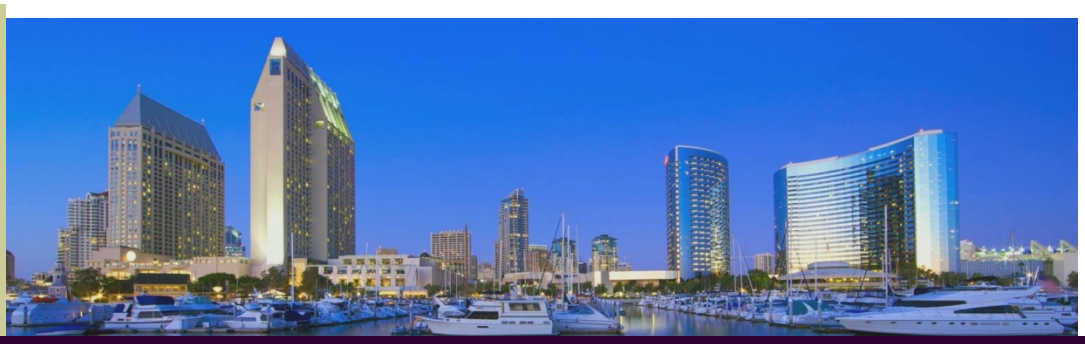
NOVEMBER 2015



SAN DIEGO HEALTHCARE DISASTER COUNCIL

This Month in the Council

Each month at the San Diego Healthcare Disaster Council (SDHDC), disaster preparedness professionals come together for in-depth, passionate dialogue about a range of topics. Here's a glimpse at some of the discussion in January:

- The GERM Commission provides a weekly report with important information.
- There will be an Operational Area Exercise in Spring 2016.
- Roger Richter will be retiring from CHA in June 2016. Sheree Hummell will be the district planning manager, and she will also be taking on the various duties that are now handled by Roger.

Trainings and Drills

November 17-19, 2015
November Statewide Exercise/Drill

December 16, 2015
Statewide Exercise Debriefing

January 20, 2016
HPP 13 Invoice Review (SDHDC)

The citizens of San Diego count on us to be prepared in the event of a disaster. We as the San Diego Healthcare Disaster Council and Support Services proudly accept this challenge

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NOVEMBER 2015

SAN DIEGO HEALTHCARE DISASTER COUNCIL

This Month's Focus

The Blackout "Big One"

Submitted by Jake Jacoby, M.D., UCSD

The ***Great Blackout of 2011***, also called the ***2011 Southwest Blackout***, occurred on 9/8/11, one of the hottest days of the year, and was a widespread event affecting SD, southern Orange and Imperial Counties, the Coachella Valley, Tijuana and parts of AZ, leaving over 2 ½ million people without power for between 11 and 13 hours. One hospital backup generator failed. It was the largest power failure in CA history. However, in the event of a major **Coronal Mass Ejection (CME)** event, this would have been a mere drop in the bucket.

A **coronal mass ejection** is the sudden release from the sun of an enormous plume of corona substance, a plasma which includes massive amounts of ionized particles and electromagnetic waves that normally would interact with the electromagnetic field of the Earth. They would be diverted towards the poles, producing auroras in the upper atmosphere.

But extremely large solar storms could overwhelm the electromagnetic field, penetrating the atmosphere and causing major electrical disturbances that can overheat long wires and burn out extremely high voltage transformers. **Coronal mass ejections** more likely occur during periods of highest sunspot activity, which occur in 11 year cycles.

The **Carrington Event of 1859** is the first time the phenomenon was recognized to be related to several electrical phenomena on Earth. Others have occurred over the last century and a half. In 1989 the Northeast Power Failure from a major solar storm shut down power in Quebec. Power transformer damage occurred at the Salem NJ Nuclear Power Plant. An extremely large July 2012 event missed the Earth by a few days.

So, how might a power outage from a Coronal Mass Ejection affect hospitals and health care differently from the "typical" power outage? It will likely last longer, possibly much longer. When an extra high voltage (EHV) transformer burns out, it could take many months, up to a year or more, to build, ship, transport and install one. If several are damaged, the time to replace them could be still longer. Most are built outside the country, in places like South Korea and India, although domestic production capability has increased in the last few years.

The state mandated requirement to have backup generators at hospitals that will switch on within 10 seconds and run for up to 48 hours may be totally inadequate. Backup generators may need to run for weeks or even months, and, since they are wired, could even be damaged. Having redundancy is a must, including redundancy for fuel supplies. Food and water supplies may need to be stocked for weeks to months. Thus hospitals may need to extend the timelines of their "all-hazards" plans.

As electrical currents are produced in wires by magnetic fluxes, fires and explosive discharges may occur, as they did in the Carrington Event, causing burns in telegraph workers. At that time, telegraph wires were the only electrical “infrastructure” that existed.

Today we live surrounded in a virtual envelope of electrical wires, transmission towers, long lines and apparatuses, and we increasingly rely on GPS and satellite transmissions, all of which could be affected.

Disrupted satellite transmission of GPS information in the ionosphere may lead to false GPS data, leading to malfunctions in air traffic control, maritime navigating, and subsequent catastrophies.

Space weather is monitored continuously just as regular weather is, and should be checked frequently. Future improvements may lead to specific directed warnings to institutions to disconnect from the grid before the solar storm front arrives, to try to protect infrastructure damage.

With luck, notice might arrive 14-16 hours before such an event arrives.

Knowledge of the great risks to utility, communications and GPS function by Coronal Mass Ejections is imperative for hospital and all disaster planners.

References:

1. National Space Weather Strategy. National Science and Technology Council. http://www.dhs.gov/sites/default/files/publications/DRAFT-NSWS-For-Public-Comment-508.pdf

2. Space Weather Prediction Center, NOAA, Boulder, CO. http://www.swpc.noaa.gov

3. The Carrington Event.

https://passingstrangeness.wordpress.com/2009/04/15/the-carrington-flare/