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## Arrest etiology among patients resuscitated from cardiac arrest

**Running title:** Cardiac arrest etiologies

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### Abstract

**Introduction:** Cardiac arrest etiology is often assigned according to the Utstein template, which differentiates medical (formerly “presumed cardiac”) from other causes. These categories are poorly defined, contain within them many clinically distinct etiologies, and are rarely based on diagnostic testing. Optimal clinical care and research require more rigorous characterization of arrest etiology.

**Methods:** We developed a novel system to classify arrest etiology using a structured chart review of consecutive patients treated at a single center after in- or out-of-hospital cardiac arrest over four years. Two reviewers independently reviewed a random subset of 20% of cases to calculate inter-rater reliability. We used  $X^2$  and Kruskal-Wallis tests to compare baseline clinical characteristics and outcomes across etiologies.

**Results:** We identified 14 principal arrest etiologies, and developed objective diagnostic criteria for each. Inter-rater reliability was high ( $\kappa = 0.80$ ). Median age of 986 included patients was 60 years, 43% were female and 71% arrested out-of-hospital. The most common etiology was respiratory failure (148 (15%)). A minority (255 (26%)) arrested due to cardiac causes. Only nine

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