

**Table S1** REDCap online collection form

Category	Variable
Demographics	Age (years)
	Gender (F/M/other)
	Race (Caucasian, African American/Black, Hispanic Native American, Asian/Pacific Islander, Prefer not to Answer)
Comorbidities	Diabetes mellitus (Y/N)
	Heart disease (Y/N)
	History of cancer (Y/N)
	Non-small cell lung cancer (Y/N)
	Lung disease (Y/N)
	COPD (Y/N)
	IV drug abuse (Y/N)
Charlson Age-Comorbidity Index	
Presentation	Pleural fluid characteristics (pH, cell count and differential, body fluid LDH, body fluid protein, serum LDH, serum protein, glucose)
	Positive blood cultures (Y/N)
	Bacteriology (species)
	Source of infection (i.e., hospital acquired pneumonia, health care associated pneumonia, postsurgical infection, hospital acquired infection, community acquired pneumonia)
Management	Antibiotics (Y/N)
	Time to start antibiotics from presentation (hours)
	ICU stay (Y/N)
	tPA administration/fibrinolytics (Y/N)
	Chest tube (Y/N)
	Surgical management (Y/N)
Timing of surgical management (days)	
RAPID score components	BUN (mmol/L)
	Age (years)
	Purulence of pleural fluid (Y/N)
	Infection source (community vs. hospital acquired)
Albumin (g/L)	
Outcomes	90-day mortality (%)
	Length of stay (from diagnosis to discharge) (days)
	Hospital discharge date
	30-day readmission (%)
	Type of surgery
	Decortication
	Empyema stage
	Need for non-invasive/invasive ventilation (Y/N)
	Need for vasopressors (Y/N)
	Development of acute renal failure (Y/N)
Last known follow-up date (date)	

F, female; M, male; Y, yes; N, no; COPD, chronic obstructive pulmonary disease; IV, intravenous; LDH, lactate dehydrogenase; ICU, intensive care unit; tPA, tissue plasminogen activator; BUN, blood urea nitrogen; RAPID, Renal (urea), Age, fluid Purulence, Infection source, dietary (albumin).

**Table S2** Multivariate regression of length of stay: diagnosis to hospital discharge

Effect	Incidence rate ratio	95% CI	P value
RAPID score: high (RAPID >3) vs. low (RAPID ≤3)	1.3398	1.0976–1.6355	0.0040
Surgical timing: late (>3 days) vs. early (≤3 days)	1.2275	1.0402–1.4484	0.0152
Age: 5-year increase	0.9298	0.8988–0.9618	<0.0001
Mechanical ventilation	1.5715	1.3200–1.8710	<0.0001
Vasopressors	1.4199	1.1571–1.7423	0.0008
Acute renal failure	1.2432	1.0526–1.4683	0.0104
CCI: 1-point increase	1.0415	1.0075–1.0765	0.0162

RAPID, Renal (urea), Age, fluid Purulence, Infection source, dietary (albumin); CI, confidence interval; CCI, Charlson Comorbidity Index.

**Table S3** Multivariate regression of length of stay: surgery to hospital discharge

Effect	Incidence rate ratio	95% CI	P value
RAPID score: high (RAPID >3) vs. low (RAPID ≤3)	1.1853	0.8945–1.5707	0.2366
Surgical timing: late (>3 days) vs. early (≤3 days)	1.0352	0.8284–1.2937	0.7607
Age: 5-year increase	0.9476	0.9044–0.9928	0.0236
Mechanical ventilation	1.4604	1.1456–1.8616	0.0022
Vasopressors	1.3996	1.0534–1.8597	0.0204
Acute renal failure	1.4157	1.1253–1.7810	0.0030
CCI: 1-point increase	1.0253	0.9805–1.0723	0.2732

Subset analysis with 160/182 patients as noted in patient outcome section. RAPID, Renal (urea), Age, fluid Purulence, Infection source, dietary (albumin); CI, confidence interval; CCI, Charlson Comorbidity Index.