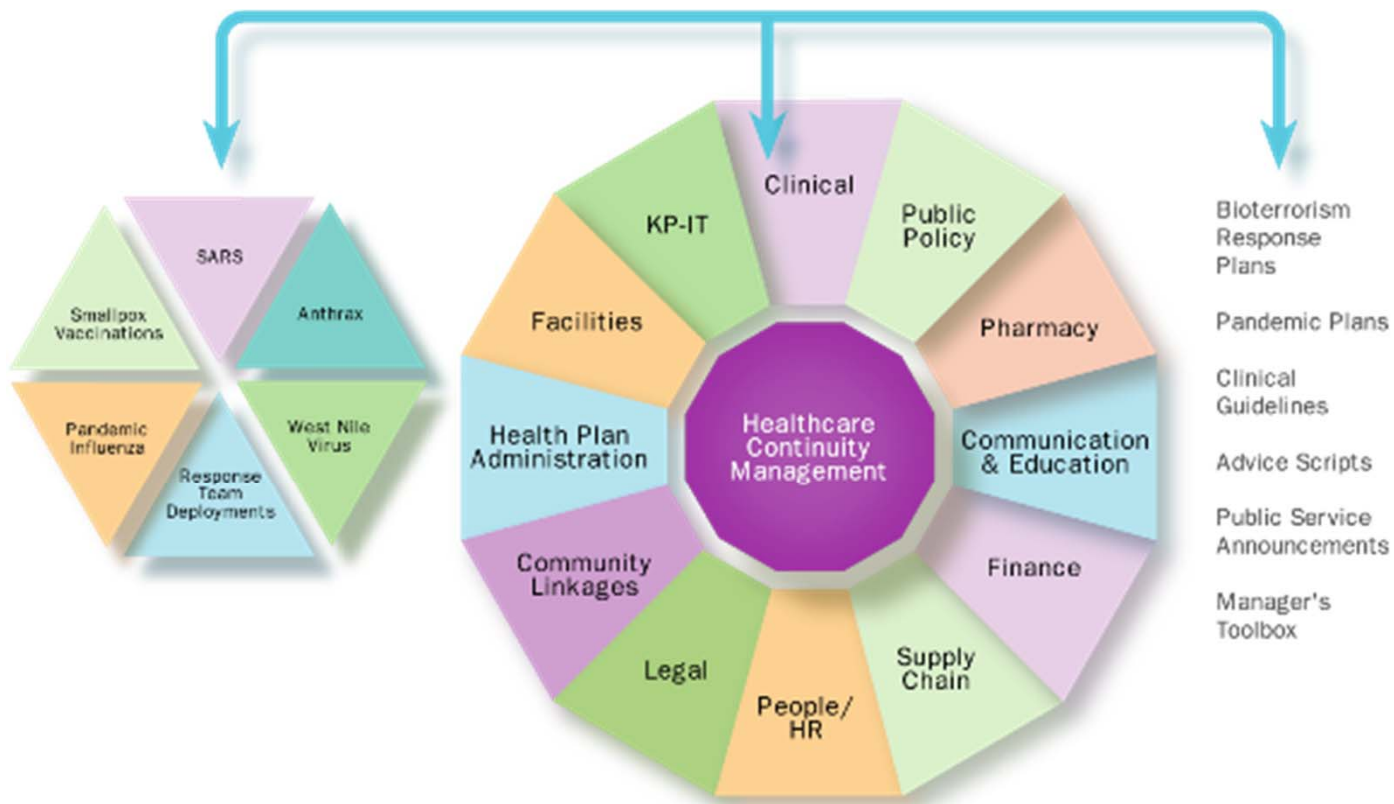
The Mountain View (California) Fire Department Office of Emergency Services (OES) is responsible for helping city employees, residents, businesses and schools prepare for, respond to and recover from emergencies and disasters, both natural and man-made.

Duties of the Office of Emergency Services include:

- **Preparing** the city by maintaining the city's Emergency Plan and Emergency Operations Center (EOC), and designing and conducting drills and exercises.
- **Training** all city staff on the Standardized Emergency Management System (SEMS) and personal preparedness, as well as recruiting and training members of the city Emergency Response Team (ERT).
- **Planning and coordinating** response for emergencies with other local jurisdictions and Regional, State and Federal Agencies is also facilitated by OES.
- **Serving as a resource** for schools, businesses, community groups, service organizations and neighborhood associations, providing information, training, assisting with exercises and participating in community events.
- Conducting Community Emergency Response Team **(CERT) training** to prepare individuals to assist in disaster recovery on teams and with neighborhood groups. Training and certification is offered to individuals, organizations, school districts, companies and neighborhood groups.
- Assisting in the **formation of Neighborhood CERT Groups** which support the CERT program with information to residents and periodic exercises to practice and maintain CERT skills. When 911 services are not available in a disaster, neighborhood groups can be critical in collecting and relaying neighborhood needs to the city's Emergency Operating Center.



A large-hospital model for business continuity management



10 KEY Operations Concepts

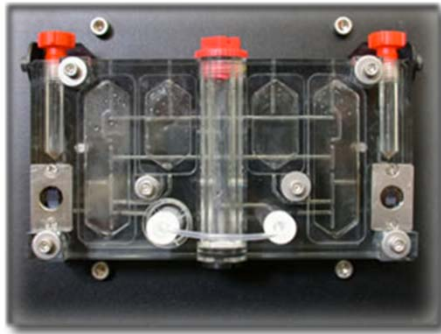
- Mobilizing Emergency Personnel and Resources
- Warning the Staff and Patients
- Taking Immediate Action
- Caring for Casualties
- Assessing the Damage
- Restoring Essential Services
- Informing the Public and Organization
- Record Keeping
- Planning and Executing Recovery
- Evaluating and Improving Performance

Healthcare Risks → Work Group Activity → Risk Mitigation Tools

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Technological Resources

Microfluidics Bioagent Detection

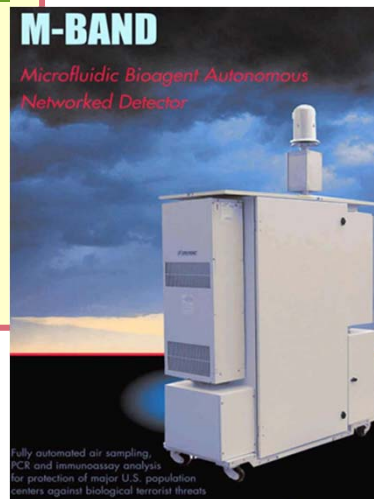


The US Department of Homeland Security's BioWatch program is currently operating urban bioaerosol monitors in many cities throughout the US. The importance of having such an early warning system for a biological attack is paramount to homeland security. However, due to the high cost of human labor and the desire for broader agent coverage with faster times from collection to results, there is a need to install autonomously operating systems. The Microfluidic Bioagent Networked Detector (M-BAND) developed by Microfluidic Systems runs autonomously for up to 30 days, continuously analyzing air samples for the detection of bacteria, viruses, and toxins with results in as little as two hours. Results from individual instruments are reported via a secure wireless network in real time to give an accurate and up-to-date status for fielded instruments in aggregate.

DHS's \$3.1 billion BioWatch program aims to place biosensors on top of utility poles and buildings in major American cities in order to detect bioterror attacks; PositiveID says its M-BAND solution is well positioned to be picked up by DHS for the program

PositiveID Corporation, a developer of molecular diagnostic systems for bio-threat detection, announced the other day that its M-BAND (Microfluidic-Bioagent Autonomous Networked Detector) system is well positioned to take part in DHS's \$3.1 billion

BioWatch Gen-3 program, expected to be released in the first half of 2012, and is the only system of its kind that was demonstrated in the field under the DHS Science and Technology (S&T) BAND Program.



BioWatch Procurement

May 16, 2012
PositiveID Corporation's Microfluidic Systems Subsidiary Makes Significant Progress in Preparation for \$3 Billion BioWatch Procurement
[more](#)

Radiation Detection

May 14, 2012
PositiveID Corporation Collaborates With the University of Nevada to Complete Development of Its Biodosimetry Cartridge for Measuring Radiation
[more](#)

Diabetes Mgt

April 2, 2012
PositiveID Corporation Announces First Quarter 2012 Accomplishments: Positions Itself for \$3 Billion BioWatch Contract and Advances the Development of Its Diabetes Management Products
[more](#)

H5N1 Detection

March 28, 2012
PositiveID Corporation Receives Nucleic Acids From the CDC Influenza Division to Develop a Diagnostic Assay to Detect H5N1 Avian Flu
[more](#)

Hastily Formed Networks



Ready to deploy at a moment's notice, NPS' Hastily Formed Networks team has developed a self-contained Emergency Operations Center, which can be transported in airline-checkable luggage and used as mobile communications center in disaster and emergency response efforts worldwide. Here, the equipment is seen between emergency response vehicles for the city of Salinas, Calif. during an test-run with the Salinas Air Show.

<http://www.nps.edu/About/News/NPS-Developed-Network-in-a-Box-Delivers-Emergency-Communications-in-Minutes-During-Disaster-Response-.html>

“We want to shrink what the Department of Defense (DoD) takes out to a disaster zone in big planes and forklifts and huge cases, into small enough cases that they can be checked on as checkable airline luggage,” Steckler explained. “And we have three main capabilities that we want to bring with us ... alternate power, completely self-contained communications, and then a back office in a box with virtual servers, applications and desktops using VMWare. It allows you to basically replicate your servers, Microsoft Office applications, your Outlook e-mail, your calendar, your 911 call system and other back office applications. Rather than having big servers on a rack in your IT facility, we shrunk all of that down into a ‘fly away’ kit.”

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No endorsement or recommendation is implied.

USHAHIDI SYSTEM USED IN MULTIPLE DISASTERS

Ushahidi Crisis and Emergency Response

Added by [Heather Leson](#), last edited by [Heather Leson](#) on Apr 20, 2012 (view change)

Mapping Information for crisis or emergency response is one of the best known uses of Ushahidi and Crowdmap. Inspired by the Haiti response map, individuals technology communities have responded with a maps around the world. There are also preparedness maps and simulation projects.

Ushahidi video <http://vimeo.com/7838030>

<http://www.slideshare.net/heatherleson/mobilizing-with-ushahidi>

Mobilize your community with **Ushahidi**

Scale = 1 : 7M 123.96638, 34.61008
EPSG:900913

Mention of technologies is for illustrative purposes only. No endorsement or recommendation is implied.

Sahana Foundation provides comprehensive functionality

Mention of technologies is for illustrative purposes only. No endorsement or recommendation is implied.

<http://demo.eden.sahanafoundation.org/eden/>

Innovations in Aggregation and Filtering of Data

Common Operating Picture

A user friendly internet map for sharing situation awareness among public and private safety organizations during large incidents that require significant coordination of emergency response resources.

Facility Status

Facility Info

Resource Info

School

Water Leak

GPS Tracking

Display Controls

San Mateo
Menlo Park Fire District
MNL
03
32 Almadral Ave
Atherton CA 94027-4002
http://www.menlofire.org/
Latitude 37.46258 Longitude -122.206296
CallSign E3
Type EngineType1
FEMAKind
FEMAType
EquipPhotoName E3 2007 Pierce Dash.oif
PhotoKey MNLE3

MNL Menlo Park Fire District 03
32 Almadral Ave
Atherton 94027-4002
http://www.menlofire.org/
E3 EngineType1

Menlo Park Fire District
32 Almadral Ave
Atherton, CA 94027-4002
http://www.menlofire.org/
15 Yellow Update

Status is: Yellow

Doors are jammed!
small fire in rear.
Water leaking,
phones are out
DavidC@08-20 01:32:41

Toggle On Off
Fire
Medical
School
Lodging
Food
Water
Tools

People Places Things Events
Olympia
Rainer's Gas Station
Kaiser Redwood City
San Mateo Medical Center
Sequoia Hospital
Stanford Hospital & Medical Clinics
Best Western Riviera
Menlo Park Inn
Mermaid Inn
Stanford Park Hotel
Stanford Inn
Woodside Hotels
Beechwood School
Belle Haven School
Cesar Chavez Academy
Costano School

CERTs (Community Emergency Response Teams) may take certain responsibilities in specific neighborhoods that can be plotted onto a Google Earth map

CERT Contacts

ADA PARK
Stephanie Charles, sjcharles@juno.com

APPLETREE LANE
Jim Springer, jmspringer@comcast.net

CUESTA PARK
Hugo Penafiel, hpenafiel@boglobel.net

DUTCH HAVEN
Katherine Gurt, kaurt@boglobel.net

MONTA LOMA
Jim Cochran, jimcoch@comcast.net

MOUNTAIN VIEW GARDENS
Paul Kendall, pkendall@gmail.com

NORTH WHISMAN
Jessica Gendhi, jessicagendhi@yahoo.com

OLD MOUNTAIN VIEW
Aaron Grossman, agrossman@yahoo.com

REX MANOR
Tracy Fenna, tfenna@gmail.com

SAINT FRANCIS ACRES
Marta Rauch, marta.rauch@gmail.com

SHADY RIDGE
Pat Noyes, phoyes@gmail.com

SLATER
Greg Coladrito, gcoladito@gmail.com

SYLVAN PARK
Andrew Brown, info@syvanpark.org

THE CROSSINGS
Linda Miller, lmiller@thecrossings.org

VARSITY PARK
Anthony Maccole, amacole@stanford.edu

WAGON WHEEL
Lisa Matichak, lisa.matichak@gmail.com

20% of City is in a CERT

CERT
COMMUNITY EMERGENCY
RESPONSE TEAM

<http://www.citizen corps.gov/cert/index.shtm>

http://www.ci.mtnview.ca.us/city_hall/fire/programs_n_services/cert_neighborhood_groups.asp

The Community Emergency Response Team (CERT) Program educates people about disaster preparedness for hazards that may impact their area and trains them in basic disaster response skills, such as fire safety, light search and rescue, team organization, and disaster medical operations. Using the training learned in the classroom and during exercises, CERT members can assist others in their neighborhood or workplace following an event when professional responders are not immediately available to help. CERT members also are encouraged to support emergency response agencies by taking a more active role in emergency preparedness projects in their community.

RESOURCES: Google Crisis Response Tool Set

Making critical information more accessible in times of disaster

When disaster strikes, people turn to the internet for information. We help ensure the right information is there in these times of need by building tools to collect and share emergency information, and by supporting first responders in using technology to help improve and save lives.

Photo courtesy of: Bill & Melinda Gates Foundation*

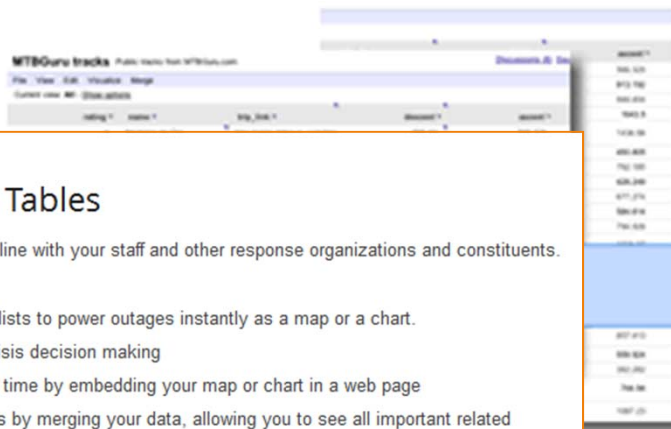
<http://www.google.org/crisisresponse/>



Google Fusion Tables

Gather, visualize and share data online with your staff and other response organizations and constituents. Use Google Fusion Tables to:

- Visualize your data from shelter lists to power outages instantly as a map or a chart.
- Identify data patterns to aid in crisis decision making
- Show the world your work in real time by embedding your map or chart in a web page
- Collaborate with other responders by merging your data, allowing you to see all important related information in one place



RESOURCES: Google Crisis Response Tool Set

“Use online technology to quickly reach people in need and to efficiently run your internal operations during a crisis. We recommend you implement these best practices and try out some of the Google tools highlighted ...”

Google Public Alerts

During a crisis, individuals go online to search for the latest emergency information. Google has created a platform to disseminate relevant emergency alerts to users when and where they're searching for them. As a response organization, you can use Public Alerts to get your information to the public. [Contact us](#) if you're interested in participating. You can get a head start by following these 4 steps:

- Get your alerts into the Common Alerting Protocol ([CAP 1.2](#)) standard using some of the [resources](#) we created to help you with this process (most commercial alert pushing tools support CAP already)
- [Validate](#) that you've set-up your feeds correctly
- Subscribe your alerts to [Google Alert Hub](#) and check that they're working
- Contact us when you're ready using [this form](#) so we can start on the next steps. You may still be able to work with us even if your alert data does not currently conform to the CAP standard

Custom Google Maps

While many people are familiar with Google Maps for finding directions, responders can also easily create custom Google maps when they need to supply critical crisis information to their teams or to the public. Use custom Google Maps to:

- Mark crisis information such as road closures and resources such as emergency medical stations
- Draw lines and shapes to highlight paths and areas that are covered in debris
- Add your own text, photos, and videos to provide context
- Share your map with co-workers, media outlets, and partners. Control whether it's available publicly, or privately within your network.
- Import [KML](#), [KMZ](#), and [RSS](#) formatted data into your map, to host on Google's servers and share broadly

Google Person Finder

Following a crisis, people often get separated, and responders play a role in helping people locate one another. Google Person Finder, launched by the Google Crisis Response team, helps with this process by providing an open platform for individuals and organizations to let people know who they're looking for and to enter updates about missing persons. As an organization you can:

- Embed Google Person Finder in your website to allow people to directly access and use the tool
- Download data from Google Person Finder to match with your information or take to the field
- Upload data you've collected into Google Person Finder

Google Sites

Easily create and update a website with critical response information from anywhere at any time. You can display a variety of important information in one place—including forms to collect information, videos of the crisis, photos of the devastation, and maps that illustrate resources. Use Google Sites to:

- Create a simple website quickly without having to hire a web developer or know any HTML programming
- Customize the look and feel of your site to show it's from your organization
- Create sub-pages to keep your content organized and easy for viewers to locate
- Protect your information by keeping your site as private or public as you'd like

RESOURCES: Google Public Alerts and Fusion Tables

Google public alerts
a google.org project

Advanced search

Important alerts from across the web when and where they're needed most. [Learn more](#)

Link to page

Show: all alerts, in all locations, sorted by relevance

A Severe Thunderstorm Warning in Central Tennessee
Hail and/or strong winds likely.
Alert active for next 33 minutes
[weather.gov](#)

B Severe Thunderstorm Warning in Central Tennessee
Hail and/or strong winds likely.
Alert active for next 48 minutes
[weather.gov](#)

C Flood Warning for Clay and Richland Counties, IL
Never drive through flooded areas.
Alert active for next 1 day, 9 hours
[weather.gov](#)

D Flood Warning in Southern Wisconsin
Never drive through flooded areas.
Alert active for next 6 hours
[weather.gov](#)

E Flood Warning in Puerto Rico
Never drive through flooded areas.
Alert active for next 18 minutes
[weather.gov](#)

Map Satellite

©2012 Google · Map data ©2012 MapLink · [Terms of Use](#)

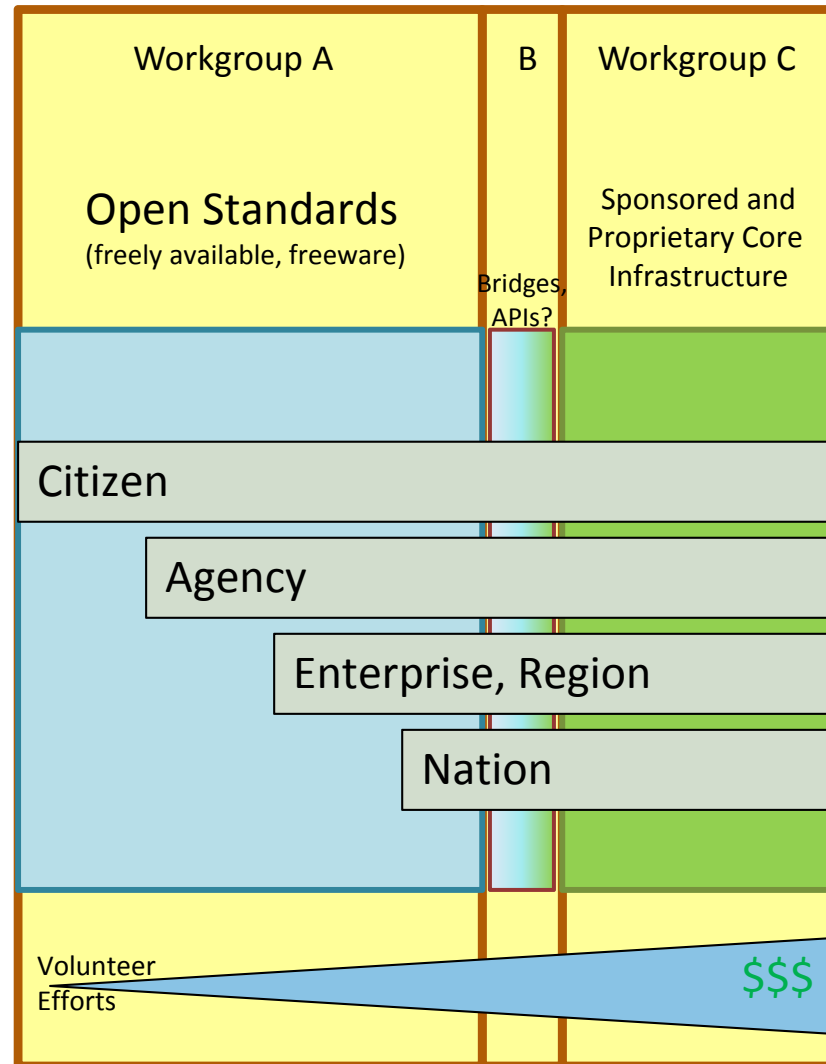
Coordinating R&D for Common Operating Picture

This diagram presents a minimum framework to think about how perhaps to prioritize and align efforts across varying scales of organizational effort and infrastructure development needed to enable DM efforts to cohere, in an environment that will depend on an unpredictable mixture of volunteer/open source and proprietary approaches.

Workgroup A would organize end-to-end (citizen-through-nation scale) efforts around Open Source solutions that would be primarily volunteer/low-cost in nature, building on existing technologies, infrastructure, and organizational capabilities.

Workgroup C would focus on sponsored (foundations, FEMA, etc.) and proprietary solutions needed to address more complex, long-term, and mission-critical infrastructure requirements (for citizen-through-nation scale).

Workgroup B would focus on integration requirements between A and C.



Emergency Electronic Medical Record

Vitals

Sex: F M

Age: 56

Height: 70" / 177cm

Weight: 189lbs / 85.9kg

Blood Type: B-

Normal Blood Pressure: 135 / 90

Normal Heart Rate: 70

Warnings

EMS Alert: Hepatitis - B

Medical Alert: Addisons

Medications: Hydrocortisone

Medication Allergies: Penicillin, Latex

Other Allergies: Bee Sting

Directives: No CPR

Document Location: Glovebox, fridge

Conditions

Medical Condition: Hypertension

Medical Procedures: Gall bladder removed, 9/08

Test Results: ECG: A-fib

Medical devices: Defibrillator (ICD)

Family History: Father cardiac

Smoking Yrs / Amt: 23 / .5 pack

Side notes: Vitals describes the basic physical information that EMTs need. Normal blood pressure and normal heart rate are important. Asthmas, for instance, may have normally 'low' heart rates. Contagious disease warning. Disease that may affect immediate treatment. Associated medication alert. Warnings describes diseases, allergies, medical test results that EMTs need to know immediately to treat you appropriately & avoid harm. History describes chronic medical conditions, associated medications, any medical procedures or devices. Important Test Results. Parents heart history (or other partners, genetic history) and personal habits that affect health are important.

Protect Yourself & Your Loved Ones in a Crisis with Life-Saving E-emergency Medical Records



E-emergency is the complete emergency medical records system that is designed for one important purpose - to help save lives by providing Emergency Medical Technicians (EMTs) with the immediate, vital information they need to correctly treat you or your loved ones, and avoid medical errors, in the first crucial minutes - while it notifies your contacts with your GPS location.

Designed with the help of Doctors & EMTs, E-emergency instantly gets your up-to-date medical information - including medical conditions, allergies, medications - to EMTs on your iPhone, Android phone, Internet-enabled phone, or your E-emergency website that EMTs quickly view on their own phones or laptops. So they can make informed treatment decisions and avoid medical errors. While EMTs are doing their job, E-emergency notifies your loved ones with your GPS location - so they can find you, or you can find them, fast. (If you don't have a GPS phone, EMTs add a quick destination message.)

<http://www.mye-emergency.com/>

https://www.aamc.org/download/273740/data/248_resource.pdf

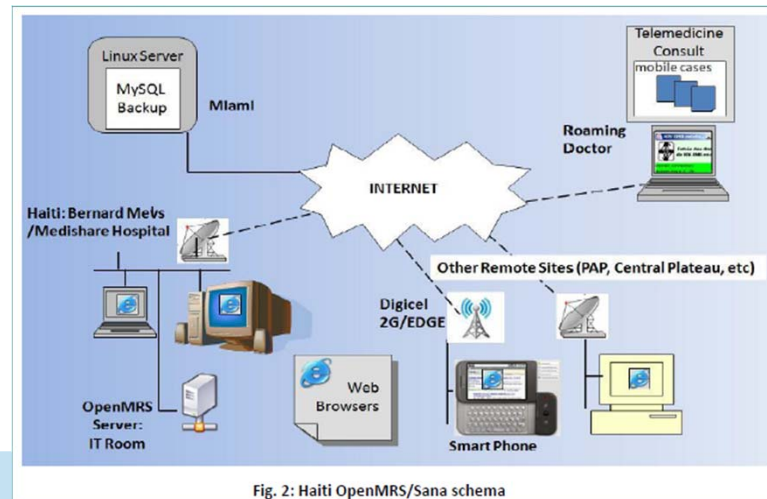


Fig. 2: Haiti OpenMRS/Sana schema



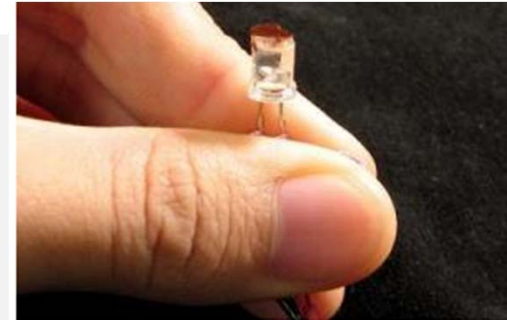
SANA TELEMEDICINE WORKFLOW

Sean Murphy

“Cell-All” Initiative

Cell-All Smart Phones for Hazard Detection

“Homeland Security's Science and Technology Directorate (S&T)'s Cell-All is such an initiative. Cell-All aims to equip cell phones with a sensor capable of detecting deadly chemicals. The technology is ingenious. A chip costing less than a dollar is embedded in a cell phone and programmed to either alert the cell phone carrier to the presence of toxic chemicals in the air, and/or a central station that can monitor how many alerts in an area are being received. One might be a false positive. Hundreds might indicate the need for evacuation.”



Hundreds of separate spots on this flake of silicon can be engineered to change color in response to many different chemicals. By capturing the pattern of color changes using a new kind of supermacro lens, researchers plan to create a versatile sensor small enough to fit into a cell phone that can recognize a wide variety of chemical hazards. (Credit: Sailor Lab/UCSD.)

<http://www.sciencedaily.com/releases/2010/04/100409162722.htm>

The Cell-All initiative was “spearheaded by the Department of Homeland Security’s Science and Technology Directorate (S&T), Cell-All aims to equip your cell phone with a sensor capable of detecting deadly chemicals at minimal cost—to the manufacturer (a buck a sensor) and to your phone’s battery life. “Our goal is to create a lightweight, cost-effective, power-efficient solution,” says Stephen Dennis, Cell-All’s program manager.

How would this wizardry work? Just as antivirus software bides its time in the background and springs to life when it spies suspicious activity, so Cell-All regularly sniffs the surrounding air for certain volatile chemical compounds.

When a threat is sensed, a virtual ah-choo! ensues in one of two ways. For personal safety issues such as a chlorine gas leak, a warning is sounded; the user can choose a vibration, noise, text message, or phone call. For catastrophes such as a sarin gas attack, details—including time, location, and the compound—are phoned home to an emergency operations center.

While the first warning is beamed to individuals—a grandmother taking a siesta or a teenager hiking through the woods—the second warning works best with crowds. And that’s where the genius of Cell-All lies—in crowdsourcing human safety.

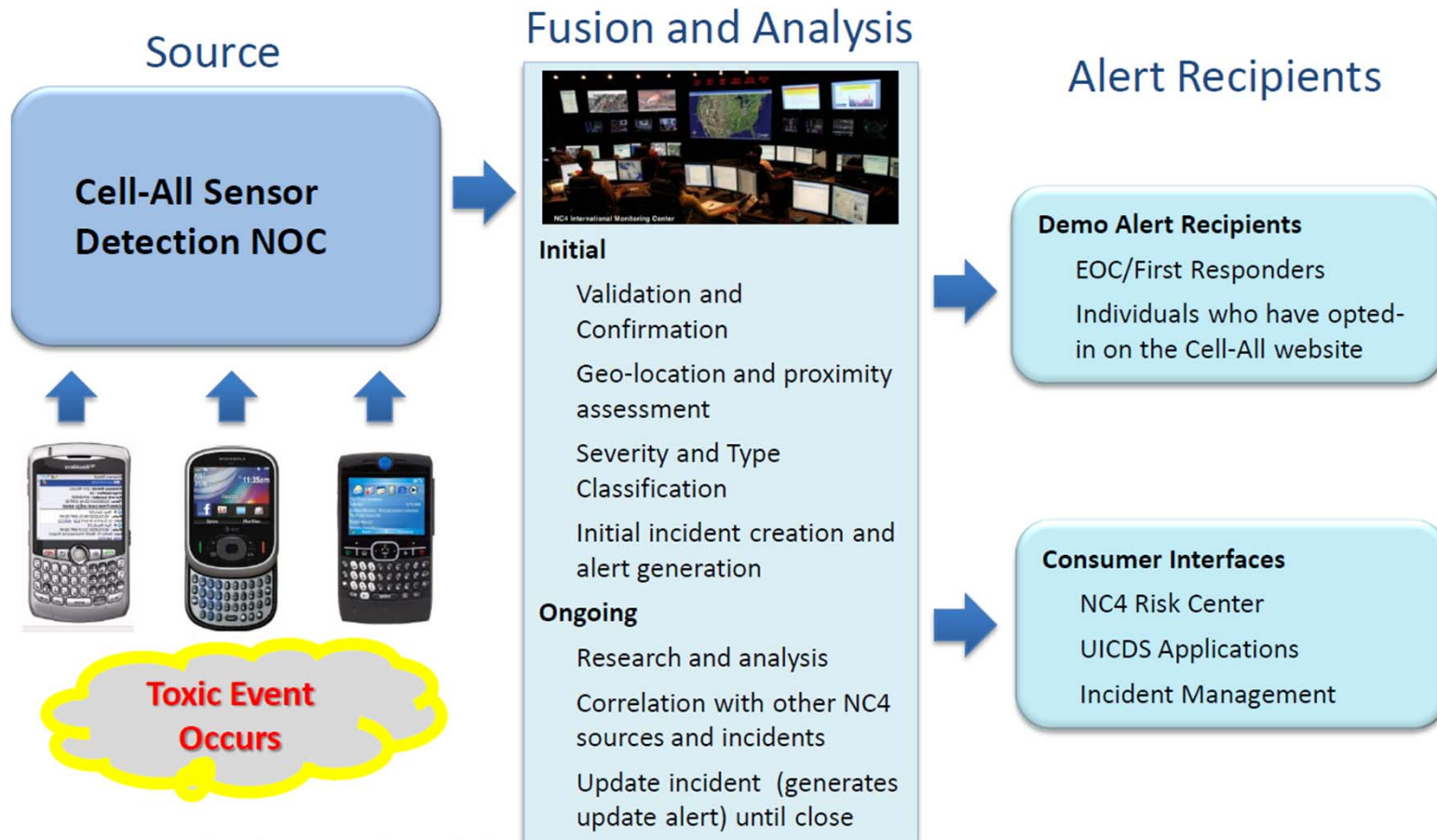
Currently, if a person suspects that something is amiss, he might dial 9-1-1, though behavioral science tells us that it’s easier to do nothing. If he does do something, it may be at a risk to his own life. And as is often the case when someone phones in an emergency, the caller may be frantic and difficult to understand, diminishing the quality of information that’s relayed to first responders. An even worse scenario: the person may not even be aware of the danger, like the South Carolina woman who last year drove into a colorless, odorless, and poisonous ammonia cloud.

In contrast, anywhere a chemical threat breaks out—a mall, a bus, subway, or office—Cell-All will alert the authorities automatically. Detection, identification, and notification all take place in less than 60 seconds. Because the data are delivered digitally, Cell-All reduces the chance of human error. And by activating alerts from many people at once, Cell-All cleverly avoids the longstanding problem of false positives. The end result: emergency responders can get to the scene sooner and cover a larger area—essentially anywhere people are—casting a wider net than stationary sensors can.

http://www.dhs.gov/files/programs/gc_1268073038372.shtm

FUSION OF INFORMATION FROM MULTIPLE SOURCES

NC4 Reporting Process for Cell-All



Developed in partnership with the
U.S. Department of Homeland Security
Science & Technology Directorate



Mention of technologies is for illustrative purposes only.
No endorsement or recommendation is implied.

ORGANIZATIONAL RESOURCES



NC4 International Monitoring Center

Developed in partnership with the
U.S. Department of Homeland Security
Science & Technology Directorate



Mention of technologies is for illustrative purposes only.
No endorsement or recommendation is implied.

Fail-safe Communications

Walkie Talkie with Bluetooth Adapter



Ham Radio



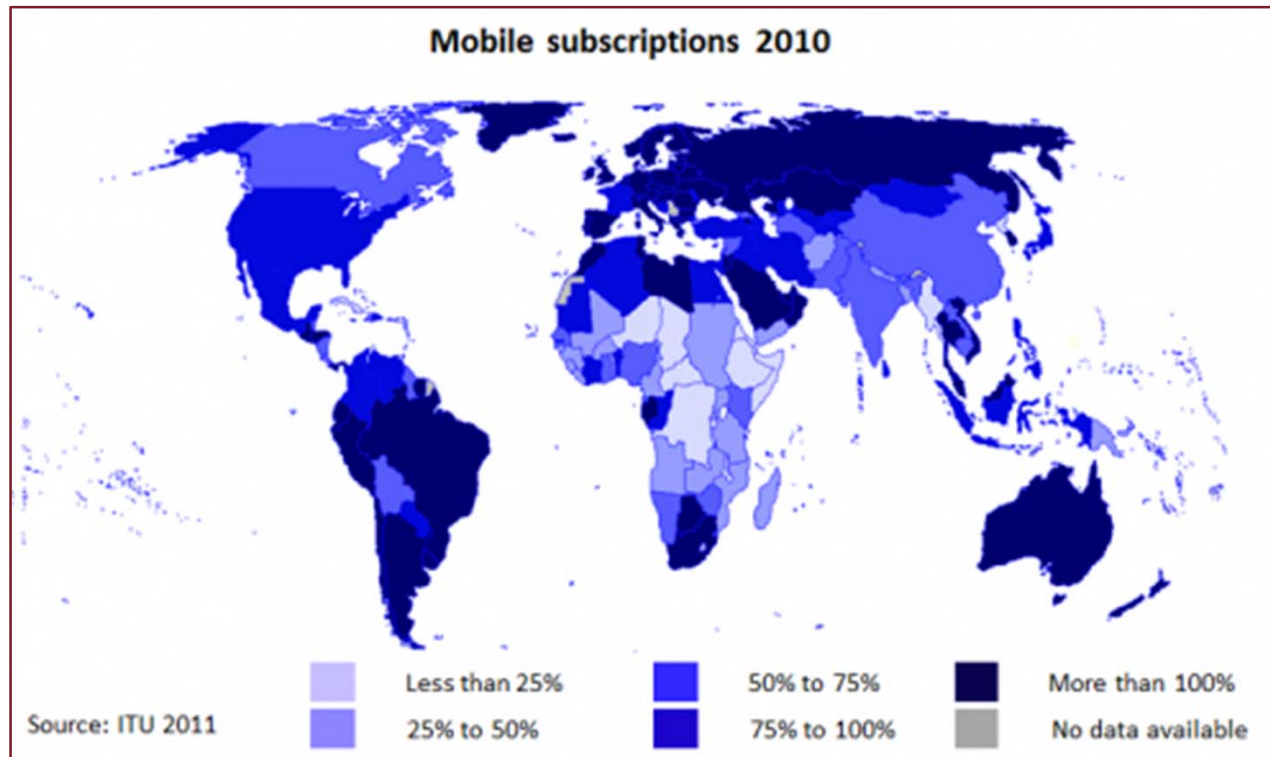
Evaluate Radio Options:

<http://www.techwholesale.com/two-way-radio-guide.html>



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No endorsement or recommendation is implied.

You may want to use SMS where it is economically preferable and more reliable



How to Set up an SMS System

<http://www.mobileactive.org/howtos/how-set-sms-system>

Plasma Flashlight



<http://www.homelandsecuritynewswire.com/dr20120405-handheld-plasma-flashlight-rids-skin-of-pathogens>

Emergency treatment Handheld plasma flashlight rids skin of pathogens

“Scientists develop a handheld, battery-powered plasma-producing device that can rid skin of bacteria in an instant; the device could be used in ambulance emergency calls, natural disaster sites, military combat operations, and many other instances where treatment is required in remote locations

Containerized Clinics for Alternate Sites of Care



<http://vimeo.com/27724939>



Containers can be linked to expand services



- Instant, ready-to-use clinic
- Eliminate construction frustrations and waiting period
- High quality facility built in the USA with experienced staff
- Efficient and effective way to provide medical care
- Customizable to meet a variety of medical needs
- A green solution for medical care
- A secure, insulated, and durable medical facility


Customized Containers
for Global Health



<http://www.containers2clinics.org/>



<http://www.clinicinacan.org/>

Mention of technologies is for illustrative purposes only. No endorsement or recommendation is implied.

Safe And Well Notifications

Safe and Well



After a disaster, letting your family and friends know that you are safe and well can bring your loved ones great peace of mind. This website is designed to help make that communication easier.

Register Yourself as "Safe and Well"
Click on the "List Myself as Safe and Well" button to register yourself on the site.

Search for Loved Ones
Concerned family and friends can search the list of those who have registered themselves as "safe and well" by clicking on the "Search Registrants" button. The results of a successful search will display a loved one's first name, last name and a brief message.



List Myself as
Safe and Well

Search
Registrants

<https://safeandwell.communityos.org/cms/index.php>

Safe and Well Messages

Safe and Well Messages *

- I am safe and well.
- Family and I are safe and well.
- Currently at shelter.
- Currently at home.
- Currently at friend/family member/neighbor's house.
- Currently at a hotel.
- Will make phone calls when able.
- Will email when able.
- Will mail letter/postcard when able.
- I am safe and in the process of evacuating.
- I have evacuated and I am safe.
- I am evacuating to a Shelter.
- I am evacuating to the house of a family member/friend.
- I am currently/remaining at home.

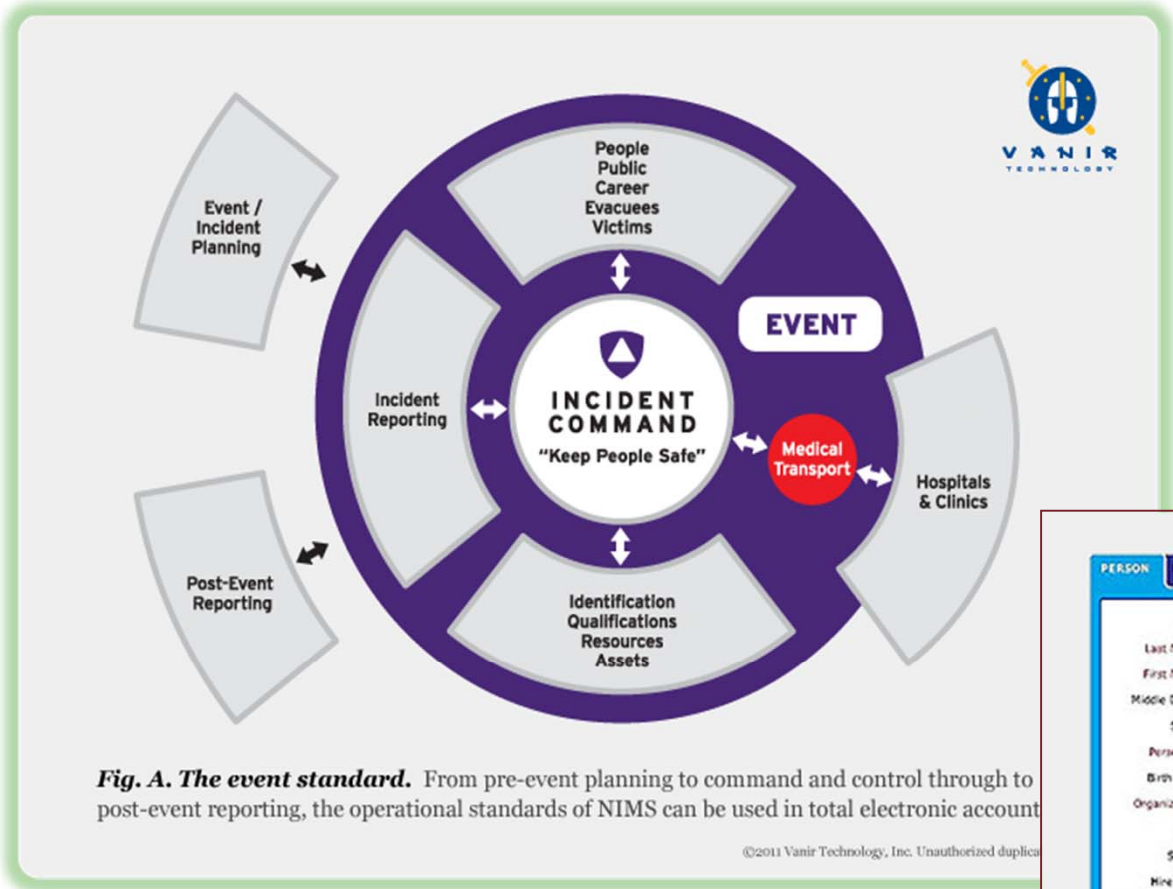
Mobile Medical Disaster Relief Response Team Registry provides MMDR with the info needed for all medical and non-medical volunteers willing to serve in times of need.

<https://mmdr.wufoo.com/forms/response-team-registry/>



me-4.com
Mobile solar generators

Electronic Identity Management: Register and Track Staff, Responders, Patients



PERSON PRIVATE MEDICAL QUALIFICATIONS Carl Lewis

Title

Last Name

First Name

Middle Initial

Suffix

Person ID

Birth Date

Organization

Rank

Status

Hire Date

Termination Date

Issue Date

Expiration Date

Copies Printed

<http://vanirtech.com/solutions>

Electronic Identity Management: Track Staff, Responders, Patients

Rapid Tag™

Field software designed for creating incident-specific IDs, and site passes and company rosters for mutual aid, site visitors, and volunteers as well as evacuees or patients. Rapidly and accurately strips data from pre-existing IDs such as state driver's licenses, military CAC, and other FIPS 201 smart cards. All tags feature a high-capacity PDF417 interTRAX® barcode for automated tracking. Tags include permissions for expiration, role, and location.



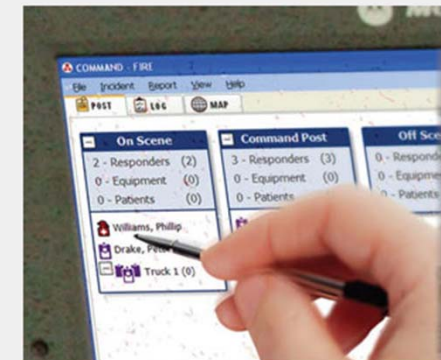
Field software for incident-specific IDs

- Site passes for mutual aid and site visitors
- Incident IDs for evacuees and civilians
- Strips data from existing IDs: Driver's licenses, FIPS201, FRAC, TWIC, and CAC
- Site permissions including expiration date, role and location
- Machine readable PDF417 interTRAX® barcode, or RFID/Smartcard PASS.
- Roster and electronic company creation.
- Available in a self-contained work center/carry case

InterTrax Command

The core of the Salamander InterTrax system, this is an electronic incident command board. Identification tags, including those generated with Resource Manager or other sources, are put into incident command context and assigned.

- Consolidates roster, and mobile data into summary tactical diagram template that could be NIMS-based.
- Functions as an electronic command board.
- Summary Personnel Accountability Reports (PAR) and multiple timers.
- Interagency: track all responders, visitors, patients, evacuees and civilians.
- Syncs data to interTRAX exchange.
- Available in a self-contained work center/carry case.



<http://vanirtech.com/solutions>

Electronic Identity Management: Track Staff, Responders, Patients

Mobile & Mobile PIV

MOBILE handheld units capture data from ID tags for assigning and tracking personnel and equipment. For larger incidents, synch data to COMMAND®.

- Handheld unit captures data from IDs
- Assigns and tracks personnel and equipment
- Company or group tracking
- Syncs data to COMMAND®

MOBILE PIV™ is our mobile solution for Personnel Identity Verification (PIV) of FIPS 201/FRAC smart-cards. MOBILE PIV™ is CoreStreet enabled for connecting to the Federal Bridge.

Now even more powerful as a tool because you can use while connecting to local, regional, inter-state, Federal Data Bridges or other hot lists.

- Personal Identity Verification (PIV)



Disaster Resource Center (DRC) Units for Large Urban Hospital

Disaster Resource Center (DRC) Units

- Disaster Resource Center Trailer, DRC-1
- Disaster Resource Center Trailer, DRC-2
- Disaster Resource Center Trailer, DRC-3
- Disaster Resource Center Trailer, DRC-4
- Disaster Resource Center Decon System Trailer, DRC-5
- Disaster Resource Center 20kVA Mobile Generator, DRC-6

Emergency Response System (ERS) Units

- Emergency Response System (ERS), Unit 1 (Mobile ED Unit/Command Center)
- Emergency Response System (ERS), Unit 2 (Mobile ED Unit Re-Supply)
- Emergency Response System (ERS), Unit 3 (DRASH System)
- Emergency Response System (ERS), Unit 3A (DRASH Flooring, 2 Pallets)
- Emergency Response System (ERS), Unit 4 (Surge Area Support)

Mobile Emergency Support (MES) Units

- Mobile Emergency Support Trailer #1 (Patient Support)
- Mobile Emergency Support Trailer #2 (Utilities and Infrastructure Recovery Support)
- Mobile Emergency Support Trailer #3 (Decon Support)

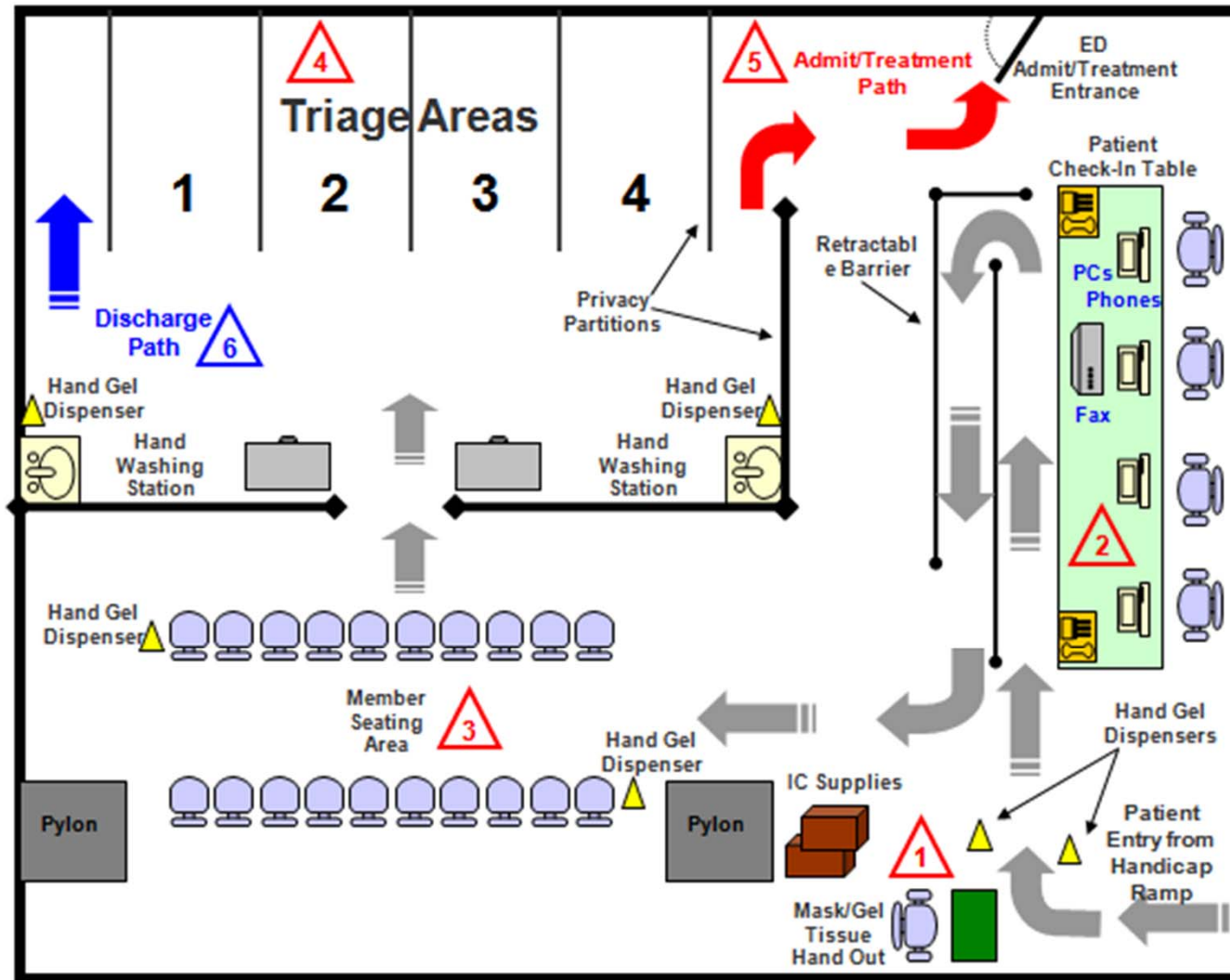


Deployable Rapid Assembly Shelter (DRASH) System



Disaster Resource Center (DRC) Units for Large Urban Hospital

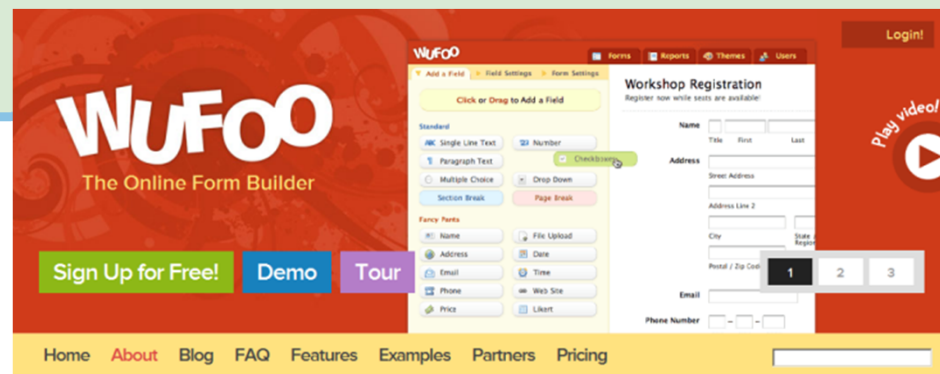
Surge Area (ED Area) – General Setup



Some possible Supplementary Roles for Clinical/Biomedical Engineering ?

- Manage local/regional EOC information as Situation Specialist
 - Filter incoming info for Common Operating Picture
- Wireless spectrum management, recovery sites
- Workflow engineering for alternate sites of care
- Remote patient monitoring
- Mobility workflows for disaster situations
- Ham radio services; supplementary communications channels
- Alternate supply-chain mgt.
- Credentialing and access control to sensitive areas
- Pt. and staff identification, tracking technologies linked to vital signs monitoring
- Extension of emergency infrastructure: power, device transfer, connectivity, administration to remote sites
- Register volunteer teams for disaster response
- Manage surge-site setup

Build your own online forms to capture new information as situations evolve:



<https://mmdr.wufoo.com/>

Mention of technologies is for illustrative purposes only.
No endorsement or recommendation is implied.

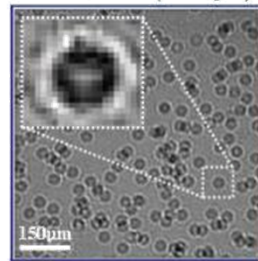
Extending Care to Alternative Sites



Solar-powered wireless access points

<http://solar.rain-barrel.net/solar-wireless-access-point/>

Polystyrene Microbeads (D=10 μ m)



Modified cellphone with microassay (lab) capability.

"LUCAS platform's advantage lies in its ability to nearly instantaneously identify and count microparticles, something that is time consuming and difficult to do with a microscope in resource-limited settings.

"This technology will not only have great impact in health care applications, it also has the potential to replace cytometers in research labs at a fraction of the cost. A conventional flow-cytometer identifies cells serially, one at a time, whereas tabletop versions of LUCAS can identify thousands of cells in a second, all in parallel, with the same accuracy."

<http://www.sciencedaily.com/releases/2008/12/081222221600.htm>

Innovations in Sensors and Wireless Transmission

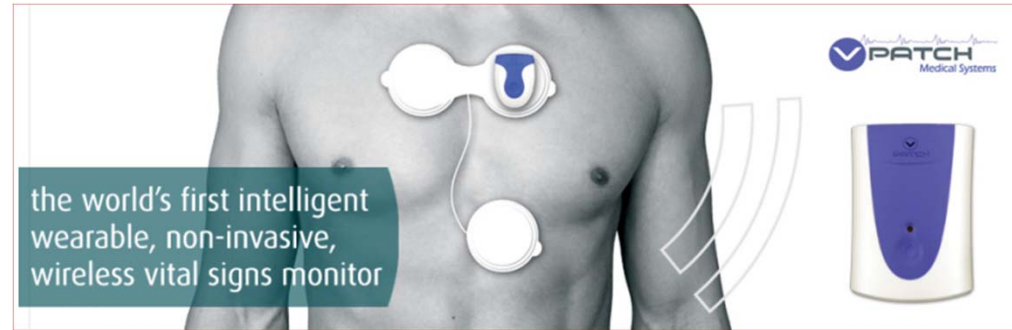
AVIVO® Mobile Patient Management (MPM) System

The AVIVO MPM System offers continuous monitoring of key vital signs to help physicians track patients' health status and detect potential health risks or worsening conditions.

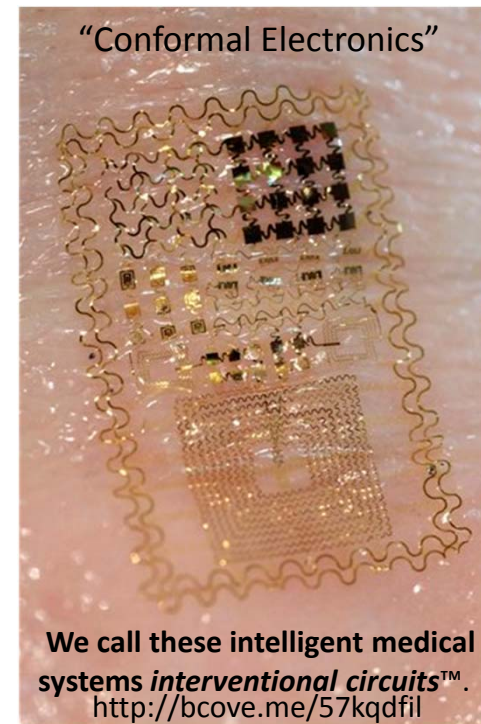
Patients are continuously monitored via PiX®, an unobtrusive, leadless and water-resistant device designed to support patient compliance. Physiological signals including heart rate, heart rate variability, respiratory rate, fluid status, posture and activity are automatically collected throughout the course of use. Proprietary algorithms embedded in the PiX also enable the automatic capture of ECG when arrhythmias are detected*.

How the AVIVO™ MPM System Works

Remote monitoring of physiological parameters

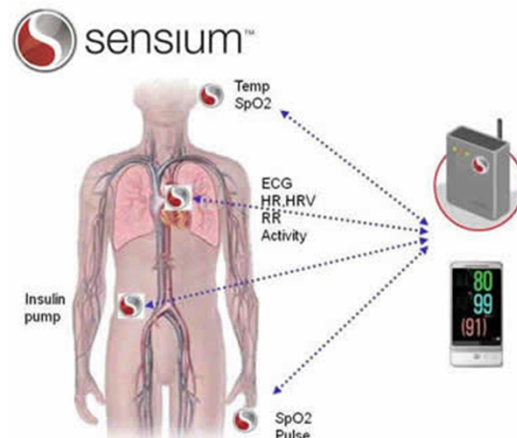


"Conformal Electronics"



We call these intelligent medical systems *interventional circuits™*.
<http://bcove.me/57kqdfil>

Sensium ultra-low power platform for rapid development of wireless Body Area Networks (BANs)



Managing Triage and Fatalities

CONTAMINATED (Vertical text on left and right sides)

Personal Property Receipt/ Evidence Tag (Barcode: *R1234567*)

Destination: _____ Via: _____

All Risk™ TRIAGE TAG (Barcode: *R1234567*)

S L U D G E M (Triage Levels)

AUTO INJECTOR TYPE: 1 2 3

RESPIRATIONS: R Yes (+2 Sec) / No (-2 Sec) / M Can Do / Can't Do

PERFUSION: P (+2 Sec) / (-2 Sec)

MENTAL STATUS: M Can Do / Can't Do

Move the Walking Wounded: **MINOR**

No Respirations After Head Tilt: **MORGUE**

Respirations - Over 30: **IMMEDIATE**

Perfusion - Capillary Refill Over 2 Seconds: **IMMEDIATE**

Mental Status - Unable to Follow Simple Commands: **IMMEDIATE**

Otherwise: **DELAYED**

VITAL SIGNS

Time: B/P Pulse Respiration

Time: Drug Solution Dose

PERSONAL INFORMATION

NAME: _____ ADDRESS: _____ CITY: _____ STATE: _____ ZIP: _____ PHONE: _____ COMMENTS: _____ RELIGIOUS PREF: _____

MORGUE (Pulseless/Non-Breathing) - IMMEDIATE (Life-Threatening Injury) - DELAYED (Serious/Non Life-Threatening) - MINOR (Walking Wounded)

All Risk™ Triage Tag - Standard

CONTAMINATED (Vertical text on left and right sides)

Personal Property Receipt/ Evidence Tag (Barcode: *1234567*)

Destination: _____ Via: _____

All Risk™ TRIAGE TAG (Barcode: *1234567*)

S L U D G E M (Triage Levels)

AUTO INJECTOR TYPE: 1 2 3

RESPIRATIONS: R Yes (+2 Sec) / No (-2 Sec) / M Can Do / Can't Do

PERFUSION: P (+2 Sec) / (-2 Sec)

MENTAL STATUS: M Can Do / Can't Do

Move the Walking Wounded: **MINIMAL**

No Respirations After Head Tilt: **EXPECTANT**

Respirations - Over 30: **IMMEDIATE**

Perfusion - Capillary Refill Over 2 Seconds: **IMMEDIATE**

Mental Status - Unable to Follow Simple Commands: **IMMEDIATE**

Otherwise: **DELAYED**

VITAL SIGNS

Time: B/P Pulse Respiration

Time: Drug Solution Dose

PERSONAL INFORMATION

NAME: _____ ADDRESS: _____ CITY: _____ STATE: _____ ZIP: _____ PHONE: _____ COMMENTS: _____ RELIGIOUS PREF: _____

EXPECTANT (Pulseless/Non-Breathing) - IMMEDIATE (Life-Threatening Injury) - DELAYED (Serious/Non Life-Threatening) - MINIMAL (Walking Wounded)

EVIDENCE (Vertical text on left and right sides)



Refrigerated Morgue Trailer

https://www.rkb.us/contentdetail.cfm?content_id=275912&query=&override_subtype=1094



Organizational and Management Resources

GLOBAL RESOURCES: WHO Hospital Emergency Response Checklist



HOSPITAL PREPAREDNESS

Logistics and supply management

Continuity of the hospital supply and delivery chain is often an underestimated challenge during a disaster, requiring attentive contingency planning and response (Recommended reading 8). Consider taking the following action.

Recommended action	Due for review	In progress	Completed
Develop and maintain an updated inventory of all equipment, supplies and pharmaceuticals; establish a shortage-alert mechanism.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Estimate the consumption of essential supplies and pharmaceuticals, (e.g. amount used per week) using the most likely disaster scenarios (Recommended reading 8).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Consult with authorities to ensure the continuous provision of essential medications and supplies (e.g. those available from institutional and central stockpiles and through emergency agreements with local suppliers and national and international aid agencies).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Assess the quality of contingency items prior to purchase; request quality certification if available.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Establish contingency agreements (e.g. memoranda of understanding, mutual aid agreements) with vendors to ensure the procurement and prompt delivery of equipment, supplies and other resources in times of shortage (Recommended reading 8).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Identify physical space within the hospital for the storage and stockpiling of additional supplies, taking ease of access, security, temperature, ventilation, light exposure, and humidity level into consideration. Ensure an uninterrupted cold chain for essential items requiring refrigeration.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

1. Command and control
2. Communication
3. Safety and security
4. Triage
5. Surge capacity
6. Continuity of essential services
7. Human resources
8. Logistics and supply management
9. Post-disaster recovery

Hospital emergency response checklist

An all-hazards tool for hospital administrators and emergency managers

WHO Compendium of New and Emerging Health Technologies

Compendium of new and emerging health technologies



Lab-in-a-backpack: point of care screening/diagnostic

Country of origin | United States of America

Health problem addressed
According to MicroClinic, 70% of people in sub-Saharan Africa live in rural areas, while 90% of their healthcare facilities are in urban areas. Many people in Africa, Latin America, and Asia do not have ready access to healthcare facilities where diseases can be diagnosed. At the same time, most diseases from which people in the developing world suffer are preventable.

Product description
The Diagnostic Lab-in-a-Backpack contains tools to perform physical exams and laboratory tests in a point-of-care setting; tools include an oil immersion microscope, centrifuge, otoscope, ophthalmoscope, glucometer, pulse oximeter, sphygmomanometer, rapid diagnostic tests, and first aid supplies. An integrated battery, charged via wall power or a solar panel, provides power for more than 8 hours.

Product functionality
In response to challenges provided by healthcare providers working in resource-poor settings, a backpack allows for the diagnosis of common diseases in rural areas in the developing world.

Developer's claim
These resources are designed to be used in rural areas where people must travel great distances to access healthcare services. A Lab-in-a-Backpack allows for the diagnosis of common diseases in rural areas in the developing world.



Under development

Point-of-use water purifier

Country of origin | Switzerland

Health problem addressed
Endemic diarrheal disease, caused by waterborne bacteria, viruses and protozoan parasites, is a leading cause of mortality or morbidity in the developing world, affecting 4 billion people leading to 1.8 million lives lost each year.

Product description
The water purifier is a portable, low-cost device that uses ultrafiltration to remove pathogens from water without the need for electricity or chemicals.

Product functionality
The water purifier is a portable, low-cost device that uses ultrafiltration to remove pathogens from water without the need for electricity or chemicals.



Mobile phone pulse oximeter

Country of origin | Canada

Health problem addressed
Hypoxemia is a common complication of childhood infections, particularly pneumonia. Pneumonia impacts developing countries disproportionately, and accounts for over 2 million deaths a year worldwide. Hypoxemia is a recognized risk factor for death, and correlates with disease severity and is difficult to detect until onset of cyanosis.

Product description
The phone oximeter has been developed using a commercial wireless pulse oximeter and custom software for smartphone or laptop computer. User friendly software has signal processing algorithms for oxygen saturation, respiratory rate, and respiratory plethysmographic waveform. The device is currently under development.

Product functionality
The phone oximeter combines a pulse oximeter with a mobile phone. The device conveys the quality and reliability of warning signals and reliance on clinical decisions.



Off-grid refrigerator

Country of origin | Greece

Health problem addressed
In many areas of the globe, especially Africa and Asia, many towns and communities are without electricity network, while in others it is very weak. This creates problems in the long-term storage of pharmaceuticals, reagents, blood, vaccines, samples, etc.

Product description
The off-grid refrigerator is a portable, low-cost device that uses a fuel processor to generate electricity for the refrigerator. The device is currently under development.

Product functionality
The off-grid refrigerator is a portable, low-cost device that uses a fuel processor to generate electricity for the refrigerator. The device is currently under development.



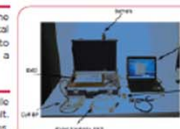
Portable telemedicine unit

Country of origin | Indonesia

Health problem addressed
Community healthcare services in rural areas are impeded by the scarcity in transport infrastructures, poor facilities, lack of medical experts, and limited communication means. This state leads to problems such as a high maternal mortality rate. And if there is a disease outbreak, it may not be easy to alleviate the situation.

Product description
The device is a portable telemedicine unit to be used in a mobile telemedicine system in conjunction with a PC server as a base unit. They communicate with each other via multi communication means, via GSM, CDMA, Internet, and satellite. The device can be used for many health services, such as recording and reporting, and teleconsultation.

Product functionality
The device is set up with medical instruments, a camera, a notebook, and communication means. It can be placed in an ambulance or in remote community healthcare centres. The system operates in real time or indirect mode. Data transmission is done via a selected communication link which can be adjusted according to the communication facility available on site.



The fuel processor produces the required electricity for the refrigerator and other applications, as well as for the telemedicine unit.

ORGANIZATIONAL AND PROFESSIONAL RESOURCES



The banner features the University of Delaware logo on the left and a photograph of a flooded area with several colorful boats (green, blue, red) partially submerged in muddy water. The text 'Disaster Research Center' is prominently displayed in blue and yellow. A biohazard symbol is also visible.

UNIVERSITY OF DELAWARE

Powered by Google

UD Home | A-Z | Find It | Maps | People

<http://www.udel.edu/DRC/>

Disaster Research Center

A multi-disciplinary center devoted to research, education and outreach



The screenshot shows the 'Public Health Emergency' website. The header includes 'U.S. Department of Health & Human Services' and 'Office of the Assistant Secretary for Preparedness and Response'. The main navigation bar has tabs for 'Preparedness', 'Emergency', and 'About ASPR'. The central content area features a large graphic for the 'IMPLEMENTATION PLAN FOR THE NATIONAL HEALTH SECURITY STRATEGY OF THE UNITED STATES OF AMERICA 2012'. A sidebar on the left lists various support and response categories. A 'Most Popular' section on the right lists several key documents and reports.

U.S. Department of Health & Human Services
Office of the Assistant Secretary for Preparedness and Response

Preparedness | Emergency | About ASPR

Public Health Emergency
Public Health and Medical Emergency Support for a Nation Prepared

Search

Public Health & Medical Services Support
Legal Authorities, Policies, Guidance & Committees
Federal, State, & Local Planning
Medical Countermeasures
International Preparedness & Response
Responders, Clinicians, & Practitioners
Public Health Emergency Response

IMPLEMENTATION PLAN FOR THE NATIONAL HEALTH SECURITY STRATEGY OF THE UNITED STATES OF AMERICA 2012

THE UNITED STATES DEPARTMENT OF HEALTH & HUMAN SERVICES

More information

Disaster Response
Daily situation update
Declared disasters & emergencies
Disaster assistance
More disaster response...

State Coordination
Public Health: [Select a state] Go
Emergency Management: [Select a state] Go
More about state coordination...

Most Popular
ASPR Blog
National Disaster Medical System Intermittent Employment Opportunities
ASPR Challenge: Now Trending: #Health in My Community
PPD-8: National Preparedness
Public Health and Healthcare Systems Evaluation
ASPR Newsroom
Boards & Committees
National Biodefense Science Board (NBSB)
National Health Security Strategy (NHSS)

Social Media

56

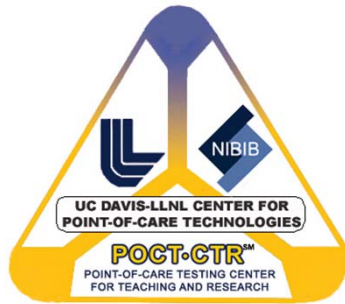
<http://www.phe.gov/preparedness/pages/default.aspx>



“The **International Association of Emergency Managers**, which has more than 5,000 members worldwide, is a non-profit educational organization dedicated to promoting the "Principles of Emergency Management" and representing those professionals whose goals are saving lives and protecting property and the environment during emergencies and disasters.”

<http://www.iaem.com/>

ORGANIZATIONAL RESOURCES: UC Davis Point-of-Care Technologies Center



“Established by the National Institute of Biomedical Imaging and Bioengineering (NIBIB) in 2007, the UC Davis Point-of-Care (POC) Technologies Center develops novel diagnostic devices, testing methods, and interpretive tools that will help eliminate health disparities by making predictive, preemptive, preventive, and personalized care accessible to all communities.

One of four in the United States, the Center focuses on critical-emergency-disaster care. The Center conducts needs assessment and provides facilities for environmental stress testing of future field-robust POC instruments. Additionally, the Center fosters educational activities that advance evidence-based medical practice in critical care, primary outreach, and low-resource environments, including global health settings. Ultimately, these activities will improve the accessibility, portability, and field robustness of POC testing devices for hospitals, rural areas, and disaster response sites. “

Don't forget
Special Needs
populations



Disability/Special Need	Additional Steps
Hearing impaired	May need to make special arrangements to receive warnings.
Mobility impaired	May need special assistance to get to a shelter.
Single working parent	May need help to plan for disasters and emergencies.
Non-English speaking persons	May need assistance planning for and responding to emergencies. Community and cultural groups may be able to help keep people informed.
People without vehicles	May need to make arrangements for transportation.
People with special dietary needs	Should take special precautions to have an adequate emergency food supply.

- Dialysis patients
- Patients with critical medication needs
- Patients needing oxygen
- Maternity, labor & delivery
- Neonatal care
- Intensive Care patients
- Potential victims of sexual assault, exploitation
- Refugees
- Prison populations

ASSESSMENT AND PLANNING RESOURCES

Ready Rating: A FREE Service from the American Red Cross

Ready Rating is a program that helps businesses, schools and organizations become prepared for disasters and other emergencies. All in one place, Ready Rating members have access to one-of-a-kind tools, resources and information for evaluating and improving their ability to withstand disaster, maintain operations, and protect lives and property. Whether you are taking your first steps or have a fully-functioning emergency management program, the Ready Rating program can help you achieve a higher level of preparedness.



123 Assessment

Use the online self assessment to measure your organization's level of preparedness.



Ready Rating Store

Shop for preparedness equipment and supplies



Emergency Response Planner - BETA

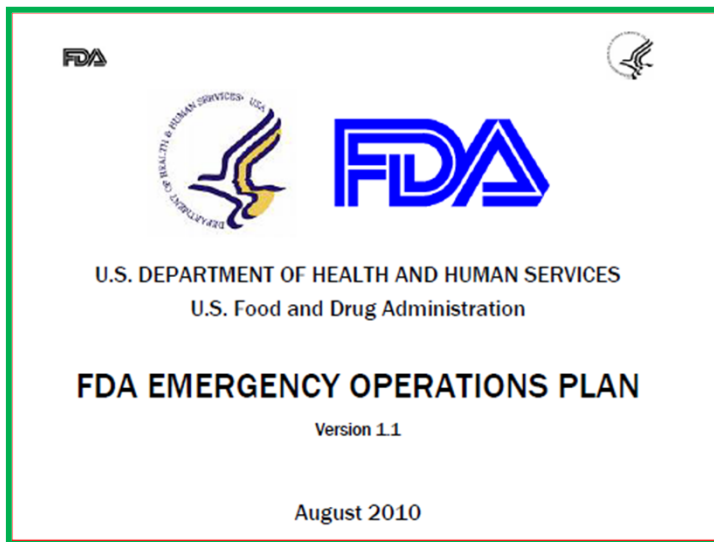
Create customized emergency plans for your organization.



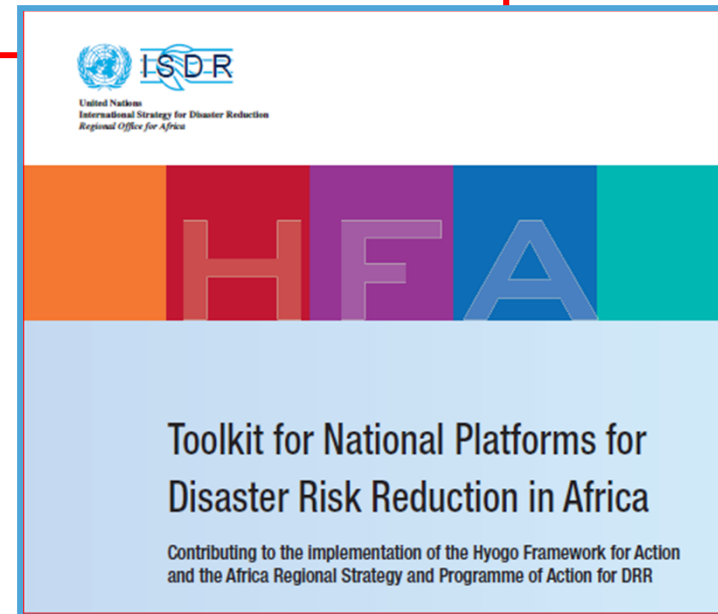
Resource Center

One stop shop for preparedness information, checklists and tools

<http://www.readyrating.org/>



<http://www.fda.gov/EmergencyPreparedness/EmergencyPreparedness/default.htm>



http://www.unisdr.org/files/26441_toolkit4nationalplatformslow.pdf

MANAGEMENT SELF-ASSESSMENT RESOURCES

Ten-point Checklist - Essentials for Making Cities Resilient

- ✓ **Essential 1:** Put in place organization and coordination to understand and reduce disaster risk, based on participation of citizen groups and civil society. Build local alliances. Ensure that all departments understand their role to disaster risk reduction and preparedness.
- ✓ **Essential 2:** Assign a budget for disaster risk reduction and provide incentives for homeowners, low-income families, communities, businesses and public sector to invest in reducing the risks they face.
- ✓ **Essential 3:** Maintain up-to-date data on hazards and vulnerabilities, prepare risk assessments and use these as the basis for urban development plans and decisions. Ensure that this information and the plans for your city's resilience are readily available to the public and fully discussed with them.
- ✓ **Essential 4:** Invest in and maintain critical infrastructure that reduces risk, such as flood drainage, adjusted where needed to cope with climate change.
- ✓ **Essential 5:** Assess the safety of all schools and health facilities and upgrade these as necessary.
- ✓ **Essential 6:** Apply and enforce realistic, risk compliant building regulations and land use planning principles. Identify safe land for low-income citizens and develop upgrading of informal settlements, wherever feasible.
- ✓ **Essential 7:** Ensure education programmes and training on disaster risk reduction are in place in schools and local communities.
- ✓ **Essential 8:** Protect ecosystems and natural buffers to mitigate floods, storm surges and hazards to which your city may be vulnerable. Adapt to climate change by building on good reduction practices.
- ✓ **Essential 9:** Install early warning systems and emergency management capacities in your city. Hold regular public preparedness drills.
- ✓ **Essential 10:** After any disaster, ensure that the needs of the survivors are placed at the centre of reconstruction with support for them and their community organizations to design and implement responses, including rebuilding homes and livelihoods.

<http://www.unisdr.org/>

GLOBAL PLATFORM



The world's foremost gathering on reducing disaster risk and building the resilience of communities and nations. The fourth session takes place in Geneva, Switzerland from 19-23 May 2013!

The Local Government Self-Assessment Tool (LGSAT)

The Local Government Self-Assessment Tool (LGSAT) provides key questions and measurements against the Ten Essentials for Making Cities Resilient and builds upon the priorities and national indicators of the Hyogo Framework for Action. Using the Local Government Self-Assessment Tool will help cities and local actors to set baselines, identify gaps and have comparable data across local governments, within the country and globally, to measure advancements over time.

The main purpose of the LGSAT is to:

- ✓ Help local governments engage with different stakeholders to map and understand existing gaps and challenges in disaster risk reduction in their city or locality.
- ✓ Set a baseline and develop status reports for cities and municipalities that have committed to the Making Cities Resilient Campaign and its Ten Essentials.
- ✓ Complement information gathered through the national Hyogo Framework for Action monitoring system (HFA Monitor) by providing local-level information. Cities can choose to share their results with national HFA focal points as part of the national reporting process.

ORGANIZATIONAL RESOURCES – STAKEHOLDER COMMUNICATIONS

- This community is for FEMA stakeholders to have a dialogue about emergency preparedness, disaster response and recovery, and other emergency management topics.

<http://fema.ideascale.com/>

How does it work?



Users submit their ideas.



Our community discusses and votes for ideas.



The best ideas bubble up to the top.

Browse Recent Ideas

Recent (355) Popular (355) Hot (105) In Review (0) In Progress (0) Complete (0)

I agree INNOVATIVE MODELS AND TOOLS »

Feedback Score

+2 **2** -0

I disagree

Checklist of Post-Disaster Scams

After nearly every major disaster the scam "artists" make an effort to take money, assets, I.D.s, and other valuables from the disaster victims. Although this is a problem for law enforcement, Emergency Managers need to help disaster victims become aware of the scams just as soon as possible. Law enforcement personnel will typically provide announcements on the types of scams that have been discovered, and there seems ... more »

Add your comment Submitted by David Nuttle 2 days ago

I agree PROPOSED FY2013 NATIONAL PREPAREDNESS GRANT PROGRAM »

Feedback Score

+3 **3** -0

I disagree

Medical Disaster Drill utilizing smart phone applications

A hospital system based disaster drill to prepare hospital staff for possible disasters. This can be improved and adapted with a smart phone application which would allow for rapid communication from the field to the emergency room to the OR. The applications can help to triage and identify 'hot spots' in the community requiring more intensive resources. The application can be designed to monitor and assess metrics, ... more »

Add your comment Submitted by tiltunknown 2 days ago

I agree FEMA THINK TANK »

Feedback Score

+0 **-2** -2

I disagree

Think Tank App

How about developing an App checklist for Preparedness? You could have a checklist and the each time you check off something, your app pings your for the other things on your checklist.

Add your comment Submitted by Community Member 2 days ago

FEMA KNOWLEDGE-BASE on Products, Standards, Certifications



FEMA

Responder
Knowledge
Base

RKB Mission - "Provide emergency responders, purchasers, and planners with a trusted, integrated, online source of information on products, standards, certifications, grants, and other equipment-related information."

<https://www.rkb.us/>

"The Products Section includes commercially available product information that has been uploaded directly and voluntarily by the manufacturer. The products are all relevant to the emergency response community, and all information is reviewed by the RKB staff prior to publishing."



[Hand-Held Radiation Survey Meter - Rados Technology](#)

The RDS-30 Radiation Survey Meter is a versatile gamma radiation detector which has been designed for a wide range of applications involving a possibility for abnormal radiation levels. Compact, lightweight, waterproof, and user friendly.

<https://www.rkb.us/search.cfm?typeid=2&subtypeid=130,131,132,133,1094>

INFORMATIONAL RESOURCES

Job Descriptions for Emergency roles

Administrative Finance Section Chief - DMAT - GS-341-13 (165.49 KB)
Administrative Specialist - DMORT - GS-0341-07 (162.52 KB)
Administrative Specialist - IRCT - GS-0341-07 (162.65 KB)
Dental Assistant - DMORT - GS-0681-07 (162.51 KB)
Diagnostic Radiologic Technician - DMOI
Emergency Response Coordinator - IRCT
Forensic Anthropologist - DMORT - GS-11
Health Technician Basic - DMAT - GS-84
Health Technician Paramedic - DMAT - G
Logistics Coordinator - DMAT - GS-303-07 (162.46 KB)
Medical Officer - DMAT - GS-0602-13 (167.71 KB)
Medical Officer Pathology - DMORT - GS-602-14 (167.7 KB)
Nurse Practitioner - DMAT - GS-810-11 (168.08 KB)
Pharmacist - DMAT - GS-660-11 (128.9 KB)
Pharmacy Technician - DMAT - 0661-05 (165.36 KB)
Physician Assistant - DMAT - GS-0603-11 (178.66 KB)
Planning Section Chief - Emerg Planning Analyst - DMAT - GS-301-13 (162.29 KB)
Respiratory Therapist - DMAT - GS-651-08 (168.22 KB)
Respiratory Therapist Technician - DMAT - GS-0651-07 (184.4 KB)
Safety Officer - DMAT - GS-0301-12 (169.04 KB)
Security Specialist - DMAT - GS-0080-12 (162.21 KB)



“The National Disaster Medical System (NDMS) supports the Federal medical response to natural or manmade disasters, including hurricanes, earthquakes and floods, transportation accidents, and terrorist acts involving weapons of mass destruction. The NDMS is a federally coordinated system that augments the Nation's medical response capability.”

Staff Medical Officer - DMAT - GS-0602-13 (167.74 KB)
Staff Nurse - DMAT - GS-810-09 (164.02 KB)
Supervisory Clinical Nurse - DMAT - GS-810-11 (165.24 KB)
Supervisory Medical Officer - DMAT - GS-602-14 (165.87 KB)
Supply Management Officer - Logistics Section Chief - DMAT - GS-2003-13
Training Specialist - DMAT - GS-1712-11 (163.88 KB)

ORGANIZATIONAL RESOURCES

The screenshot shows the DisasterAssistance.gov website. At the top, there is a search bar with the text "Search by Keywords..." and a "Search" button. Below the search bar is a navigation menu with links for "Home", "Get Disaster Assistance", "Disaster Information", "Foreign Disasters", "About Us", and "Help". There is also a "SHARE" button with social media icons. The main content area features three large buttons: "Find Assistance" with a "Take Questionnaire" sub-button, "Apply for Assistance" with an "Apply Online" sub-button, and "Check Your Application Status" with a "Check Your Status" sub-button. Each button has a brief description of the service. Below these buttons are three sections: "What can you do on DisasterAssistance.gov?", "Explore Disaster News Feeds", and "Resources to Recover & Rebuild".

Surprise !
What now ?



Server not found

Firefox can't find the server at hsvac.dhs.gov.

- Check the address for typing errors such as ww.example.com instead of www.example.com
- If you are unable to load any pages, check your computer's network connection.
- If your computer or network is protected by a firewall or proxy, make sure that Firefox is permitted to access the Web.

Try Again

MANAGEMENT RESOURCES: Veterans Administration Checklist

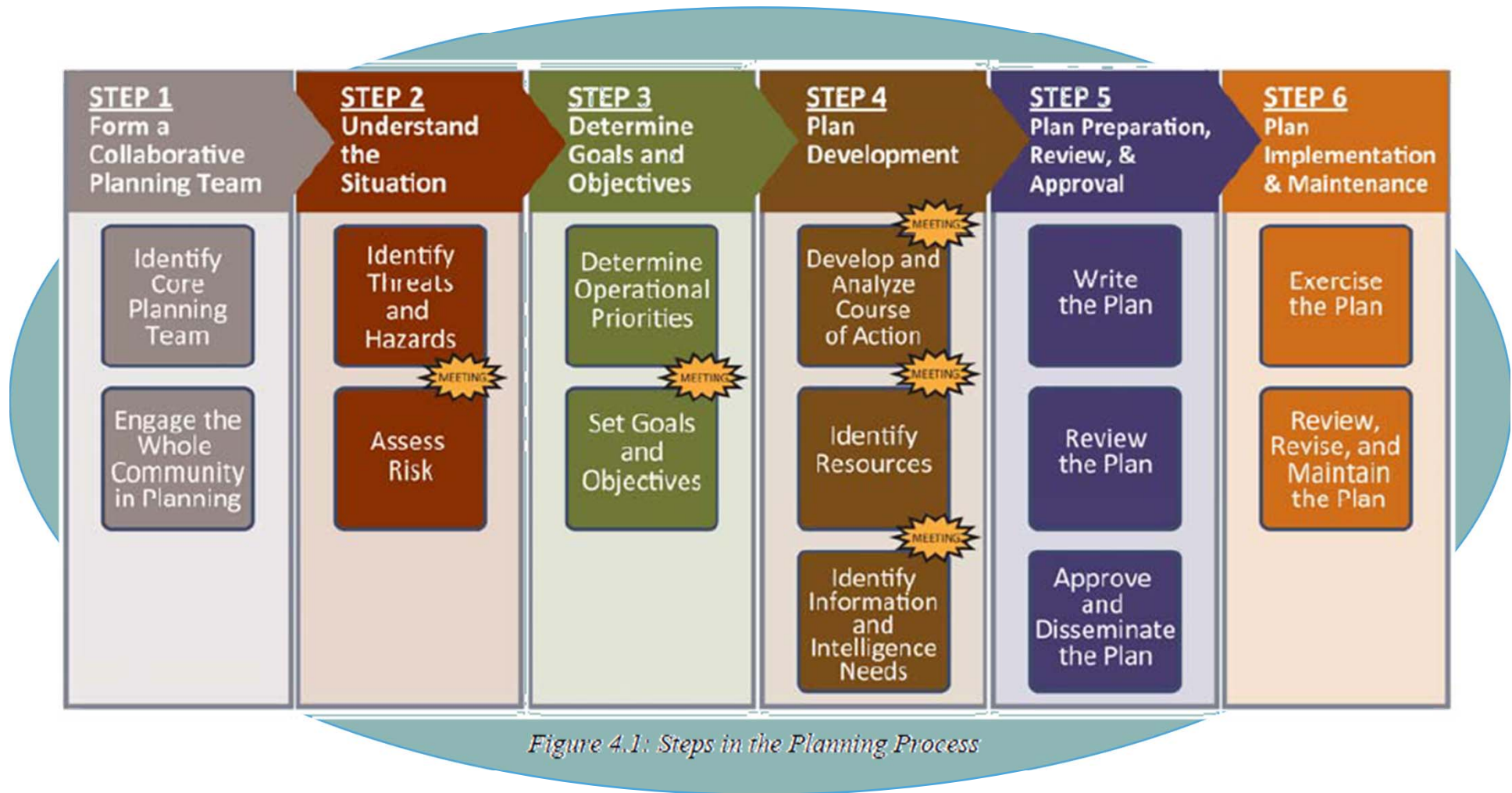
Disaster Preparedness



- Following the devastation of the 2005 hurricane season, hospitals in Florida and the Gulf Coast area helped develop the following checklist to aid hospitals as they prepare for the impact of tropical storms, hurricanes or similar natural disasters. To help remain operational, hospitals should consider taking the following steps:
- Arrange to address employees' cash needs with cash on hand during the disaster.
- Bring in large tanker trucks with a 10-day supply of: potable water, diesel fuel for generators and gasoline for employee use.
- Establish an in-house general store so that employees can obtain dry goods, cleaning supplies and donated items; staff the store with volunteers; set up laundry service for employees.
- Set up an on-site daycare or make arrangements with other childcare providers to care for children of hospital employees during disaster and for an extended period afterwards.
- Obtain satellite phones for management and emergency team members for external communications as well as radiophones for internal communications.
- Establish a Hurricane Team, as well as a Relief Team that can support the Hurricane Team after the initial rush. Remind employees clearly about expectations on relief staffing. If necessary, establish transportation service that can pick up employees.

- Videotape or photograph all hospital assets as proof to FEMA about the "as was" condition of building, grounds and assets. This documentation will be needed when applying for damage reimbursement. Pass out cameras to department heads/supervisors so they can provide additional documentation in their areas.
- Place supplemental emergency generators in areas that are not prone to flooding.
- Work in advance with the National Guard to determine plans for crowd management and protection of the facility, supplies, patients and staff.
- Set up a 24-hour materials management and receiving department, and stock a 10-day supply of important items, including: water, ice, food (MREs); linens; IV sets and solutions; oxygen concentrators; disinfectants; gloves; medications such as insulin, heart drugs, antibiotics, anti-diarrhea remedies; blankets, pillows and cots for staff; hand sanitizers; scrubs; personal hygiene items; nicotine patches; equipment and supplies for dialysis and chemotherapy treatments.
- Do not rely on information stored electronically.
- Update hard-copy lists of emergency contacts: FEMA, EOC, Department of Health, Red Cross, police, utility department, etc.
- Establish/update contact list with names of administrators, clinical staff and operational leaders of other local hospitals who may be able to provide supplies and staff during crisis and file hard copies.
- Develop/update recovery plans for business information systems.
- Purchase plywood and window repair supplies.
- Establish relationships with corporate and community partners that might provide needed supplies and food during a disaster.
- Establish on-site pet kennel for employee pets.
- Anticipate patient load increases in dialysis, oncology and radiology
- Hospitals in areas adjacent to disaster zones may need to take some of these same steps to prepare for an influx of evacuees fleeing the immediate scene of a disaster.

MANAGEMENT RESOURCES: Developing a Plan



ORGANIZATIONAL RESOURCES

The California Resilience Alliance Disaster Asset Registry (CRADAR) is a database of pre-identified private sector resources available to emergency management officials in time of emergency, on either a voluntary or paid basis.

The screenshot shows the 'Asset Registration' page of the California Resilience Alliance. The header includes the logo and the URL <http://calpartnership.ning.com/>. The navigation menu has 'Home', 'Register Assets', 'Track Assets', and 'Contacts'. The main content area is titled 'Step 3 - Category Information' and contains the following fields:

- Main Category: Professional Services (selected)
- Sub Category: Select a Sub Category
- Quantity (if applicable):

Why should my company participate in CRADAR?

- Pre-identifying resources allows for better planning and decreases the lag time in trying to find a donor or provider.
- Web-based access to pre-registered business resources increases deployment efficiency.
- You have control over the activation of pre-identified resources – there is no obligation if you need them at that time.
- You may designate certain resources as confidential and all transactions are secure.
- CRADAR does not replace existing government procurement vendor lists, but rather is intended to supplement and address resource gaps.

By pre-identifying and pooling local resources in CRADAR, businesses can have a dramatic collective impact in improving disaster response and facilitating community resiliency.

“The CRA brings businesses and government together in a public-private partnership to strengthen our capacity to prevent, protect, respond and recover from natural disasters, pandemic flu or terrorism. In previous disasters, business-government collaboration has been chaotic – with little or no advanced planning or practice. We mobilize California businesses in advance to improve community resiliency through the following initiatives:

- Cross-Sector Coordination - Businesses link to state and local government emergency operations centers (EOCs) and information “fusion centers” to improve communication and coordination during disasters;
- Public Health Collaboration - Companies assist public health departments in a pandemic or biological attack;
- Disaster Resources - Businesses pledge resources (facilities, equipment, transportation) through a web-based disaster asset registry called CRADAR that can be quickly tapped;
- Expertise and Technology - Businesses offer expertise to help government improve prevention, response and recovery.
- Helping Partnerships Statewide - We facilitate and link partnerships around California by sharing lessons and best practices.

Launched in 2005, the CRA is a non-profit, non-partisan organization that relies on the generosity of the business community and foundations. “

MANAGEMENT RESOURCES

High-level Preparation Guidelines – Kaiser Permanente

1

Contact :: Create a call tree

Fill out the [call tree](#) (doc) with the names of employees to call during an event. Think about key players, and make them the first contacts. The key players will then contact the employees they need support from.

Also, use your call tree to capture contact information for business partners, customers, etc. who should be alerted to the disruption in service.

2

Teams :: Create groups of key players

Assign key players from the call tree into teams. For example, if the disruption is related to an application outage, have the most technology-savvy employee set up a team to ensure the application is up and running again as quickly as possible. This team could be called the "Technology Response Team."

[Create your Emergency Response Teams](#) (doc)

3

Prepare for five possible incidents

Recognizing that it is impossible to plan for every disruptive event, the [National Business Continuity Governance Council](#) has selected 5 primary incidents to which we should plan to respond.

We've provided a template set of tasks to help you plan for each. Customize the tasks to make them useful tools for you and your department during an incident.

1. Loss of access to the network or data connectivity interruptions
2. Loss of power
3. Loss of phone service
4. Loss of access to the building where your department is located
5. A significant medical event. An event like this may not affect you directly. Consider how your work may be impacted if our medical centers are experiencing unusually high member visits because of an event in community.

4

Make a work plan :: Alternate Work Arrangements

Once your teams are set, think about Alternate Work Arrangements. Think about how work will be completed if work must continue during the event, and employees who can work from home versus employees who can be put on hold until further notice. [Document your Alternate Work Arrangements](#) (doc)

5

Review and update annually :: Department Business Continuity Plan (BCP)

The information in a BCP is a regulatory requirement, including HIPAA. The information is reviewed by both internal and external auditors and can have critical impact during contract negotiations. You are required to keep this information up to date. You must review and update your BCP at least annually to capture changes in your department functions.

Thank you for completing your department's BCP. Your department now has the basic tools to help you respond to an event!

6

Know the disaster response procedures for your facility

Most Kaiser Permanente facilities have a designated emergency response command center. Find out where the command center is located and if you have a role on the command center staff.

Ensure that your team knows the emergency hotline to call for recorded information following an emergency. Look up your [region's emergency hotline number](#) (doc).

MANAGEMENT RESOURCES – Program Manager job description

Job Type: Program Manager - Intermountain Center for Disaster Preparedness

Job Description

About Us What does it mean to be a part of Intermountain Healthcare? It means that the quest for clinical excellence is not just a goal, but a given. It means building an environment where physicians and employees can deliver the best in medicine. And it's realizing each employee or volunteer is vital to the healing process, because we can only achieve the extraordinary together. Being a part of Intermountain Healthcare means joining with a world-class team of over 32,000 employees and embarking on a career filled with opportunities, strength, innovation, and fulfillment. Our mission is: excellence in the provision of healthcare services to communities in the Intermountain region. Our patients deserve the best in medicine, and we deliver. Job Description The position is responsible for The Intermountain Center for Disaster Preparedness (ICDP or The Center) and ultimately accountable for management of every aspect of The Center's operations including all fundraising activities; grant writing, financial, accounting, training accommodations, equipment and overall stewardship of The Center. The incumbent is expected to be actively involved and visible in the community as a representative of The Center.

Job Essentials: * Develops and implements fundraising activities for The Center including: Solicitations to individuals, Associations, corporations, local, state and federal agencies. Actively seeks new funding sources, provides strategic and timely appeals and maintains ongoing relationships. * Responsible for writing and submitting grants for ongoing funding of The Center. * Responsible to the Board of Trustees and Finance/Executive Committee. Responsible for all fund raising groups associated with The Center. Incumbent recruits and supports volunteers as needed for these and other committees, projects, etc., and assures that their relationship with The Center is positive, productive and fulfilling. * Supervises designated staff in coordinating courses and ensuring a professional, positive and productive atmosphere. * Functions as a department head and is the interface and liaison to administrative staff members, hospitals, EMS, Firefighters, Police, Air National Guard, local, state and federal employees and is responsible to support, assist and work with these entities regarding their training needs. * Works closely with local state and federal agencies/corporations to develop appropriate training courses for participants. * Manages all financial elements of The Center including operating budgets, cash control, federal and local audits, etc. * Ensures integrity of media situations and published and distributed materials. * Works with the corporate communications / media / public relations team(s) to create and present messages to others.

Minimum Requirements * Bachelor's Degree in healthcare, communications, public relations or marketing; Education is verified and degree must be obtained through an accredited institution * Five years experience in operations or education requiring fundraising activities, grant writing and financial and resource accountability * Experience managing a number of tasks and objectives in a complex environment * Experience leading a staff with varied backgrounds, education, experience and work product objectives * Experience in motivating and working with executive boards, non-governmental agencies, local, state and federal agencies as assigned * Experience using word processing, spreadsheet, database, internet and e-mail and scheduling applications Physical Requirements * Speaking, hearing, and seeing Preferred Qualifications * Master's Degree * Experience working in public / media relations or in representing a business within the community * FEMA Training / Certification



MANAGEMENT RESOURCES: Mutual Aid Agreements

Mutual Aid Agreement Elements and Provisions

At a minimum, mutual aid agreements should include the following elements or provisions:

- Definitions of key terms used in the agreement;
 - Roles and responsibilities of individual parties;
 - Procedures for requesting and providing assistance;
 - Procedures, authorities, and rules for payment, reimbursement, and allocation of costs;
 - Notification procedures;
 - Protocols for interoperable communications;
 - Relationships with other agreements among jurisdictions;
 - Workers compensation;
 - Treatment of liability and immunity;
 - Recognition of qualifications and certifications; and
 - Sharing agreements, as required.
- Hospital/clinic facility supplies, surge capacity
 - Food supplies
 - Water
 - Sanitation
 - Shelter, warmth
 - Personal medical information
 - Population warning, notification
 - Media relations
 - Hygiene
 - Livestock, pets
 - Access control, building security
 - Public health
 - Continuity of care
 - Population management
 - Service tracking
 - Incident management
 - Vector control
 - Isolation, Quarantine
 - Evacuation of hospital staff and patients
 - IT services

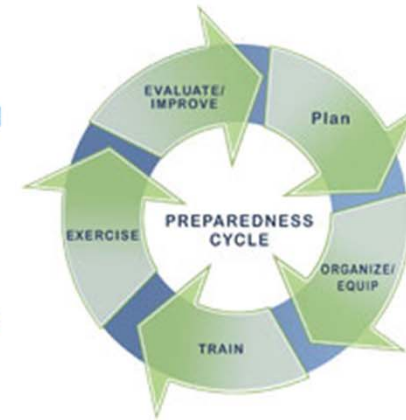
MANAGEMENT RESOURCES: Preparedness and Initial Response

Preparedness

The National Incident Management System (NIMS) defines preparedness as "a continuous cycle of planning, organizing, training, equipping, exercising, evaluating, and taking corrective action in an effort to ensure effective coordination during incident response." This 'preparedness cycle' is one element of a broader National Preparedness System to prevent, respond to, recover from, and mitigate against natural disasters, acts of terrorism, and other man-made disasters.

The Department of Homeland Security/Federal Emergency Management Agency supports preparedness by developing policies, ensuring adequate plans are in place and are validated, defining necessary capabilities required to address threats, providing resources and technical assistance to jurisdictions, and integrating and synchronizing preparedness efforts throughout the Nation.

The navigation links to the left take you to pages that highlight each component of the preparedness cycle, and how they collectively build a nation prepared.



Preparedness Resources

- [Ready.gov](#)
- [Homeland Security Information Network](#)
- [Citizen Corps](#)
- [Preparedness Grants](#)
- [Homeland Security Digital Library](#)
- [Radiological Emergency Preparedness Program \(REPP\)](#)
- [Chemical Stockpile Emergency Preparedness Program \(CSEPP\)](#)

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Initial Response: Conduct a Size-Up

In an initial incident, a size-up is done to set the immediate incident objectives. The first responder to arrive must assume command and size up the situation by determining:

- Nature and magnitude of the incident
- Hazards and safety concerns
 - Hazards facing response personnel and the public
 - Evacuation and warnings
 - Injuries and casualties
 - Need to secure and isolate the area
- Initial priorities and immediate resource requirements
- Location of Incident Command Post and Staging Area
- Entrance and exit routes for responders

MANAGEMENT RESOURCES: Early Situation Awareness

Situational Awareness

The optimal response to an emergency requires: (1) an ongoing flow of information (as reliable, complete, and near-real time as possible) about the nature and unfolding consequences of the event; (2) the ability to interpret that information and understand its implications for the healthcare institution and its community; and (3) the ability to use that analysis to anticipate what may happen next. To be of greatest use, the information and analysis must be shared with appropriate personnel within the institution and with appropriate members of the community. Thus, this description of situational awareness includes not only the gathering of information but also its analysis, distribution, and influence on response actions. This category includes communications with hospital staff, community partners, the media, and the public.

- **Suspect cases are rapidly reported** to healthcare institution leaders and to appropriate community partners during an emergency, or during normal times if the cases may herald the onset of an emergency.
- **The healthcare coalition is immediately notified** when the healthcare institution's EOP is activated.
- **External information is rapidly verified, analyzed, and forwarded** by the appropriate individuals in the healthcare institution to decision makers within the institution's ICS. External information may include such data as the number of anticipated victims and the expected severity of their illnesses and/or injuries.
- **Patient load and location data are tracked.** The healthcare institution establishes methods for tracking the number, types, and locations of patients and for sharing that information with response agencies and other facilities. The organization establishes methods for tracking similar information from other facilities.
- **Medical assets and resources are tracked.** The healthcare institution establishes methods for monitoring quantities and locations of assets and resources such as staffing, medical supplies, food, and fuel during an emergency and sharing that information with the healthcare coalition.

Management Strategies to address Resource Shortfalls

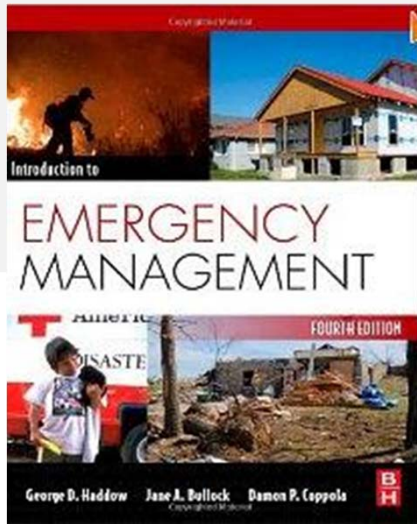
	Definition	Example*
Prepare	Plan and train for responses and emergency patient care, anticipate potential resource shortfalls and likely adaptive strategies	Cache equipment and common pharmaceuticals (e.g., narcotic analgesics, burn dressings, ventilators) (24), pre-incident mutual aid agreements with other facilities, and plans for staff and space adaptations in place
Substitute	Functionally equivalent device or supply used	Benzodiazepines substituted for other sedation agents, alternate antibiotics when first-line unavailable
Conserve	Restrictions are placed on the use of therapies or interventions to preserve supply	Oxygen is used only for patients with documented hypoxia
Adapt	Re-purpose a medical device	Saturation monitors with rate alarms used in lieu of full-featured monitors, anesthesia machines used for temporary ventilators
Reuse	Re-use a device with appropriate cleaning, disinfection, or sterilization	Re-use of cervical collars, nasogastric tubes, and other supplies
Re-allocate	Prioritization of therapy to those patients with the best chance of a good outcome, most likely to benefit, or with the least resource investment required	Treatment of subset of patients with vaccine/antiviral treatments, prioritization of patients to receive mechanical ventilation

*Note that these examples may be carried across the conventional/contingency/crisis continuum to reflect their impact on patient care. For more detailed information, see <http://www.health.state.mn.us/oep/healthcare/standards.pdf>.

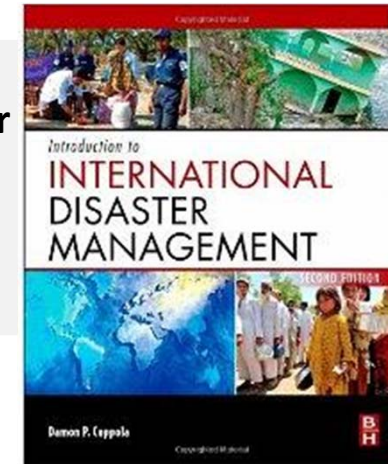
SOURCE: IOM, 2009, p. 54.

Webliography and Bibliography

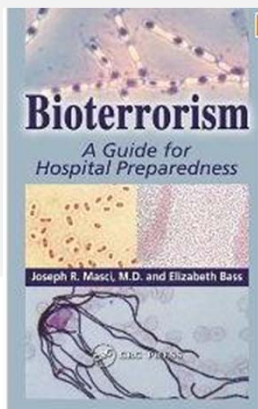
Introduction to Emergency Management
by Damon P. Coppola, George D. Haddow



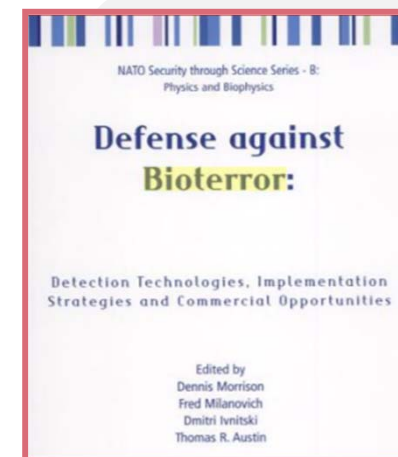
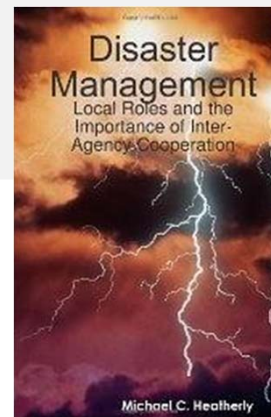
Introduction to International Disaster Management, Second Edition
[Damon P. Coppola](#)



Bioterrorism: A Guide for Hospital Preparedness
[Joseph R. Masci M.D.](#) , [Elizabeth Bass](#)



Disaster Management: Local Roles and the Importance of Inter Agency Cooperation
[Michael C. Heatherly](#)



Webliography and Bibliography

Informational Links

Focus On: Emergency Preparation

http://www.24x7mag.com/issues/articles/2010-02_08.asp

Katrina Offers Grim Reminder to Include Clinical Engineers in Emergency Preparedness, Keil, Ode R.
Journal of Clinical Engineering. 30(4):182-183,
October/December 2005.

The Other Side

Are you prepared for an emergency?

Author: Jim Fedele, CBET - **Date:** 4/1/2012 12:00:00 AM
<http://www.medicaldealer.com/article.aspx?id=1262>

Emergency Preparedness Plan – The Clinical Engineers’ Role

Yadin David
5th European Conference of the International Federation
for Medical and Biological Engineering
IFMBE Proceedings, 2012, Volume 37, Part 1, Part 7, 711-
713, DOI: 10.1007/978-3-642-23508-5_185

Organizational Links

World Health Organization
<http://www.who.int/en/>

IFRC International Federation of Red Cross and Red
Crescent
<http://www.ifrc.org/>

International Committee of the Red Cross
<http://www.icrc.org/eng/index.jsp>

American Red Cross
<http://www.redcross.org/>

Google these Links to view in your browser ...

[Association of Public Health Laboratories](#)

[CA Regional Disaster Medical Health Coordinator \(RDMHC\)](#)

[Calif EMS Authority - Disaster Medical Services Division](#)

[CDC Laboratory Information Emergency Preparedness & Response](#)

[CDC Laboratory Response Network \(LRN\)](#)

[Centers for Disease Control and Prevention](#)

[DHS Department of Homeland Security Research & Technology](#)

[DHS Department of Homeland Security Disaster Readiness Resources Index](#)

[Federal Business Opportunity](#)

<http://www.training.fema.gov-EMIWeb-Programs->

[State of California - Hospital Bioterrorism Preparedness Program](#)

[Survivalism](#)

[Secure American Future - an American Security Project](#)

[OCHA Evaluations Synthesis Report | OCHA](#)

[AHRQ Innovations Exchange | Hospital Integrates Census Management for Disaster Planning Into Operations, Leading to Better Capacity Management and Increased Throughput](#)

PROFESSIONAL RESOURCES: CED Global

- barداstrategicplan9-28--508.pdf
- basic_preparedness-FEMA.pdf
- CERTPPT-ppt.zip
- Civil-Military Guidelines and Reference,UN-IASC, 21 Oct
- CMU DMI pres.ppt
- CMU NextGen EOC 2011.pdf
- ComprehPrepGuide.pdf
- DevelEOpPlan-FEMA CPG_101_V2.pdf
- ExchangeofMedicalRecords_NDMS_HIMSS.ppt
- FDA EmergencyOps Plan.pdf
- HHS CBRN Countermeasure Plan.pdf
- HospPrepReport.pdf
- Hyogo Framework UN summaryHFP20052015.pdf
- ID_8125_YB_Redhum-GL-Guia-Guia_para_el_desarrollo
- IFMBE-Beijing pres rev 1.pptx
- intermountainctrdisasterprep.pdf
- Intro to Disaster Prep-IFRC.pdf
- JointCommission Eemergency_preparedness.pdf
- MedSurge Capacity.pdf
- MedSurge-Coalition2010.pdf
- Natl BusinessEOC.pdf
- nrf-NatlResponseFramework-2008.pdf
- OpenSourceDisasterMedInformatics-Haiti.pdf
- Post-Disaster-Needs-Assessment.pdf
- Range of Required Capabilities.docx
- Range of Required Disaster Capabilities-ClinEng.docx
- StaClara County DisastPlan.pdf
- UNDAC Handbook-dec2006.pdf
- WHO disaster refs.txt.txt
- WHO disaster refs.html
- WHO Hospital emergency response



YAHOO! GROUPS

CEDGlobal - CED Global, Clinical Engineering Division

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Group Information

Members: 156
Category: Professional
Founded: Sep 24, 2009
Language: English

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Activity within 7 days: 1 New Member - 15 New Messages - New Questions

Description

A global leadership association of Clinical Engineers and allied professionals dedicated to the advancement of international standards for professional education, certification, and professional development in Clinical Engineering, and to the advancement of Clinical Engineering in the institutional frameworks of health care policy, strategy, planning, and management worldwide.

NEW MEMBERS: PLEASE USE "DATABASE" LINK AT LEFT TO OPEN THE "CED CONTACT LIST" AND ENTER YOUR CONTACT INFORMATION.

We will have ample opportunities for participation in our three Working Groups:

- Professional Practice & Education - (Jorge Cali)
- Standards & Guidelines - (Albert Poon)
- Strategic Development & Communications - (Yadin David)

Rationale: Online exchange has become an important tool for many practitioners to stay connected with their professional community. Our goal is to provide an accessible forum in a widely used format where Clinical Engineers and others around the world just like you who are involved in the design, teaching, testing, maintaining and regulating of healthcare products and systems will be able to:

- Access information and exchange comments about unique global engineering issues facing us.
- Become aware of global initiatives impacting medical technology and its lifecycle support.
- Connect, network and collaborate with clinical engineering experts on finding solutions that can be applied locally.
- Get expert insights from our Working Groups participants about professional development opportunities, professional recognition, resources, where volunteers are needed, and how you can become involved in critical work.

CEDGlobal Yahoo Group:
<http://health.groups.yahoo.com/group/CEDGlobal>

Thank you for your kind attention,

and

*Good Luck to us all
with our Disaster Management plans!*



<http://sam-azar.com/?p=93>



Contact Information

Fred Hosea, Ph.D.
Program Director, Research and Innovation
Clinical Technology, Kaiser Permanente
(for identification purposes only; materials
presented do not represent any official
positions of Kaiser Permanente)
1800 Harrison Street
Berkeley, California USA

Phone: 510-559-4842
Cell: 510-812-5086
Email: fred.w.hosea@kp.org
Email: tangofred@gmail.com
Skype: tangofred
Googletalk: tangofred