

## MESA Events Data Set

Variable	Description	Value Labels
idno	MESA Participant Identification Number	
fuptt	Time until most recent Follow-up assessment within the ascertainment period (days)	
prebase	Type of pre-baseline event	
exall	Exclusion from all events follow-up due to pre-baseline event	0=No, 1=Yes
expvd	Exclusion from PVD due to pre-baseline PVD	0=No, 1=Yes
mi	Myocardial Infarction (MI)	0=No, 1=Yes
mitype	MI type	
mitt	Time to MI or last follow-up (days)	
rca	Resuscitated Cardiac Arrest	0=No, 1=Yes
rcatype	Resuscitated Cardiac Arrest type	
rcatt	Time to Resuscitated Cardiac Arrest or last follow-up (days)	
ang	Angina Pectoris	0=No, 1=Yes
angtyp	Angina type	
angtt	Time to Angina or last follow-up (days)	
ptca	Percutaneous Transluminal Coronary Angioplasty (PTCA), coronary stent, or coronary atherectomy	0=No, 1=Yes
ptcatype	PTCA type	
ptcatt	Time to PTCA or last follow-up (days)	
cbg	Coronary Bypass Graft (CBG)	0=No, 1=Yes
cbgtype	CBG type	
cbgtt	Time to CBG or last follow-up (days)	
othrev	Other Revascularization	0=No, 1=Yes

<b>Variable</b>	<b>Description</b>	<b>Value Labels</b>
othrevtt	Time to other revascularization or last follow-up (days)	
chf	Congestive Heart Failure (CHF)	0=No, 1=Yes
chftype	CHF type	
chftt	Time to CHF or last follow-up (days)	
pvd	Peripheral Vascular Disease (PVD)	0=No, 1=Yes
pvdtype	PVD type	
pvdtt	Time to PVD or last follow-up (days)	
strk	Stroke	0=No, 1=Yes
strktype	Stroke type	1=Subarachnoid Hemorrhage (SAH) 2=Intraparenchymal Hemorrhage (IPH) 3=Both SAH and IPH 4=Brain Infarction (bland or bloody) 5=No clinically relevant lesion 6=Results unknown or no brain imaging done
strktt	Time to stroke or last follow-up (days)	
tia	Transient Ischemic Attack (TIA)	0=No, 1=Yes
tiatt	Time to TIA or last follow-up (days)	
dth	Death	0=No, 1=Yes
dthtype	Death type	1=Atherosclerotic coronary heart disease 2=Stroke 3=Atherosclerotic disease other than coronary disease, stroke 4=Other cardiovascular disease, not defined above 5=Non-cardiovascular disease 9=Non-cardiovascular disease (Ineligible for Review)
dthtt	Time to all-cause death or last follow-up (days)	
chdh	Coronary Heart Disease (CHD), Hard	0=No, 1=Yes
chdhtt	Time to Hard CHD or last follow-up (days)	
chda	Coronary Heart Disease (CHD), All	0=No, 1=Yes
chdatt	Time to All CHD or last follow-up (days)	

<b>Variable</b>	<b>Description</b>	<b>Value Labels</b>
cvdh	Cardiovascular Disease (CVD), Hard	0=No, 1=Yes
cvdhtt	Time to hard CVD or last follow-up (days)	
cvda	Cardiovascular Disease (CVD), All	0=No, 1=Yes
cvdatt	Time to All CVD or last follow-up (days)	
revc	Coronary Revascularization	0=No, 1=Yes
revctt	Time to Coronary Revascularization or last follow-up (days)	

### **Event Ascertainment Period**

Event and follow-up time inclusion is based upon the participant's last Follow-Up call (date on the General Health Form) completed before January 6<sup>th</sup>, 2005 (the date when the last participant completed Follow-up call 3). Specifically, data (follow-up time and events) associated with a General Health Form completed prior to the last participant's Follow-up 3 date are included (including Follow-up 4 surveillance activities which occurred prior to 01/06/05). This criteria was selected to ensure that events ascertainment is completed on the MESA cohort for the time period being reported while maximizing the amount of data which can be released.

While it is possible for some events which occurred prior to January 6<sup>th</sup>, 2005 to be identified in the future, the number of such events is expected to be very low and should not have a meaningful effect on results. Nevertheless, latently discovered events will be added to subsequent datasets when they are discovered (future datasets are planned to be cumulative and will include previously released event data).

### **Deaths**

A minor exception to the ascertainment period noted above exists for participant deaths. If the participant death date is prior to 1/6/05, the time to death value equals the time in days from Exam 1 visit until death, even if the General Health Form was collected after 1/6/05 (via proxy). Thus, a participant who is deceased prior to 1/6/05 will have all of their endpoints included to ensure complete data in these instances. Rationale for this criteria was to ensure that death events would be included along with all related events.

### **Missing Follow-up**

Time (in days) from Exam 1 until the most recent successful Follow-up call (meeting the criteria noted above) is calculated for each participant in the cohort (total follow-up time). If no follow-up was completed for an individual participant, then the follow-up time is set to zero. Participants who are lost-to-follow-up are then effectively censored when their status was last known. Participants who miss a follow-up call but who subsequently complete a follow-up call are also appropriately included.

### **Event type**

Variables labeled as indicating an event type contain an indication of the certainty of the reviewers. To be classified as an event, the reviewers must have indicated that the event was either definite or probable.

### **Time to (First) Event**

Time to event is reported in days. Separate time to (first) event or last follow-up variables are calculated for each type of event. Participants who do not have a particular event type have their total follow-up time recorded as the time to event value. Participants for which one or more instances of an event are recorded have the time from Exam 1 until the first instance of an event (either probable or definite) recorded as the time to event value.

## **Pre-Baseline Exclusions**

Only incident event data are provided in MESA events datasets. Therefore, participants were not recruited if they had the following medical diagnosis or procedures:

- Physician-diagnosed heart attack
- Physician-diagnosed angina
- Physician-diagnosed stroke or TIA
- Physician-diagnosed heart failure
- Physician-diagnosed resuscitated cardiac arrest
- Having undergone procedures related to cardiovascular disease (CABG, angioplasty, valve replacement, pacemaker or defibrillator implantation, any surgery on the heart or arteries).

While MESA participants were intended to be free of baseline cardiovascular disease, surveillance has identified events that occurred prior to baseline. Participants with a pre-baseline exclusionary diagnosis and/or procedures will have all of their events excluded from event datasets and will have all event indicator variables and time to event variables set to missing.

## **Composite Endpoints**

### **Definitions**

**CHD Hard:** MI, Resuscitated Cardiac Arrest, or CHD Death

**CHD All:** MI, Angina<sup>1</sup>, Resuscitated Cardiac Arrest, or CHD Death

**CVD Hard:** MI, Resuscitated Cardiac Arrest, CHD Death, Stroke, or Stroke Death

**CVD All:** MI, Angina<sup>2</sup>, Resuscitated Cardiac Arrest, CHD Death, Stroke, Stroke Death, Other Atherosclerotic Death, or Other CVD Death.

While the composite endpoint definitions provided above are recommended for many analytic situations, it is at the discretion of the Investigator whether to use these definitions or other to create variables based on other criteria in their manuscript or project.

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<sup>1</sup> Includes definite angina and probable angina if and only if coronary revascularization was performed at the same time or afterwards.

<sup>2</sup> Includes definite angina and probable angina if and only if coronary revascularization was performed at the same time or afterwards.

## Summary of MESA Endpoint Methods

*For more information on the criteria used, please see Section 4 (“Criteria for Events”) in the MESA Events Manual of Operation, which is available on this web site at <http://www.mesa-nhlbi.org/Mesa-Internal/manuals.asp>*

For this dataset we followed the cohort for incident cardiovascular events from baseline until 01/06/2005. At intervals of 9-12 months, a telephone interviewer contacted each participant to inquire about all interim hospital admissions, cardiovascular outpatient diagnoses and procedures, and deaths. In addition, MESA occasionally identified additional medical encounters through cohort clinic visits, participant call-ins, medical record abstractions or obituaries. In order to verify self-reported diagnoses, we requested copies of all death certificates and medical records for all hospitalizations and selected outpatient cardiovascular diagnoses and procedures. We also obtained next of kin interviews for out of hospital cardiovascular deaths. We were successful in getting hospital records on an estimated 98% of hospitalized cardiovascular events and some information on 95% of outpatient diagnostic encounters.

Trained personnel abstracted any hospital records suggesting possible cardiovascular events. They recorded symptoms, history and biomarkers; scanned ECGs, echocardiograms, catheterization reports, outpatient records, and other relevant diagnostic and procedure reports; and transmitted these to the coordinating center. The coordinating center collated the abstracted or original endpoint records and sent them to two paired physicians for independent endpoint classification and assignment of incidence dates. Cardiologists or cardiovascular physician epidemiologists reviewed non-neurovascular endpoints; neurologists reviewed all neurovascular endpoints. If the reviewing pair disagreed on the classification, they adjudicated differences. If disagreements persisted, the full review committee made the final classification.

Possible nonfatal endpoints in MESA include CHF, angina, myocardial infarction, resuscitated cardiac arrest, peripheral arterial disease, stroke, and TIA. Fatal cardiovascular endpoint categories generally include fatal CHD, fatal stroke, and other fatal CVD (there are a few subcategories under this). All deaths were identified. Cause of death was assigned for potential CVD deaths through committee review. For other deaths, the underlying cause was obtained through state or city vital statistics departments (or occasionally NDI).

**MYOCARDIAL INFARCTION.** Reviewers classified MI as definite, probable, or absent, based primarily on combinations of symptoms, ECG, and cardiac biomarker levels. In most cases, definite or probable MI required either abnormal cardiac biomarkers (2 times upper limits of normal) regardless of pain or ECG findings; evolving Q waves regardless of pain or biomarker findings; or a combination of chest pain, and ST-T evolution or new LBBB, and biomarker levels 1-2 times upper limits of normal.

**RESUSCITATED CARDIAC ARREST.** Reviewers classified resuscitated cardiac arrest when a patient successfully recovered from a full cardiac arrest through cardiopulmonary resuscitation (including cardioversion).

**ANGINA** was classified, except in the setting of MI, as definite, probable, or absent. Definite or probable angina required symptoms of typical chest pain or atypical symptoms, as asymptomatic coronary artery disease is not a MESA endpoint. Probable angina required, in addition to symptoms, a physician diagnosis of angina and medical treatment for it. Definite angina required one or more additional criteria, including CABG surgery or other revascularization procedure; 70% or greater obstruction on coronary angiography; or evidence of ischemia by stress tests or by resting ECG. We considered coronary revascularization or a physician diagnosis of angina or CHD, in the absence of symptoms, to not be angina.

**FATAL CHD** was classified as definite, possible, or absent. Definite fatal CHD required a documented MI within the previous 28 days, chest pain within the 72 hours before death, or a history of CHD, and required the absence of a known non-atherosclerotic or non-cardiac cause of death. If the definite fatal CHD criteria were not met, possible fatal CHD could be assigned with an underlying cause of death consistent with fatal CHD and required the absence of a known non-atherosclerotic or non-cardiac cause of death.

**CHF.** Reviewers classified CHF as definite, probable, or absent. Definite or probable CHF required heart failure symptoms, such as shortness of breath or edema, as asymptomatic disease is not a MESA endpoint. In addition to symptoms, probable CHF required CHF diagnosed by a physician and patient receiving medical treatment for CHF. Definite CHF required one or more other criteria, such as pulmonary edema/congestion by chest X-ray; dilated ventricle or poor LV function by echocardiography or ventriculography; or evidence of left ventricular diastolic dysfunction. We considered participants not meeting any criteria, including just a physician diagnosis of CHF without any other evidence, as having no CHF.

**PERIPHERAL ARTERIAL DISEASE** was classified as definite, probable and absent and included symptomatic disease such as lower extremity claudication, atherosclerosis of the lower extremity, arterial embolism and/or thrombosis of the lower extremity, and abdominal aortic aneurysm. Probable PAD required only a documented physician diagnosis of a PAD condition with symptoms. Definite PAD required one or more other criteria, such as ultrasound evidence of obstruction; an exercise test positive for claudication; revascularization for PAD; amputation for ischemia; ankle-arm ratio  $\leq 0.8$ ; imaging of an aortic aneurysm; or a vascular procedure for abdominal aortic aneurysm.

**STROKE** was classified as present or absent and consisted of rapid onset of a documented focal neurologic deficit lasting 24 hours or until death, or if  $< 24$  hours, there was a clinically relevant lesion on brain imaging. Patients with focal neurologic deficits secondary to brain trauma, tumor, infection, or other non-vascular cause were excluded. Strokes were subclassified on the basis of neuroimaging or other tests into subarachnoid hemorrhage, intraparenchymal hemorrhage, other hemorrhage, brain infarction, or other stroke. Infarcts were also subttyped.

**TIA** (present/absent) consisted of one or more documented episodes of focal neurologic deficit lasting 30 seconds to 24 hours, and without brain imaging suggesting stroke.