HYPERTENSION

DATA SUPPLEMENT

Association of Fatal and Nonfatal Cardiovascular Outcomes With 24-Hour Mean Arterial Pressure.

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Table S1. Recruitment and Follow-Up by Cohort.

Catchment Area	Sampling Frame	Recruitment		PR (%)	N° of Participants		Follow-Up	
		Timeline (Years)	Invitation		In Database	Analyzed	Last Follow-Up (Year)	Median in Years (5–95% Percentile Interval)
Ohasama, Iwate, Japan	People aged ≥40 years	1988–1994	Address list	78	1535	1326	2015	22.0 (5.0–26.8)
JingNing, Zhejiang, China	Family-based random sample	2003–2003	All villagers invited	62	895	855	2012	4.0 (3.5–7.6)
Oktyabrsky, Novosibirsk, Russian Federation	Family-based random sample	1999–2001	Address list	68	306	300	2009	16.4 (8.1–17.5)
Niepolomice, Kraków, Poland	Family-based random sample	1999–2008	Address list	54	413	389	2014	13.5 (6.1–14.3)
Gdańsk, Poland	Family-based random sample	2008–2010	Address list	90	289	284	2014	6.1 (4.8–8.7)
Pilsen, Czech Republic	Family-based random sample	2000–2001	Address list	82	174	169	2015	14.1 (13.8–14.4)
Padova, Italy	Family-based random sample	1999–2007	Address list	73	314	314	2013	13.3 (12.6–14.5)
Noordkempen, Belgium	Family-based random sample	1985–2008	Address list	78	2904	1436	2016	24.5 (8.6–27.8)
Uppsala, Sweden	Men aged 69–74 years	1991–1995	Population census	73	1143	1110	2015	15.1 (3.5–23.0)
Copenhagen County, Denmark	Stratified random sample of women and men aged 30, 40, 50 and 60 years	1993–1997	Population registry	83	2311	2148	2010	16.3 (5.1–17.3)
Dublin, Ireland	Bank employees working at branches across Ireland	1989–1991	All invited	14	981	946	2007	17.6 (16.4–18.2)
Maracaibo, Venezuela	City residents aged ≥55 years	1998–2008	Population census	71	604	590	2012	8.1 (1.7–13.7)
Montevideo, Uruguay	Age-stratified random sample	1995–1998	Members of a health insurance organization	78	1859	1729	2007	9.0 (4.2–10.7)

PR denotes participation rate. The European Project on Genes in Hypertension included participants recruited in Novosibirsk, Kraków, Gdańsk, Pilsen and Padova. Participants from Padova were recruited in Mirano in the province of Venice and in Torrebelvicino and Valli del Pasubio in the province of Vicenza, Italy.

Table S2. Literature Sources Documenting Methods in Each Cohort.

Study Location	Study Name	References
Ohasama, Iwate, Japan	Ohasama Study of Blood Pressure	1-4
China, Zhejiang, JingNing	JingNing Population Study (JNPS)	5-7
Oktyabrsky, Novosibirsk, Russia	European Project on Genes in Hypertension (EPOGH)	8-11
Poland, Kraków, Niepolomice	European Project on Genes in Hypertension (EPOGH)	8-10
Poland, Gdańsk	European Project on Genes in Hypertension (EPOGH)	8-10
Czech Republic, Pilsen	European Project on Genes in Hypertension (EPOGH)	8-10
Italy, Padova	European Project on Genes in Hypertension (EPOGH)	8-10
Belgium, Noordkempen	Flemish Study on Environment Genes and Health Outcomes (FLEMENGHO)	9,12-14
Uppsala, Sweden	Uppsala Longitudinal Study of Adult Men (ULSAM)	15,16
Copenhagen County, Denmark	Monitoring of trends and determinants in Cardiovascular Disease (MONICA)	17-19
Dublin, Ireland	The Allied Irish Bank Study	20-21
Maracaibo, Venezuela	Maracaibo Aging Study	22,23
Uruguay, Montevideo	Asociación Española Primera de Socorros Mutuos Study	24,25

References are listed starting on pages S17-S20.

Table S3. Ambulatory Blood Pressure Monitoring Devices by Cohort.

Study Cohorts	N° of Participants	Monitoring Device	Programmed Intervals between Readings in Minutes		N° of Readings Recorded over 24-Hours					
			Day	Night	Programmed	Median	P5	P25	P75	P95
Ohasama, Iwate, Japan	1326	ABP-630, Nippon Colin	30	30	48	45	36	42	48	50
JingNing, Zhejiang, China	855	90207, SpaceLabs	20	45	65	56	48	55	57	62
Oktyabrsky, Novosibirsk, Russia	300	90202, SpaceLabs	15	30	76	71	56	65	75	78
Niepolomice, Kraków, Poland	389	90202, SpaceLabs	15	30	76	74	54	63	77	79
Gdańsk, Poland	284	TM-2430, A&D	20	45	65	62	50	59	64	64
Pilsen, Czech Republic	169	90202, SpaceLabs	20	45	65	76	54	71	80	82
Padova, Italy	314	90202, SpaceLabs	15	30	76	76	64	74	76	125
Noordkempen, Belgium	1436	90202, SpaceLabs	20	40	55	53	37	41	56	58
Uppsala, Sweden	1110	Accutracker II	20–30	20–60	41–72	65	44	52	75	84
Copenhagen County, Denmark	2148	TM-2421, A&D	15	30	80	80	67	78	81	83
Dublin, Ireland	946	90202 and 90207, Spacelabs	30	30	48	46	37	44	48	49
Maracaibo, Venezuela	590	90207, SpaceLabs	15	30	80	67	51	61	71	77
Montevideo, Uruguay	1729	90207, SpaceLabs	20	40	60	37	26	33	39	42

The TM-2421 and TM-2430 monitors implemented both an auscultatory and an oscillometric technique. However, only oscillometric readings were used for analysis. All devices had passed validation. In cohorts with a greater number than programmed readings, participants could manually initiate additional measurements.

Table S4. International Classification of Disease Coding and Number of Endpoints in 11,596 Participants.

Endpoint*	ICD Codes by Version			Nº of Endpoints		
	8	9	10	All	Fatal	Nonfatal†
Total mortality§				2821	2821	
Cardiovascular mortality§	390-448	390.0-459.9	I00-I79, R96	1059	1059	
Noncardiovascular mortality				1573	1573	
Cause unknown				144	144	
All cardiovascular endpoints‡				2034		
Coronary endpoints§				916	262	
Myocardial infarction	410	410	I21-I22	663	227	444
Coronary revascularization	…	…	…	179		179
Death from ischemic heart disease	411-412	411-414	I20, I24-I25	154	154	
Sudden death	427.2, 795	427.5, 798	I46, R96	83	83	
Heart failure	427.0, 427.1 427.2, 429, 519.1, 782.4	429	I50, J81	685	148	596
Stroke§	430-434, 436	430-434, 436	I60-I68	809	279	670

* The median follow-up of 11,596 participants was 13.6 years (5th to 95th percentile interval, 3.6–26.0 years). The number of person-years of follow-up totaled 158,431.

† The nonfatal events do not add up, because within each category only the first event was analyzed.

‡ Primary endpoint.

§ Secondary endpoint.

Table S5. Baseline Characteristics of Participants by Fourths of the Distribution of 24-Hour Mean Arterial Pressure.

Baseline Characteristics	Statistics				
	<83 mm Hg (n=2899)	**83-89 mm Hg (n=2899)**	**90-96 mm Hg (n=2899)**	**≥97 mm Hg (n=2899)**	***P* Value***
Participants with characteristic					
Women — no. (%)	2016 (69.5)	1481 (51.1)	1190 (41.1)	1067 (36.8)	<0.001
Europeans — no. (%)	1682 (58.0)	1867(64.4)	1859 (64.1)	1688 (58.2)	0.932
Asians — no. (%)	643 (22.2)	516 (17.8)	516 (18.0)	638 (22.0)	0.991
South Americans — no. (%)	574 (19.8)	516 (17.8)	518 (17.9)	573 (20.0)	0.925
Current smoking — no. (%)†‡	720 (24.8)	781 (26.9)	837 (28.9)	812 (28.0)	0.001
Drinking alcohol — no. (%)†§	1111 (38.3)	1451 (50.1)	1640 (56.6)	1804 (62.2)	<0.001
Office hypertension — no. (%)¶‖	831 (28.7)	1637 (56.5)	2226 (76.8)	2741 (94.6)	<0.001
On antihypertensive treatment — no. (%)†	283 (9.8)	441 (15.2)	588 (20.3)	961 (33.2)	<0.001
Diabetes mellitus — no. (%)**	138 (4.8)	180 (6.2)	232 (8.0)	335 (11.6)	<0.001
History of cardiovascular disease — no. (%)†	213 (7.4)	269 (9.3)	357 (12.3)	448 (15.5)	<0.001
Mean (±SD) of characteristic					
Age—yr	45.8±16.4	50.8±16.4	55.1±14.9	59.5±12.4	<0.001
Body mass index— kg/m^2††	23.9±4.0	25.2±4.2	26.0±4.4	26.6±4.3	<0.001
Office systolic blood pressure — mm Hg‖	116.4±16.4	126.8±17.3	135.5±19.9	151.7±23.6	<0.001
Office diastolic blood pressure — mm Hg‖	71.0±8.7	76.9±9.1	81.3±9.8	90.0±11.7	<0.001
Office mean arterial pressure — mm Hg‖	86.1±9.9	93.6±10.2	99.3±11.4	110.6±13.8	<0.001
24-Hour systolic blood pressure — mm Hg‡‡	108.5±6.0	118.07±5.5	126.3±6.5	141.4±11.9	<0.001
24-Hour diastolic blood pressure — mm Hg‡‡	64.6±3.7	70.5±2.8	75.6±3.3	84.9±6.86	<0.001
24-Hour mean arterial pressure — mm Hg‡‡	79.3±3.2	86.3±1.7	92.4±2.0	103.7±7.0	<0.001
24-Hour heart rate — beats per minute	72.0±8.8	72.2±9.1	72.4±9.3	73.5±10.0	<0.001
Serum cholesterol, mg/dL§§	205.0±42.5	213.1±43.6	220.1±44.8	220.8±43.6	<0.001
Blood glucose, mg/dL§§	89.3±21.4	92.9±23.2	94.6±27.3	93.2±30.4	<0.001

* P values are for linear trend across categories.
† Assessed by questionnaire or interview at baseline.
‡ Use of smoking materials on a daily basis.
§ Occasional or daily consumption of alcoholic beverages.
¶ An office blood pressure of ≥130 mm Hg systolic or ≥80 mm Hg diastolic, or use of antihypertensive drugs.
‖ Office blood pressure was measured using standard mercury sphygmomanometers or validated auscultatory or oscillometric devices. Mean arterial pressure was diastolic blood pressure plus one third of pulse pressure (the difference between systolic and diastolic blood pressure).
** Use of antidiabetic drugs, fasting blood glucose of ≥126 mg/dL (7.0 mmol/l), random blood glucose of ≥200 mg/dL (11.1 mmol/l), a self-reported diagnosis, or diabetes documented in practice or hospital records.
†† Body weight in kilogram divided by body height in meters squared.
‡‡ 24-Hour blood pressure was measured with validated oscillometric devices (see Table S3).
§§ Serum cholesterol and blood glucose were measured by automated methods in certified laboratories. Conversion factors: To convert cholesterol to mmol/l, multiply by 0.0259, to convert glucose to mmol/l, multiply by 0.056.

Table S6. Correlation Matrix between Blood Pressure Indexes.

BP Item‡	24-Hour Ambulatory BP*			Office BP†		
	Systolic	**Diastolic**	**MAP**	**Systolic**	**Diastolic**	**MAP**
24–Hour systolic BP	—					
24–Hour diastolic BP	0.73	—				
24–Hour MAP	0.92	0.94	—			
Office systolic BP	0.67	0.46	0.60	—		
Office diastolic BP	0.53	0.62	0.62	0.68	—	
Office MAP	0.65	0.60	0.67	0.91	0.92	—

* Validated oscillometric devices, used for ambulatory blood pressure (BP) monitoring, measured mean arterial pressure (MAP) and extrapolated systolic and diastolic BP, using proprietary algorithms with an accuracy of ±5 mm Hg against the auscultatory standard.

† In those cohort that observers applied the auscultatory or oscillometric method to measure BP levels, the systolic and diastolic BP were set to the nearest even number. Office MAP was computed as diastolic BP plus one third of pulse pressure (difference between systolic and diastolic BP).

‡ All correlation coefficients were highly significant (P<0.0001).

Table S7. 24-Hour Mean Arterial Pressure Thresholds Yielding Equivalent 10-Year Risk for All Cardiovascular Events Compared to the Reference Thresholds of Office Mean Arterial Pressure in 11,596 Participants by Difference Baseline Clinical Characteristics.

Baseline Clinical Characteristics		Reference Office MAP* Thresholds and Associated 10-Year Risk		24-Hour Ambulatory MAP* Thresholds Yielding Equivalent 10-Year Risk†	Proposed Thresholds§
Type	E/AR‡	Level (mm Hg)	Risk in Percent (95% CI)	Point Estimates (95% CI)†	
Women	626/5754	93	2.66 (2.18-3.13)	88.8 (87.4-90.1)	88
		97	2.84 (2.34-3.33)	90.7 (90.0-91.5)	90
		107	3.34 (2.75-3.93)	95.7 (94.2-97.1)	96
Men	1408/5842	93	5.93 (5.05-6.82)	90.2 (88.4-92.0)	90
		97	6.26 (5.35-7.18)	92.4 (91.0-93.7)	92
		107	7.17 (6.11-8.23)	97.7 (97.0-98.5)	98
Cardiovascular disease	456/1287	93	17.6 (14.5-20.7)	87.6 (83.7-91.5)	88
		97	18.3 (15.2-21.4)	89.8 (87.2-92.5)	90
		107	20.2 (16.9-23.6)	95.4 (94.0-96.8)	96
Free of cardiovascular disease	1578/10,309	93	3.68 (3.25-4.10)	89.6 (88.5-90.6)	90
		97	3.92 (3.47-4.37)	91.6 (91.0-92.2)	92
		107	4.61 (4.05-5.17)	96.8 (95.9-97.7)	96
Diabetic participants	299/885	93	17.8 (14.4-21.1)	91.0 (87.9-94.3)	90
		97	18.5 (15.3-21.8)	92.5 (90.2-94.8)	92
		107	20.6 (17.3-23.8)	96.0 (95.1-96.9)	96
Nondiabetic participants	1735/10,711	93	3.92 (3.49-4.35)	89.3 (88.3-90.3)	90
		97	4.15 (3.71-4.60)	91.5 (90.9-92.0)	92
		107	4.80 (4.26-5.35)	96.8 (96.0-97.7)	96
16-6 day/nighttime BP readings	1870/10,333	93	4.52 (4.04-4.99)	89.4 (88.5-90.3)	90
		97	4.80 (4.31-5.29)	91.5 (90.9-92.0)	92
		107	5.58 (5.00-6.17)	96.7 (95.9-97.4)	96
11-5 day/nighttime BP readings	1984/11,171	93	4.55 (4.09-5.00)	89.5 (88.4-90.5)	90
		97	4.82 (4.34-5.29)	91.5 (90.8-92.2)	92
		107	5.57 (4.98-6.15)	96.6 (95.9-97.4)	96
Untreated	1226/9323	93	2.98 (2.62-3.34)	89.4 (88.5-90.3)	90
		97	3.21 (2.83-3.59)	91.7 (91.1-92.2)	92
		107	3.85 (3.37-4.33)	97.3 (96.2-98.4)	98
Treated	808/2273	93	18.3 (16.1-20.5)	90.1 (86.8-93.4)	90
		97	18.9 (16.8-20.9)	91.8 (89.4-94.2)	92
		107	20.5 (18.5-22.5)	95.9 (95.3-96.5)	98

* MAP indicates mean arterial pressure, which was estimated from office blood pressure (MAP = diastolic blood pressure plus one third of the difference between systolic and diastolic blood pressure, or measured using oscillometric ambulatory monitors). Oscillometric devices compute systolic and diastolic blood pressure, using proprietary algorithms (Figure 1 in the Supplemental Data).

† The 24–hour MAP thresholds were computed by bootstrapping 1000 times multivariable-adjusted Cox models.

‡ E/AR denotes the number of endpoints/number of participants at risk according to baseline clinical categories.

§ Proposed thresholds were obtained by rounding the point estimates to the closest even integer value which were set at 88, 90, 92, 96, and 98 mm Hg reasons of consistency and precaution. The so obtained thresholds were similar among baseline clinical categories.

Table S8. 24-Hour Mean Arterial Pressure Thresholds Yielding Equivalent 10-Year Risk for All Cardiovascular Events Compared to the Reference Thresholds of Office Mean Arterial Pressure in Participants by Excluding Cohorts.

Cohorts exclusion (n° of endpoints/participants at risk)	Level (mm Hg)‡	Risk in Percent (95% CI)		Proposed Thresholds‡
		Reference Office MAP* Thresholds and associated 10-Year Risk	24-Hour Ambulatory MAP* Thresholds Yielding Equivalent 10-Year Risk†	
Without Ohasama (315/1326)	93	4.29 (3.85-4.73)	89.1 (88.0-90.2)	90
	97	4.55 (4.10-5.00)	91.4 (90.6-92.1)	92
	107	5.28 (4.75-5.81)	97.0 (96.3-97.7)	96
Without JingNing (42/855)	93	4.53 (4.11-4.96)	89.2 (88.3-90.1)	90
	97	4.78 (4.34-5.22)	91.2 (90.7-91.7)	92
	107	5.47 (4.94-5.99)	96.3 (95.5-97.1)	96
Without EPOGH (54/1456)	93	5.44 (4.92-5.97)	89.4 (88.4-90.5)	90
	97	5.75 (5.22-6.27)	91.4 (90.8-92.1)	92
	107	6.58 (6.00-7.16)	96.5 (95.8-97.2)	96
Without Noordkempen (280/1436)	93	4.85 (4.33-5.36)	89.7 (88.7-90.7)	90
	97	5.13 (4.60-5.66)	91.7 (91.1-92.4)	92
	107	5.90 (5.27-6.52)	96.9 (96.2-97.6)	96
Without Uppsala (683/1110)	93	3.82 (3.44-4.20)	89.9 (89.1-90.7)	90
	97	4.06 (3.66-4.46)	91.8 (91.2-92.3)	92
	107	4.72 (4.24-5.21)	96.4 (95.7-97.1)	96
Without Copenhagen (366/2148)	93	4.22 (3.71-4.73)	89.1 (87.9-90.3)	90
	97	4.45 (3.93-4.98)	91.1 (90.4-91.9)	90
	107	5.10 (4.50-5.70)	96.2 (95.4-96.9)	96
Without Dublin (19/946)	93	5.49 (4.99-5.99)	89.5 (88.5-90.4)	90
	97	5.80 (5.28-6.32)	91.5 (90.9-92.0)	92
	107	6.65 (6.06-7.24)	96.4 (95.8-97.1)	96
Without Maracaibo (130/590)	93	4.06 (3.65-4.47)	89.2 (88.3-90.2)	90
	97	4.33 (3.91-4.75)	91.5 (90.9-92.0)	92
	107	5.07 (4.58-5.56)	97.0 (96.2-97.7)	98
Without Montevideo (145/1729)	93	4.57 (4.10-5.03)	89.5 (88.6-90.4)	90
	97	4.85 (4.36-5.33)	91.6 (91.0-92.1)	92
	107	5.61 (5.04-6.19)	96.8 (96.0-97.5)	96

* MAP indicates mean arterial pressure, which was estimated from office blood pressure (MAP = diastolic blood pressure plus one third of the difference between systolic and diastolic blood pressure, or measured using oscillometric ambulatory monitors). Oscillometric devices compute systolic and diastolic blood pressure, using proprietary algorithms (Figure 1 in the Supplemental Data).

† The 24-hour MAP thresholds were computed by bootstrapping 1000 times multivariable-adjusted Cox models.

‡ Proposed thresholds were obtained by rounding the point estimates to the closest even integer value. The so obtained thresholds were similar across subgroups.

Table S9. 24-Hour Mean Arterial Pressure Thresholds Yielding Equivalent 10-Year Risk as Reference Thresholds of Office Mean Arterial Pressure in Europeans or in Asians and South Americans.

Endpoints		Reference Office MAP* Thresholds and Associated 10-Year Risk			24-Hour Ambulatory MAP* Thresholds Yielding Equivalent 10-Year Risk†		
			Risk in Percent (95% CI)		Point Estimates (95% CI)†		Proposed Thresholds E/ASA‡§
Type	No. E/ASA‡	Level (mm Hg)	Europeans (n=7096)	Asians and South Americans (n=4500)	Europeans (n=7096)	Asians and South Americans (n=4500)	
All cardiovascular endpoints	1402/323	93	3.41 (2.97-3.85)	6.48 (5.56-7.40)	88.6 (87.4-89.7)	90.4 (88.7-92.1)	88/90
		97	3.65 (3.19-4.10)	6.82 (5.86-7.77)	91.2 (90.6-91.9)	92.0 (90.8-93.1)	92/92
		107	4.31 (3.77-4.85)	7.75 (6.61-8.90)	97.9 (96.9-99.0)	95.9 (95.1-96.7)	98/96
Total mortality	1899/922	93	2.83 (2.43-3.23)	5.53 (4.56-6.50)	88.9 (87.0-90.8)	89.8 (87.0-92.6)	88/88
		97	2.92 (2.52-3.32)	5.72 (4.74-6.70)	91.4 (90.7-92.1)	91.6 (89.7-93.5)	92/92
		107	3.15 (2.71-3.58)	6.24 (5.19-7.28)	97.7 (95.2-100.2)	96.1 (94.9-97.3)	96/96
Cardiovascular mortality	701/358	93	0.67 (0.49-0.85)	2.01 (1.47-2.55)	89.2 (87.3-91.1)	91.2 (88.0-94.4)	90/92
		97	0.71 (0.53-0.90)	2.12 (1.56-2.68)	91.7 (90.6-92.8)	92.9 (90.5-95.3)	92/92
		107	0.84 (0.63-1.05)	2.43 (1.79-3.07)	98.0 (96.5-99.4)	97.0 (95.6-98.4)	98/98
Coronary endpoints	688/228	93	1.84 (1.55-2.14)	3.15 (2.46-3.84)	89.2 (87.2-91.1)	89.6 (82.8-96.4)	90/90
		97	1.94 (1.64-2.25)	3.22 (2.53-3.91)	91.7 (90.7-92.6)	91.8 (86.5-95.1)	92/92
		107	2.22 (1.85-2.59)	3.40 (2.65-4.15)	97.0 (95.0-98.9)	93.8 (91.2-96.5)	96/94
Stroke	493/316	93	1.14 (0.86-1.41)	2.67 (2.08-3.27)	89.8 (87.3-90.3)	90.3 (88.3-92.3)	90/90
		97	1.23 (0.93-1.53)	2.92 (2.27-3.56)	91.4 (90.6-92.1)	92.3 (90.9-93.6)	92/92
		107	1.50 (1.11-1.89)	3.62 (2.74-4.50)	97.8 (96.4-99.2)	97.2 (96.1-98.2)	98/98

* MAP indicates mean arterial pressure, which was estimated from office blood pressure (MAP = diastolic blood pressure plus one third of the difference between systolic and diastolic blood pressure) or measured by oscillometric ambulatory monitors. Oscillometric devices compute systolic and diastolic blood pressure, using proprietary algorithms (Figure 1 in the Supplemental Data).

† The 24–hour MAP thresholds were computed by bootstrapping 1000 times multivariable-adjusted Cox.

‡ E/ASL refers to the number of endpoints or the proposed thresholds in participants enrolled in Europe or in Asia and South America.

§ Proposed thresholds were obtained by rounding the point estimates to the closest even integer value. The so obtained thresholds were similar between Europeans and Asians and South Americans.

Table S10. Incidence of Primary and Secondary Endpoints by Increasing Categories of 24-Hour Mean Arterial Pressure.

Endpoints	Normotension (<90 mm Hg)	Elevated Blood Pressure (≥90 to <92 mm Hg)	Stage-1 Hypertension (≥92 to <96 mm Hg)	Stage-2 and Severe Hypertension (≥96 mm Hg)
No. at risk [11,596]	6183	909	1544	2960
Primary endpoint				
Endpoints — no. (%) [2034]	715	134	312	873
Rate per 1000 person-years	11.9 (11.1-13.2)	11.3 (9.5-13.6)	15.2 (13.5-17.2)	21.5 (20.0-23.3)
Secondary endpoints				
Total mortality				
Deaths — no. (%) [2821]	1107	215	450	1049
Rate per 1000 person-years	17.2 (16.2-18.6)	16.8 (14.6-19.4)	19.4 (17.7-21.5)	22.6 (21.2-24.3)
Cardiovascular mortality				
Deaths — no. (%) [1059]	358	62	165	474
Rate per 1000 person-years	5.6 (5.1-6.6)	4.9 (3.7-6.5)	7.0 (6.0-8.5)	10.0 (9.1-11.3)
Coronary endpoints				
Endpoints — (%) [916]	322	64	132	398
Rate per 1000 person-years	5.2 (4.7-6.2)	5.0 (3.9-6.7)	6.0 (5.0-7.4)	8.7 (7.8-10.0)
Stroke				
Endpoints — no. (%) [809]	278	41	135	355
Rate per 1000 person-years	4.3 (3.8-5.2)	3.3 (2.3-4.7)	6.2 (5.2-7.6)	8.4 (7.4-9.7)

Rates were standardized by the direct method for cohort, sex and age (<40, 40 to <60, ≥60 years). P values for linear trend in the rates (given with 95% confidence interval) across the blood pressure categories were all <0.001.

Table S11. Nested Cox Models Relating the Primary Endpoint to 24-Hour Blood Pressure Level.

Models	χ^2 Statistic	*P* Value	R^2 (%)†
Base model*	3173.53	<0.001	
+ 24-hour systolic BP	3329.89	<0.001	1.34
+ 24-hour diastolic BP	3279.16	<0.001	0.91
+ 24-hour mean arterial pressure	3322.98	<0.001	1.28‡
Base model including also 24-hour systolic BP‡			
+ 24-hour mean arterial pressure	3334.03	0.042	0.04‡
Base model including also 24-hour diastolic BP‡			
+ 24-hour mean arterial pressure	3334.04	<0.001	0.47‡
Base model including also 24-hour systolic and 24-hour diastolic BP‡			
+ 24-hour mean arterial pressure	3334.04	1.000	0.000‡

* Accounts for cohort (random effect), sex, and baseline characteristics including age, body mass index, smoking and drinking, serum cholesterol, antihypertensive drug intake, history of cardiovascular disease, and diabetes mellitus.

† R^2 is an estimate of the additional variance explained (https://apha.confex.com/apha/134am/techprogram/paper_135906.htm).

‡ R^2 for adding mean arterial pressure to models.

Table S12. Nested Cox Models Relating the Primary Endpoint to 24-Hour Blood Pressure Categories.

Models	χ^2 Statistic	*P* Value	R^2 (%)†
Base model*	3173.53	<0.001	
+ 24-hour systolic BP ≥125 mm Hg	3256.52	<0.001	0.71
+ 24-hour diastolic BP ≥75 mm Hg	3241.57	<0.001	0.58
+ 24-hour mean arterial pressure BP ≥92 mm Hg	3277.65	<0.001	0.89‡
Base model including also 24-hour systolic BP ≥125 mm Hg‡			
+ 24-hour mean arterial pressure BP ≥92 mm Hg	3286.14	<0.001	0.25‡
Base model including also 24-hour diastolic BP ≥75 mm Hg‡			
+ 24-hour mean arterial pressure BP ≥92 mm Hg	3278.85	<0.001	0.32‡
Base model including also 24-hour systolic BP ≥125 mm Hg and 24-hour diastolic BP ≥75 mm Hg‡			
+ 24-hour mean arterial pressure BP ≥92 mm Hg	3287.81	<0.001	0.10‡

* Accounts for cohort (random effect), sex, and baseline characteristics including age, body mass index, smoking and drinking, serum cholesterol, antihypertensive drug intake, history of cardiovascular disease, and diabetes mellitus.

† R^2 is an estimate of the additional variance explained (https://apha.confex.com/apha/134am/techprogram/paper_135906.htm).

‡ R^2 for adding mean arterial pressure to models.

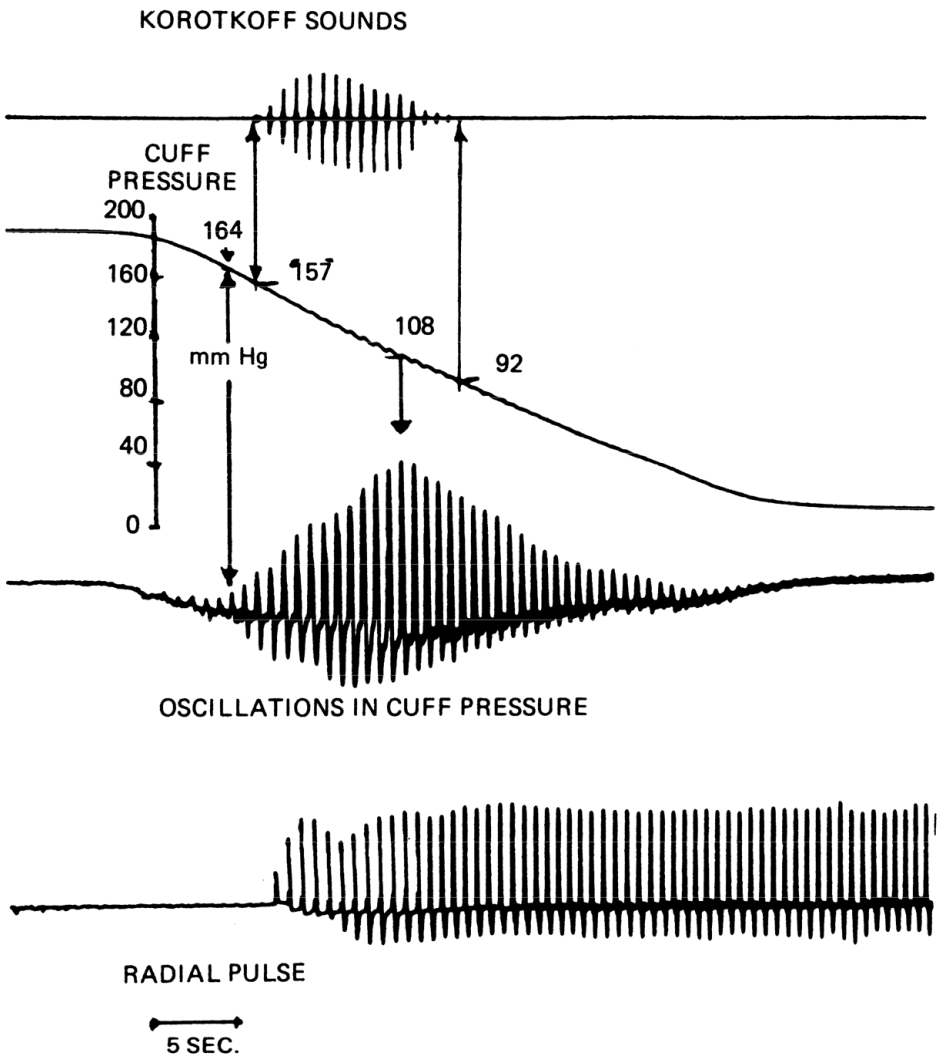

Figure S1
Pressure Oscillations in a Sphygmomanometer Cuff During Deflation.
Upper trace, Korotkoff sounds; second trace, cuff pressure; third trace, oscillations in cuff pressure. The maximal oscillation occurs at a pressure of 108 mm Hg, the mean arterial pressure. Bottom trace, radial pulse. Reproduced with permission from *Curr Opin Nephrol Hypertens.* 1993;2:380–385.

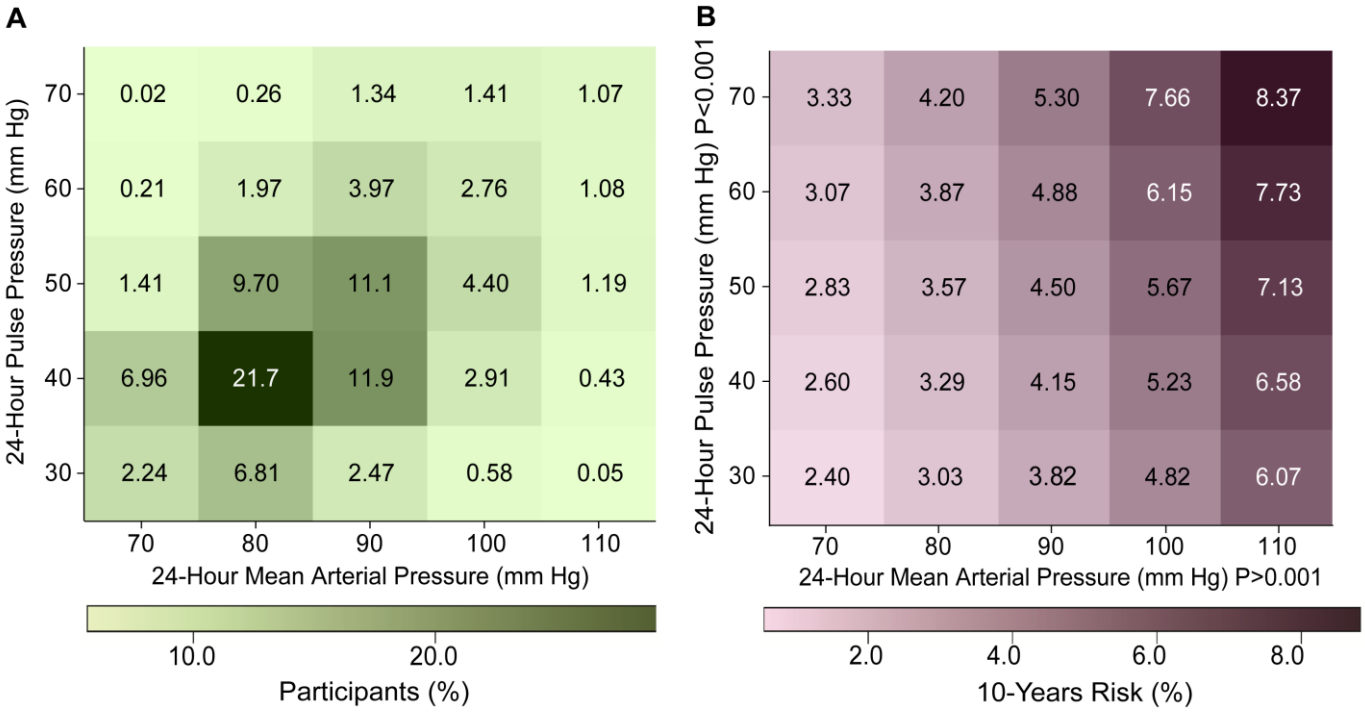

Figure S2
Heat Map Depicting the 10-Year Risk of a Primary Endpoint in Relation to 24-Hour Mean Arterial Pressure and Pulse Pressure in 11,596 Participants.
Numbers in the **Panels A** grid represent the percentage of participants within each blood pressure cross-classification category; numbers in **Panel B** represent the 10-year risk. The heat map was derived by Cox proportional hazards regression with pulse pressure plotted along the vertical axis and mean arterial pressure (MAP) along the horizontal axis. Estimates of the 10-year risk were standardized to the average of the distributions in the whole study population (mean or ratio) of all covariables. Higher MAP conferred greater risk (P<0.001) with an additional contribution of pulse pressure (P<0.001).

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