

# Package ‘CVrisk’

May 7, 2026

**Title** Compute Risk Scores for Cardiovascular Diseases

**Version** 1.2.1

**Description** Calculate various cardiovascular disease risk scores from the Framingham Heart Study (FHS), the American College of Cardiology (ACC), and the American Heart Association (AHA) as described in D’agostino, et al (2008) <[doi:10.1161/circulationaha.107.699579](https://doi.org/10.1161/circulationaha.107.699579)>, Goff, et al (2013) <[doi:10.1161/01.cir.0000437741.48606.98](https://doi.org/10.1161/01.cir.0000437741.48606.98)>, and Mclelland, et al (2015) <[doi:10.1016/j.jacc.2015.08.035](https://doi.org/10.1016/j.jacc.2015.08.035)>, and Khan, et al (2024) <[doi:10.1161/CIRCULATIONAHA.123.067626](https://doi.org/10.1161/CIRCULATIONAHA.123.067626)>.

**License** GPL-3

**Depends** R (>= 3.5)

**Encoding** UTF-8

**LazyData** true

**RoxygenNote** 7.3.3

**URL** <https://vcastro.github.io/CVrisk/>,  
<https://github.com/vcastro/CVrisk/>

**BugReports** <https://github.com/vcastro/CVrisk/issues>

**Imports** utils, preventr

**Suggests** testthat (>= 2.1.0), covr, tibble, knitr, rmarkdown

**VignetteBuilder** knitr

**NeedsCompilation** no

**Author** Victor Castro [aut, cre] (ORCID:  
<<https://orcid.org/0000-0001-7390-6354>>)

**Maintainer** Victor Castro <[vcastro@mgm.harvard.edu](mailto:vcastro@mgm.harvard.edu)>

**Repository** CRAN

**Date/Publication** 2026-01-10 17:32:04 UTC

## Contents

ascvd_10y_accaha . . . . .	2
ascvd_10y_frs . . . . .	3
ascvd_10y_frs_simple . . . . .	4
ascvd_10y_prevent . . . . .	6
ascvd_30y_prevent . . . . .	8
ascvd_pooled_coef . . . . .	10
chd_10y_mesa . . . . .	11
chd_10y_mesa_cac . . . . .	12
compute_CVrisk . . . . .	13
frs_coef . . . . .	15
frs_simple_coef . . . . .	16
make_sample_data . . . . .	16
mesa_cac_coef . . . . .	18
mesa_coef . . . . .	19
sample_data . . . . .	20
<b>Index</b>	<b>21</b>

---

ascvd_10y_accaha	<i>ACC/AHA 2013 ASCVD risk score</i>
------------------	--------------------------------------

---

## Description

Computes 10-year risk for hard ASCVD event (defined as first occurrence of non-fatal myocardial infarction (MI), congestive heart disease (CHD) death, or fatal or nonfatal stroke).

## Usage

```
ascvd_10y_accaha(
  race = "white",
  gender = c("male", "female"),
  age,
  totchol,
  hdl,
  sbp,
  bp_med,
  smoker,
  diabetes,
  ...
)
```

## Arguments

race	patient race (white, aa, other)
gender	patient gender (male, female)
age	patient age (years)

totchol	Total cholesterol (mg/dL)
hdl	HDL cholesterol (mg/dL)
sbp	Systolic blood pressure (mm Hg)
bp_med	Patient is on a blood pressure medication (1=Yes, 0=No)
smoker	Current smoker (1=Yes, 0=No)
diabetes	Diabetes (1=Yes, 0=No)
...	Additional predictors can be passed and will be ignored

**Value**

Estimated 10-Y Risk for hard ASCVD (percent)

**References**

Goff, David C., et al. "2013 ACC/AHA guideline on the assessment of cardiovascular risk: a report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines." *Journal of the American College of Cardiology* 63.25 Part B (2014): 2935-2959.

**Examples**

```
library(CVrisk)
ascvd_10y_accaha(
  race = "aa", gender = "male", age = 55,
  totchol = 213, hdl = 50, sbp = 140,
  bp_med = 0, smoker = 0, diabetes = 0
)
```

---

ascvd\_10y\_frs                      *Framingham 2008 ASCVD risk score (with lab measurement)*

---

**Description**

Computes 10-year risk for ASCVD event (coronary death, myocardial infarction (MI), coronary insufficiency, angina, ischemic stroke, hemorrhagic stroke, transient ischemic attack, peripheral artery disease, or heart failure).

**Usage**

```
ascvd_10y_frs(
  gender = c("male", "female"),
  age,
  hdl,
  totchol,
  sbp,
  bp_med,
  smoker,
  diabetes,
  ...
)
```

**Arguments**

gender	patient gender (male, female)
age	patient age (years), between 30 and 74
hdl	HDL cholesterol (mg/dL)
totchol	Total cholesterol (mg/dL)
sbp	Systolic blood pressure (mm Hg)
bp_med	Patient is on a blood pressure medication (1=Yes, 0=No)
smoker	Current smoker (1=Yes, 0=No)
diabetes	Diabetes (1=Yes, 0=No)
...	Additional predictors can be passed and will be ignored

**Value**

Estimated 10-Y Risk for hard ASCVD event (percent)

**References**

D'agostino, R.B., Vasan, R.S., Pencina, M.J., Wolf, P.A., Cobain, M., Massaro, J.M. and Kannel, W.B., 2008. General cardiovascular risk profile for use in primary care: the Framingham Heart Study. *Circulation*, 117(6), pp.743-753.

**Examples**

```
library(CVrisk)
ascvd_10y_frs(
  gender = "male", age = 55,
  hdl = 50, totchol = 213, sbp = 140,
  bp_med = 0, smoker = 0, diabetes = 0
)

# 16.7
```

---

ascvd\_10y\_frs\_simple *Framingham 2008 ASCVD risk score (no lab measurement)*

---

**Description**

Computes 10-year risk for ASCVD event (coronary death, myocardial infarction (MI), coronary insufficiency, angina, ischemic stroke, hemorrhagic stroke, transient ischemic attack, peripheral artery disease, or heart failure).

**Usage**

```
ascvd_10y_frs_simple(  
  gender = c("male", "female"),  
  age,  
  bmi,  
  sbp,  
  bp_med,  
  smoker,  
  diabetes,  
  ...  
)
```

**Arguments**

gender	patient gender (male, female)
age	patient age (years), between 30 and 74
bmi	Body mass index (kg/m <sup>2</sup> )
sbp	Systolic blood pressure (mm Hg)
bp_med	Patient is on a blood pressure medication (1=Yes, 0=No)
smoker	Current smoker (1=Yes, 0=No)
diabetes	Diabetes (1=Yes, 0=No)
...	Additional predictors can be passed and will be ignored

**Value**

Estimated 10-Y Risk for hard ASCVD (percent)

**References**

D'agostino, R.B., Vasan, R.S., Pencina, M.J., Wolf, P.A., Cobain, M., Massaro, J.M. and Kannel, W.B., 2008. General cardiovascular risk profile for use in primary care: the Framingham Heart Study. *Circulation*, 117(6), pp.743-753.

**Examples**

```
library(CVrisk)  
ascvd_10y_frs_simple(  
  gender = "male", age = 55,  
  bmi = 30, sbp = 140,  
  bp_med = 0, smoker = 0, diabetes = 0  
)  
  
# 16.7
```

---

ascvd\_10y\_prevent      *PREVENT 10-year ASCVD risk score*

---

### Description

Computes 10-year risk for ASCVD (atherosclerotic cardiovascular disease) using the American Heart Association PREVENT equations (2023).

### Usage

```
ascvd_10y_prevent(
  gender = c("male", "female"),
  age,
  sbp,
  bp_med,
  totchol,
  hdl,
  statin,
  diabetes,
  smoker,
  egfr,
  bmi,
  hba1c = NULL,
  uacr = NULL,
  zip = NULL,
  model = "auto",
  ...
)
```

### Arguments

gender	patient gender (male, female)
age	patient age (years), between 30 and 79
sbp	Systolic blood pressure (mm Hg)
bp_med	Patient is on a blood pressure medication (1=Yes, 0=No)
totchol	Total cholesterol (mg/dL)
hdl	HDL cholesterol (mg/dL)
statin	Patient is on a statin (1=Yes, 0=No)
diabetes	Diabetes (1=Yes, 0=No)
smoker	Current smoker (1=Yes, 0=No)
egfr	Estimated glomerular filtration rate (mL/min/1.73m <sup>2</sup> )
bmi	Body mass index (kg/m <sup>2</sup> )
hba1c	Glycated hemoglobin (HbA1c) in percent (optional)

uacr	Urine albumin-to-creatinine ratio in mg/g (optional)
zip	ZIP code for Social Deprivation Index (optional)
model	PREVENT model variant to use: "auto" (default, selects based on available data), "base", "hba1c", "uacr", "sdi", or "full"
...	Additional predictors can be passed and will be ignored

**Value**

10-year ASCVD risk estimate (percent)

**References**

Khan SS, Matsushita K, Sang Y, Ballew SH, Grams ME, Surapaneni A, Blaha MJ, Carson AP, Chang AR, Ciemins E, Go AS, Gutierrez OM, Hwang SJ, Jassal SK, Kovesdy CP, Lloyd-Jones DM, Shlipak MG, Palaniappan LP, Sperling L, Virani SS, Tuttle K, Neeland IJ, Chow SL, Ranganaswami J, Pencina MJ, Ndumele CE, Coresh J; Chronic Kidney Disease Prognosis Consortium and the American Heart Association Cardiovascular-Kidney-Metabolic Science Advisory Group. Development and Validation of the American Heart Association's PREVENT Equations. *Circulation*. 2024 Feb 6;149(6):430-449.

**Examples**

```
library(CVrisk)
# Base model (default when model = "auto" and no optional predictors provided)
ascvd_10y_prevent(
  gender = "female", age = 50,
  sbp = 160, bp_med = 1,
  totchol = 200, hdl = 45,
  statin = 0, diabetes = 1, smoker = 0,
  egfr = 90, bmi = 35
)

# Explicitly specify base model
ascvd_10y_prevent(
  gender = "female", age = 50,
  sbp = 160, bp_med = 1,
  totchol = 200, hdl = 45,
  statin = 0, diabetes = 1, smoker = 0,
  egfr = 90, bmi = 35,
  model = "base"
)

# Auto model with HbA1c (will use hba1c model variant)
ascvd_10y_prevent(
  gender = "male", age = 55,
  sbp = 140, bp_med = 0,
  totchol = 213, hdl = 50,
  statin = 0, diabetes = 0, smoker = 0,
  egfr = 90, bmi = 30,
  hba1c = 6.5
)
```

---

ascvd\_30y\_prevent      *PREVENT 30-year ASCVD risk score*


---

### Description

Computes 30-year risk for ASCVD (atherosclerotic cardiovascular disease) using the American Heart Association PREVENT equations (2023).

### Usage

```
ascvd_30y_prevent(
  gender = c("male", "female"),
  age,
  sbp,
  bp_med,
  totchol,
  hdl,
  statin,
  diabetes,
  smoker,
  egfr,
  bmi,
  hba1c = NULL,
  uacr = NULL,
  zip = NULL,
  model = "auto",
  ...
)
```

### Arguments

gender	patient gender (male, female)
age	patient age (years), between 30 and 79
sbp	Systolic blood pressure (mm Hg)
bp_med	Patient is on a blood pressure medication (1=Yes, 0=No)
totchol	Total cholesterol (mg/dL)
hdl	HDL cholesterol (mg/dL)
statin	Patient is on a statin (1=Yes, 0=No)
diabetes	Diabetes (1=Yes, 0=No)
smoker	Current smoker (1=Yes, 0=No)
egfr	Estimated glomerular filtration rate (mL/min/1.73m <sup>2</sup> )
bmi	Body mass index (kg/m <sup>2</sup> )

hba1c	Glycated hemoglobin (HbA1c) in percent (optional)
uacr	Urine albumin-to-creatinine ratio in mg/g (optional)
zip	ZIP code for Social Deprivation Index (optional)
model	PREVENT model variant to use: "auto" (default, selects based on available data), "base", "hba1c", "uacr", "sdi", or "full"
...	Additional predictors can be passed and will be ignored

**Value**

30-year ASCVD risk estimate (percent)

**References**

Khan SS, Matsushita K, Sang Y, Ballew SH, Grams ME, Surapaneni A, Blaha MJ, Carson AP, Chang AR, Ciemins E, Go AS, Gutierrez OM, Hwang SJ, Jassal SK, Kovesdy CP, Lloyd-Jones DM, Shlipak MG, Palaniappan LP, Sperling L, Virani SS, Tuttle K, Neeland IJ, Chow SL, Rangaswami J, Pencina MJ, Ndumele CE, Coresh J; Chronic Kidney Disease Prognosis Consortium and the American Heart Association Cardiovascular-Kidney-Metabolic Science Advisory Group. Development and Validation of the American Heart Association's PREVENT Equations. *Circulation*. 2024 Feb 6;149(6):430-449.

**Examples**

```
library(CVrisk)
# Base model (default when model = "auto" and no optional predictors provided)
ascvd_30y_prevent(
  gender = "female", age = 50,
  sbp = 160, bp_med = 1,
  totchol = 200, hdl = 45,
  statin = 0, diabetes = 1, smoker = 0,
  egfr = 90, bmi = 35
)

# Explicitly specify base model
ascvd_30y_prevent(
  gender = "male", age = 45,
  sbp = 130, bp_med = 0,
  totchol = 200, hdl = 50,
  statin = 0, diabetes = 0, smoker = 1,
  egfr = 95, bmi = 28,
  model = "base"
)

# Auto model with UACR (will use uacr model variant)
ascvd_30y_prevent(
  gender = "male", age = 55,
  sbp = 140, bp_med = 0,
  totchol = 213, hdl = 50,
  statin = 0, diabetes = 0, smoker = 0,
  egfr = 90, bmi = 30,
```

```

    uacr = 25
  )

```

---

ascvd\_pooled\_coef      *Model coefficients for ASCVD 10y ACC/AHA model*

---

### Description

A data set containing the 2013 ACC/AHA ASCVD 10-year risk pooled cohort coefficients

### Usage

```
ascvd_pooled_coef
```

### Format

A data frame with 4 obs. and 17 variables:

**race** Patient race, either white or aa

**gender** Patient gender, either female or male

**ln\_age** Natural log of patient age

**ln\_age\_squared** Natural log of patient age in years, squared

**ln\_totchol** Natural log of total cholesterol level

**ln\_age\_totchol** Natural log of combined age and total cholesterol

**ln\_hdl** Natural log of HDL level

**ln\_age\_hdl** Natural log of HDL and age

**ln\_treated\_sbp** Natural log of treated systolic blood pressure

**ln\_age\_treated\_sbp** Natural log of treated systolic blood pressure and age

**ln\_untreated\_sbp** Natural log of untreated systolic blood pressure

**ln\_age\_untreated\_sbp** Natural log of untreated systolic blood pressure and age

**smoker** Smoking status

**ln\_age\_smoker** Natural log of smoking status and age

**diabetes** Diabetes status

**group\_mean** Grouped mean

**baseline\_survival** Baseline survival

### References

Goff, David C., et al. "2013 ACC/AHA guideline on the assessment of cardiovascular risk: a report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines." *Journal of the American College of Cardiology* 63.25 Part B (2014): 2935-2959.

chd\_10y\_mesa

*MESA 2015 CHD risk score***Description**

Computes 10-year risk for hard coronary heart disease (CHD) event (defined as first occurrence of myocardial infarction (MI), resuscitated cardiac arrest, CHD death, or revascularization with prior or concurrent adjudicated angina).

**Usage**

```
chd_10y_mesa(
  race = "white",
  gender = c("male", "female"),
  age,
  totchol = NA,
  hdl = NA,
  lipid_med = NA,
  sbp = NA,
  bp_med = NA,
  smoker = NA,
  diabetes = NA,
  fh_heartattack = NA,
  ...
)
```

**Arguments**

race	patient race/ethnicity (white, aa, chinese, or hispanic)
gender	patient gender (male, female)
age	patient age (years), risk computed for 45-85 year olds
totchol	Total cholesterol (mg/dL)
hdl	HDL cholesterol (mg/dL)
lipid_med	Patient is on a hyperlipidemic medication (1=Yes, 0=No)
sbp	Systolic blood pressure (mm Hg)
bp_med	Patient is on a blood pressure medication (1=Yes, 0=No)
smoker	Current smoker (1=Yes, 0=No)
diabetes	Diabetes (1=Yes, 0=No)
fh_heartattack	Family history of heart attacks (parents, siblings ,or children) (1=Yes, 0=No)
...	Additional predictors can be passed and will be ignored

**Value**

Estimated 10-Y Risk for hard CAD event (percent)

## References

McClelland RL, Jorgensen NW, Budoff M, et al. 10-Year Coronary Heart Disease Risk Prediction Using Coronary Artery Calcium and Traditional Risk Factors: Derivation in the MESA (Multi-Ethnic Study of Atherosclerosis) With Validation in the HNR (Heinz Nixdorf Recall) Study and the DHS (Dallas Heart Study). *J Am Coll Cardiol.* 2015;66(15):1643-1653. doi:10.1016/j.jacc.2015.08.035

## Examples

```
library(CVrisk)
chd_10y_mesa(
  race = "aa", gender = "male", age = 55,
  totchol = 213, hdl = 50, sbp = 140, lipid_med = 0,
  bp_med = 1, smoker = 0, diabetes = 0, fh_heartattack = 0
)
```

---

chd\_10y\_mesa\_cac

*MESA 2015 CHD risk score with CAC*

---

## Description

Computes 10-year risk for hard coronary heart disease (CHD) event (defined as first occurrence of myocardial infarction (MI), resuscitated cardiac arrest, CHD death, or revascularization with prior or concurrent adjudicated angina). Includes coronary artery calcification score for more precise estimate of risk

## Usage

```
chd_10y_mesa_cac(
  race = "white",
  gender = c("male", "female"),
  age,
  totchol = NA,
  hdl = NA,
  lipid_med = NA,
  sbp = NA,
  bp_med = NA,
  smoker = NA,
  diabetes = NA,
  fh_heartattack = NA,
  cac = NA,
  ...
)
```

## Arguments

race	patient race/ethnicity (white, aa, chinese, or hispanic)
gender	patient gender (male, female)

age	patient age (years), risk computed for 45-85 year olds
totchol	Total cholesterol (mg/dL)
hdl	HDL cholesterol (mg/dL)
lipid_med	Patient is on a hyperlipidemic medication (1=Yes, 0=No)
sbp	Systolic blood pressure (mm Hg)
bp_med	Patient is on a blood pressure medication (1=Yes, 0=No)
smoker	Current smoker (1=Yes, 0=No)
diabetes	Diabetes (1=Yes, 0=No)
fh_heartattack	Family history of heart attacks (parents, siblings ,or children) (1=Yes, 0=No)
cac	Coronary artery calcification (Agatston units)
...	Additional predictors can be passed and will be ignored

**Value**

Estimated 10-Y Risk for hard CAD event (percent)

**References**

McClelland RL, Jorgensen NW, Budoff M, et al. 10-Year Coronary Heart Disease Risk Prediction Using Coronary Artery Calcium and Traditional Risk Factors: Derivation in the MESA (Multi-Ethnic Study of Atherosclerosis) With Validation in the HNR (Heinz Nixdorf Recall) Study and the DHS (Dallas Heart Study). *J Am Coll Cardiol.* 2015;66(15):1643-1653. doi:10.1016/j.jacc.2015.08.035

**Examples**

```
library(CVrisk)
chd_10y_mesa_cac(
  race = "aa", gender = "male", age = 55,
  totchol = 213, hdl = 50, sbp = 140, lipid_med = 0,
  bp_med = 1, smoker = 0, diabetes = 0, fh_heartattack = 0, cac = 0
)
```

---

compute\_CVrisk

*Compute multiple CV risk scores*

---

**Description**

Compute multiple CV risk scores

**Usage**

```

compute_CVrisk(
  df,
  scores = c("ascvd_10y_accaha", "ascvd_10y_frs", "ascvd_10y_frs_simple", "chd_10y_mesa",
    "chd_10y_mesa_cac"),
  age,
  gender,
  race = NULL,
  sbp = NULL,
  bmi = NULL,
  hdl = NULL,
  totchol = NULL,
  bp_med = NULL,
  smoker = NULL,
  diabetes = NULL,
  lipid_med = NULL,
  statin = NULL,
  egfr = NULL,
  fh_heartattack = NULL,
  cac = NULL,
  ...
)

```

**Arguments**

df	input dataframe
scores	scores to compute, default is all scores
age	patient age in years (required for all scores)
gender	patient gender (male or female)
race	character string for patient race (white, aa, other) column
sbp	character string of systolic blood pressure (in mm Hg) column
bmi	character string of Body mass index (kg/m <sup>2</sup> ) column
hdl	character string of HDL column
totchol	character string of total cholesterol column
bp_med	character string of blood pressure medication column
smoker	character string of smoking status column
diabetes	character string of diabetes status column
lipid_med	character string of lipid medication column (used as statin if statin not provided)
statin	character string of statin medication column (takes precedence over lipid_med)
egfr	character string of estimated glomerular filtration rate column
fh_heartattack	character string of fh of heart attack status column
cac	character string of cac column
...	Additional arguments to pass to score functions (e.g., model parameter for PRE-VENT scores)

**Value**

input data frame with risk score results appended as columns

**Examples**

```
library(CVrisk)
# Compute traditional risk scores
compute_CVrisk(sample_data,
  scores = c("ascvd_10y_accaha", "ascvd_10y_frs", "ascvd_10y_frs_simple",
            "chd_10y_mesa", "chd_10y_mesa_cac", "ascvd_10y_prevent"),
  age = "age", race = "race", gender = "gender", bmi = "BMI", sbp = "sbp",
  hdl = "hdl", totchol = "totchol", bp_med = "bp_med", smoker = "smoker",
  diabetes = "diabetes", lipid_med = "lipid_med", egfr = "egfr",
  fh_heartattack = "fh_heartattack", cac = "cac"
)
```

frs\_coef

*Model coefficients for ASCVD 10y FRS model***Description**

A data set containing the Framingham risk score coefficients (full model with lab features)

**Usage**

```
frs_coef
```

**Format**

A data frame with 2 obs. and 10 variables:

**gender** Patient gender, either female or male  
**ln\_age** Natural log of patient age  
**ln\_totchol** Natural log of total cholesterol level  
**ln\_hdl** Natural log of HDL level  
**ln\_untreated\_sbp** Natural log of untreated systolic blood pressure  
**ln\_treated\_sbp** Natural log of treated systolic blood pressure  
**smoker** Smoking status  
**diabetes** Diabetes status  
**group\_mean** Grouped mean  
**baseline\_survival** Baseline survival

**References**

D'agostino, R.B., Vasan, R.S., Pencina, M.J., Wolf, P.A., Cobain, M., Massaro, J.M. and Kannel, W.B., 2008. General cardiovascular risk profile for use in primary care. *Circulation*, 117(6), pp.743-753.

---

frs_simple_coef	<i>Model coefficients for ASCVD 10y FRS simple model</i>
-----------------	--

---

**Description**

A data set containing the Framingham risk score coefficients (simple model without lab features)

**Usage**

```
frs_simple_coef
```

**Format**

A data frame with 2 obs. and 10 variables:

**gender** Patient gender, either female or male

**ln\_age** Natural log of patient age (years)

**ln\_bmi** Natural log of body mass index kg/m<sup>2</sup>

**ln\_untreated\_sbp** Natural log of untreated systolic blood pressure

**ln\_treated\_sbp** Natural log of treated systolic blood pressure

**smoker** Smoking status

**diabetes** Diabetes status

**group\_mean** Grouped mean

**baseline\_survival** Baseline survival

**References**

D'agostino, R.B., Vasan, R.S., Pencina, M.J., Wolf, P.A., Cobain, M., Massaro, J.M. and Kannel, W.B., 2008. General cardiovascular risk profile for use in primary care. *Circulation*, 117(6), pp.743-753.

---

make_sample_data	<i>Generate sample cardiovascular risk data</i>
------------------	---

---

**Description**

Creates a data frame with randomly generated patient data suitable for testing cardiovascular risk calculations. The function generates realistic ranges for all standard cardiovascular risk factors.

**Usage**

```
make_sample_data(n = 100)
```

**Arguments**

**n** Number of rows to generate (default: 100)

**Value**

A data frame with n rows and the following columns:

**id** Sequential patient identifier (1 to n)  
**age** Patient age in years (30-79)  
**sex** Sex at birth ("female" or "male")  
**race** Patient race ("white", "aa", or "other")  
**sbp** Systolic blood pressure in mm Hg (90-200)  
**bp\_med** Blood pressure medication status (TRUE/FALSE)  
**totchol** Total cholesterol in mg/dL (130-320)  
**hdl** HDL cholesterol in mg/dL (20-100)  
**lipid\_med** Lipid medication status (TRUE/FALSE)  
**diabetes** Diabetes status (TRUE/FALSE)  
**smoker** Smoking status (TRUE/FALSE)  
**egfr** Estimated glomerular filtration rate in mL/min/1.73m<sup>2</sup> (15-140)  
**bmi** Body mass index in kg/m<sup>2</sup> (18.5-39.9)  
**hba1c** Hemoglobin A1c percentage (4.5-15.0 or NA)  
**uacr** Urine albumin-to-creatinine ratio in mg/g (0.1-25000 or NA)  
**zip** ZIP code (30 valid codes or NA)

**Examples**

```
library(CVrisk)
# Generate default 100 rows
sample_data <- make_sample_data()

# Generate 50 rows
sample_data_50 <- make_sample_data(n = 50)

# Use with compute_CVrisk
## Not run:
data <- make_sample_data(n = 10)
result <- compute_CVrisk(
  data,
  scores = "ascvd_10y_accaha",
  age = "age",
  gender = "sex",
  race = "race",
  sbp = "sbp",
  totchol = "totchol",
  hdl = "hdl",
  bp_med = "bp_med",
```

```

    smoker = "smoker",
    diabetes = "diabetes"
)

## End(Not run)

```

---

mesa_cac_coef	<i>mesa_cac_coef</i>
---------------	----------------------

---

### Description

A data set containing the MESA risk score coefficients (model with CAC)

### Usage

```
mesa_cac_coef
```

### Format

A data frame with 1 obs. and 15 variables:

**age** Coefficient for age  
**gender\_male** Coefficient for male gender  
**race\_chinese** Coefficient for Chinese race  
**race\_aa** Coefficient for African American race  
**race\_hispanic** Coefficient for Hispanic race  
**diabetes** Coefficient for diabetes status  
**smoker** Coefficient for current smoker  
**totchol** Coefficient for total cholesterol level  
**hdl** Coefficient for HDL level  
**hld\_med** Coefficient for antihyperlipidemic medication  
**sbp** Coefficient for systolic blood pressure  
**bp\_med** Coefficient for antihypertensive medication  
**fh\_heartattack** Coefficient for family history of heart attacks  
**log1p\_cac** Coefficient for ln(coronary artery calcification (units)+1)  
**baseline\_survival** Baseline survival

### References

McClelland RL, Jorgensen NW, Budoff M, et al. 10-Year Coronary Heart Disease Risk Prediction Using Coronary Artery Calcium and Traditional Risk Factors: Derivation in the MESA (Multi-Ethnic Study of Atherosclerosis) With Validation in the HNR (Heinz Nixdorf Recall) Study and the DHS (Dallas Heart Study). *J Am Coll Cardiol.* 2015;66(15):1643-1653. doi:10.1016/j.jacc.2015.08.035

---

mesa\_coef

*mesa\_coef*

---

### Description

A data set containing the MESA risk score coefficients (model without CAC)

### Usage

mesa\_coef

### Format

A data frame with 1 obs. and 14 variables:

**age** Coefficient for age

**gender\_male** Coefficient for male gender

**race\_chinese** Coefficient for Chinese race

**race\_aa** Coefficient for African American race

**race\_hispanic** Coefficient for Hispanic race

**diabetes** Coefficient for diabetes status

**smoker** Coefficient for current smoker

**totchol** Coefficient for total cholesterol level

**hdl** Coefficient for HDL level

**hld\_med** Coefficient for antihyperlipidemic medication

**sbp** Coefficient for systolic blood pressure

**bp\_med** Coefficient for antihypertensive medication

**fh\_heartattack** Coefficient for family history of heart attacks

**baseline\_survival** Baseline survival

### References

McClelland RL, Jorgensen NW, Budoff M, et al. 10-Year Coronary Heart Disease Risk Prediction Using Coronary Artery Calcium and Traditional Risk Factors: Derivation in the MESA (Multi-Ethnic Study of Atherosclerosis) With Validation in the HNR (Heinz Nixdorf Recall) Study and the DHS (Dallas Heart Study). *J Am Coll Cardiol.* 2015;66(15):1643-1653. doi:10.1016/j.jacc.2015.08.035

---

sample\_data

*Sample patient data*

---

**Description**

A data set containing sample patient data

**Usage**

sample\_data

**Format**

A data frame with 3 obs. and 10 variables:

**age** age in years

**gender** Patient gender

**race** race

**BMI** Body mass index (kg/m<sup>2</sup>)

**sbp** systolic blood pressure

**hdl** HDL

**totchol** Total cholesterol

**bp\_med** Patient is on blood pressure medication

**smoker** Smoking status

**diabetes** Diabetes status

**lipid\_med** Patient is on hyperlipidemic medication

**fh\_heartattack** Family history of heart attack

**cac** Coronary artery calcification score

**egfr** Estimated glomerular filtration rate (mL/min/1.73m<sup>2</sup>)

# Index

## \* datasets

- ascvd\_pooled\_coef, 10
- frs\_coef, 15
- frs\_simple\_coef, 16
- mesa\_cac\_coef, 18
- mesa\_coef, 19
- sample\_data, 20

- ascvd\_10y\_accaha, 2
- ascvd\_10y\_frs, 3
- ascvd\_10y\_frs\_simple, 4
- ascvd\_10y\_prevent, 6
- ascvd\_30y\_prevent, 8
- ascvd\_pooled\_coef, 10

- chd\_10y\_mesa, 11
- chd\_10y\_mesa\_cac, 12
- compute\_CVrisk, 13

- frs\_coef, 15
- frs\_simple\_coef, 16

- make\_sample\_data, 16
- mesa\_cac\_coef, 18
- mesa\_coef, 19

- sample\_data, 20