Supplementary tables and figures

Table S1. PP stratified by BP devices and invasive PP amplification quartiles.

Variables	All	Invasive PP amplification quartiles				
		Q1	Q2	Q3	Q4	p_{trend}
Device 1 (n=171)						
Non-invasive measures						
Estimated aortic PP	42±11	44±11	43±10	42±14	39±10	0.224
Cuff brachial PP	55±13	57±13	55±12	55±15	54±12	0.719
Estimated PP amplification	13±4	13±4	12±4	13±3	15±4	0.025
Invasive measures (mmHg)						
Aortic PP	60±19	68±17	62±17	58±21	53±17	0.002
Brachial PP	70±18	70±17	68±17	70±21	74±18	0.463
PP amplification	10±8	2±2	6±1	12±2	22±7	<0.001
Device 2 (n=52)						
Non-invasive measures (mmHg)						
Estimated aortic PP	43±11	47±11	46±10	37±6	44±13	0.057
Cuff brachial PP	50±11	50±10	51±9	46±7	52±15	0.546
Estimated PP amplification	6±5	3±2	5±5	10±3	8±5	0.001
Invasive measures (mmHg)						
Aortic PP	60±17	68±17	60±16	51±13	61±19	0.079
Brachial PP	70±17	71±16	67±16	63±12	79±19	0.077
PP amplification	10±6	3±2	6±1	12±2	18±2	<0.001

Sphygmocor Xcel and Uscom BP+ were defined as Device 1 and Device 2 respectively

Data are mean ± standard deviation

PP: pulse pressure

Invasive PP amplification=Invasive brachial PP– invasive aortic PP

Table S2. Regression of central aortic PP on brachial PP measured via non-invasive cuff and invasive recordings

	n	β(95%CI)	p	R^2† (95%CI)‡	p	RMSE (95%CI)‡	p
Device 1 - Unadjusted models							
Estimated aortic PP ~ cuff PP	171	0.83 (0.79; 0.87)	<0.001	0.91 (0.88; 0.95)		3.33 (2.86; 3.81)	
Invasive aortic PP ~ brachial PP	171	0.94 (0.87; 1.01)	<0.001	0.82 (0.76; 0.88)		8.04 (6.96; 9.13)	
Difference‡				0.10 (0.04; 0.16)	<0.001	–4.71 (–5.88; –3.54)	<0.001
- Adjusted models*							
Estimated aortic PP ~ cuff PP	164	0.79 (0.75; 0.84)	<0.001	0.92 (0.89; 0.95)		3.21 (2.69; 3.73)	
Invasive aortic PP ~ brachial PP	164	0.84 (0.78; 0.91)	<0.001	0.88 (0.84; 0.92)		6.68 (5.86; 7.50)	
Difference ‡				0.05 (0.01; 0.09)	<0.001	–3.47 (–4.42; –2.52)	<0.001
Device 2 - Unadjusted models							
Estimated aortic PP ~ cuff PP	52	0.93 (0.81; 1.05)	<0.001	0.82 (0.74; 0.90)		4.53 (3.72; 5.35)	
Invasive aortic PP ~ brachial PP	52	0.94 (0.84; 1.05)	<0.001	0.87 (0.83; 0.91)		6.02 (5.20; 6.83)	
Difference ‡				–0.05 (–0.12; 0.02)	0.163	–1.49 (–2.57; –0.40)	<0.001
- Adjusted models*							
Estimated aortic PP ~ cuff PP	40	0.93 (0.81; 1.04)	<0.001	0.89 (0.83; 0.95)		3.76 (2.95; 4.57)	
Invasive aortic PP ~ brachial PP	40	0.97 (0.84; 1.10)	<0.001	0.88 (0.83; 0.93)		6.00 (5.01; 6.99)	
Difference ‡				0.01 (–0.04; 0.06)	0.731	–2.24 (–3.28; –1.20)	<0.001

Sphygmocor Xcel and Uscom BP+ were defined as Device 1 and Device 2 respectively; Data are unstandardised beta (95% confident interval); *models are adjusted for age, sex, height, and invasive aortic heart rate; †adjusted R^2; ‡adjusted R^2 (95%CI) and RMSE (95%CI) differences between non-invasive and invasive models calculated by bootstrapping with 2000 replications; PP: pulse pressure
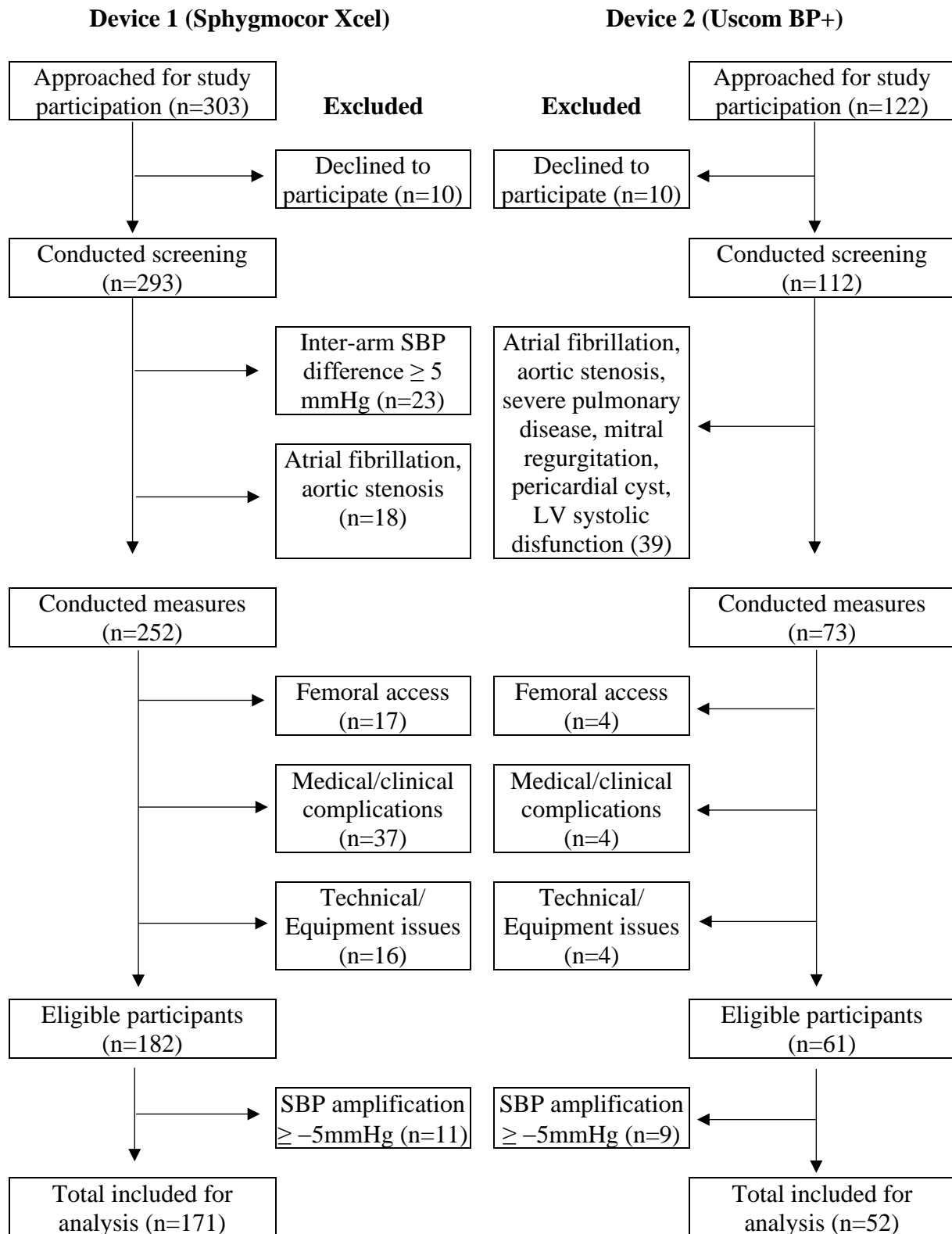
Device 1 (Sphygmocor Xcel)   **Device 2 (Uscom BP+)**

Approached for study participation (n=303)

Excluded   **Excluded**

Declined to participate (n=10)

Approached for study participation (n=122)

Declined to participate (n=10)

Conducted screening (n=293)

Conducted screening (n=112)

Inter-arm SBP difference ≥ 5 mmHg (n=23)

Atrial fibrillation, aortic stenosis, severe pulmonary disease, mitral regurgitation, pericardial cyst, LV systolic disfunction (39)

Atrial fibrillation, aortic stenosis (n=18)

Conducted measures (n=252)

Conducted measures (n=73)

Femoral access (n=17)

Femoral access (n=4)

Medical/clinical complications (n=37)

Medical/clinical complications (n=4)

Technical/ Equipment issues (n=16)

Technical/ Equipment issues (n=4)

Eligible participants (n=182)

Eligible participants (n=61)

SBP amplification ≥ −5mmHg (n=11)

SBP amplification ≥ −5mmHg (n=9)

Total included for analysis (n=171)

Total included for analysis (n=52)

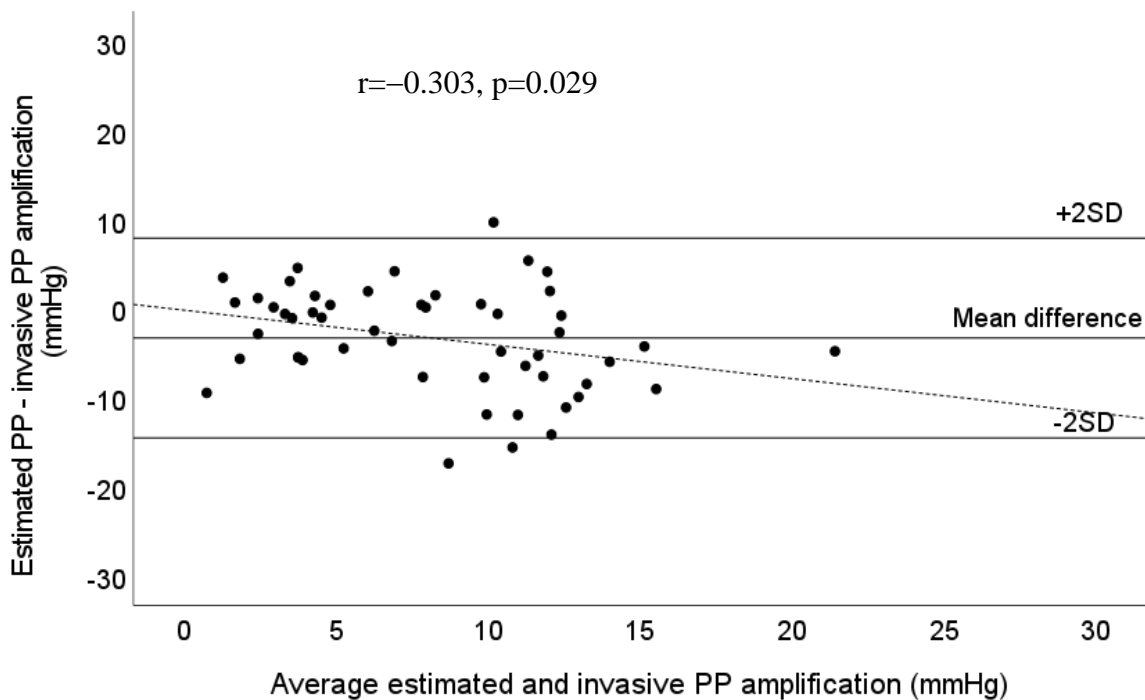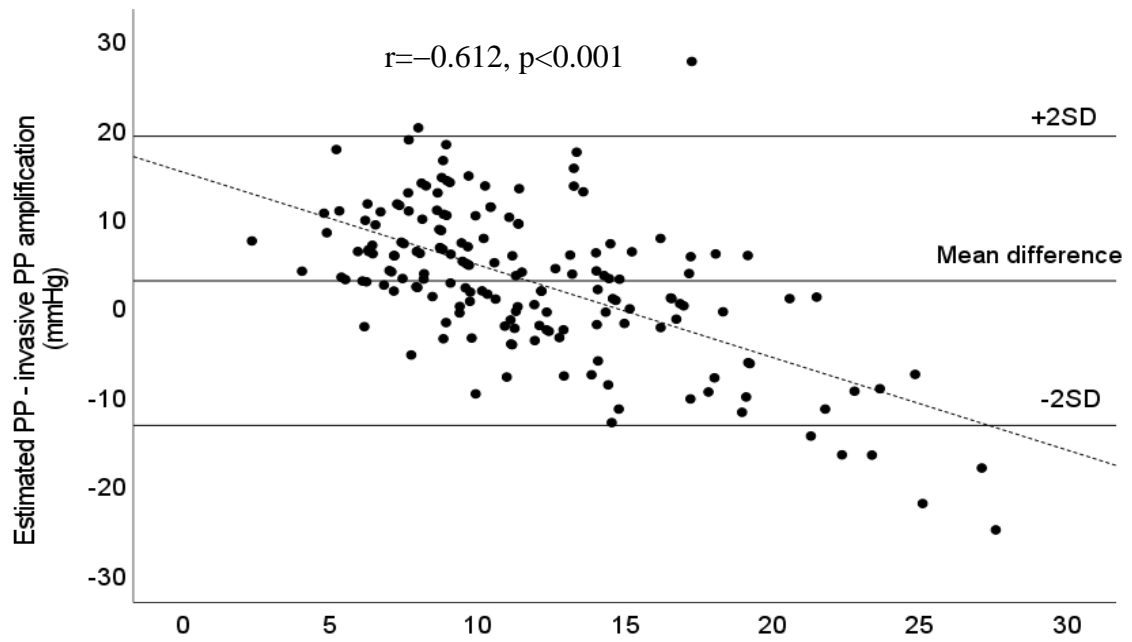Figure S1. Participant flow showing exclusions from the analysis.

Figure S2. Bland-Altman plot of difference between estimated PP and invasive PP amplification from device 1 (Sphygmocor Xcel, top) and device 2 (Uscom, BP+, bottom). Dashed line is the line of best fit. Solid lines are mean difference and ±2 SDs of the difference between estimated and invasive PP amplification. Bland-Altman plots indicate systematic bias for greater underestimation of PP amplification with increasing level of PP amplification, but with stronger bias for device 1 (r=−0.612 vs. r=−0.303; z=4.16; p<0.001).
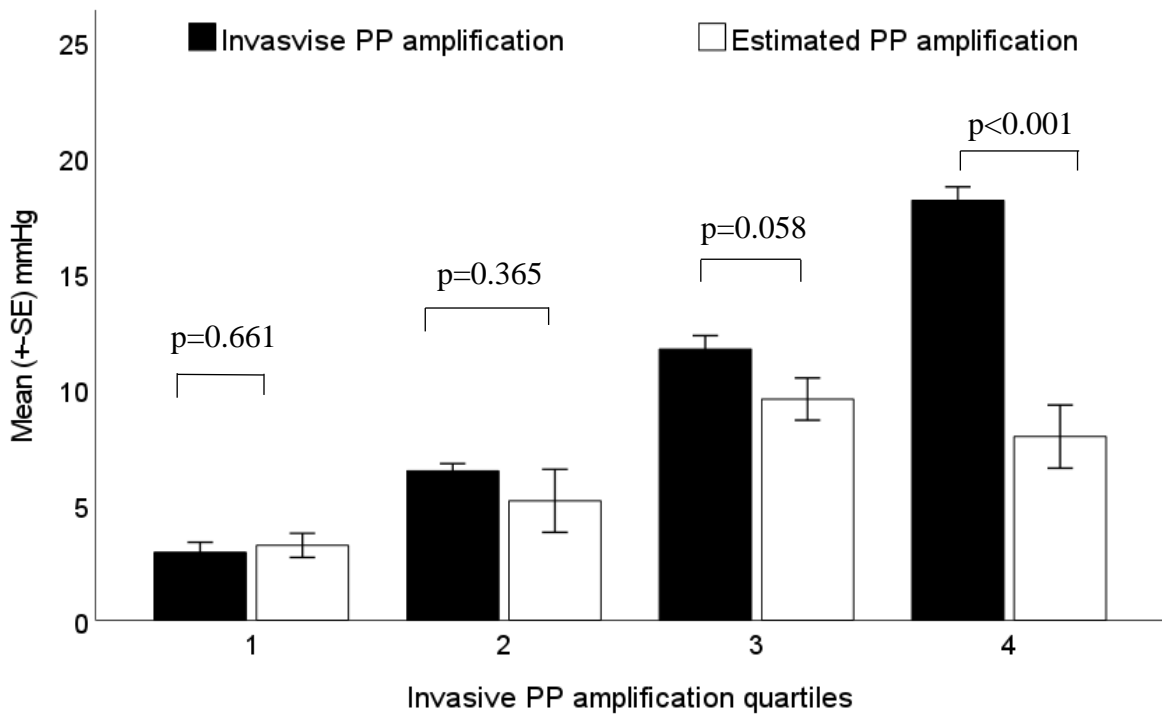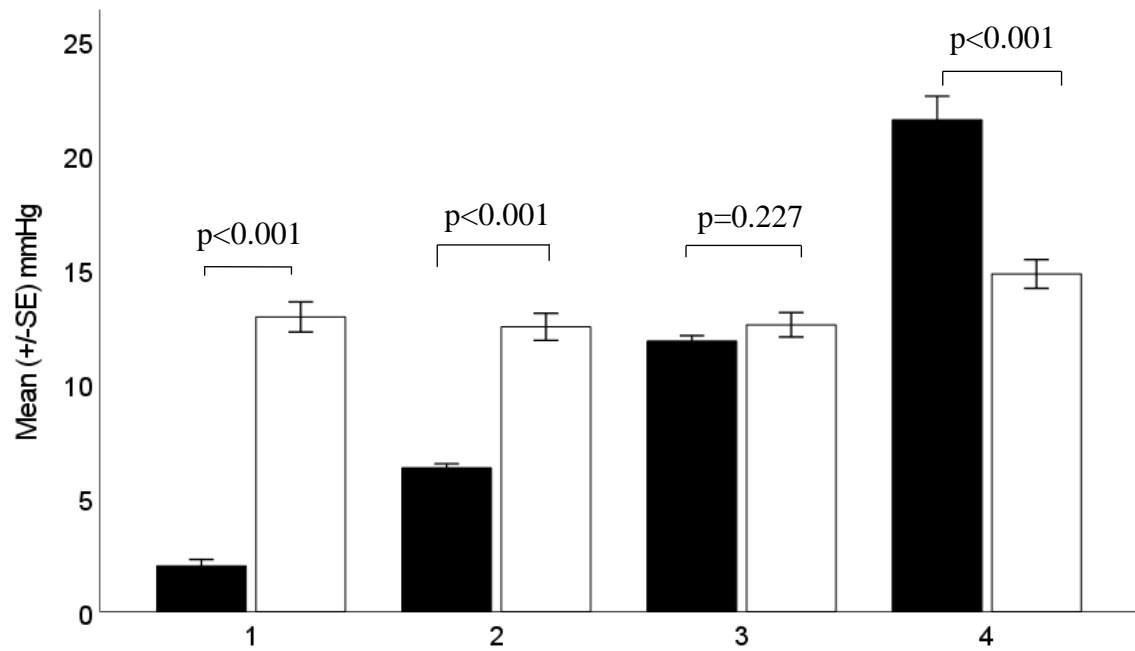
Figure S3. Bar plots (mean, ±SE) of estimated SBP (white bars) and invasive PP amplification (black bars) per invasive PP amplification quartiles from device 1 (Sphygmocor Xcel, top) and device 2 (Uscom BP+, bottom). From the top figure, there was a stepwise increase in mean invasive PP amplification for each of elevated invasive PP quartile ($p_{trend} < 0.001$) with estimated PP amplification was significantly overestimated at the first two quartiles (p=0.001) and underestimated at the highest quartile (p<0.001). At the bottom figure, underestimation of invasive PP amplification was consistent for the highest quartile (p<0.001) but not significant for other quartiles.