

In-Hospital Deaths Among Adults With Community-Acquired Pneumonia

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Appendix 1: Criteria used to guide determinations for cause of death and potential lapses in quality of care.

Causes of Death	Definitions/ explanations	Potential Lapses in Quality of Care
DIRECTLY RELATED TO PNEUMONIA		
1. Septic shock	Remains on vasopressors until death, with or without MOSF	1. Time to first appropriate antibiotic dose < 1h if initially in shock, < 6h if not in shock
2. Respiratory Failure <ul style="list-style-type: none"> a. hypoxemic respiratory failure b. massive hemoptysis c. pneumothorax d. prolonged ventilation with withdrawal <ul style="list-style-type: none"> 1) with underlying cardiovascular disease 2) without underlying cardiovascular disease 	May be withholding or withdrawal of specific treatments, such as antibiotics, mechanical ventilation or renal replacement therapy	2. Antibiotics consistent with ATS/IDSA guidelines <ul style="list-style-type: none"> a. Culture positive b. Culture negative c. Anti-viral for influenza
3. Multi-organ failure with withdrawal	May be withholding or withdrawal of specific treatments, such as antibiotics, mechanical ventilation or renal replacement therapy	3. Delayed ICU transfer <ul style="list-style-type: none"> a. Initial severe CAP by ATS criteria without direct ICU admit b. Lactate measurement
4. Cardiopulmonary arrest with resuscitation	CAP not stabilized prior to arrest (ie patient in ICU for entire hospitalization prior to arrest). Patient never stabilized post arrest	4. Inadequate resuscitation <ul style="list-style-type: none"> a. persistent lactic acidosis/AG b. persistently elevated BUN/Cr
5. Endocarditis with hemodynamic compromise	With or without surgery	5. Assessment of oxygenation
INDIRECTLY RELATED TO PNEUMONIA		
6. Acute cardiovascular disease <ul style="list-style-type: none"> a. cardiogenic shock b. arrhythmia c. pulmonary edema with respiratory failure d. pulmonary embolism e. cardiac arrest/sudden death 	New cardiovascular disease with onset of pneumonia; if cardiovascular disease was pre-existing, code as #2.d.1. above	1. DVT prophylaxis on admission
7. Stroke <ul style="list-style-type: none"> a. hemorrhagic b. thrombotic c. embolic 	Primary stroke, not septic emboli from distant infection	2. EKG changes on admission without investigation for coronary disease
8. Acute Renal Failure <ul style="list-style-type: none"> a. hyperkalemia b. limitation of renal replacement therapy 	Renal failure as the primary cause of death	3. Troponin elevation on admission without investigation for coronary disease
9. Secondary infection <ul style="list-style-type: none"> a. nosocomial pneumonia b. other non-pulmonary nosocomial sepsis 	Development of secondary infection after stabilization of initial CAP. If initial CAP never stabilized (patient on medical floor off life support), code as #3 above.	4. Chronic cardiovascular medications discontinued on admission
UNRELATED TO PNEUMONIA		
10. Cancer		5. Nephrotoxic agents: contrast media, medications
11. Cirrhosis		6. Central line associated infection
12. Chronic neurologic conditions		7. Urinary catheter associated infection
13. Other		8. Inadequate initial resuscitation <ul style="list-style-type: none"> a. persistent lactic acidosis b. persistently elevated BUN/Cr