Appendix E: Coupled sensitivity and specificity forest plots and sROC curves

Note that Forest Plots are only available for results where raw data (i.e. TP, FP, FN, TN) were provided. It was not possible to include data in forest plots or pooled analyses where no raw data were available, even if the 95% CIs were provided. Hence some forest plots may not be present, or some forest plots may lack studies that are included in sections 1.5.6 and 1.5.7.

STRATUM 1: 12 lead ECG as gold standard

Mobile devices

Figure 2: AliveCor (GS = 12 lead ECG)



Figure 3: Kardia band (GS = 12 lead ECG)

Study	ΤР	FP	FN	TN	Sensitivity (95% CI)	Specificity (95% CI)	Sensitivity (95% CI)	Specificity (95% CI)
Bumgarner (auto), 2018	80	11	11	67	0.88 [0.79, 0.94]	0.86 [0.76, 0.93]	-	
Bumgarner (expert), 2018	63	- 7	28	71	0.69 [0.59, 0.78]	0.91 [0.82, 0.96]		
Rajakariar, 2020	36	29	2	133	0.95 [0.82, 0.99]	0.82 [0.75, 0.88]		· · · · · · · · · · · · · · · · · · ·
							'n n'2 n'4 n'6 n'8 1'	'n n'2 n'4 n'6 n'8 1'

Figure 4: Beurer ME90 device – lead I (GS = 12 lead ECG)



Figure 5: Beurer ME90 device – lead I and mv4 lead (GS = 12 lead ECG)

Study	TP	FP	FN	ΤN	Sensitivity (95% CI)	Specificity (95% CI)	Sensitivity (95% CI)	Specificity (95% CI)
Brito (auto), 2018	15	16	2	86	0.88 [0.64, 0.99]	0.84 [0.76, 0.91]		⊢ + + + + + +
						(0.2 0.4 0.6 0.8 1	0 0.2 0.4 0.6 0.8 1

Figure 6: Beurer ME90 device – mv4 lead (GS = 12 lead ECG)

Study	TP	FP	FN	ΤN	Sensitivity (95% CI)	Specificity (95% CI)	Sensitivity (95% CI)	Specificity (95% CI)
Brito (auto), 2018	16	24	1	78	0.94 [0.71, 1.00]	0.76 [0.67, 0.84]		-
Brito (expert), 2018	16	0	3	107	0.84 [0.60, 0.97]	1.00 [0.97, 1.00]		+ + + + + + + + + + + + + + + + + + +
						0	0.2 0.4 0.6 0.8 1	0 0.2 0.4 0.6 0.8 1

Figure 7: Beurer ME80 device (GS = 12 lead ECG) (GS = 12 lead ECG)

Study	TP	FP	FN	TΝ	Sensitivity (95% CI)	Specificity (95% CI)	Sensitivity (95% CI)	Specificity (95% CI)
Nigolian (clin), 2018	12	4	4	32	0.75 [0.48, 0.93]	0.89 [0.74, 0.97]		
Nigolian (expert), 2018	16	2	0	34	1.00 [0.79, 1.00]	0.94 [0.81, 0.99]	-+ + + + +	
						(0.2 0.4 0.6 0.8 1	0 0.2 0.4 0.6 0.8 1

Figure 8: ECG check (GS = 12 lead ECG)

Study	TP	FP	FN	ΤN	Sensitivity (95% CI)	Specificity (95% CI)	Sens	sitivity (95	5% CI)	Spec	ificity	y (95	5% CI)
Haverkamp (auto), 2019	11	5	0	78	1.00 [0.72, 1.00]	0.94 [0.86, 0.98]			-	-			_		ŀ
						(0.2	0.4 0.6	0.8	1 (0.2	0.4	0.6	0.8	1

Figure 9: Merlin (GS = 12 lead ECG)

Forest plot not possible to generate as no raw data available

Figure 10: MyDiagnostik (1 measure) (GS = 12 lead ECG)

Study	TP	FP	FN	ΤN	Sensitivity (95% CI)	Specificity (95% CI)	Sensitivity (95% CI)	Specificity (95% CI)
Desteghe (auto), 2017	18	14	4	229	0.82 [0.60, 0.95]	0.94 [0.91, 0.97]		
Desteghe (expert), 2017	17	11	3	226	0.85 [0.62, 0.97]	0.95 [0.92, 0.98]		•
Tieleman (auto), 2014	108	12	0	748	1.00 [0.97, 1.00]	0.98 [0.97, 0.99]		
							0 0.2 0.4 0.6 0.8 1	0 0.2 0.4 0.6 0.8 1

Figure 11: MyDiagnostik (3 measures, majority rule) (GS = 12 lead ECG)

Study	TP	FP	FN	ΤN	Sensitivity (95% CI)	Specificity (95% CI)	Sensitivity (95% CI))	Speci	ificity	(95%)	CI)
Vaes (auto), 2014	90	6	6	79	0.94 [0.87, 0.98]	0.93 [0.85, 0.97]		• - + +	\vdash		· · · ·	-
						(0 0.2 0.4 0.6 0.8	1	0 0.2	0.4 0	0.6 0.8	1

Figure 12: MyDiagnostik (3 measures, on different occasions) (GS = 12 lead ECG)

Forest plot not possible to generate as no raw data available

Figure 13: Omron Heartscan (GS = 12 lead ECG)

Study	TP	FP	FN	ΤN	Sensitivity (95% CI)	Specificity (95% CI)	Sensitivity (95% CI)	Specificity (95% CI)
Kearley (auto), 2014	78	219	1	701	0.99 [0.93, 1.00]	0.76 [0.73, 0.79]	-	•
Renier (auto), 2012	12	0	1	164	0.92 [0.64, 1.00]	1.00 [0.98, 1.00]		•
Renier (clin), 2012	9	9	4	155	0.69 [0.39, 0.91]	0.95 [0.90, 0.97]		⊢ + + +
							0 0.2 0.4 0.6 0.8 1	0 0.2 0.4 0.6 0.8 1

Figure 14: ECG bone (GS = 12 lead ECG)

Forest plot not possible to generate as no raw data available

Figure 15: Zenecor ECG thumb (GS = 12 lead ECG)

Study	ΤР	FP	FN	ΤN	Sensitivity (95% CI)	Specificity (95% CI)	Sensitivity (95% 0	CI)	Specif	icity (9	5% C	I)
Doliwa (expert), 2009	47	4	2	47	0.96 [0.86, 1.00]	0.92 [0.81, 0.98]				+ +		ŀ
						(0.2 0.4 0.6 0.8	1	0 0.2 0	0.4 0.6	0.8	1

Figure 16: Polar H7 (GS = 12 lead ECG)

Figure 17: Firstbeat Bodyguard 2 (GS = 12 lead ECG)

Study	TP	FP	FN	TN	Sensitivity (95% CI)	Specificity (95% CI)	Sensitivity (95% CI)	Specificity (95% CI)
Lown (auto), 2018	79	5	3	331	0.96 [0.90, 0.99]	0.99 [0.97, 1.00]		
							0 0.2 0.4 0.6 0.8 1	0 0.2 0.4 0.6 0.8 1

Figure 18: Cardiobip (GS = 12 lead ECG)

Study	TP	FP	FN	ΤN	Sensitivity (95% CI)	Specificity (95% CI) Se	ensitivity (95%	CI)	S	specific	;ity (95% C	CI)
Vukajlovic (expert), 2010	22	0	0	14	1.00 [0.85, 1.00]	1.00 [0.77, 1.00]	+ + + +	-	-⊢				_
						0 0	0.2 0.4 0.6 0.8	31	0	0.2 0.	4 0.0	3 0.8	1

Figure 16: RITMIA (GS = 12 lead ECG)

Study	TP	FP	FN	ΤN	Sensitivity (95% CI)	Specificity (95% CI)	Ser	nsitivi	t y (9	5% C	;I)	S	Spec	ificit	y (9	5% C	;I)
Riverberi (auto), 2019	96	4	3	87	0.97 [0.91, 0.99]	0.96 [0.89, 0.99]	_	+	+	+	-	\vdash	+	+	+		-
						(0.0	2 0.4	0.6	0.8	1	0	0.2	0.4	0.6	0.8	1

Figure 19: Mobile ECG device ER-2000s. Mode 1 (GS = 12 lead ECG)

Forest plot not possible to generate as no raw data available

Figure 20: Mobile ECG device ER-2000s. Mode 2 (GS = 12 lead ECG)

Forest plot not possible to generate as no raw data available

Figure 21: Huawei band 2 smartband (GS = 12 lead ECG)

Study
TP
FP
FN
TN
Sensitivity (95% Cl)
Specificity (95% Cl)
Sensitivity (95% Cl)
Specificity (95% Cl)

Fan (auto), 2019
267
1
23
333
0.92 [0.88, 0.95]
1.00 [0.98, 1.00]
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Figure 22: Amazfit (GS = 12 lead ECG)

Figure 23: Atrial Fibrillation Screening Device (GS = 12 lead ECG)

Study
TP
FP
FN
TN
Sensitivity (95% Cl)
Specificity (95% Cl)
Sensitivity (95% Cl)
Specificity (95% Cl)

Figure 24: Snap ECG

Forest plot not possible to generate as no raw data available

Figure 25: Rithmi heart rhythm wrist monitor - ECG

Forest plot not possible to generate as no raw data available

BP devices

Figure 26: Microlife BP3MQ1-2D (3 readings, majority rule) (GS = 12 lead ECG)

Study	TP	FP	FN	TN	Sensitivity (95% CI)	Specificity (95% CI)	Sensitivity (95% CI)	Specificity (95% CI)
Gandolfo (auto), 2015	34	2	4	167	0.89 [0.75, 0.97]	0.99 [0.96, 1.00]		
Wiesel (auto), 2009	90	35	3	277	0.97 [0.91, 0.99]	0.89 [0.85, 0.92]	-++++	├ - - - -
						(0 0.2 0.4 0.6 0.8 1	0 0.2 0.4 0.6 0.8 1

Figure 27: Microlife BP3MQ1-2D (1 reading) (GS = 12 lead ECG)

Study	TP	FP	FN	ΤN	Sensitivity (95% CI)	Specificity (95% CI)	Sensitivity (95% CI)	Speci	ificity	/ (95	5% C	I)
Wiesel (auto), 2009	266	127	13	809	0.95 [0.92, 0.97]	0.86 [0.84, 0.89]	<u> </u>	- +		_	-	_ _ _	
							0 0.2 0.4 0.6 0.8	1 0	0.2	0.4	0.6	0.8	1

Figure 28: Microlife BPA 200 (3 readings, majority rule) (GS = 12 lead ECG)

Study	TP	FP	FN	ΤN	Sensitivity (95% CI)	Specificity (95% CI)	Sensitivity (95% CI)	Specificity (95% CI)
Marazzi (auto), 2012	93	12	8	390	0.92 [0.85, 0.97]	0.97 [0.95, 0.98]	-	
Wiesel (expert), 2014	30	12	0	141	1.00 [0.88, 1.00]	0.92 [0.87, 0.96]	-+ + + + + +	<u> </u>
						(0 0.2 0.4 0.6 0.8 1	0 0.2 0.4 0.6 0.8 1

Figure 29: Microlife BPA 100 Plus (3 readings, majority rule) (GS = 12 lead ECG)

Study	ΤР	FP	FN	ΤN	Sensitivity (95% CI)	Specificity (95% CI)	Sen	sitivit	y (9	5% C	:I)	S	pec	ificit	y (9	5% C	;1)
Stergiou (auto), 2009	27	5	0	40	1.00 [0.87, 1.00]	0.89 [0.76, 0.96]			-		-	\vdash		+		-	┣
						(0.2	0.4	0.6	0.8	1	0	0.2	0.4	0.6	0.8	1

Figure 30: Microlife BPA 100 Plus (3 readings, majority rule) (GS = 12 lead ECG)

Study	ΤР	FP	FN	ΤN	Sensitivity (95% CI)	Specificity (95% CI)	Ser	sitivi	ty (9	5% C	:I)	S	pec	ificit	y (9	5% C	;I)
Stergiou (auto), 2009	27	14	0	31	1.00 [0.87, 1.00]	0.69 [0.53, 0.82]				-+	-	⊢			+		—
						(0.	2 0.4	0.6	0.8	1	0	0.2	0.4	0.6	0.8	1

Figure 31: Microlife BPA 100 Plus (1st reading) (GS = 12 lead ECG)

Study	ΤР	FP	FN	ΤN	Sensitivity (95% CI)	Specificity (95% CI)	Sen	sitivi	t y (9	5% C	I)	S	Speci	ificit	y (9	5% C	;I)
Stergiou (auto), 2009	25	5	2	40	0.93 [0.76, 0.99]	0.89 [0.76, 0.96]					-	⊢					┡
						(0.2	0.4	0.6	0.8	1	0	0.2	0.4	0.6	0.8	1

Figure 32: Microlife BPA 100 Plus (1st 2 readings) (GS = 12 lead ECG)

Study	TP	FP	FN	ΤN	Sensitivity (95% CI)	Specificity (95% CI)	Sens	sitivity (9	5% CI)	Speci	ficit	y (95	5% C	;I)
Stergiou (auto), 2009	27	11	0	34	1.00 [0.87, 1.00]	0.76 [0.60, 0.87]				┨┝		-		-	
						(0.2	0.4 0.6	0.8	1 0	0.2	0.4	0.6	0.8	1

Figure 33: Microlife Watch BP (GS = 12 lead ECG)

Study	ΤР	FP	FN	TN	Sensitivity (95% CI)	Specificity (95% CI)	Sensitivity (95% CI)	Specificity (95% CI)
Kearley (expert), 2014	75	95	4	825	0.95 [0.88, 0.99]	0.90 [0.88, 0.92]	-	
Lown (auto), 2018	79	22	3	314	0.96 [0.90, 0.99]	0.93 [0.90, 0.96]	-+ + + + + +	⊢ ⊢ ⊢ ↓ ↓ ↓ ↓
						(0 0.2 0.4 0.6 0.8 1	0 0.2 0.4 0.6 0.8 1

Figure 34: Heart Spectrum BP monitor algorithm 1 (GS = 12 lead ECG)



Figure 35: Heart Spectrum BP monitor algorithm 2 (GS = 12 lead ECG)

Study	ΤР	FP	FN	ΤN	Sensitivity (95% CI)	Specificity (95% CI)	Sensitivi	ty (9	5% CI)		Speci	ificit	y (95	5% C	I)
Kao (expert), 2018	26	0	3	33	0.90 [0.73, 0.98]	1.00 [0.89, 1.00]	+ +			-				-+	_
						(0.2 0.4	0.6	0.8 1	0	0.2	0.4	0.6	0.8	1

Figure 36: Heart Spectrum BP monitor algorithm 3 (GS = 12 lead ECG)

Study	ΤР	FP	FN	ΤN	Sensitivity (95% CI)	Specificity (95% CI)	Sensitivi	ty (95	5% C	I)	Spec	ificit	y (9	5% C	;I)
Kao (expert), 2018	29	2	0	31	1.00 [0.88, 1.00]	0.94 [0.80, 0.99]	-+-+			- 1			+		₽
						C	0.2 0.4	0.6	0.8	1	0 0.2	0.4	0.6	0.8	1

Figure 37: Omron 712 (2 readings) (GS = 12 lead ECG)

Study	TP	FP	FN	ΤN	Sensitivity (95% CI)	Specificity (95% CI)	Sen	sitivi	ty (9	5% C	:I)	S	Speci	ficit	y (9	5% C	;I)
Wiesel (auto), 2004	54	36	0	360	1.00 [0.93, 1.00]	0.91 [0.88, 0.94]					-	\vdash			-	- -	-
						(0.2	2 0.4	0.6	0.8	1	0	0.2	0.4	0.6	0.8	1

Figure 38: Omron M6 Comfort (1 reading) (GS = 12 lead ECG)

Study	TP	FP	FN	TN	Sensitivity (95% CI)	Specificity (95% CI)	Sensitivity (95% CI)	Specificity (95% CI)
Marazzi (auto), 2012	101	23	0	379	1.00 [0.96, 1.00]	0.94 [0.92, 0.96]	-	. 🔳
Wiesel (expert), 2014	10	5	20	148	0.33 [0.17, 0.53]	0.97 [0.93, 0.99]		
							0 0.2 0.4 0.6 0.8 1	0 0.2 0.4 0.6 0.8 1

PULSE PALPATION

Figure 39: Pulse palpation (GS=12 lead ECG)



PHOTOPLETHYSMOGRAPHY

Figure 40: iPhone 4s app - 2 minute pulse waveforms with PULSESMART app (using RMSSD, ShE and Poincare thresholds) from fingertip pulse recordings (1 reading)

Study	TP	FP	FN	ΤN	Sensitivity (95% CI)	Specificity (95% CI)	Sens	itivity	/ (95	% C	;I)	S	spec	ificit	y (9	5% C	;I)
McManus (auto), 2016	95	6	3	85	0.97 [0.91, 0.99]	0.93 [0.86, 0.98] -			+		-	\vdash					₽
						0	0.2	0.4	0.6	0.8	1	0	0.2	0.4	0.6	0.8	1

Figure 41: iPhone 4s app - 2 minute pulse waveforms with PULSESMART app (using RMSSD and ShE thresholds) from fingertip pulse recordings (1 reading) (GS = 12 lead ECG)

Forest plot not possible to generate as no raw data available

Figure 42: iPhone 4s app - 2 minute pulse waveforms with PULSESMART app (using RMSSD threshold) from fingertip pulse recordings (1 reading) (GS = 12 lead ECG)

Forest plot not possible to generate as no raw data available

Figure 43: iPhone 4s app - 2 minute pulse waveforms with PULSESMART app (using ShE threshold) from fingertip pulse recordings (1 reading) (GS = 12 lead ECG)

Forest plot not possible to generate as no raw data available

Figure 44: Fingertip CardioRhythm 3 readings, majority rule



Figure 45: Fingertip CardioRhythm 3 readings, minority rule

Study	TP	FP	FN	ΤN	Sensitivity (95% CI)	Specificity (95% CI)	Sens	itivit	y (9	5% C	I)	S	peci	ificit	y (9	5% C	;I)
Yan (auto), 2018	71	10	4	132	0.95 [0.87, 0.99]	0.93 [0.87, 0.97]		_	-			\vdash	-		-	-+-	∎_
						(0.2	0.4	0.6	0.8	1	0	0.2	0.4	0.6	0.8	1

Figure 46: Facial CardioRhythm 3 readings, minority rule

Study	TP	FP	FN	ΤN	Sensitivity (95% CI)	Specificity (95% CI)	Sensitiv	vity (95% C	CI)	Spe	cificit	t y (9	5% C	I)
Yan (auto), 2018	71	6	4	136	0.95 [0.87, 0.99]	0.96 [0.91, 0.98] (0.2 0.4	4 0.6 0.8	1		2 0.4	0.6	0.8	- - 1

Figure 47: Fibricheck app 3 readings

Study	TP	FP	FN	ΤN	Sensitivity (95% CI)	Specificity (95% CI)	S	Sens	itivit	y (9	5% C	;I)	S	Spec	ificit	y (9	5% C	;I)
Proesmans (expert), 2019	87	4	13	119	0.87 [0.79, 0.93]	0.97 [0.92, 0.99]	⊢	-		-	-		\vdash	-			+	-
							0	0.2	0.4	0.6	0.8	1	0	0.2	0.4	0.6	0.8	1

Figure 48: Huawei Honor 7A fingertip/LED device (GS = 12 lead ECG)

Forest plot not possible to generate as no raw data available

Figure 49: Huawei Mate 9 fingertip/LED device (GS = 12 lead ECG)

Forest plot not possible to generate as no raw data available

Figure 50: The screening technique involves a finger-probe instrument (as used in pulse oximetry) that utilises the principle of photoplethysmography. (GS = 12 lead ECG)

Forest plot not possible to generate as no raw data available

Figure 51: Wrist-type photoplethysmographic (PPG) device. Using inter-beat interval (IBI) features (mean, SD, median, IQR, min, max and RMSSD. (GS = 12 lead ECG)

Forest plot not possible to generate as no raw data available

Figure 52: Wrist-type photoplethysmographic (PPG) device. Using 'wave' features (Adaptive organisation Index, variance of the slope of the phase difference, permutation entropy, fractional spectral radius and spectral purity index) (GS = 12 lead ECG)

Forest plot not possible to generate as no raw data available

Figure 53: Wrist-type photoplethysmographic (PPG) device. Using BOTH IBI and wave features (GS = 12 lead ECG)

Forest plot not possible to generate as no raw data available

Figure 54: Amazfit (PPG) device. (GS = 12 lead ECG)

Figure 55: Rithmi heart rhythm wrist monitor - PPG

Forest plot not possible to generate as no raw data available

<u>3 LEAD TELE ECG</u>

Figure 56: CG 7100 3 lead Tele-ECG

Study	TP	FP	FN	ΤN	Sensitivity (95% CI)	Specificity (95% CI)	Sensitivity (95% CI)	Specificity (95% CI)
Antonicelli (expert), 2012	1	0	0	106	1.00 [0.03, 1.00]	1.00 [0.97, 1.00] (0 0.2 0.4 0.6 0.8 1	0 0.2 0.4 0.6 0.8 1

Figure 57: Handheld tele ECG device with dry electrodes that records 3 lead ECG. (GS = 12 lead ECG)

Forest plot not possible to generate as no raw data available

Figure 58: Portable ECG monitor (PEM) – 3 lead ECG, 1 reading

Study IF IF	FNIN	Sensitivity (95% CI)	Specificity (95% CI)	Sensitivi	ty (95% Cl)	Specificity (95% CI)
Kristensen (clin), 2016 13 1	2 73	0.87 [0.60, 0.98]	0.99 [0.93, 1.00]			

Figure 59: Medi-Trace 3 lead ECG algorithm 1, 1 reading

Study	TP	FP	FN	ΤN	Sensitivity (95% CI)	Specificity (95% CI)	Sens	itivit	y (95	5% C	:I)	S	peci	ficit	y (9	5% C	I)
Lin (auto), 2010	1114	8	78	0	0.93 [0.92, 0.95]	0.00 [0.00, 0.37]		04	0.6	0.8	1		02	- - 04	06	0.8	 1

Figure 60: Medi-Trace 3 lead ECG algorithm 2, 1 reading

Study	TP	FP	FN	ΤN	Sensitivity (95% CI)	Specificity (95% CI)	Sensitivity (95% CI)	Specificity (95% CI)
Lin (auto), 2010	1135	7	58	0	0.95 [0.94, 0.96]	0.00 [0.00, 0.41]	<u>+_+</u> +_ <mark>=</mark>	
							0 0.2 0.4 0.6 0.8 1	0 0.2 0.4 0.6 0.8 1

Figure 61: 6 lead ECG with prototype recorder placed on thorax/abdomen in sitting, 1 measure

Study	TP	FP	FN	ΤN	Sensitivity (95% CI)	Specificity (95% CI)	Sensitivity (95% CI)	Specificity (95% CI)
Caldwell (expert), 2012	76	0	2	79	0.97 [0.91, 1.00]	1.00 [0.95, 1.00]		⊢ + + + +
							0 0.2 0.4 0.6 0.8 1	0 0.2 0.4 0.6 0.8 1

Figure 62: 6 lead ECG with prototype recorder placed on thorax/abdomen in supine, 1 measure

Study	TP	FP	FN	ΤN	Sensitivity (95% CI)	Specificity (95% CI)	Sens	sitivity (S	95% C	;I)	S	peci	ficit	y (9	5% C	;I)
Caldwell (expert), 2012	76	0	2	79	0.97 [0.91, 1.00]	1.00 [0.95, 1.00]	-+			-	⊢	-		-	-	-
						(0.2	0.4 0.6	6.0	1	0	0.2	0.4	0.6	0.8	1

Figure 63: 6 lead ECG with prototype recorder placed on standard positions, 1 measure

Study	TP	FP	FN	ΤN	Sensitivity (95% CI)	Specificity (95% CI)	Sensitivity (95% CI)	Specificity (95% CI)
Caldwell (expert), 2012	76	0	2	79	0.97 [0.91, 1.00]	1.00 [0.95, 1.00]	-+ + + +	⊢
						(0 0.2 0.4 0.6 0.8 1	0 0.2 0.4 0.6 0.8 1

Figure 64: 6 lead ECG Rhythm pad

Study	TP	FP	FN	ΤN	Sensitivity (95% CI)	Specificity (95% CI)	Sensitivity (95% CI)	Specificity (95% CI)
Sabar (auto), 2019	63	7	3	566	0.95 [0.87, 0.99]	0.99 [0.97, 1.00]	-	•
Sabar (expert), 2019	62	18	4	555	0.94 [0.85, 0.98]	0.97 [0.95, 0.98] 0		0 0.2 0.4 0.6 0.8 1

OTHER non- 12 LEAD ECG

Figure 65: Limb lead ECG, 1 measure

Study	TP	FP	FN	TN	Sensitivity (95% CI)	Specificity (95% CI)	Sensitivity (95% CI)	Specificity (95% CI)
Mant (Clin GP), 2007	104	156	22	1202	0.83 [0.75, 0.89]	0.89 [0.87, 0.90]	-	
Mant (clin nurse), 2007	85	220	33	1107	0.72 [0.63, 0.80]	0.83 [0.81, 0.85]		
							0 0.2 0.4 0.6 0.8 1	$0 \ \ 0.2 \ \ 0.4 \ \ 0.6 \ \ 0.8 \ \ 1$

Figure 66: Chest lead ECG, 1 measure

Study	TP	FP	FN	TN	Sensitivity (95% CI)	Specificity (95% CI)	Sensitivity (95% CI)	Specificity (95% CI)
Mant (Clin GP), 2007	112	180	20	1145	0.85 [0.78, 0.90]	0.86 [0.84, 0.88]	-	•
Mant (clin nurse), 2007	92	22	42	1066	0.69 [0.60, 0.76]	0.98 [0.97, 0.99]		

Figure 67: V1, V4 leads, 1 measure

Study	ΤР	FP	FN	TN	Sensitivity (95% CI)	Specificity (95% CI)	Sen	sitivi	ty (9	5% C	I)	S	peci	ificit	y (9	5% C	;I)
Greg (auto), 2008	96	17	13	1659	0.88 [0.80, 0.93]	0.99 [0.98, 0.99]					+	⊢	+				-
						(0.2	0.4	0.6	0.8	1	0	0.2	0.4	0.6	0.8	1

Figure 68: V2, V5 leads, 1 measure

Study	TP	FP	FN	TN	Sensitivity (95% CI)	Specificity (95% CI)	Sens	itivity	/ (95%	% CI)	;	Spec	ificit	y (9	5% C	I)
Greg (auto), 2008	92	17	17	1659	0.84 [0.76, 0.91]	0.99 [0.98, 0.99]	+	+					+	+	+	-
						(0.2	0.4	0.6 0).8 1	0	0.2	0.4	0.6	0.8	1

Figure 69: Bipolar lead ECG, 1 measure

Study	ΤР	FP	FN	ΤN	Sensitivity (95% CI)	Specificity (95% CI)	Sensitivity (95% CI)	Specificity (95% CI)
Somerville (clin), 2000	25	1	1	59	0.96 [0.80, 1.00]	0.98 [0.91, 1.00]		-1
Somerville (expert), 2000	24	7	2	53	0.92 [0.75, 0.99]	0.88 [0.77, 0.95]		
							0.2 0.4 0.6 0.8 1	0 0.2 0.4 0.6 0.8 1

12 LEAD ECG (non expert)

Figure 70: 12 lead ECG interpreted by non-expert interpreter, 1 measure

Study	ΤР	FP	FN	TN	Sensitivity (95% CI)	Specificity (95% CI)	Sensitivity (95% CI)	Specificity (95% CI)
Hald (clin nurse), 2017	10	3	0	74	1.00 [0.69, 1.00]	0.96 [0.89, 0.99]		-
Kvist (clin nurse), 2019	66	0	2	1270	0.97 [0.90, 1.00]	1.00 [1.00, 1.00]	-	
Mant (Clin GP), 2007	79	114	22	1241	0.78 [0.69, 0.86]	0.92 [0.90, 0.93]		•
Mant (clin nurse), 2007	74	198	22	1132	0.77 [0.67, 0.85]	0.85 [0.83, 0.87]		•
Rhys (clin GP), 2013	2	0	0	30	1.00 [0.16, 1.00]	1.00 [0.88, 1.00]		
Somerville (clin GP), 2000	26	1	0	59	1.00 [0.87, 1.00]	0.98 [0.91, 1.00]		-
Somerville (clin nurse), 2000	13	6	0	19	1.00 [0.75, 1.00]	0.76 [0.55, 0.91]		0 0.2 0.4 0.6 0.8 1

Figure 71: 12 lead ECG interpreted by non-expert interpreter combined with algorithm interpretation, 1 measure

Figure 72: 12 lead ECG detection algorithm based on a co-efficient of variation of the beat intervals (CV). Threshold set at 0.12 (GS = 12 lead ECG)

Forest plot not possible to generate as no raw data available

Figure 73: 12 lead ECG detection algorithm based on the co-efficient of sample entropy (COSEn). Threshold set at -1.19 (GS = 12 lead ECG)

Forest plot not possible to generate as no raw data available

Figure 74: 12 lead ECG detection algorithm based on the mean successive beat interval difference (defined as the mean absolute successive beat interval difference divided by the mean beat interval (Delta). Threshold set at 0.11 (GS = 12 lead ECG)

Forest plot not possible to generate as no raw data available

Figure 75: 12 lead ECG algorithm interpreted by Cardioview, 1 measure



Figure 76: 12 lead ECG algorithm interpreted by MUSE software, 1 measure

Figure 77: 12 lead ECG algorithm interpreted by Mant algorithm, 1 measure

Study	ΤР	FP	FN	TN	Sensitivity (95% CI)	Specificity (95% CI)	Sens	itivit	y (9	5% C	I)	S	peci	ificit	y (9	5% C	I)
Mant (auto), 2007	179	21	36	2320	0.83 [0.78, 0.88]	0.99 [0.99, 0.99]				-		⊢	_	-	-	-	
						(0.2	0.4	0.6	0.8	1	0	0.2	0.4	0.6	0.8	1

Figure 78: 12 lead ECG algorithm interpreted by Slocum algorithm, 1 measure

Study	ΤР	FP	FN	ΤN	Sensitivity (95% CI)	Specificity (95% CI)	Sensitivity (95% CI)	Specificity (95% CI)
Slocum (auto), 1992	28	5	13	36	0.68 [0.52, 0.82]	0.88 [0.74, 0.96]		
						(0 0.2 0.4 0.6 0.8 1	0 0.2 0.4 0.6 0.8 1

Figure 79: Computer interpretation of full 12 lead ECG V1-V6



STRATUM 2: >24 hour ambulatory monitoring [such as Holter] as gold standard

BP MONITORS

Figure 80: 24 hour ambulatory Microlife Afib Watch BP

Study	TP	FP	FN	TN	Sensitivity (95% CI)	Specificity (95% CI)	S	ensi	itivit	y (9	5% C	;I)	S	Spec	ificit	y (9	5% C	X)
Kollias (auto), 2018	1013	78	78	4609	0.93 [0.91, 0.94]	0.98 [0.98, 0.99]	⊢	+	-			-	⊢	_				_
							0 (0.2	0.4	0.6	0.8	1	0	0.2	0.4	0.6	0.8	1

Figure 81: AF-BP monitor device (daily use for 30 days)

Study	TP	FP	FN	ΤN	Sensitivity (95% CI)	Specificity (95% CI)	Sensitivity	(95% C	I)	Specific	ity (9	5% C	I)
Wiesel (auto), 2013	14	13	0	112	1.00 [0.77, 1.00]	0.90 [0.83, 0.94] (0.2 0.4 0.	.6 0.8	- - 1 0	0.2 0.	4 0.6	-	► 1

HOLTER <7 DAYS

Figure 82:	Holt	er 1	l da	ay					
Study	TP	FP	FN	ΤN	Sensitivity (95% CI)	Specificity (95% CI)	Sensitivit	y (95% CI)	Specificity (95% CI)
Mulder (auto), 2012	. 11	0	10	75	0.52 [0.30, 0.74]	1.00 [0.95, 1.00] 	0 0.2 0.4	0.6 0.8 1	0 0.2 0.4 0.6 0.8 1

Figure 83: Holter 2 day

Study	TP	FP	FN	TΝ	Sensitivity (95% CI)	Specificity (95% CI)	Sensitivity (95% CI)	Specificity (95% CI)
Mulder (auto), 2012	14	0	7	75	0.67 [0.43, 0.85]	1.00 [0.95, 1.00]		⊢ + + + +
						(0 0.2 0.4 0.6 0.8 1	0 0.2 0.4 0.6 0.8 1

Figure 84: Holter 3 day

Study	TP	FP	FN	ΤN	Sensitivity (95% CI)	Specificity (95% CI)	Sensitivity (95% CI)	Specificity (95% CI)
Mulder (auto), 2012	17	0	4	75	0.81 [0.58, 0.95]	1.00 [0.95, 1.00]		⊢ + + + +
						(0 0.2 0.4 0.6 0.8 1	0 0.2 0.4 0.6 0.8 1

Figure 85: Holter 4 day

Study	TP	FP	FN	ΤN	Sensitivity (95% CI)	Specificity (95% CI)	Sensitivity (95% CI)	Specificity (95% CI)
Mulder (auto), 2012	18	0	3	75	0.86 [0.64, 0.97]	1.00 [0.95, 1.00] (

Figure 86: Holter 5 day

Study	TP	FP	FN	ΤN	Sensitivity (95% CI)	Specificity (95% CI)	Sensitivity (95% CI)	Specificity (95% CI)
Mulder (auto), 2012	19	0	2	75	0.90 [0.70, 0.99]	1.00 [0.95, 1.00]		i <u>- + + + +</u>
						(0 0.2 0.4 0.6 0.8 1	0 0.2 0.4 0.6 0.8 1

Figure 87: Holter 6 day

Study	TP	FP	FN	ΤN	Sensitivity (95% CI)	Specificity (95% CI)	Sensitivi	ty (95% C)	Spec	ificit	y (9	5% C	I)
Mulder (auto), 2012	20	0	1	75	0.95 [0.76, 1.00]	1.00 [0.95, 1.00]	+ +	- 	i	\vdash		+		-
						(0.2 0.4	0.6 0.8	1	0 0.2	0.4	0.6	0.8	1

OTHER LONGER TERM DEVICES

Figure 88: R test evolution 3 triggered ECG (48 hrs)

Study	ΤР	FP	FN	ΤN	Sensitivity (95% CI)	Specificity (95% CI) Sensitivity (95% C) Specificity (95% CI)
Roten (expert), 2012	37	0	5	58	0.88 [0.74, 0.96]	1.00 [0.94, 1.00]	-
						0 0.2 0.4 0.6 0.8	1 0 0.2 0.4 0.6 0.8 1

Figure 89: R test evolution 3 triggered ECG (24 hrs)

Study	TP	FP	FN	TN	Sensitivity (95% CI)	Specificity (95% CI)	Sensitivity (95% CI)	Specificity (95% CI)
Sejr (auto), 2019	35	179	3	1195	0.92 [0.79, 0.98]	0.87 [0.85, 0.89]		
sejr (expert), 2019	32	27	6	1347	0.84 [0.69, 0.94]	0.98 [0.97, 0.99]		+ + + + + + + + + + + + + + + + + + +
							0 0.2 0.4 0.6 0.8 1	0 0.2 0.4 0.6 0.8 1

Figure 90: Vitaphone 3100 BT external loop recorder (24 hrs)

Study	TP	FP	FN	TN	Sensitivity (95% CI)	Specificity (95% CI)	Sensitivity (95% CI)	Specificity (95% CI)
Muller (auto), 2009	24	12	0	12	1.00 [0.86, 1.00]	0.50 [0.29, 0.71]		
Velthius (auto), 2013	56	1134	3	1162	0.95 [0.86, 0.99]	0.51 [0.49, 0.53]		
							0 0.2 0.4 0.6 0.8 1	0 0.2 0.4 0.6 0.8 1

Figure 91: SRAclinic, Apoplex Medical Technologies. Stroke Risk Analysis (SRA) – software analysis of every hourly ECG snippet of continuous (non 12 lead) ECG monitoring, and report sent daily to stroke unit.(automated) threshold of 0-1=SR and 2 or more =AF

Forest plot not possible to generate as no raw data available

Figure 92: SRAclinic, Apoplex medical Technologies. Stroke Risk Analysis (SRA) – software analysis of every hourly ECG snippet of continuous (non 12 lead) ECG monitoring, and report sent daily to stroke unit.(automated) threshold of 0-2=SR and 3 or more =AF

Forest plot not possible to generate as no raw data available

Figure 93: 48 hr ECG without AFRS

Figure 94: 48 hrs AGC with AFRS

Study	TP	FP	FN	ΤN	Sensitivity (95% CI)	Specificity (95% CI)	Sensitivity (95% CI)	Specificity (95% CI)
Arevalo-Manso (auto/clin), 2016	4	0	3	10	0.57 [0.18, 0.90]	1.00 [0.69, 1.00]		
						(0.2 0.4 0.6 0.8 1	0 0.2 0.4 0.6 0.8 1

Figure 95: 12 bit resolution ECG 1-2 hrs

Study	TP	FP	FN	ΤN	Sensitivity (95% CI)	Specificity (95% CI)	Sensi	itivity (95%	6 CI)	Spe	cificit	y (9	5% C	I)
Rizos (auto), 2010	21	40	8	67	0.72 [0.53, 0.87]	0.63 [0.53, 0.72]			_ 	⊢-+		-	-	\dashv
						(0.2	0.4 0.6 0	.8 1	0 0.2	2 0.4	0.6	0.8	1

Figure 96: 6 Channel Holter

Figure 97: Zenecor thumb ECG twice daily for 30days

Study	TP	FP	FN	ΤN	Sensitivity (95% CI)	Specificity (95% CI)	Sensitivity (95% CI)	Specificity (95% CI)
Poulsen (expert), 2017	10	10	7	68	0.59 [0.33, 0.82]	0.87 [0.78, 0.94]		
						(0 0.2 0.4 0.6 0.8 1	0 0.2 0.4 0.6 0.8 1

Figure 98: Kardia-Band

Forest plot not possible to generate as no raw data available

Figure 99: Cardiomatrix with telemetry for median 46 hours

Study	TP	FP	FN	ΤN	Sensitivity (95% CI)	Specificity (95% CI)	Sensitivity (95% CI)	Specificity (95% CI)
Brown (auto), 2019	218	5	5	32	0.98 [0.95, 0.99]	0.86 [0.71, 0.95]	-+ + + + + +	
						(0 0.2 0.4 0.6 0.8 1	0 0.2 0.4 0.6 0.8 1

Figure 100: WiPatch for 24 hours

Study	ΤР	FP	FN	TN	Sensitivity (95% CI)	Specificity (95% CI)	Sensitivity (95% CI)	Specificity (95% CI)
Karunadas, 2020	3	0	0	138	1.00 [0.29, 1.00]	1.00 [0.97, 1.00]		

Figure 101: One-off 12 lead ECG

Figure 102: One-off pulse palpation

Study	ТР	FP	FN	TN	Sensitivity (95% CI)	Specificity (95% CI)	Sensitivity (95% CI)	Specificity (95% CI)
Lyckhage, 2020	8	115	9	234	0.47 [0.23, 0.72]	0.67 [0.62, 0.72]		· · · · · · • · · · ·
							0 0,2 0,4 0,6 0,8 1	0 0,2 0,4 0,6 0,8 1

Figure 103: Single lead (MP1*) patch-based ambulatory ECG monitor

Forest plot not possible to generate as no raw data available