

Air Embolism

NQF#: Not NQF Endorsed

Developer: Centers for Medicare and Medicaid Services (CMS)

Data Source: CMS; MHCC

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