

## Air Embolism

**NQF#:** Not NQF Endorsed

**Developer:** Centers for Medicare and Medicaid Services (CMS)

**Data Source:** CMS

**Description:** Patient death or serious disability associated with intravascular air embolism that occurs while being cared for in a health care facility.

**Rationale:** An air embolism occurs when an air or gas bubble enters the vascular system. These events can occur in a wide range of clinical scenarios involving line placement, trauma, and several types of surgical procedures including cardiac, vascular, and neurosurgery. Air embolisms are rarely encountered, but are a complication that can cause serious harm, including death. With appropriate precautions and techniques, they are preventable.

**Evidence for Rationale:**

- McCarthy CJ, Behraves S, Naidu SG, Oklu R. Air Embolism: Practical Tips for Prevention and Treatment. Journal of Clinical Medicine. 2016;5(11):93..
- Gordy S, Rowell S. Vascular air embolism. International Journal of Critical Illness and Injury Science. 2013;3(1):73-76.
- McCarthy CJ, Behraves S, Naidu SG, Oklu R. Air Embolism: Diagnosis, Clinical Management and Outcomes. Diagnostics. 2017;7(1):5.

**Numerator:** Number of occurrences of the diagnosis code “T800XXA- Air embolism following infusion, transfusion and therapeutic injection, initial encounter” as a secondary diagnosis (diagnoses 2-9 on a claim) with a POA code of ‘N’ or ‘U’ and designated as a Complication or Comorbidity (CC) or Major Complication or Comorbidity (MCC).

**Denominator:** Number of acute inpatient FFS discharges during time period.

**Impact:**

- Rare event, affects small number of patients.

**Opportunity:**

- Opportunity for improvement exists, based on the coefficient of variation for the measure.

**Evidence:**

- Evidence ratings vary from Class C to Class R
  - Class C: Non-randomized trial with concurrent or historical controls, case-control study, study of sensitivity and specificity of a diagnostic test, population-based descriptive study
  - Class D: cross-sectional study, case series, case report
  - Class R: consensus statement, consensus report, narrative review

**Citations for Evidence:**

- McCarthy C, Behraves S, Naidu S, Oklu R. Air embolism: Practical tips for prevention and treatment. Journal of Clinical Medicine, 2016; 5(11):93.
- McCarthy C, Behraves S, Naidu S, Oklu R. Air embolism: Diagnosis, clinical management and outcomes. Diagnostics, 2017; 7:5