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Appendix Table 1. Characteristics of eligible studies

First Author	Year	Cohort	Country	Funding Source(s)*	Type of measurement	Out-of-office BP threshold	Treatment groups (treated, untreated, or combined)	Outcomes reported
Verdecchia	1994	PIUMA	Italy	Government/Foundation	24-hour ABPM	Daytime 131/86 women, 136/87 men	Untreated	CAD, stroke, TIA, CVD mortality
Kario	2001	JMS-ABPM	Japan	Government/Foundation	24-hour ABPM	24-hour 130/80	Untreated	Fatal and non-fatal stroke
Bobrie	2004	SHEAF	France	Industry	Home BP	Daytime 135/85	Treated	CAD, stroke, TIA, CHF, CVD mortality
Verdecchia	2005	NYPEAP/PIUMA/ Ohasama/JMS-ABPM	International	Industry and Government/Foundation	24-hour ABPM	Daytime 130/80	Untreated	Fatal and non-fatal stroke
Ohkubo	2005	Ohasama	Japan	Government/Foundation	24-hour ABPM	Daytime 135/85	Untreated, treated, combined	Stroke, CVD mortality
Fagard	2005	Flanders	Belgium	None Reported	24-hour ABPM	Daytime 135/85	Untreated	CAD, stroke, CVD mortality
Pierdomenico	2005	Chieti-Pescara	Italy	None Reported	24-hour ABPM	Daytime 135/85	Treated	CAD, stroke, CHF, CVD mortality
Hansen	2007	IDACO	International	Government/Foundation	24-hour ABPM	Daytime 130/80 and Daytime 135/85	Combined	CAD, stroke, CHF, CVD mortality
Pierdomenico	2008	Chieti-Pescara	Italy	None Reported	24-hour ABPM	Daytime 135/85	Untreated	CAD, stroke, CHF, CVD mortality
Shimada	2008	J-HEALTH	Japan	Industry	Home BP	Daytime 135/85	Treated	CAD, stroke, CVD mortality
Agarwal	2011	Indiana	USA	Government/Foundation	44-hour ABPM	Daytime 135/85	Combined	All-cause mortality
Hanninen	2012	Finn-Home	Finland	Government/Foundation	Home BP	Daytime 135/85	Combined	CAD, stroke, CHF, CVD mortality, all-cause mortality
Hermida	2012	MAPEC	Spain	Government/Foundation	48-hour ABPM	Daytime 125/80	Combined	CAD, stroke, TIA, CHF, CVD mortality, all-cause mortality
Franklin	2012	IDACO	International	Government/Foundation	24-hour ABPM	Daytime 135/85	Untreated, treated	CAD, stroke, TIA, CHF, CVD mortality
Mancia	2013	PAMELA	Italy	Industry and Government/Foundation	24-hour ABPM and Home BP	24-hour ABPM 125/79, Daytime HBPM 132/83	Untreated, combined	CVD mortality, all-cause mortality
Sung	2013	Taiwan-Kinmen	China	Government/Foundation	24-hour ABPM	Daytime 135/85	Untreated	CVD mortality, all-cause mortality
Asayama	2014	IDACO	International	Government/Foundation	24-hour ABPM	24-hour 130/80	Untreated	CAD, stroke, CHF, CVD mortality, all-cause mortality
Minutolo	2014	Italy CKD	Italy	None Reported	24-hour ABPM	Daytime 135/85, Nighttime 120/70	Combined	CAD, stroke, CHF, CVD mortality, all-cause mortality

Stergiou	2014	IDHOCO	International	Government/Foundation	Home BP	Daytime 135/85	Untreated, treated	CAD, stroke, CHF, CVD mortality
Satoh	2015	Ohasama	Japan	Government/Foundation	24-hour ABPM and Home BP	24-hour ABPM 130/80, Daytime HBPM 135/85	Combined	Fatal and non-fatal stroke
Tientcheu	2015	Dallas Heart Study	USA	Government/Foundation	Home BP	Daytime 135/85	Combined	CAD, stroke, TIA, CHF, CVD mortality
Wang	2017	Guangdong	China	Government/Foundation	24-hour ABPM	24-hour 130/80	Combined	CAD, stroke, CHF, CVD mortality, all-cause mortality
Pierdomenico	2017	Chieti-Pescara	Italy	None Reported	24-hour ABPM	24-hour 130/80	Treated	CAD, stroke, CHF, CVD mortality
Banegas	2018	Spanish Ambulatory BP Registry	Spain	Industry and Government/Foundation	24-hour ABPM	24-hour 130/80	Untreated, treated	CVD mortality, all-cause mortality
Ntineri	2018	Didima	Greece	Industry	Home BP	24-hour 135/85	Combined	CAD, stroke, TIA, CHF, CVD mortality, all-cause mortality
Fujiwara	2018	J-HOP	Japan	Industry and Government/Foundation	Home BP	Daytime 135/85	Combined	CAD, stroke, CVD mortality
Spannella	2018	Ancona	Italy	None Reported	24-hour ABPM	24-hour 130/80	Treated	All-cause mortality

*Funding Source(s): “Government/Foundation” signifies government, medical society, research foundation, and or intramural university grant funding; “Industry” signifies private pharmaceutical, laboratory, or device company sponsorship.

Abbreviations: ABPM = Ambulatory blood pressure monitoring; BP = blood pressure; CAD = Coronary artery disease; CHF = congestive heart failure; CKD = Chronic kidney disease; CVD = cardiovascular disease; IDACO = International Database of Ambulatory blood pressure in relation to Cardiovascular Outcomes; IDHOCO = International Database of Home blood pressure in relation to Cardiovascular Outcomes; J-HEALTH = Japan Hypertension Evaluation with Angiotensin II Antagonist Losartan Therapy; J-HOP = Japan Morning Surge-Home BP; JMS = Jichi Medical School; MAPEC = Monitorización Ambulatoria para Predicción de Eventos Cardiovasculares; NYPEAP = New York Prognostic Effects of Ambulatory blood Pressure monitoring; PAMELA = Pressioni Arteriose Monitorate E Loro Associazioni; PIUMA= Progetto Ipertensione Umbria Monitoraggio; SHEAF = Self-Measurement of Blood Pressure at Home in the Elderly: Assessment and Follow-Up; TIA = Transient ischemic attack

Appendix Table 2. Baseline participant characteristics among eligible studies

First Author	Year	Number of study participants	WCH or WCE (%)	Treated for HTN (%)	Men (%)	Mean age, years	Diabetes (%)	Previous CVD (%)	CKD (%)	Current smoker (%)	Mean BMI, kg/m^2	Duration of follow up, years
Verdecchia	1994	1,392	16%	0%	50%	51	10%	3%		24%	26.7	3.2
Kario	2001	958	25%	0%	38%	72	11%	0%		21%	23.8	3.5
Bobrie	2004	4,939	13%	100%	49%	70	15%	12%		8%		3.0
Verdecchia	2005	5,955	7%	0%	50%	56	11%	0%	0%	20%	25.3	5.4
Ohkubo	2005	1,332	13%	30%	35%	62	17%	5%		20%		10.2
Fagard	2005	359	24%	32%	40%	70	8%	0%		18%	27.5	10.9
Pierdomenico	2005	742	20%	100%	46%	60	6%	2%		20%	28.1	5.0
Hansen	2007	7,030	11%	22%	55%	56	7%	8%		30%	25.5	9.5
Pierdomenico	2008	2,037	20%	0%	53%	49	0%	0%	0%	20%	26.4	6.4
Shimada	2008	2,896	13%	100%	42%	61					24.2	3.5
Agarwal	2011	353	15%	76%	65%	55	49%	35%	100%	30%	27.7	2.5
Hanninen	2012	2,046	15%	23%	46%	56	6%	13%		19%	27.4	7.5
Hermida	2012	3,344	28%	62%	51%	53	20%	0%	24%	15%	29.8	5.6
Franklin	2012	7,295	7%	12%	45%	49	5%	0%		29%	24.8	10.6
Mancia	2013	1,589	25%	19%	48%	51		4%		26%	25.5	16.0
Sung	2013	1,257	12%	0%	53%	53					24.8	15.0
Asayama	2014	8,237	11%	0%	52%	51	6%	8%		30%	25.1	11.1
Minutolo	2014	512	21%	89%	57%	64	34%	29%	100%	22%	28.9	5.2
Stergiou	2014	6,458	14%	22%	43%	59	8%	10%		21%	29.3	8.3
Satoh	2015	1,464	9%	31%	32%	61	14%	1%		15%	23.4	17.1
Tientcheu	2015	3,027	4%	21%	45%	43	12%	7%	9%	28%	29.4	9.4
Wang	2017	588	10%	75%	57%	43			100%	19%	23.2	2.9
Pierdomenico	2017	1,191	19%	100%	42%	68	12%	9%		12%	27.9	9.1
Banegas	2018	63,910	27%	60%	58%	58	20%	11%		16%	29.3	4.7
Ntineri	2018	665	5%	15%	42%	54	5%	9%		25%	27.1	19.0
Fujiwara	2018	4,261	14%	79%	47%	65	24%	13%		12%	24.3	3.9
Spannella	2018	120	36%	100%	47%	71	9%	17%		36%	27.1	10.0

Abbreviations: BMI = Body mass index; CKD = Chronic kidney disease; CVD = Cardiovascular disease; HTN = Hypertension; WCE = White coat effect (i.e. elevated office blood pressure with normal out of office blood pressure, on treatment); WCH = White coat hypertension (i.e. elevated office blood pressure with normal out of office blood pressure, not on treatment)

Appendix Table 3. Quality assessment using modified QUADAS-2 tool* to assess risk of bias across seven domains

First Author	Year	Patient Selection	Index test (quality of ABPM or HBPM assessment)	Reference standard (quality of in-office BP assessment)	Flow and timing	Statistical analyses	Handling of Confounding	Outcome assessment	Total number of domains with low risk of bias
Verdecchia	1994	High	Low	Low	Low	Low	Low	Low	6
Kario	2001	Low	Low	Low	Low	Low	High	Low	6
Bobrie†	2004	Low	Low	Low	Low	Low	High	Low	6
Verdecchia	2005	High	Low	Low	Low	Low	Low	Low	6
Ohkubo†	2005	Low	Low	Low	Low	Low	High	High	5
Fagard	2005	Low	Low	Low	Low	Low	Low	Low	7
Pierdomenico	2005	High	Low	Low	Low	Low	Low	Low	6
Hansen	2007	High	High	Low	Low	Low	Low	Low	5
Pierdomenico	2008	High	Low	Low	Low	Low	Low	Low	6
Shimada	2008	Low	Low	Low	Low	Low	Low	Low	7
Agarwal	2011	Low	Low	Low	Low	Low	High	High	5
Hanninen†	2012	Low	Low	Low	Low	Low	High	Low	6
Hermida	2012	Low	Low	Low	Low	Low	High	Low	6
Franklin	2012	High	High	Low	Low	Low	Low	Low	5
Mancia†	2013	Low	Low	Low	Low	Low	High	Low	6
Sung†	2013	Low	High	Low	Low	Low	High	Low	5
Asayama	2014	High	High	Low	Low	Low	Low	Low	5
Minutolo†	2014	High	Low	Low	Low	Low	High	Low	5
Stergiou†	2014	High	Low	Low	Low	Low	High	Low	5
Satoh	2015	Low	Low	Low	Low	Low	Low	Low	7
Tientcheu	2015	Low	High	Low	Low	Low	Low	Low	6
Wang†	2017	Low	Low	Low	Low	Low	High	Low	6
Pierdomenico	2017	High	Low	Low	Low	Low	Low	Low	6
Banegas	2018	High	Low	Low	Low	Low	Low	High	5
Ntineri†	2018	Low	Low	Low	Low	Low	High	Low	6
Fujiwara	2018	High	Low	Low	Low	Low	Low	Low	6
Spannella	2018	High	Low	Low	Low	Low	Low	High	5

*The QUADAS-2 tool assesses if there is a low, high, or unclear risk of bias based on the first four domains (patient selection, index test, reference standard, flow and timing). The tool used for this study was modified to also incorporate quality of analyses, handling of confounding, and outcome assessment. For inclusion, studies were required to have low risk of bias across at least five out of seven domains.

†Studies were reviewed separately by outcome; the results were the same across outcomes except with regard to confounding: studies were determined to have a high risk of bias in the handling of confounding if the same covariates were used, without sufficient justification (e.g. exclusion for risk factors for non-cardiac mortality), for analyzing cardiovascular events and all-cause mortality.

Abbreviations: ABPM = Ambulatory blood pressure monitoring; BP = blood pressure; HBPM = home blood pressure monitoring; QUADAS = Quality Assessment of Diagnostic Accuracy Studies

Appendix Table 4. Multivariable model adjusted covariates* in eligible studies

Author	Year	Age and sex	Previous CVD events	HTN medication	Smoking status	Lipids or HL	DM or glycemic control	BMI or obesity	Kidney function or CKD	LVH or BNP	Clinic BP	Alcohol use	Other
Verdecchia	1994	✓	✓	N/A	✓	✓	✓	✓	N/A	✓	✓		ABPM SBP and DBP
Kario	2001	✓	N/A	✓				✓	N/A				
Bobrie	2004	✓	✓	N/A	✓	✓	✓	✓					Heart rate
Verdecchia	2005	✓	N/A	✓	✓	✓		✓	N/A				
Ohkubo	2005	✓	✓	✓	✓	✓	✓						
Fagard	2005	✓	N/A	✓	✓	✓	✓	✓					
Pierdomenico	2005	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		Family history of CVD
Hansen	2007	✓	✓	✓	✓	✓	✓	✓				✓	
Pierdomenico	2008	✓	N/A	✓	✓	✓	N/A	✓	✓	✓	✓		Family history CVD
Shimada	2008	✓	✓	N/A	✓		✓		N/A			✓	
Agarwal	2011	✓	✓				N/A		N/A				Race, Hgb, albmumin
Hanninen	2012	✓	✓	✓	✓	✓	✓	✓				✓	
Hermida	2012	✓	N/A	✓			✓		✓				Sleep duration
Franklin	2012	✓	N/A	✓	✓	✓	✓	✓					
Mancia	2013	✓	✓	✓	✓	✓	✓	✓					
Sung	2013	✓	N/A	N/A	✓	✓	✓	✓					
Asayama	2014	✓	✓	N/A	✓	✓	✓	✓				✓	
Minutolo	2014	✓	✓	✓			✓	✓	✓				Non-dipping, Hgb
Stergiou	2014	✓	✓	✓	✓	✓	✓	✓					
Satoh	2015	✓	✓	✓	✓	✓	✓	✓				✓	
Tientcheu	2015	✓	N/A	✓	✓	✓	✓	✓					Race
Wang	2017	✓	✓		✓	✓	✓	✓	✓			✓	Hgb, phosphate
Pierdomenico	2017	✓	✓	✓			✓			✓	✓		LA enlargement, ABPM SBP
Banegas	2018	✓	✓	✓	✓	✓	✓	✓			✓		
Ntineri	2018	✓	✓	✓	✓		✓	✓					
Fujiwara	2018	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Spannella	2018	✓	✓	✓		✓			✓				

*Confounding was considered to be adequately addressed in the QUADAS-2 assessment if there was adjustment for age, sex, previous CVD events, HTN medication, and at least two additional covariates among smoking status, lipids, DM, BMI, kidney function, LVH, clinic BP, and alcohol use.

All studies that included both cardiovascular events and all-cause mortality used the same covariates in models evaluating each outcome.

Abbreviations: ABPM = Ambulatory blood pressure; BMI = Body mass index; BNP = B-type natriuretic peptide; BP = Blood pressure; CKD = Chronic kidney disease; CVD = Cardiovascular disease; DBP = Diastolic blood pressure; DM = diabetes mellitus; Hgb = Hemoglobin; HL = hyperlipidemia; HTN = Hypertension; LA = Left atrial; LVH = Left ventricular hypertrophy; N/A = Not applicable (due to exclusion criteria or other cohort characteristic); SBP = Systolic blood pressure

Appendix Table 5. Subgroup analyses of cardiovascular event risk in white coat hypertension and white coat effect based on study characteristics

	White coat hypertension (untreated)			White coat effect (treated)			Combined white coat hypertension and white coat effect		
Subgroup analysis	**N**	**HR (95% CI)**	**I^2 (P-value)**	**N**	**HR (95% CI)**	**I^2 (P-value)**	**N**	**HR (95% CI)**	**I^2 (P-value)**
Blood pressure measurement type									
ABPM	7	1.35 (1.02-2.02)	2.9% (0.287)	3	1.11 (0.89-1.40)	0% (0.885)	6	1.16 (0.92-1.53)	0% (0.406)
HBPM	2	1.42 (0.88-2.31)		3	1.15 (0.79-1.62)	0% (0.887)	5	1.46 (0.84-2.57)	57.9% (0.016)
Blood pressure monitor validation									
Validated	7	1.51 (1.15-2.01)	0% (0.454)	5	1.14 (0.92-1.42)	0% (0.977)	8	1.21 (0.83-1.82)	49.3% (0.035)
Validation undetermined	1	1.20 (0.93-1.54)		1	1.09 (0.79-1.52)		2	1.28 (0.96-2.27)	
Out-of-office blood pressure threshold									
Daytime <135/85	4	1.29 (1.03-1.66)	0% (0.289)	4	1.12 (0.89-1.42)	0% (0.962)	8	1.31 (0.97-1.80)	36.9% (0.073)
24-hour <130/80	3	1.36 (0.91-2.33)	9.5% (0.199)	2	1.13 (0.79-1.60)	0% (0.643)	1	1.96 (0.12-32.12)	
Other	1	1.45 (0.28-7.51)		0			2	1.01 (0.51-3.31)	
Study design regarding participant inclusion									
Recruited	4	1.45 (1.03-2.42)	0% (0.318)	3	1.15 (0.79-1.62)	0% (0.887)	9	1.28 (0.90-1.87)	49.6% (0.028)
Referred	4	1.31 (0.92-1.98)	0% (0.301)	3	1.11 (0.89-1.40)	0% (0.885)	1	1.22 (0.96-1.53)	
Mean age									
<55 years	6	1.21 (1.00-1.51)	0% (0.520)	1	1.09 (0.79-1.52)		5	1.65 (0.96-3.07)	54.9% (0.017)
≥55 years	3	1.52 (1.09-2.12)	0% (0.385)	5	1.14 (0.92-1.42)	0% (0.997)	6	1.15 (0.90-1.39)	0% (0.519)
Cohort size									
<2,000	4	1.56 (0.71-4.01)	0% (0.317)	1	1.20 (0.82-1.76)		5	1.76 (1.03-2.82)	14.3% (0.306)
≥2,000	4	1.35 (1.09-1.77)	0% (0.283)	5	1.10 (0.90-1.36)	0% (0.985)	5	1.10 (0.81-1.39)	0% (0.151)
Participant risk									
Included prior CVD	5	1.36 (1.12-1.83)	0% (0.501)	4	1.15 (0.92-1.43)	0% (0.972)	7	1.40 (1.00-2.03)	47.9% (0.042)
Excluded prior CVD	2	0.98 (0.44-2.20)		1	1.09 (0.79-1.52)		2	0.88 (0.56-1.37)	
Included prior CKD or diabetes	7	1.38 (1.15-1.88)	0% (0.323)	6	1.14 (0.93-1.41)	0% (0.993)	10	1.26 (0.95-1.73)	47.5% (0.045)
Excluded prior CKD or diabetes	1	0.97 (0.38-2.46)		0			0		
Duration of follow up									
<5 years	2	1.87 (0.84-3.36)		3	1.08 (0.72-1.58)	0% (0.869)	2	0.75 (0.29-3.05)	
≥5 years	6	1.29 (1.06-1.63)	0% (0.429)	3	1.14 (0.92-1.42)	0% (0.928)	8	1.32 (0.99-1.85)	50.7% (0.036)
Study year									
On or before 2012	3	1.01 (0.53-1.97)	0% (0.979)	3	1.10 (0.79-1.52)	0% (0.885)	4	1.08 (0.78-1.31)	0% (0.429)
After 2012	5	1.39 (1.15-2.13)	0% (0.161)	3	1.14 (0.89-1.45)	0% (0.894)	6	1.69 (1.03-2.69)	31.9% (0.156)

I^2 value was not reported in analyses of less than 3 studies due to insufficient statistical power to assess for heterogeneity

Abbreviations: ABPM = Ambulatory blood pressure monitoring; CI = Confidence interval; CKD = Chronic kidney disease; CVD = Cardiovascular disease; HR = Hazard ratio; N = Number of studies

Appendix Table 6. Study influence analyses of cardiovascular event risk in white coat hypertension and white coat effect

White coat hypertension (untreated)		White coat effect (treated)		Combined white coat hypertension and white coat effect	
Study Omitted	**HR (95% CI)**	**Study Omitted**	**HR (95% CI)**	**Study Omitted**	**HR (95% CI)**
Verdecchia 1994	1.36 (1.13-1.80)	Bobrie 2004	1.12 (0.88-1.41)	Fagard 2005	1.30 (0.96-1.84)
Fargard 2005	1.37 (1.14-1.85)	Shimada 2008	1.13 (0.91-1.40)	Hansen 2007	1.28 (0.90-1.87)
Pierdomenico 2008	1.38 (1.15-1.88)	Franklin 2012	1.14 (0.87-1.49)	Hanninen 2012	1.32 (0.96-1.88)
Mancia 2013	1.36 (1.13-1.78)	Stergiou 2014	1.12 (0.85-1.45)	Mancia 2013	1.22 (0.90-1.68)
Sung 2013	1.34 (1.10-1.68)	Pierdomenico 2017	1.10 (0.84-1.44)	Tientcheu 2015	1.20 (0.89-1.67)
Asayama 2014	1.51 (1.15-2.01)	Banegas 2018	1.14 (0.89-1.46)	Ntineri 2018	1.14 (0.92-1.42)
Stergiou 2014	1.35 (1.02-2.02)			Hermida 2012	1.35 (0.99-1.88)
Banegas 2018	1.29 (1.06-1.61)			Minutolo 2014	1.24 (0.90-1.75)
				Wang 2017	1.26 (0.94-1.72)
				Fujiwara 2018	1.32 (1.00-1.85)

Abbreviations: CI = Confidence interval; HR = Hazard ratio