Supplementary Table 1. Summary of 17 cohort studies and clinical trial included in the MULTI sTUdy Diabetes rEsearch (MULTITUDE) Consortium

Data sets	Study type	Sample size	Time range	Follow up time	Population	Intervention/ exposure	Control	Outcome
Action to Control Cardiovascular Risk in Diabetes (ACCORD)	Clinical trial-multicenter, double 2x2 factorial design	10,251	1999-2009	4 to 8 years	Patients with T2DM	Intensive glycemic control, intensive blood pressure control, fibrate use[1]	Standard glycemic control, standard blood pressure control, placebo[1]	First occurrence of a major CVD, specifically nonfatal MI, nonfatal stroke, or CVD death
Atrial Fibrillation Follow-Up Investigation of Rhythm Management (AFFIRM)	Clinical trial	4,060	1995-2002	5 years	Patients who had a total of 6 hours of atrial fibrillation in more than 1 episode and one of episodes was in last 12 weeks before trial started	Optimized antiarrhythmic drug therapy administered to attempt to maintain sinus rhythm	Optimized therapy which merely controls the heart rate	Total mortality
Bypass Angioplasty Revascularization Investigation in Type 2 Diabetes (BARI 2D)	Clinical trial-multicenter, double 2x2 factorial design	2,368	2000-2009	5 years	Patients with T2DM who undergo coronary angiography at participating BARI2D institutions	Prompt coronary revascularization, insulin sensitization	Medical therapy alone, insulin provision	Death rate and major cardiovascular events
Atherosclerosis Risk in Communities (ARIC)	Prospective cohort	4,000	1987-	5 exams as of now	Patients aged 45-64 from a defined population in their community	Risk factors of atherosclerosis, CHD, heart failure, stroke, atrial fibrillation genetic, and environmental factors leading to ventricular dysfunction and vascular stiffness	N.A.	Cardiovascular events, including CHD, heart failure, stroke, and atrial fibrillation; and the risk factors related to progression of subclinical to clinical CVD.
The Jackson Heart Study (JHS)	Prospective cohort	5,301	2000-	3 exams as of now	African American men and women, age 35-84 at entry	Biological, psychosocial, and behavioral factors with the incidence atherosclerotic events and health outcomes	N.A.	Atherosclerotic events
FHS-cohort	Prospective cohort	5,209	1948-	32 exams as of now	Framingham residents	Genetic and environmental factors influencing the development of cardiovascular and other diseases	N.A.	CVD
FHS-gen3	Prospective cohort	4,095	2002-	2 exams as of	At least one parent in the Offspring cohort or one	Genetic and environmental factors	N.A.	CVD

				now	grandparent in Original cohort	influencing the development of cardiovascular and other diseases		
FHS-offspring	Prospective cohort	5,124	1971-	9 exams as of now	Offspring of Original Cohort or spouse of Offspring	Genetic and environmental factors influencing the development of cardiovascular and other diseases	N.A.	CVD
Functional Outcomes in Cardiovascular Patients Undergoing Surgical Hip Fracture Repair (FOCUS)	Clinical trial	2,016	2003-2009	60 days	Patients 50 years of age or older who were undergoing primary surgical repair of a hip fracture and who had clinical evidence of or risk factors for cardiovascular disease were eligible if they had a hemoglobin level of less than 10 g/dL within 3 days after surgery.	Liberal-strategy group	Restrictive-strategy group	Death or an inability to walk 10 feet without human assistance at the 60-day follow-up
Multiple Risk Factor Intervention Trial for the Prevention of Coronary Heart Disease (MRFIT)	Clinical trial	12,866	1972-1998	6-8 years	Men aged 35-57 years, who met the requirements[2]	Eating pattern resulting in a nutrient intake of 30% to 35% of calories from fat, 10% (later 8%) from saturated and 10% from polyunsaturated fat; approximately 300 (later 250) mg of cholesterol; modification of carbohydrates; cease cigarettes; hypertension management	Referred to their personal physician or other source of care for such management of their risk factors as considered appropriate by these providers.	Mortality from coronary heart disease
Antihypertensive and Lipid-Lowering Treatment to Prevent Heart Attack Trial (ALLHAT)	Hypertension study: Clinical trial-double blinded, active controlled Lipid study: randomized, nonblinded	Hypertension study: 33,357; Lipid study: 10,355	1993-2002	Hypertension study: 4-8 years Lipid study:8 years	Hypertension Study: Participants aged 55 years or older with hypertension and at least 1 other CHD risk factor from 623 North American centers. Lipid study: Ambulatory persons (n = 10 355), aged 55 years or older, with low-density lipoprotein cholesterol (LDL-C) of 120	Hypertension study: chlorthalidone, 12.5 to 25 mg/d Lipid study: pravastatin, 40 mg/d	Hypertension study: amlodipine, 2.5 to 10 mg/d, lisinopril, 10 to 40 mg/d Lipid study: usual care	Hypertension study: combined fatal CHD or nonfatal myocardial infarction, analyzed by intent-to-treat. Lipid study: all-cause mortality

	trial				to 189 mg/dL (100 to 129 mg/dL if known CHD) and triglycerides lower than 350 mg/dL			
Bogalusa Heart Study (BHS)	Prospective cohort study	11,796	1972-	7 exams as of now	Participants that attended at least one of seven cross-sectional pediatric exams and/or the 1995-96 adult examination. Subjects were ranged in age from 3 to 20 years at the pediatric exams and 20-37 at the time of the adult exam.	Lifestyle attributes such as tobacco use, physical inactivity, and a high-fat, high calorie diet	N.A.	Natural history of cardiovascular disease
Cardiovascular Outcomes in Renal Atherosclerotic Lesions (CORAL)	Clinical trial	947	2004-2013	31-55 months	Individuals with severe renal-artery stenosis were eligible if they had hypertension with a systolic blood pressure of 155 mm Hg or higher while receiving two or more antihypertensive medications.	Stenting plus medical therapy	Medical therapy alone	The occurrence of a major cardiovascular or renal event;
NHLBI Growth and Health Study (NGHS)	Prospective cohort	2,379	1985-2000	9 years	Girls 9 and 10 years of age in two communities (Richmond, California and Cincinnati, Ohio) and also from families enrolled in a health maintenance organization in the Washington, D.C. area. A total of 2,379 girls were enrolled in the study between 1987-88. Slightly more than half of the cohort was African-American.	Psychosocial factors and obesity	N.A.	The development of obesity and the effects of obesity on cardiovascular disease risk factors
Optimal Macronutrient Intake Trial to Prevent Heart Disease (OMNI Heart)	Clinical trial-crossover	164	2002-2008	18 weeks	Healthy adults, age ≥30 years with a systolic blood pressure (SBP) 120-159 mm Hg or diastolic blood pressure (DBP) 80-99 mm Hg.	3 healthy diets, each with reduced saturated fat intake, on blood pressure and serum lipids.	N.A.	Blood pressure and serum lipids.

Practice Based Opportunities for Weight Reduction Trial at the University of Pennsylvania (POWER-UP)	Clinical trial	390	2008-2011	24 months	Participants with the age of 21 years or older, a body-mass index of 30 to 50, and at least two of five components of the metabolic syndrome to increase the likelihood that the participants would have cardiovascular risk factors.	Brief lifestyle counseling, enhanced brief lifestyle counseling	Usual care	Weight loss
Systolic Blood Pressure Intervention Trial Primary Outcome Paper (SPRINT-POP) Data	Clinical trial-single blinded	9,361	2010-2016	3.26 years	Adults 50 years of age or more with a systolic blood pressure of 130 to 180 mm Hg with an increased risk of cardiovascular disease but without diabetes or a history of stroke	An intensive systolic blood pressure target of 120 mm Hg	A systolic blood pressure target of less than 140 mm Hg	A composite outcome of myocardial infarction, other acute coronary syndromes, stroke, heart failure, or death from cardiovascular causes

[1]Detailed study design could be found in the Figure 1.2 of ACCORD protocol.

[2]Detailed requirements could be found in Chapter 4 of protocol under MOOP folder.

Supplementary Table 2. Patient/participant geographical distribution by study

State	ACCORD	AFFIRM	BARI 2D	ARIC	JHS	FHS-cohort	FHS-offspring	FHS-gen3	FOCUS	MRFIT	ALLHAT	BHS	CORAL	NGHS	OMNI Heart	POWER-UP	SPRINT-POP
AL		+	+						+		+						+
AK																	
AZ	+	+	+										+				+
AR	+	+															+
CA	+	+	+								+			+			+
CO			+														+
CT			+						+								
DE																	+
FL		+	+						+								+
GA	+	+	+						+								+
HI																	
ID	+	+															
IL		+	+							+							+
IN		+															
IA	+	+															
KS																	
KY		+															
LA	+	+										+					+
ME		+															
MD	+	+	+	+					+	+					+		
MA		+	+			+	+	+	+	+			+		+		+
MI	+	+	+						+	+			+				+
MN	+	+	+	+					+	+							+
MS	+	+		+	+												+
MO	+		+														+
MT									+								
NE		+															
NV		+															
NH		+															
NJ	+	+							+	+							
NM									+								+
NY	+	+	+						+	+							+
NC	+	+	+	+					+								+
ND																	
OH	+	+	+							+			+	+			+
OK		+															

OR	+	+								+							+
PA		+	+						+	+						+	+
RI		+	+						+				+				
SC	+	+								+							+
SD		+															
TN	+	+	+														+
TX		+	+						+				+				+
UT		+															+
VT			+														
VA		+	+						+								
WA	+	+															
WV		+											+				
WI		+															
WY																	
D.C.	+	+	+														+

All states are denoted by two-letter abbreviation.

Supplementary Table 3. Baseline patient/participant information from cohorts included in the MULTI sTUdy Diabetes rEsearch (MULTITUDE) Consortium

Data sets	Hispanic Origin	Insurance	Income	Marital Status	Employment	Education	Hospita-lizations	Alcohol Intake	Smoking Status	Family History	Dietary Intake	Physical Activity	BP	BMI	WC
ACCORD		+				+	+	+	+	CVD	+	+	+	+	+
AFFIRM					+	+	+		+				+	+	
BARI 2D	+	+			+	+	+	+	+			+	+	+	+
ARIC		+	+	+	+	+	+	+	+	CVD	+	+	+	+	
JHS		+	+		+	+	+	+	+		+	+	+	+	+
FHS-cohort	+	+		+	+	+	+	+	+	T2DM	+	+	+	+	+
FHS-offspring	+	+	+	+	+	+	+	+	+		+	+	+	+	+
FHS-gen3	+	+	+	+	+	+	+	+	+		+	+	+	+	+
FOCUS							+		+						
MRFIT			+	+	+	+	+	+	+	CVD, T2DM	+	+		+	
ALLHAT	+					+	+	+	+		+		+	+	
BHS			+		+	+		+	+	CVD, T2DM	+	+	+	+	+
CORAL	+		+	+	+		+		+				+	+	
NGHS			+		+	+		+	+	CVD, T2DM	+	+	+	+	+
OMNI Heart			+	+		+	+	+	+		+		+	+	
POWER-UP	+	+	+	+	+	+	+	+	+		+	+	+	+	+
SPRINT-POP	+						+		+				+	+	

BP, Blood pressure; BMI, Body mass index; WC, Waist circumference; CVD, Cardiovascular disease; T2DM, Type 2 diabetes mellitus

Supplementary Table 4. Clinical lab values and biomarkers included in the MULTI sTUdy Diabetes rEsearch (MULTITUDE) Consortium

Data sets	Fasting Glucose	Fasting Insulin	HbA1c	Lipids	Serum Creatinine	Potassium	Uric Acid	Serum Vitamin D	Urinary Albumin	C-reactive Protein	PAI
ACCORD	+		+	+	+	+			+	+	
AFFIRM						+					
BARI 2D	+	+	+	+	+	+			+	+	+
ARIC	+	+	+	+	+	+	+		+	+	
JHS	+	+	+	+	+	+	+		+	+	
FHS-cohort	+		+	+	+	+	+	+	+		
FHS-offspring	+	+	+	+	+	+	+	+	+	+	+
FHS-gen3	+	+	+	+	+	+	+	+	+	+	+
FOCUS			+		+						
MRFIT	+			+		+					
ALLHAT	+			+	+	+					
BHS	+	+	+	+	+	+	+		+		
CORAL	+		+	+	+	+			+		
NGHS	+	+		+		+		+			
OMNI Heart	+	+		+	+	+		+			
POWER-UP	+	+		+	+	+				+	
SPRINT-POP	+		+	+	+	+			+	+	

HbA1c, Hemoglobin A1c; PAI, Plasminogen activator inhibitor; ECHO, Ecocardiogram.

Supplementary Table 5. Electrocardiogram (ECG) and echocardiogram (ECHO) measures included in the MULTI sTUdy Diabetes rEsearch (MULTITUDE) Consortium

Data sets	Heart Rate	PR Interval	QRS Interval	QRS Axis	QT Interval	P duration	T duration	Rhythm at time of ECG	QRS Axis Deviation	Ventricular Conduction Defect	ST Segment Abnormality	Left Ventricular Hypertrophy	ECHO Parameters
ACCORD	+		+	+	+				+	+	+		
AFFIRM	+	+	+		+			+				+	+
BARI 2D													
ARIC	+	+	+	+	+	+	+	+	+	+	+	+	+
JHS	+	+	+	+	+	+	+	+	+	+	+	+	+
FHS-cohort	+	+	+	+	+	+	+	+	+	+	+	+	+
FHS-offspring	+	+	+	+	+	+	+	+	+	+	+	+	+
FHS-gen3	+	+	+	+	+	+	+	+	+	+	+	+	+
FOCUS	+												
MRFIT	+			+	+			+		+	+	+	
ALLHAT	+										+	+	+
BHS			+	+				+			+	+	
CORAL	+	+	+	+				+		+	+		
NGHS													
OMNI Heart													
POWER-UP													
SPRINT-POP													