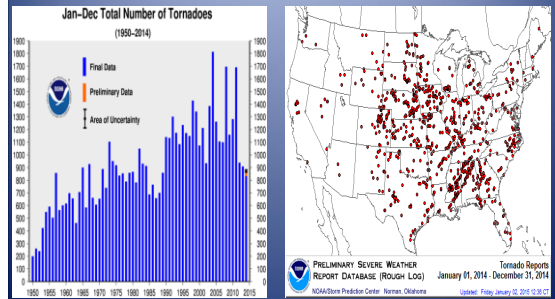


Preparing For 2030 Climate Change Possibilities Is **Important**.

Hospital Extreme Weather Threat Preparedness is **Urgent!**

Bob Goldhammer, CEM, CBCP
American Meteorological Society
Washington Forum
April 21, 2015

Tornado Concern Is Here To Stay!



Every health care facility in the SE or Midwest are candidates for a St. Johns Medical Center disaster

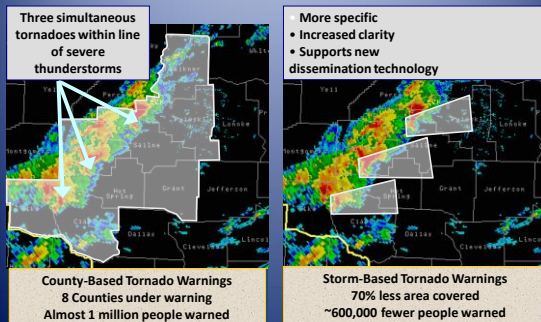
- Resources for better decision support are readily available, yet frequently underutilized, or not used at all.
- Engaging the services of the private sector weather companies is required to micro-manage a dangerous weather event.
 - Not NWS' mission to provide forecasting and warnings at such a granular level.

Concerns

- False Warnings:**
 - Prior to May 22, 2011 there were 24 consecutive warnings over a 3 year period for Jasper County, MO that were not associated with a tornado
- Location and Content of Warnings:**
 - Countywide warnings cause confusion, lack of confidence and frustration with the weather warning process
 - Location-specific warnings reduce need for confirmation as they provide more direct information on the location of the tornado and current path.

NWS WFO Storm-Based Warnings

Implemented October 1, 2007



Are Warnings Getting Cleaner Or **Messier?**

IBW tags... The Rochelle Tornado Warning was a generic low-end radar-only warning. About 10 minutes later a SVS went with "observed" and then a few minutes after another SVS went to "observed / considerable." How that information can still be "hidden" in an SVS is beyond me...

Expecting automated alerting systems to track tags in SVSs is a bit much - any upgrade (radar -> observed, low end -> considerable -> catastrophic) **MUST** be a new TOR if we want that information to get to the public. The tags **MUST** be incorporated into WEA. Rob Dale Weather and Society - Integrated Studies.



Building Standards: Need To Get From Pretty To Safe!



Updated every four years, the Facility Guidelines Institute *Guidelines* is used in the regulation of health care facility design and construction by more than 42 states and several federal agencies. The 2014 edition of the FGI Guidelines includes the following changes from the 2010 Guidelines for Design and Construction of Health Care Facilities:

The **safety risk assessment** was expanded to **help designers and owners mitigate hazards** in the health care built environment.

All The Hospitals In A Row!

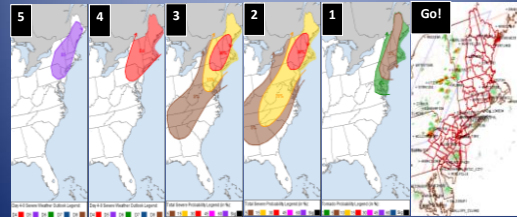


Better 1-3 Day Planning is Readily Available, Yet Not Utilized.

NWS Storm Prediction Center 3 Day Convective Outlooks are excellent planning tools

Moderate Risk
High Risk

Springfield, Massachusetts Tornado National Weather Service Outlooks May 28-June 1 & Tornado Watch, June 1



WeatherCall Success Story Moore Medical Center Moore, OK May 2013



Even though the [hospital was immediately in the tornado's path](#), and suffered a "direct hit," per a hospital release, [none of the 30 patients or staffers in the building were injured](#).

300+ other people from the surrounding community had sought shelter at the hospital. All of them emerged with only minor injuries and were in much better shape than the building that protected them.
Ryan Grenoble Huffington Post 5/21/2013

Tornado Deaths Related to Watches

- 552 deaths attributed to tornadoes in the United States in 2011.
- Most occurred in areas that were under a tornado watch.
- This illustrates the need for **hospital emergency managers and safety personnel** to:
 - Pay attention to all tornado watches
 - Have a plan in place
 - Have personnel available if a tornado warning is issued.

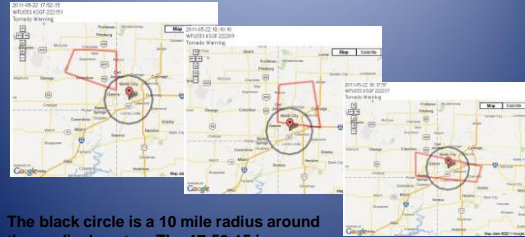
“Communicate situation to staff and patients.”

“Take tornado *watches* seriously.”

“Take shelter when sirens sound.”

Comments made during November 30, 2011 webinar about impact of tornadoes on Joplin hospitals.

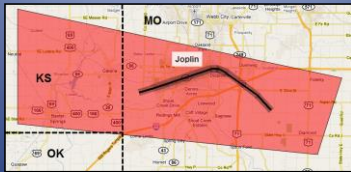
GIS systems which utilize storm-based warnings can provide additional lead time with fewer false-positives than country-wide warnings.



The black circle is a 10 mile radius around the medical center. The 17:52:15 issuance was 17+ minutes in advance of the first impact.

Joplin, Missouri EF5 Tornado – May 22, 2011

- WFO Springfield issued tornado warning 17 minutes prior to touchdown in Joplin
- Public reports of sirens for at least 20 minutes



Tornado Warning (red polygon)
Approximate tornado track (black line)

St. John’s received a direct hit and suffered extensive damage. Due to the size and intensity of the tornado, there were 138 fatalities and hundreds of injuries.

2011

2015

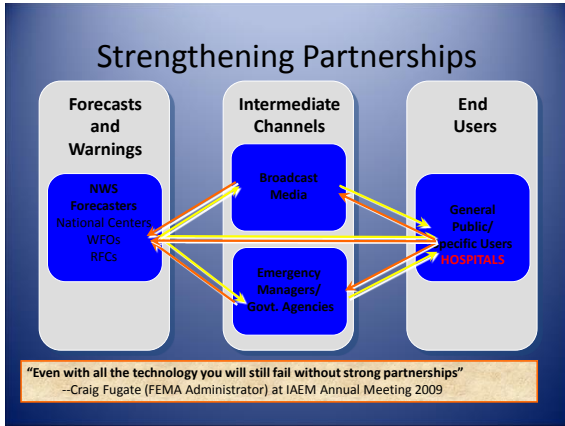


Current Tornado Precautions

- Hospitals tend to enforce contingency plans only after a tornado warning has been issued.
- Current warning lead times for tornadoes averages only 12-13 minutes, and can be anywhere from one to 30 or more minutes before arrival of a tornado.
- Waiting until a warning is issued and then trying to verify if the facility will be impacted can produce overwhelming strain on a hospital’s response to protect patients and employees.

Four Key Elements Required

Safe Building + Effective Plan +
Trained Staff + Polygon-based
Notification = **Lives Saved!**



Questions?

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