



### F27 The Joplin Missouri Tornado Disaster

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After attending this presentation, attendees will better understand how the forensic sciences supported the identification process in this particular mass fatality Incident (Joplin Tornado). The main focus of the presentation will be directed to the utilization of forensic dentistry in the human identification process.

This presentation will impact the forensic science community by enhancing a forensic team's knowledge (specific to odontologists) and the ability to better prepare and respond to future mass fatality Incident events.

The goals of this presentation are to familiarize and help the attendees understand the following:

- The destruction an EF5 (Enhanced Fujita Scale) Tornado can produce to a community and utilizing a short video.
- Discussion regarding who directs a forensic operation of this magnitude, via the Stafford Act, ESF #8 (Emergency Support Function), federal team assistance, and the assets that were deployed to Joplin.
- The timeline of the disaster, logistics and morgue operations, forensic science work stations, with special attention to the dental comparison analysis, utilization of the WINID3/DEXIS system and final identification results.
- How the federal disaster team supported the local coroner system with forensic services, family assistance, and multi-forensic science supported victim identifications.

**Background:** The 2011 Joplin tornado was a devastating EF5 multiple-vortex tornado that struck Joplin, Missouri late in the afternoon of Sunday, May 22, 2011. It was part of a larger late-May tornado outbreak sequence and reached a maximum width in excess of one mile (1.6 km) during its path through the southern part of the city of Joplin Missouri.

The Joplin tornado ranks as one of America's deadliest tornadoes and is likely to be the costliest, with an estimate of \$3 billion to rebuild Joplin. It was the first F5 or EF5 tornado in Missouri since the Ruskin Heights tornado struck south of Kansas City in 1957. It is also only the second F5 or EF5 tornado in Missouri history dating back to 1950. The May 2011 tornado was the deadliest tornado to hit the United States since 1947—the seventh-deadliest single tornado in U.S. history, and 27th-deadliest in world history. As of July 8, officials reported that 158 people died from the tornado, with another killed by a lightning strike during cleanup operations the next day.

The tornado intensified greatly as it entered a densely populated portion of the city at about 5:41 p.m. (C.S.T). Damage was widespread and catastrophic in residential subdivisions in the southwest portion of Joplin, which included the St. John's Regional Medical Center. Virtually every house in that area (near McClelland Boulevard and 26th Street) was destroyed and some were literally blown away in the area as well. Trees sustained severe debarking, a nursing home and a church school in southwest Joplin were also destroyed, and several other schools were heavily damaged along with numerous dental and medical offices.

As the tornado traveled across the southern portion of the city, heavy objects, including concrete parking bumpers, and large trucks, were tossed a significant distance, as far as 1/8 mile (200 m) away from a parking lot and some tornado debris was recovered as far as 75 miles away from Joplin. The tornado dissipated east of Joplin at 6:12 p.m. (CST) after approximately twenty-five minutes on the ground and the tornado's total track length was at least 14 miles long.

**Conclusion:** The presentation will also review the organization of the dental team, including the postmortem, antemortem, and comparison sections and the methodology used by them.

The experience gained from this unfortunate mass fatality incident (MFI) has enhanced the forensic team's knowledge and the ability to better prepare and respond to future MFI events.

**Forensic Odontology, Mass Disasters, Human Identification**