# **Ambulance Crash Test Methods**

## **Keeping Emergency Medical Services Workers Safe on the Job**

NIOSH and the Department of Homeland Security's Science and Technology Directorate partnered with other federal agencies and the ambulance manufacturing industry to conduct ambulance crash testing to reduce and eliminate crash-related injuries and deaths to Emergency Medical Services (EMS) workers in the patient compartment. These dynamic crash tests contributed to the development of 10 test methods published by the Society of Automotive Engineers (SAE).



## **DYNAMIC CRASH TESTS**

**17** 

full vehicle crash tests

15

storage cabinet tests 60+

patient cot tests

100+

equipment mount tests 150

seat and restraint tests

400

head impact tests

## **TEST METHODS - EXTERIOR**



## **SAE J2917**

Crash pulse from frontal impact



## **SAE J3057**

Modular body (or box style) roof crush test





## **SAE J3044**

Crash pulse from rear impact



## **SAE J2956**

Crash pulse from side impact

## **TEST METHODS – INTERIOR**



## **SAE J3026**

EMS worker seating and restraints



## **SAE J3027**

Patient cot, floor mount, and restraint system integrity test



## **SAE J3043**

Ambulance equipment mount devices and systems integrity test



## **SAE J3058**

Storage device integrity test



## **SAE J3059**

Measurement of EMS worker head movement during a crash event



## **SAE J3102**

Patient cot subfloor integrity test

Watch our video series to learn more about the many changes impacting ambulance design, testing, and manufacture: www.cdc.gov/niosh/topics/ems/videos.html



