

Earthquake Preparedness and Response

# TOOLS FOR PRIMARY CARE HEALTH CENTERS

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- DMAT CA-6 Disaster Medical Assistance Team
  - World Trade Center - ground zero



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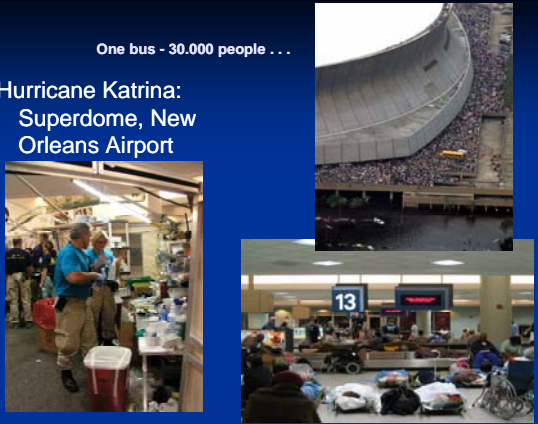
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One bus - 30,000 people . . .

### Hurricane Katrina: Superdome, New Orleans Airport



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## California Wildfires



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## International

- Tsunami relief
- International Medical Corps:



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## Haiti Earthquake 2010



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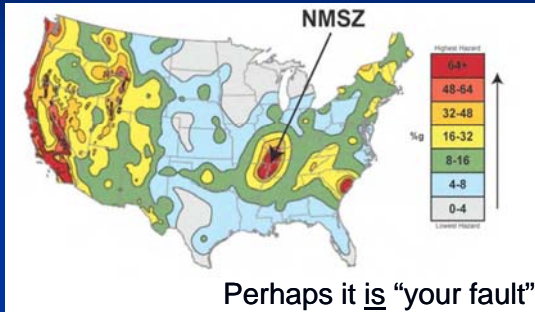
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### Special welcome to non-West Coast participants



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### Share tools and approaches

- Primary Care in Earthquake response
- Health Center Evacuation planning
- Earthquake supplies
- Approach to Medical Surge

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### What is different about major Earthquake Disasters?

Combination:

- Lack of warning
  - Damage is done in 15 - 60 seconds!
- Widespread destruction leaving few health care and rescue resources.
- Likelihood of severely damaged hospitals
- Community dependence on available local resources for at least 72 hours

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# Primary care in Earthquake Response

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## Primary Care in Earthquake Disasters

- The bulk of medical need is within the scope of primary care
- Your services might be all that is available to your local community in the first critical hours and for several days.

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85% of all "rescues" in earthquakes have been made by non-professional responders




Photo: :15 seconds cypress freeway

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### Mexico City Earthquake 1985

- 41,000 injuries
- 73% classified as "minor" (n = 30,000)
- 23% classified as "major" trauma (n=9,597)
- 4% hospitalized (n=1,510)

Source: Start 2 Finish  
J Wild Assoc Emerg Disast Med 1986;4:1-8

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### Oaklahoma City Bombing 1995

- 86% "out patients"
- 14% "in patients"

### World Trade Center 2001

Among 5 hospitals closest to the WTC

- 81% treated as "out patients"
- 19% treated as "in patients"

Source: Start 2 Finish  
JAMA 1996;276:382-7  
MMWR 2002;51:1-4

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### Non-trauma Primary Care

- Loma Prieta Earthquake 1989
  - 44% trauma
  - 35% medical
  - 11% combination
- Kobe Earthquake, Japan 1995
  - 6% crush syndrome
  - 38% other trauma
  - 56% other diseases

Source: Start 2 Finish  
Ann Emerg Med 1992;21:1228-33  
Japanese Assoc of acute Medicine 1998

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## Primary care management of trauma?

- Haiti Earthquake 2010
- Disaster Medical response team
  - Managed trauma under “austere” conditions -- assisted thousands of patients

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## Open & closed fractures



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## Partial amputations



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**Crush injuries**



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**Fevers, vomiting & diarrhea**



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**Managed in tents**



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## There is a role for primary care in major disasters

In recent disasters: vast majority of victims treated as out patient - both trauma and medical care.

- Up to 72 hour delay for outside assistance. The larger the disaster the longer the wait.
- Our Health Center services can help fill that local critical need.

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## Earthquake Evacuations

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### Added difficulties in an earthquake triggered evacuation:

- Toppled furniture, blocked doorways, loss of lighting/ power\*, no elevator, injuries, panic
- Up to 72 hour delay for rescue response
- “wait for assistance at the top of the stairs” can be a long wait

■ \*consider glow in the dark tape to mark doorways and doorknobs in interior rooms and hallways

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## Evacuation plans to share

- Clinic evacuation plan template available on the CPCA and NACHC websites
  - California Primary Care Association
    - www.cPCA.org
- Evacuation Stages
  - In your Webinar packet



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## Evacuation Stages

- Alert – everyone in the building is aware of evacuation
- Evacuation
  - Step 1: Quickly move victims from immediate danger
  - Step 2: General evacuation of ambulatory patients and staff - guided by staff



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## Evacuation Stages -2

### Evacuation

- Step 3: Evacuation of non-ambulatory by trained health center teams\*

\*we trained with local fire dept

\*list of equipment suggestions from EP workgroup



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## Supplies

- What is different in earthquake response?



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## Supply lists

- Many supply kits and supply lists on line
- The "perfect" supply list for community health centers does not exist.
- Hope some categories of supplies will be helpful

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## Trauma

### Basics in Primary Care

- Control bleeding - lifesaving and single most critical intervention for most injuries
- Clean wounds - they are already contaminated, sterile supplies are not necessary.
- Splint suspected fractures: 3M Scotchcast pre-padded (4x15", 5x30"), SAM splints, cardboard splints
- Treat for shock and pain

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### Simple trauma supplies



- Pads for hemostasis
- Bottled water with soft top for irrigation
- Polysporin
- Non-sterile gauze
- Any clean bandage material
- Minor suture kits for debridment
- Splints

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### primary care medications

- Refills for lost or misplaced medications
- URI's, GI upset, stress from living outdoors
- Stocking your shelves: 4 weeks of routine medications instead of next-day restock if you have a dispensary
- Small stockpiles of best generic antibiotics cardiac, diabetic, asthma/ respiratory meds

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- If you do not have an on-site dispensary or pharmacy - develop relations with your local resources.

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## Evacuation & Staff support

- Light search & rescue\*
  - Pry bars, high power flash lights, floor plans, evacuation down the stairs, etc
- Water, shelter, food
  - Many lists available on the internet
  - "Be able to make coffee"
- \*Sample list of supplies developed for a local school district posted on the CPCA and NACHC websites  
-- for ideas – adapt them to your preferences

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## Evacuation down the stairs

- Recommend hands on training
  - Local Fire Dept.
- Our staff trained on
  - two person carries,
  - blanket carries,
  - "safety chairs", "stryker chairs"
  - "sleds".
- Each method has advantages, disadvantages & capabilities.

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## Medical Surge

All hazards approach for any time you cannot meet the need by simply working faster

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## Clinic Response RS<sup>3</sup>

- Reprioritize Services
- Reassign Staff
- Rethink Use of Space

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## Reprioritize Services

- Cancel health maintenance visits (sports exams, routine paps) to open up urgent care capacity
- Or cancel all appointments and convert to all urgent care.
- Scale it to the need

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## Reprioritize Services/ Reassign Staff/ Rethink Use of Space

Sample Reprioritization of Services	
<b>Services As Usual</b> <ul style="list-style-type: none"><li>• Triage/Phone Advice</li><li>• Family Medicine</li><li>• Pediatrics</li><li>• Women's Health</li><li>• Dental</li><li>• Behavioral and Mental Health</li><li>• Health Education</li><li>• Registration/Billing</li><li>• WIC/Nutrition Program</li></ul>	<b>Disaster Response Services (All Urgent Care)</b> <ul style="list-style-type: none"><li>• Triage</li><li>• Red Team</li><li>• Yellow Team<ul style="list-style-type: none"><li>• Wound Care Team</li></ul></li><li>• Green Team</li><li>• Patient Flow Monitors</li><li>• Patient Tracking and Registration</li><li>• Mental Health and Psychological Support</li><li>• Community Information</li></ul>

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## Reassign Staff

- Reconfigure staffing patterns to meet the need.
- Possibly Red/ Yellow/ Green teams similar to triage categories
- Match skills, experience & aptitude to the task regardless of which department they normally work in.

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## Triage

Prioritize the injured by severity

- Immediate - Red
- Delayed - Yellow
- Minor - Green
- Dead/ unsalvageable- Black/ White/ Gray

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## examples

- Red team anchored by clinicians with trauma care experience
- Yellow team anchored by your PA's and NP's
- Green team with MD oversight but staffed by MA's and staff with first aid training.

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## Innovative ideas

- Convert dental department to suture and wound management area.
- Assign WIC staff to patient flow/ pt assistance
- Health Ed support community information team
- Disperse registration/ billing staff to assist patient intake and tracking in the treatment areas

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### Reassign Staff/

**Sample Reassignment of Staffing**  
(This chart is provided as an example of how staffing might be reassigned during a disaster response. Decisions regarding reassignment of staffing will be specific to your facility.)

Staffing As Usual					Disaster Response Staffing					
<ul style="list-style-type: none"> <li>Staffing assignments commonly grouped by specialty.</li> </ul>					<ul style="list-style-type: none"> <li>Teams formed across departments might be based on skills in trauma and urgent care.</li> <li>In this example dental was converted to a suture/wound care area. MDs anchor the Red team, NP/PA the Yellow team.</li> <li>WIC and HE staff were assigned to support patient tracking and community information.</li> </ul>					
Triage			RN	MA	Triage			RN	MA	MA
Family Medicine	MD	NP	PA	MA	MA	Patient Flow			RN	REG
	MD	NP	PA						RN	
	MD	NP	PA			Scal Team	MD	PA	NP	MA
	MD	NP	PA				MD	PA	NP	MA
	MD	NP	PA				MD	PA	NP	MA
Women's Clinic	OB	NP	PA	MA	MA	Yellow Team	PED	NP	NP	MA
	OB	NP	PA				NP	PA	NP	MA
	OB	NP	PA				NP	PA	NP	MA
	OB	NP	PA				NP	PA	NP	MA
	OB	NP	PA				NP	PA	NP	MA
Dental	DDS	OH	DA	DA	DA	Wound Care Subgroup	OB	DDS	DA	REG
	DDS	OH	DA	DA	DA		OB	DDS	DA	REG
	DDS	OH	DA	DA	DA		OB	DDS	DA	REG
	DDS	OH	DA	DA	DA		OB	DDS	DA	REG
Behavioral/Mental Health	MH	MH	MH	MH	MH	Green Team	MD	NP	MA	REG
	MH	MH	MH	MH	MH		MD	NP	MA	REG
	MH	MH	MH	MH	MH		MD	NP	MA	REG
	MH	MH	MH	MH	MH		MD	NP	MA	REG
Health Education	HE	HE	HE	HE	HE	Patient Tracking	REG			WIC
	HE	HE	HE	HE	HE		REG			WIC
	HE	HE	HE	HE	HE	Mental Health	MH	MH	MH	WIC
	HE	HE	HE	HE	HE		MH	MH	MH	WIC
Registration and Billing	REG	REG	REG	REG	REG	Community Information	MH	HE	HE	HE
	REG	REG	REG	REG	REG		MH	HE	HE	HE
	REG	REG	REG	REG	REG		MH	HE	HE	HE
	REG	REG	REG	REG	REG		MH	HE	HE	HE
WIC Program	WIC	WIC	WIC	WIC	WIC					
	WIC	WIC	WIC	WIC	WIC					
	WIC	WIC	WIC	WIC	WIC					
	WIC	WIC	WIC	WIC	WIC					

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### Rethink Use of Space

**Reprioritization of Space**  
(These charts are provided as examples of how space might be reprioritized during a disaster response. Decisions regarding reprioritization of space will be specific to your facility.)

Use of Space: As Usual* <small>(*See layout.)</small>	Use of Space: Disaster Response* <small>(*See layout.)</small>
<ul style="list-style-type: none"> <li>In this example, triage, family medicine, pediatrics, ob/gyn, and dental services provided in main building</li> <li>Services for mental health, the WIC/Nutrition program, and health education provided next door</li> </ul>	<ul style="list-style-type: none"> <li>Triage conducted outside (at the door)</li> <li>Acute medical care provided in main building</li> <li>Procedures located in dental area</li> <li>Quiet area for staff and mental health services located next door</li> </ul>

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**Rethink Use of Space – as usual**

The diagram shows a hospital layout with the following departments and staff assignments:

- Open Area:** Large green space.
- WIC:** WIC, WIC, WIC, WIC.
- Health Ed:** HE, HE, HE.
- Billing/Rtg:** BEC, BEC, BEC, BEC.
- Mental Health:** MH, MH, MH, MH.
- Entrance:** Entrance.
- Triage/Registration:** TR, MA, BEC.
- Diethyl:** DE, DE, DE, DE, DE.
- Women's:** W, W, W, W, W.
- Pharmacy:** PH.
- Lab:** Lab.
- Family Medicine:** MD, PA, MD, NP, RN, MA, MD, PA, MA, MA.
- Pediatrics:** PED, NP, RN, MA, PED, PA, MA, MA.

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**Rethink Use of Space – Disaster Response**

The diagram shows a hospital layout with the following departments and staff assignments:

- Open Area:** Patient gathering area. Keeping mental health, triage, and other first aid teams right next to this area.
- Community Information:** CI, CI, CI, CI.
- Staff Family Area:** SFA.
- Staff Rest Area:** SRA.
- Mental Health:** MH, MH, MH, MH, MH.
- Green Team:** MD, RN, MA, BEC, NP, MA, MA, PA.
- Red Team:** MD, PA, RN, MA, BEC, NP.
- Pharmacy:** PH.
- Lab:** Lab.
- Procedures:** PR, PR, PR, PR, PR, PR, PR, PR.
- Flow/PT Tracking:** F, F, F, F, F, F, F, F.
- Registration:** TR, MA, BEC.

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**Reprioritize Services/ Reassign Staff/ Rethink Use of Space**

This slide compares the two floor plans side-by-side. The left diagram is the 'Use of Space: as Usual' plan, and the right diagram is the 'Use of Space: Disaster Response' plan. The text above the diagrams reads: 'Reprioritize Services/ Reassign Staff/ Rethink Use of Space'.

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## Consider Alternate Sites

- May lose the use of your building or afraid to return inside (aftershocks).
  - Set up adjacent or nearby to facility
  - In the parking lot
  - Nearby park or open space
  - Other single story, well constructed building
  - Shared operation with another facility
- Same organizational plan as RS <sup>3</sup>

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*Thank You*

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