patients and staff.

**Methods**: Survey methods.

**Results**: The response rate was 55.3% (1,258/2,274). Paramedic knowledge and reported practice of infection control were poor. Paramedic practices surrounding management of infectious diseases and key infection control strategies including staff health, waste disposal, management of occupational exposure, and decontamination practices were poor. The paramedic-reported practices of infection control were independent of factors such as age, length of service, and level of qualification. Participants self-reported a lack of education, training, and policy standards of infection control. This resulted in poor infection control knowledge and practice. Paramedics expressed serious concern over decontamination practices, a lack of access and knowledge of proper use of personal protective equipment, and concern over occupational exposure management and staff health.

**Conclusions**: This study highlight the need for timely review of infection control practices and greater attention to bioterrorism in the prehospital, paramedic setting. Importantly, paramedic infection control practice and management programs ultimately should protect the staff and clients from infectious diseases and bioterrorism, and improve the quality of clinical care and care outcomes for the sick and injured.

### Dispatch of 9-1-1 Calls — A Prospective Study of Criteria-Based Dispatch for Determining the Allocation of EMS Resources

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**Objectives**: The purpose of this study was to determine how effectively trained 9-1-1 Emergency Medical Dispatchers (EMDs), using a criteria-based dispatch (CBD) guideline, could determine which calls were emergent in nature and required the dispatch of paramedics capable of providing Advanced Life Support (ALS) care vs. a Basic Life Support (BLS) ambulance or other form of assistance.

**Methods**: A total of 1,483 cases were enrolled in the study. A survey instrument was completed by emergency department attending physicians for patients delivered by a 9-1-1 Emergency Medical Service System. A determination of whether the presenting chief complaint or discharge diagnosis warranted an immediate ALS response or other type of response was recorded and compared to the priority assigned by the EMD.

**Results**: Trained EMDs using a CBD screening exam achieved a predictive value of 99% determining who did not require the need of an ALS response, and a 50% predictive value of when ALS was indicated. The sensitivity of the test was 89%, and the specificity was 90%. The type II error ("ß-error") of the 9-1-1 CBD screening exam was 1%.

**Conclusions**: The use of standardized CBD guidelines by EMDs to interrogate 9-1-1 callers, appears to be an effective way to determine which requests for assistance require the dispatch of ALS services and which do not. The passing of calls determined to be non-emergent to a serial call screening service, such as a 3-1-1 center or access/demand management system, appears to be an effective option for providing more efficient disposition alternatives to callers with non-urgent complaints.

### New Safety Initiatives in Ambulance Transport — Measuring and Managing Hazards, Risks, and Crashworthiness Outcomes in the EMS Environment

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**Objectives**: To identify occupant hazards and risks in ambulance transport by conducting ambulance vehicle crash tests, and to test injury mitigating countermeasures for occupants in this environment.

**Methods**: Epidemiological (FARS: 1989–2000, GES: 1989–1999) and field data were collected to identify crash types and configurations of the ambulance patient compartment. Standard ambulance vehicles were configured with anthropomorphic test devices (ATDs) and medical equipment, based on these prior studies. Full vehicle-to-vehicle crash testing was conducted using four vehicles in intersection crash scenarios. Instrumented ATDs, including a 3 year-old child, adult male, adult female, and medical equipment were positioned in the rear patient compartment in variable restraint configurations and seating positions to model the real world, and tested in both head-on and side impact scenarios for the 34 mph frontal and the 44 mph side impact crash tests.

**Results**: Occupant kinematics and forces demonstrated effective techniques for securing the child patient occupant. Unsecured occupants are a risk to themselves and to other occupants. Anticipated potential injury mechanisms were demonstrated particularly with head impacts onto hostile interior surfaces for unbelted occupants.

**Conclusion**: Crash testing demonstrates that the ambulance transport environment includes predictable and preventable occupant risks. Failure to use current methods of occupant protection for each occupant or to secure equipment effectively can result in catastrophic outcomes to all occupants. There is an urgent need for dissemination of this safety information, and to develop data driven performance based safety standards and designs in the USA.