

Supplemental Material- Tables

Strong evidence	Consistent findings in ≥ 2 high-rating studies AND no conflicting studies
Moderate evidence	Consistent findings in 1 high-rating study AND ≥ 1 acceptable-rating study AND no conflicting studies
Weak evidence	Consistent findings in ≥ 3 low-rating studies OR ≥ 2 acceptable-rating studies OR 1 high-rating study in isolation

Table S1 Relative strength score criteria

Arrigo et al ²⁵	2018	7	212	1498	France, Belgium	Prospective	Medical, Surgical, Mixed	19	Invasive mechanical ventilation and /or treatment with positive inotropic agent for >24hr	Atrial fibrillation	Continuous monitoring reviewed by investigators + 12 lead ECG verification	1 year mortality	Patient follow up via telephone call and questionnaires at 3,6,12 months
Bedford et al ¹⁸	2022	6	4615	27690	UK	Retrospective	Mixed	248	All patients admitted to ICU	Atrial fibrillation	Diagnostic codes in medical record	90 day mortality, 1 year mortality, >1 year mortality, hospital readmission	Electronic medical records and data linkage
Carrera et al ²⁹	2016	6	582	7886	USA	Retrospective	Medical	1	All patients admitted to ICU	Atrial fibrillation and atrial flutter	Diagnostic codes and ECG verification	1 year mortality	Review of hospital electronic medical records
Chen et al ¹⁰	2015	5	53	688	USA	Retrospective	Medical	1	medical patients, exclude CTx, admitted >24hrs. Consecutive patients	Atrial fibrillation	ICD codes and medical record review. Diagnosis made by clinician assessment of telemetry or ECG.	60 day mortality	Hospital database records for death notes, subsequent admissions, and the Social Security Death Index
Clayton et al ³¹	2018	6	220	1735	UK	Retrospective	Mixed	1	All admissions, excluded heart valve surgery or significant MV disease, admitted or discharged on therapeutic anticoagulation, excluded those outside catchment	Atrial fibrillation or atrial flutter	ECG confirmed by treating ICU clinician	1 year mortality, thromboembolic events	Diagnosed by consultant physician or confirmed with appropriate imaging, or operative or post mortem examination
Goodman et al ¹⁶	2007	7	52 (38 AF)	484	Israel	Prospective	Mixed	1	All admissions, excluded if recent thoracic surgery or thoracic trauma	Supraventricular tachycardia (73% AF)	Bedside monitoring and 12 lead ECG verification. Episodes of SVA lasting more than 30 seconds.	Survival at 48 months	Data from the Population Registry of the Israeli Interior Ministry
Guenancia et al ²⁷	2015	7	29	37	France	Prospective	Non surgical	1	septic shock	Atrial fibrillation lasting >= 30 seconds	Holter monitoring, recorded every event, cardiologist blinded reviewed results. Second cardiologist if results uncertain.	90 day mortality	Patient follow up via telephone contact with patient, patient's family, or GP
Hellman et al ³⁷	2021	7	190	326	Finland	Retrospective	Mixed	1	All patients requiring CRRT	Atrial fibrillation	Monitoring recorded by nurse and confirmed by treating clinician from telemetry and/or ECG	1 year mortality	Electronic medical record, mortality date from national Digital and Population Data Services Agency
Jacobs et al ³²	2020	6	213	2538	Netherlands	Retrospective	mixed	1	all admissions to the ICU	Atrial fibrillation	Automatic ECG AF diagnosis confirmed by a cardiologist	1 year mortality	Mortality defined by checking for date of decease registered in NICE MDS (death during ICU admission) or national database
Kim et al ³³	2019	6	30869	439368	South Korea	Retrospective	Mixed	multiple	newly diagnosed, oral OAC naive non valvular ICU AF	Atrial fibrillation	ICD codes	Thromboembolic events	Review of two separate claims databases
Klouwens et al ²⁸	2016	7	418	1364	Netherlands	Prospective	mixed	2	sepsis, no cardiomy or cardiac arrest	AF and Atrial flutter lasting >=1 hour or requiring intervention	Hourly recordings documented by bedside nurse	1 year mortality, 90 day mortality	Data from municipality (stored in MARS database)
Meierhenrich et al ³	2010	4	49	580	Germany	Prospective	General Surgical	1	All patients who developed NOAF in ICU and all patients fulfilling criteria of septic shock	Atrial fibrillation	Continuous 3 lead ECG, if increase HR or loss of RR regularity, 12 lead performed	60 day mortality	2 year follow up
Moss et al ³⁴	2017	8	749	6222	USA	Retrospective	surgical/trauma/ burn and medical	1	consecutive admissions surgical/trauma/burn ICU (SICU) and medical ICU (MICU)	AF and Atrial flutter lasting >=90 seconds during 30minutes	Automated detection- previously validated rhythm classification AF	Survival (average follow up 0.8 years)	US death records
Qian et al ³⁶	2021	5	3605	28802	USA	Retrospective	Mixed	1	All patients admitted to ICU	Atrial fibrillation	TBC	90 day mortality, cardioembolic events	TBC
Shawwa et al ³⁵	2021	7	193	582	USA	Retrospective	Mixed	1	All patients requiring CRRT	Atrial fibrillation	Manual chart review with review of ECG	Survival	Medical record review

Table S2 Characteristics of the included studies

Study	Finding	P Value
Arrigo et al ²⁵	Increased 1 year mortality in ICU survivors who had NOAF compared to ICU survivors with never AF	<0.001
	HR adjusted 2.2 (95% CI 1.5-3.0)	
Bedford et al ³⁸	Deaths /Person years (incidence rate) NOAF 227/2250 (10.1%) vs never AF 1512/20688 (7.3%)	
	Adjusted HR death 91 days -1 year after discharge 0.99 (95% CI 0.86–1.15)	
Carrera et al ²⁹	1 year mortality among ICU survivors NOAF 46% vs never AF 25%	<0.001
	Mortality at 1 year (with ICU discharge as time zero)	
	Adjusted HR 1.39 (95% CI 1.2-1.6)	
Clayton et al ³¹	1 year unadjusted survival (including ICU and hospital mortality)	<0.001
	NOAF 0.45 (95% CI 0.38-0.52) vs never AF 0.72 (95% CI 0.70-0.74)	
Hellman et al ³⁷	1 year mortality NOAF 103/190 (54%) vs Never AF 114/326 (35%)	
	Adjusted OR 1.41 (95% CI 1.1-1.8)	0.01
Jacobs et al ³²	1 year unadjusted mortality (in hospital survivors):	Not reported
	NOAF 25% vs never AF 13.5%	
	1 year propensity matched mortality (in hospital survivors):	
	NOAF 26% vs never AF 4.6%	
Klouwenberg et al ²⁸	1 year unadjusted mortality (including ICU and hospital mortality)	<0.001
	NOAF 61% vs never AF 40%	

Table S3 Results of studies investigating 1 year mortality

Study	Finding	P Value
Bedford et al ³⁸	Subsequent hospital admission with Stroke, Events/Person years (Incidence rate)	
	NOAF 68/5574 (1.2%) v never AF 283/54509 (0.5%) Adjusted cause-specific hazard ratio 1.47 (95% CI 1.12-1.93)	
Clayton et al ³¹	Thromboembolic event (mean follow up 344 days)	<0.001
	Adjusted HR 5.91 (95% CI 2.6-13.44)	
Hellman et al ³⁷	Cardiovascular embolic events at 3 years follow up	
	NOAF 5/190 (5.4%) vs Never AF 13/326 (4.0%)	
	Cardiovascular embolic event numbers according to rhythm status at discharge	
	13/326 (4.0%) (no NOAF); 5/145 (3.4%) (paroxysmal NOAF during ICU care, but no ongoing AF at discharge)	
	0/38 (0.0%) (NOAF during ICU care, discharged with ongoing AF) and 0/7 (0.0%) (NOAF throughout the ICU care)	
Kim et al ³³	Stroke/systemic embolism in patients who survived >6months	<0.001
	Adjusted HR 1.62 (95% CI 1.46-1.76)	

Table S4 Results of studies investigating thromboembolic events

Study	Finding	P Value
Chen et al ³⁰	NOAF 27/53 (57%) vs never AF 159/688 (23%)	0.047
	OR 1.99(95% CI 1.01-3.91)	
Meierhenrich et al ³	NOAF 11/23 (48%) vs never AF 7/27 (26%)	0.14

Table S5 Results of studies reporting 60 day mortality

Study	Finding	P Value
Bedford et al ³⁸	Deaths /Person years (incidence rate) NOAF 213/609 (35%) vs never AF 907/5400 (16.8%)	
	Adjusted HR death during first 90 days after hospital discharge 1.46 (95% CI 1.26 – 1.70)	
Guenancia et al ²⁷	NOAF 12/29 (41.4%) vs never AF 16/37 (43.2%)	0.88
Klouwenberg et al ²⁸	NOAF 195/418 (47%) vs never AF 409/1364 (30%)	<0.001
Qian et al ³⁶	NOAF 751/3605 (20.83%) vs never AF 4394/28802 (15.26%)	<0.001
	Multivariate Cox regression analysis 90-day mortality HR 1.37 (95% CI 1.26-1.5)	<0.001

Table S6 Results of studies reporting 90 day mortality

Study	Outcome	Finding	P Value
Bedford et al ³⁸	Mortality >1 year	Deaths /Person years (incidence rate) NOAF 736/9548 (7.7%) vs never AF 4675/96268 (4.9%)	
		Adjusted HR 0.96 (95% CI 0.88-1.04)	
Clayton et al ³¹	3 year survival	NOAF KM estimate of survival : 0.35 (95% CI 0.28–0.42) vs never AF 0.64 (95% CI 0.62–0.67)	
Clayton et al ³¹	Mortality	Mortality rate for total follow up period (variable) NOAF 62% vs never AF 34%	<0.001
		HR 1.53 (95% CI 1.26–1.87)	
Goodman et al ²⁶	48 month mortality	NOSVA 36% vs never SVA 20%	<0.05
Jacobs et al ³²	Mean survival time	NOAF 295 days vs never AF 347 days	<0.01
Moss et al ³⁴	Post discharge mortality	Clinical NOAF compared to never AF	<0.001
		Subclinical NOAF compared to never AF	<0.001
Shawwa et al ³⁵	Mortality	Median Survival Time NOAF 26 (IQR 17-52 days) vs never AF 85 (IQR 53-311 days)	<0.001
		Survival NOAF 35/193 (18%) vs never AF 166 (29%)	<0.001
		Mortality HR in NOAF 1.26 (95% CI 1.03-1.56)	

Table S7 Results of studies investigating mortality at various time points

Study	Finding	P Value
Chen et al ³⁰	60 day mortality NOAF 72% vs Never AF 51%	p=0.054
Guenancia et al ²⁷	90 day mortality NOAF 41.4% vs never AF 43.2%	p=0.88
Klouwenberg et al ²⁸	90 day mortality NOAF 47% vs never AF 30%	P<0.001
	1 year mortality NOAF 61% vs never AF 40%	p<0.001
Meierhenrich et al ³	60 day mortality NOAF 48% vs never AF 26%	p=0.14

Table S8 Results of studies investigating mortality in patient cohorts with sepsis/septic shock