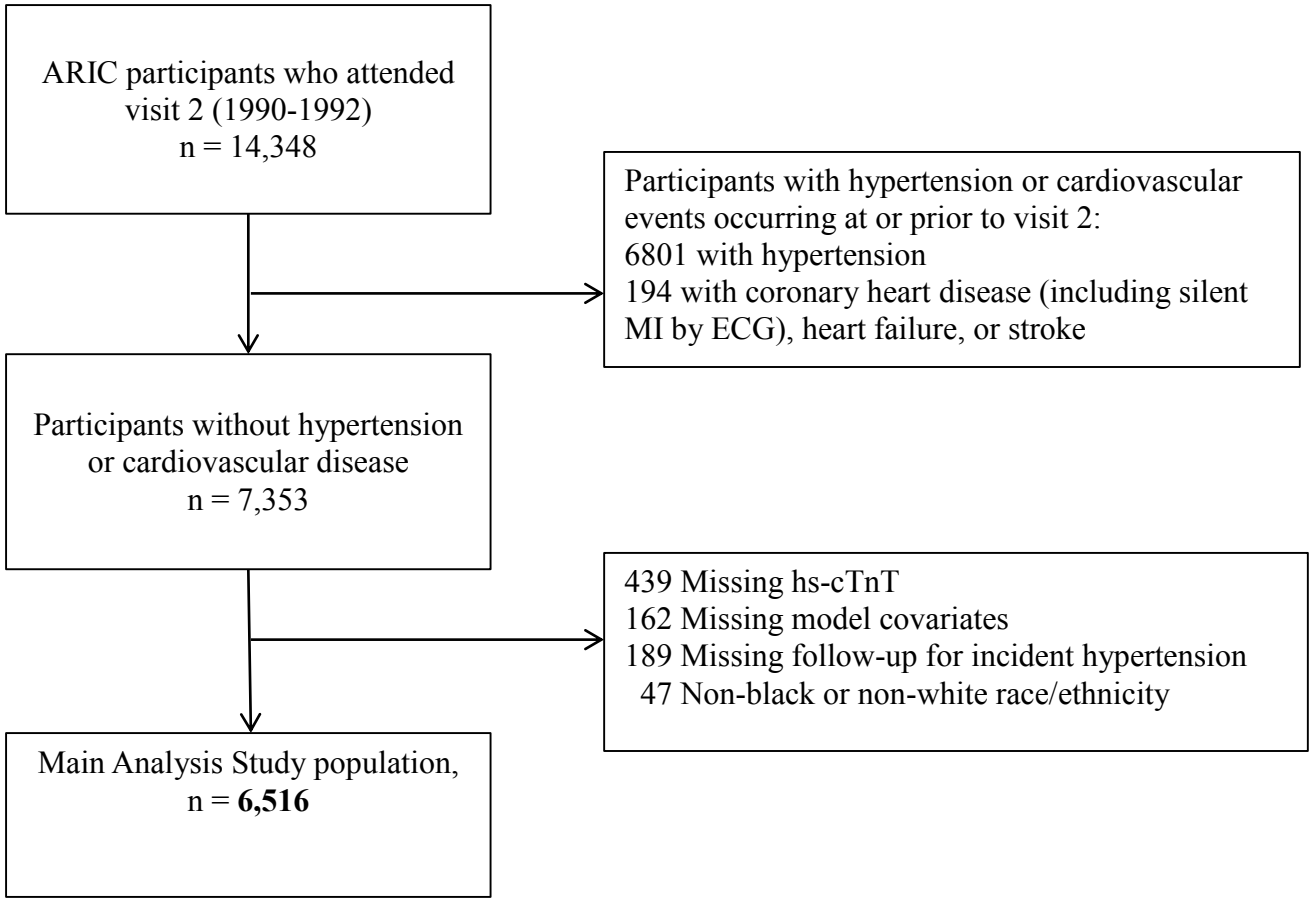
SUPPLEMENTAL MATERIAL

McEvoy et al. High-sensitivity Cardiac Troponin T and Risk of Hypertension

eFigure 1. Flow Chart of exclusion process used to construct the main study sample used to assess the primary outcome of Diagnosed Hypertension, drawn from ARIC subjects free of baseline hypertension or cardiovascular disease



eTable 1- Study Sample Exclusion Process for Secondary Outcomes of interest

Exclusion Process	Exclusion	Population
1- Visit-Based Hypertension		
Attended visit 2		14348
Missing hs-cTnT data at visit 2	923	13426
Prevalent diagnosed hypertension at or before visit 2	6334	7091
Prevalent elevated blood pressure at or before visit 2	599	6492
Prevalent CHD, HF, stroke	177	6315
Missing follow-up hypertension information after visit 2	192	6123
Missing follow-up BP information at visits 2 and 4	242	5881
Missing visit 2 variables of interest	159	5722
Non black or white, race-center exclusion	47	**5675**
2- 6-year risk of incident LVH		
Attended visit 2		14348
Missing hs-cTnT data at visit 2	923	13426
Prevalent diagnosed hypertension at or before visit 2	6334	7091
Prevalent elevated blood pressure at or before visit 2	599	6492
Prevalent CHD, HF, stroke	177	6315
Missing follow-up hypertension information after visit 2	192	6123
Missing follow-up BP information at visits 2 and 4	242	5881
Missing visit 2 variables of interest	159	5722
Non black or white, race-center exclusion	47	5675
Prevalent LVH by EKG (visit 1 or 2)	44	**5631**

eTable 2- Characteristics of persons with missing values for high sensitivity cardiac troponin T (ng/L) or for covariates of interest at baseline (1990-1992) compared to persons included in the analysis

	Original Sample	Persons with missing data	p-value
Number	6516	785	
Age, years	56.1 (5.6)	57.7 (5.7)	<0.001
Male %	44.1	51.7	<0.001
Black %	17.3	15.3	0.161
Current smoker %	22.8	29.4	<0.001
Systolic blood pressure mmHg	115.2 (15.1)	117.1 (16.2)	<0.001
Diastolic blood pressure mmHg	69.7 (9.1)	69.5 (9.4)	0.317
Hypertension categories (%)			0.002
Normotension (BP <120/80 mmHg)	66.3	62.4	
Prehypertension (BP 120-139/80-89 mmHg)	27.4	28.2	
Elevated Blood Pressure (BP >140/90mmHg)*	6.3	9.4	
LVH %	0.9	1.1	0.399
BMI, kg/m2			0.313
Normal weight % (< 25)	39.0	40.6	
Overweight % (25 - 30)	41.1	37.8	
Obese % (> 30)	20.0	20.5	
Total cholesterol, mg/dL	207.4 (37.6)	211.6 (43.0)	<0.001
LDL-cholesterol, mg/dL	131.8 (35.9)	132.8 (35.6)	0.361
HDL-cholesterol, mg/dL	51.5 (16.9)	46.2 (16.5)	<0.001
Triglyceride, mg/dL	120.6 (61.0)	166.1 (168.5)	<0.001
Lipid Medicines %	3.3	3.9	0.321
Diagnosed diabetes %	4.2	6.9	<0.001
eGFR <60 mL/min/1.73m2 (%)	0.5	1.0	0.069

eTable 3- Crude incidence rates and adjusted* hazard ratios (95% confidence intervals) for incident diagnosed hypertension outcome after excluding persons with baseline elevated blood pressure (n=599), according to baseline high sensitivity cardiac troponin T

				Proportional Hazards Regression†	Competing Risks Regression‡
Baseline hs-cTnT	**N**	**Events (n)**	**Incidence rate, per 1,000 person years (95% CI)**	**HR (95% CI)**	**HR (95% CI)**
Incident Diagnosed Hypertension					
Categories					
<5 ng/L	4328	2787	50.8 (48.9-52.7)	1 (reference)	1 (reference)
5-8 ng/L	1163	794	58.4 (54.5-62.6)	1.14 (1.05-1.24)	1.14 (1.05-1.23)
9-13 ng/L	321	224	64.5 (56.6-73.6)	1.25 (1.08-1.44)	1.17 (1.00-1.36)
≥14 ng/L	105	70	62.3 (49.3-78.7)	1.21 (0.95-1.53)	1.04 (0.80-1.34)
p-value for linear trend				*<0.001*	*0.010*
Continuous					
Log(hs-cTnT)	5917	3875	53.0 (51.4-54.7)	1.12 (1.07-1.17)	1.11 (1.06-1.16)

* Adjusted for age (years), race-center (whites-Washington County; whites-Minneapolis; blacks-Jackson; blacks-Forsyth County, whites-Forsyth County), sex (male or female), body mass index (kg/m2), smoking (current; former; never), LDL-cholesterol (mg/dL), HDL-cholesterol (mg/dL), triglycerides (mg/dL), estimated glomerular filtration rate (mL/min/1.73m2), current lipid-lowering medication use (yes or no), left ventricular hypertrophy (yes or no), diagnosed diabetes (yes or no). Abbreviations as per Table 1.
†Cox regression for diagnosed hypertension outcome, cloglog regression for visit-based hypertension
‡Fine-Gray regression model. [1] There were 532 interval deaths for the diagnosed hypertension outcome and 57 interval deaths for the visit-based hypertension outcome prior to administrative censoring.

eTable 4. Crude incidence rates and adjusted* hazard ratios (95% confidence intervals) for incident visit-based hypertension, according to baseline categories of high sensitivity cardiac troponin T: further stratified by baseline blood pressure (N=5,479)

				Proportional Hazards Regression†	Competing Risks Regression‡
Baseline hs-cTNT	**N**	**Events (n)**	**Incidence rate, per 1,000 person years (95% CI)**	**HR (95% CI)**	**HR (95% CI)**
NORMOTENSIVE SUBGROUP (BP ≤120 mmHg systolic and ≤80 mmHg diastolic)					
Categorical					
<5 ng/L	3,088	515	29.8 (27.4-32.5)	1 (reference)	1 (reference)
5-8 ng/L	753	156	37.5 (32.0-43.8)	1.17 (0.97-1.41)	1.16 (0.96-1.41)
9-13 ng/L	200	57	52.4 (40.4-68.0)	1.45 (1.09-1.93)	1.56 (1.17-2.09)
≥14 ng/L	62	20	57.6 (37.1-89.2)	1.86 (1.18-2.94)	1.72 (1.11-2.69)
p-value for linear trend				*<0.001*	*<0.001*
Continuous					
Log(hs-cTnT)	4,103	748	32.7 (30.5-35.2)	1.20 (1.08-1.33)	1.22 (1.09-1.35)
PREHYPERTENSION SUBGROUP (BP >120 <140 mmHg systolic and/or >80<90 mmHg diastolic)					
Categorical					
<5 ng/L	1,051	544	104.2 (95.8-113.3)	1 (reference)	1 (reference)
5-8 ng/L	377	195	107.0 (93.0-123.2)	1.03 (0.87-1.22)	1.05 (0.88-1.25)
9-13 ng/L	106	63	122.2 (95.5-156.5)	1.18 (0.90-1.56)	1.18 (0.91-1.54)
≥14 ng/L	38	21	116.9 (76.2-179.3)	1.19 (0.76-1.87)	1.29 (0.83-2.02)
p-value for linear trend				*0.226*	*0.133*
Continuous					
Log(hs-cTnT)	1,572	823	106.4 (99.3-113.9)	1.03 (0.93-1.14)	1.05 (0.95-1.15)

* Adjusted for age (years), race-center (whites-Washington County; whites-Minneapolis; blacks-Jackson; blacks-Forsyth County, whites-Forsyth County), sex (male or female), body mass index (kg/m2), smoking (current; former; never), LDL-cholesterol (mg/dL), HDL-cholesterol (mg/dL), triglycerides (mg/dL), estimated glomerular filtration rate (mL/min/1.73m2), current lipid-lowering medication use (yes or no), left ventricular hypertrophy (yes or no), diagnosed diabetes (yes or no). Abbreviations as per Table 1.
†Cox regression for diagnosed hypertension outcome, cloglog regression for visit-based hypertension
‡Fine-Gray regression model. [1] There were 532 interval deaths for the diagnosed hypertension outcome and 57 interval deaths for the visit-based hypertension outcome prior to administrative censoring.

eTable 5. Adjusted* Cox Hazard Ratios (HRs) for incident diagnosed hypertension (N=6,516) and for visit-based incident hypertension (N=5675) by baseline hs-cTnT status, with additional adjustment for either baseline mean BP or NT-proBNP

Additional Correction for Baseline (Visit 2) Mean BP									
Diagnosed hypertension					Visit Based hypertension				
Visit 2 hs-cTnT	**N**	**Events (n)**	**HR (95% CI)**	**p-value**	**Visit 2 hs-cTnT**	**N**	**Events (n)**	**HR (95% CI)**	**p-value**
<5 ng/L	4,681	3,108	1 (ref.)		<5 ng/L	4,139	1,059	1 (ref.)	
5-8 ng/L	1,317	936	1.12 (1.04-1.21)	0.004	5-8 ng/L	1,130	351	1.16 (1.07-1.25)	<0.001
9-13 ng/L	384	281	1.27 (1.12-1.45)	<0.001	9-13 ng/L	306	120	1.29 (1.13-1.46)	<0.001
≥14 ng/L	134	96	1.20 (0.98-1.48)	0.083	≥14 ng/L	100	41	1.26 (1.02-1.55)	0.032
p-value for trend			*<0.001*		*p-value for trend*			*<0.001*	
Log(hs-cTnT)	6,516	4,421	1.11 (1.07-1.16)	<0.001	Log (hs-cTnT)	5,675	1,571	1.13 (1.08-1.18)	<0.001
Additional Correction for Baseline (Visit 2) NT-proBNP									
Diagnosed hypertension					Visit Based hypertension				
Visit 2 hs-cTnT		**Events (n)**	**HR (95% CI)**	**p-value**	**Visit 2 hs-cTnT**	**N**	**Events (n)**	**HR (95% CI)**	**p-value**
<5 ng/L	4,678	3,107	1 (ref.)		<5 ng/L	4,138	1,058	1 (ref.)	
5-8 ng/L	1,316	936	1.09 (0.96-1.24)	0.187	5-8 ng/L	1,129	351	1.11 (0.98-1.26)	0.099
9-13 ng/L	383	280	1.34 (1.10-1.64)	0.003	9-13 ng/L	305	119	1.33 (1.09-1.62)	0.006
≥14 ng/L	134	96	1.41 (1.02-1.93)	0.036	≥14 ng/L	100	41	1.34 (0.97-1.84)	0.075
p-value for trend			*<0.001*		*p-value for trend*			*0.002*	
Log(hs-cTnT)	6,511	4,419	1.12 (1.04-1.20)	0.002	Log (hs-cTnT)	5,672	1,569	1.13 (1.05-1.21)	<0.001

*Adjusted for age (years), race-center (whites-Washington County; whites-Minneapolis; blacks-Jackson; blacks-Forsyth County, whites-Forsyth County), sex (male or female), body mass index (kg/m2), smoking (current; former; never), LDL-cholesterol (mg/dL), HDL-cholesterol (mg/dL), triglycerides (mg/dL), estimated glomerular filtration rate (mL/min/1.73m2), current lipid-lowering medication use (yes or no), diagnosed diabetes (yes or no). Abbreviations as per Table 1.

References

1. Fine JP, Gray RJ. A proportional hazards model for the subdistribution of a competing risk. *Journal of the American Statistical Association* 1999;94:496-509