

I.1 Excluded clinical studies

Table 93: Studies excluded from the clinical review

Reference	Reason for exclusion
Acampa, 2019 ¹	no diagnostic accuracy data
Adami, 2019 ²	Prediction rather than detection of PAF
Afzal 2015 ³	Systematic review
Alshraideh 2015 ⁴	Review
Alves 2019 ⁵	Does not evaluate accuracy for detecting AF
Athif 2018 ⁸	Unable to obtain
Attia, 2019 ⁹	Prediction rather than detection of PAF
Baalman, 2020 ¹⁰	not a point of care device
Barrett 2014 ¹¹	Does not evaluate accuracy for detecting AF specifically (looked at several arrhythmias together)
Barthelemy 2003 ¹²	Does not evaluate accuracy for detecting AF
Bell 2000 ¹³	Review
Berge 2018 ¹⁴	Does not evaluate accuracy for detecting AF
Berge, 2017 ¹⁵	Conference abstract
Bettin 2019 ¹⁶	not a point of care device
Beukema 2009 ¹⁷	No diagnostic accuracy data
Bonomi 2018 ¹⁸	Healthy controls had no reference standard measurement - assumed to be free from AF
Botto 2009 ¹⁹	No detection of specificity; simulation study
Bourdillon, 1978 ²⁰	inappropriate gold standard - clinician decision without ECG
Brasier 2019 ²¹	Inappropriate reference standard - 1 lead internet enabled ECG
Brembilla-Perrot 2011 ²²	myotonic dystrophy population
Buechi 2017 ²⁵	SYSTEMATIC REVIEW
Burkowitz 2016 ²⁷	SYSTEMATIC REVIEW
Busch 2017 ²⁸	Not a diagnostic accuracy study; gold standard not defined
Callizo 2017 ³⁰	AF prevalence study in the retinal vascular occlusion population. No diagnostic accuracy outcomes
Censi 2013 ³¹	Simulation study
Chan 2016 ³²	reference standard is lead 1
Chan 2017 ³³	reference standard is lead 1
Chan 2017 ³⁴	reference standard is lead 1
Charitos 2012 ³⁵	Detection or recurrence of AF; only sensitivity measured; simulation study
Chen, 2017 ³⁷	manual interpretation of 1 lead ECG was gold standard
Choe 2015 ³⁸	simulation study; no specificities reported; sensitivities reported mostly on a low resolution graph
Chong 2015 ⁴⁰	unclear reference standard
Chong 2018 ³⁹	Unclear gold standard
Chovancik 2019 ⁴¹	Unclear gold standard

Reference	Reason for exclusion
Christensen 2014 ⁴²	No diagnostic accuracy evaluation
Ciconte 2017 ⁴³	not a point of care device - implantable cardiac monitor
Conroy 2017 ⁴⁴	unclear reference standard - appears to be the pre-existing status of patients (healthy/ AF), but the method of original diagnosis not described
Cooke 2006 ⁴⁵	Review - check the 3 studies
Couderc 2015 ⁴⁶	No diagnostic accuracy analysis for detection devices
Coutts 2014 ⁴⁷	Review - check the Higgins study referred to
Cuadrado-Godia, 2019 ⁴⁸	Non randomised; no diagnostic accuracy outcomes or data
Czabanski, 2020 ⁵⁰	not testing a device but an algorithm to automate standard ECG detection
Dagres, 2010 ⁵¹	Letter to the editor
Damiano 2016 ⁵²	Post-surgical ablation - not the population of interest; no diagnostic accuracy data
De Lucia, 2020 ⁵³	GS not 12 lead ECG and <24hrs
de Voogt 2006 ⁵⁴	No diagnostic accuracy evaluation
DeBoard 2018 ⁵⁵	not a point of care device
Defaye 1998 ⁵⁶	pacemaker data
Derkac 2017 ⁵⁷	No diagnostic accuracy evaluation
Diamantopoulos 2016 ⁶⁰	cost effectiveness study
Dimarco 2018 ⁶¹	Does not evaluate accuracy for detecting AF
Ding, 2019 ⁶²	Did not test a specific device
Dorr 2019 ⁶⁴	Reference standard was I lead ECG
Duarte, 2020 ⁶⁵	SR - references checked
Dussault 2015 ⁶⁶	SYSTEMATIC REVIEW
Edgerton 2011 ⁶⁷	post-ablation population; no diagnostic accuracy evaluation
Eitel 2011 ⁶⁸	not point of care device; no diagnostic accuracy evaluation
Elijovich 2009 ⁶⁹	Does not evaluate accuracy for detecting AF
Engdahl 2013 ⁷⁰	No diagnostic accuracy evaluation
Engdahl, 2018 ⁷¹	No diagnostic accuracy evaluation
Ermini 2013 ⁷²	No diagnostic accuracy evaluation
Etiwy, 2019 ⁷³	Not aimed at detecting AF
Evans 2017 ⁷⁴	Does not evaluate accuracy for detecting AF
Eysenck, 2019 ⁷⁵	Gold standard was intra-arterial BP assessment
Gaillard 2010 ⁷⁸	no useful diagnostic accuracy data
Ghazal, 2020 ⁸⁰	GS not 12 lead ECG and <24hrs
Godin, 2019 ⁸¹	Non randomised; no diagnostic accuracy outcomes or data
Grond 2013 ⁸³	No diagnostic accuracy evaluation
Groschel, 2020 ⁸⁴	not testing a device but an algorithm to automate standard ECG detection
Groschel, 2020 ⁸⁵	not testing a device but an algorithm to automate standard ECG detection
Gunalp 2006 ⁸⁷	Does not evaluate accuracy for detecting AF
Guo, 2019 ⁸⁸	Non randomised; only those positive on index were given gold standard test

Reference	Reason for exclusion
Guo, 2019 ⁸⁹	No gold standard given to all; only those with a positive result on index test were given the 'gold standard', which could be clinical evaluation, ECG or 24hr Holter.
Hanke 2009 ⁹²	Not evaluating a point of care test (implantable device)
Harju 2018 ⁹³	Unclear if reference ECG was 12 lead
Harris 2012 ⁹⁴	Systematic review
Hartikainen 2019 ⁹⁵	Gold standard Holter << 24 hours (appears to be 5 mins)
Hendriks 2014 ⁹⁷	No gold standard specified
Higgins 2010 ¹⁰⁰	trial website page only available
Higgins 2014 ⁹⁹	Not a diagnostic study - investigating predictive value of early AF detection post stroke for later 90 day AF.
Hindricks 2010 ¹⁰²	not a point of care device - ICM
Hisazaki, 2019 ¹⁰³	Accuracy of discriminating between sources of atrial arrhythmias rather than existence of AF itself
Hochstadt 2019 ¹⁰⁵	Unclear if ECG gold standard was 12 lead
Inui, 2020 ¹⁰⁶	no diagnostic accuracy data
Ip 2012 ¹⁰⁸	Not evaluating a point of care test (implantable device)
Ip 2019 ¹⁰⁷	opinion piece
Israel 2001 ¹¹⁰	Not a point of care device
Israel 2017 ¹⁰⁹	No diagnostic accuracy evaluation
Jabaudon 2004 ¹¹¹	No diagnostic accuracy evaluation
Jacobs, 2018 ¹¹²	health economic analysis paper
Jiang 2012 ¹¹³	Not testing a device but an algorithm to automate standard ECG or Holter detection.
K 2017 ⁹⁸	No diagnostic accuracy evaluation
Kaasenbrood, 2016 ¹¹⁴	cardiologist interpretation of my diagnostic ECG was gold standard, not full 12 lead
Kabutoya 2017 ¹¹⁵	unclear gold standard: details of the type of ECG not given
Kabutoya, 2019 ¹¹⁶	Gold standard was lead I recording only
Kalidas, 2019 ¹¹⁸	Algorithm tested on a database where gold standard is 2 lead
Kallmunzer 2012 ¹²⁰	Gold standard was 'history of documented and verified AF' - not the protocol definition
Kallmunzer 2014 ¹¹⁹	Reference standard was 6 lead ECG
Kane 2016 ¹²¹	SYSTEMATIC REVIEW
Kang 2018 ¹²²	Evaluation of heart sounds
Karaoguz 2019 ¹²⁴	Does not evaluate accuracy for detecting AF
Karregat, 2020 ¹²⁵	GS not 12 lead ECG and <24hrs
Kashiwa 2019 ¹²⁷	Gold standard Holter but duration unclear (appears to be approximately 3hrs, which is <<24hrs minimum)
Kim, 2020 ¹²⁹	No diagnostic accuracy data as gold standard only used on patients testing positive on the index test
Kircher 2012 ¹³⁰	Review
Kishore 2014 ¹³¹	SYSTEMATIC REVIEW
Kong, 2019 ¹³⁴	No diagnostic accuracy evaluation
Korompoki 2017 ¹³⁵	SR check refs
Koshy 2018 ¹³⁶	Does not evaluate accuracy for detecting AF
Koshy 2018 ¹³⁷	Does not evaluate accuracy for detecting AF

Reference	Reason for exclusion
Kristensen 2016 ¹³⁸	sick sinus syndrome patients
Krivoshei 2017 ¹³⁹	unclear gold standard: details of the type of ECG not given
Kwon, 2019 ¹⁴²	Gold standard was lead I recording only
Kwon, 2020 ¹⁴¹	GS not 12 lead ECG and <24hrs
Lahdenoja 2018 ¹⁴³	unclear gold standard: details of the type of ECG not given
Lau, 2013 ¹⁴⁶	Conference abstract
Lauschke 2017 ¹⁴⁷	not a point of care device
Lee 2013 ¹⁴⁸	Unclear gold standard
Levin 2014 ¹⁴⁹	cost-effectiveness study
Li 2019 ¹⁵¹	Review
Liao 2007 ¹⁵²	SYSTEMATIC REVIEW
Liu 2010 ¹⁵⁴	Does not evaluate accuracy for detecting AF
Lowe 2018 ¹⁵⁵	simulation study, investigating modifiers to accuracy
Lowres, 2014 ¹⁵⁸	Gold standard was predominantly lead 1 not lead 12
Lowres, 2016 ¹⁵⁷	No information on diagnostic accuracy
Lumikari, 2019 ¹⁵⁹	Non randomised; no diagnostic accuracy outcomes or data
Martinek 2007 ¹⁶³	not a point of care device in ablation population
Mehta 2015 ¹⁶⁶	Does not evaluate accuracy for detecting AF
Miracapillo 2016 ¹⁶⁷	Not a point of care device
Mittal 2013 ¹⁶⁸	Not a point of care device
Montenero 2004 ¹⁶⁹	not a point of care device
Morgan, 2002 ¹⁷⁰	Reference standard was lead II rhythm strip
Narasimha 2018 ¹⁷³	Does not evaluate accuracy for detecting AF
Nault 2019 ¹⁷⁵	Does not evaluate accuracy for detecting AF
Nemati 2016 ¹⁷⁶	Unclear gold standard
Nolker 2016 ¹⁷⁸	Not a point of care device
Omboni, 2016 ¹⁷⁹	interpretation of 1 lead ECG was gold standard
Oncu, 2019 ¹⁸⁰	Gold standard not specified as 12 lead ECG
Orchard, 2016 ¹⁸¹	Gold standard was 2 cardiologists interpretation of the 1 lead iECG - not 12 lead ECG
Osaka 2017 ¹⁸²	sick sinus syndrome patients
Osako 2002 ¹⁸³	sick sinus syndrome patients; not a point of care device
Pagola 2018 ¹⁸⁵	Does not evaluate accuracy for detecting AF
Pastor-Perez 2010 ¹⁸⁷	no evaluation of diagnostic accuracy for AF detection
Pedersen 2016 ¹⁸⁸	no evaluation of diagnostic accuracy for AF detection
Perez-Valero, 2019 ¹⁸⁹	Gold standard not specified as 12 lead ECG
Philippsen 2017 ¹⁹⁰	not a point of care device
Plummer 2001 ¹⁹¹	not a point of care device
Plummer 2003 ¹⁹²	not a point of care device
Podd 2016 ¹⁹³	not point of care devices
Poh 2018 ¹⁹⁴	Unclear gold standard – appears to be lead I ECG
Proietti, 2019 ¹⁹⁸	modelling study; of HE relevance
Purerfellner 2014 ¹⁹⁹	not a point of care device

Reference	Reason for exclusion
Purerfellner 2018 ²⁰⁰	not a point of care device
Rajakariar, 2018 ²⁰²	Detection of atrial flutter only
Ramkumar 2018 ²⁰³	SR - check references
Reiffel 2005 ²⁰⁴	Does not evaluate accuracy for detecting AF
Reiffel, 2020 ²⁰⁵	No diagnostic accuracy analysis; simulations of shorter point of care tests based on varying durations of ICM data
Reinsch 2018 ²⁰⁶	Not a point of care device
Rekhviashvili 2012 ²⁰⁷	no evaluation of diagnostic accuracy for AF detection
Ricci 1996 ²¹¹	sinus node disease patients
Rincon 2012 ²¹²	Evaluated the accuracy of an algorithm by evaluating how well it picked up arrhythmias compared to 'manual annotations' using 10 hr ECG recordings from the MIT-BIH database. However these readings were not derived from the wearable wireless sensor platform under investigation - thus only the algorithm, not the device + algorithm, were evaluated. In addition unclear if 12 lead ECG and not >24hrs.
Ritter 2013 ²¹³	not a point of care device
Roche 2002 ²¹⁵	Not a diagnostic accuracy study; gold standard not defined
Rojo-Martinez 2013 ²¹⁶	not in English
Rosenberg 2013 ²¹⁷	Insufficient data to estimate specificity during period that gold standard was applied; no diagnostic accuracy analysis; no gold standard defined.
Ryabykina 2018 ²²¹	not in English
Sack 2001 ²²³	not a point of care device
Salvatori 2015 ²²⁴	no evaluation of diagnostic accuracy
Samol 2013 ²²⁵	no evaluation of diagnostic accuracy
Sanak 2015 ²²⁶	no evaluation of diagnostic accuracy
Sanak 2015 ²²⁷	no evaluation of diagnostic accuracy
Sanders 2016 ²²⁸	not a point of care device
Schaefer 2014 ²²⁹	Unclear gold standard – although it seems 12 lead ECG was used, the accuracy results do not show results using this gold standard
Schuchert 1999 ²³⁰	Does not evaluate accuracy for detecting AF
Schukraft, 2019 ²³¹	protocol only
Seidl 1998 ²³²	Not a point of care device
Sejr 2017 ²³⁴	Does not evaluate accuracy for detecting AF
Selder 2019 ²³⁵	Inappropriate gold standard - 1 lead ECG interpreted by cardiologist
Shafqat 2004 ²³⁶	no evaluation of diagnostic accuracy
Solomon 2016 ²³⁸	no evaluation of diagnostic accuracy
Solosenko 2019 ²³⁹	Unclear gold standard
Sposato 2012 ²⁴¹	Does not evaluate accuracy for detecting AF
Stahrenberg 2010 ²⁴²	no evaluation of diagnostic accuracy
Sudlow, 1998 ²⁴⁴	limb lead ECG was gold standard
Suissa 2013 ²⁴⁶	Does not evaluate accuracy for detecting AF
Suissa 2014 ²⁴⁵	No diagnostic accuracy analysis for detection devices
Sutamartpong 2014 ²⁴⁷	Does not evaluate accuracy for detecting AF
Svennberg, 2017 ²⁴⁸	manual interpretation of 1 lead ECG was gold standard

Reference	Reason for exclusion
Swanutt, 2004 ²⁴⁹	protocol only
Swerdlow 2000 ²⁵⁰	not a point of care device
Taggar 2016 ²⁵¹	Systematic review
Takagi 2014 ²⁵²	unclear gold standard.
Tang 2017 ²⁵³	Unclear if gold standard 12 lead ECG (<<24 hours, normally only 10 minutes)
Tarakji 2015 ²⁵⁴	Gold standard was transtelephonic monitoring. Duration unclear and not Holter.
Tarniceriu 2018 ²⁵⁵	Unable to obtain
Tavernier, 2018 ²⁵⁶	gold standard by expert consensus which did not necessarily involve 12 lead ECG
Terranova 2006 ²⁵⁷	no evaluation of diagnostic accuracy
Tison 2018 ²⁵⁹	all those in validation cohort had AF
Towhari, 2019 ²⁶⁰	Abstract only
Tu 2014 ²⁶²	no evaluation of diagnostic accuracy
Tu 2017 ²⁶¹	protocol
Turakhia 2013 ²⁶³	no evaluation of diagnostic accuracy
Turakhia 2015 ²⁶⁴	no evaluation of diagnostic accuracy
Valiaho, 2019 ²⁶⁶	Gold standard was 3 lead ECG
Veale 2018 ²⁶⁷	protocol paper
Verberk 2012 ²⁶⁹	SR - checks refs
Verberk 2016 ²⁷⁰	review
Wachter 2013 ²⁷²	trial website page only available
Wachter 2013 ²⁷³	no evaluation of diagnostic accuracy
Wang, 2020 ²⁷⁴	Gold standard not 12 lead
Welton 2017 ²⁷⁶	SR - checks refs
Wiegand 1997 ²⁷⁷	Data from pacemaker patients
Wiesel 2007 ²⁸²	Unclear if gold standard is 12 lead ECG
Willits 2014 ²⁸⁵	SR - checks refs
Wong, 2020 ²⁸⁷	SR - references checked
Yang 2016 ²⁸⁹	not a point of care device
Yang 2017 ²⁹⁰	no evaluation of diagnostic accuracy
Yenikomshian 2019 ²⁹¹	SR - checks refs
Zaprutko, 2019 ²⁹²	Gold standard was index tests (lead I) interpreted by cardiologist
Ziegler 2006 ²⁹³	Data from pacemaker patients
Ziegler 2017 ²⁹⁴	not a point of care device