

Incidence and predictors of critical events during urgent air-medical transport

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Objective: To determine the incidence of in-transit critical events and identify factors associated with these events.

Study design: A population-based retrospective cohort study using data from the provincial air-medical transport organization (Ornge) of Ontario.

Inclusion criteria: Included all air-medical transports of patients 18 years of age or older in the province of Ontario between Jan. 1, 2004, and May 31, 2006.

Exclusion criteria: Exclusions included non-urgent transports of patients to a convalescent facility or home, scheduled transports for medical appointments, treatments or repatriation and transports related to organ donation. Also, patients transported by primary care paramedic crews were excluded.

Primary outcome: The primary outcome was in-transit critical events, which were defined as death, major resuscitative procedures, hemodynamic deterioration (SBP<80, MAP<60, or in-flight vasopressor use), inadvertent extubation or respiratory arrest. They selected the composite outcome to represent a fatal or life-threatening clinical deterioration.

Statistics: Multivariable logistic regression was used to identify factors that were independently associated with in-transit critical events.

Results: 19 228 urgent air-medical transports were analyzed. At least 1 critical event occurred during 981 (5.1%) of the transports. In-transit hemodynamic deterioration was the most frequent critical event (3.2 %, n=613), followed by major resuscitative procedure (2.1%, n=413). New vasopressor medications were administered during 155 transports (0.8%). Twelve deaths occurred during transport (0.1%). Female sex, mechanical ventilation or hemodynamic instability before transport, transport in a fixed-wing aircraft, duration of transport, on-scene calls and type of crew were independently associated with in-transit critical events.

Summary: Critical event occurred in transit in 1 in every 20 air-medical transports of adult patients. Most often, these events were the administration of resuscitative procedures or hemodynamic deterioration.