Event Context Matters: Injury and Transport Patterns in Collegiate EMS

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Collegiate-based emergency medical service (CBEMS) providers frequently encounter medical complaints shaped by campus athletic events, social gatherings, and student activities. Many CBEMS agencies operate in a standby capacity with limited on-scene resources, making accurate anticipation of event-based clinical demand essential. While prior studies of mass gatherings have identified associations between CBEMS utilization, patient acuity, and factors such as event size, alcohol presence, and temperature, much less is known about epidemiological patterns and transport disposition at smaller-scale campus events, including intramural athletics and social gatherings.

In this retrospective observational study, we evaluated whether injury type and ambulance transport likelihood vary by campus event type, and whether environmental and temporal factors predict injury rates at intramural athletic games. Among 150 standby CBEMS encounters, events included club/varsity athletics (n = 48), intramurals (n = 42), parties (n = 40), and other campus events (n = 20), with clinical presentations varying markedly by event type. Overall, extremity injuries were the most common (43.3%), followed by alcohol intoxication (22.0%), head injury (12.7%), and bleeding (11.3%). Transport likelihood differed significantly by event type, with the highest ambulance transfer rate at parties (70.0%) compared with other events (25.0%) and athletics (7.8%) (Fisher's exact test, $p < 0.001$), and by mechanism, with alcohol intoxication associated with the highest transport rate (81.8%). Among intramural athletic events, injury rates did not differ significantly by precipitation or twilight conditions but varied by hour of event start time (likelihood ratio test, $p = 0.025$), with the highest rate observed during the latest games (10 PM).

These findings demonstrate meaningful heterogeneity in patient presentation and transport outcomes across campus event types, with temporal variation in intramural injury rates, suggesting opportunities for event-specific operational planning and targeted clinical training. Generalizability may be limited by the single-agency, retrospective study design.

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