Newsletter of the Multi-Ethnic Study of Atherosclerosis
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# MESA Messenger

## As Time Goes By - The Importance of Staying in Touch

*Diane Bild, MD, MPH, MESA Project Officer, NHLBI*


Diane Bild

We completed Exam 5 one year ago – an exam that provides a wealth of new information of all kinds – health habits, medical status, blood markers, body size, lower extremity artery measures, blood pressure, retinal images, memory, and for many of you, cardiac MRI, coronary CT scan, and carotid ultrasound. Some 4,655 people participated -- 76% of eligible cohort members. These data are very valuable, but they become much more valuable as time goes by, because MESA is a *longitudinal* study, which allows MESA investigators to link together each participant's own information to his or her health status over time. (See "Watch your mailbox for your own special report" in this newsletter about a report you may receive with some of y*our individual* results from MESA collected over 10 years of exams.)

In this issue of the MESA Messenger, you will find articles about predicting heart attacks and how neighborhoods seem to affect your health. To produce the best science, both of these topics (and many others) depend on having the most complete amount of information possible on each participant, which we gather through our phone calls with you. By now, we hope you are very familiar with having MESA staff members contact you regularly and that you welcome their calls! We also hope you will continue to provide the information requested, including permission to obtain your medical records, if needed. It is the information that you provide during these calls that allows MESA investigators to make the best use of the tests and procedures that occur during the exams.

MESA has continued to be an extremely productive study – it has produced more than 500 scientific journal articles! We are also seeing very high acceptance rates for MESA presentations at scientific conferences in the US and abroad. Many more articles are planned and will be able to be written and published, as long as the investigators can continue to collect information about you and your health. All of MESA's research findings are based on the information you and your fellow participants have provided about yourselves, and the findings apply to millions more people. We hope they will lead to improved health for all!

## Watch your mailbox for your own special report!

In appreciation for the valuable time and data you have contributed to MESA, we are creating a special report summarizing information from all of the exams you have had. We will mail it to you when it is done.

MESA is a highly respected study throughout the scientific community, and we have you to thank for this. Your participation has made this success possible.

# Coronary Artery Calcium Scores Identify People at Risk for Heart Attacks

*Joseph Yeboah, MD, Wake Forest University*

A person's chance of having a heart attack in the next 10 years can be roughly assessed by the presence and number of heart disease risk factors. One well-known tool for this is the Framingham Risk Score, designed for use in persons ages 20 and older without known heart disease or diabetes. This risk score uses information about blood pressure, cholesterol level, and smoking status -- well-known, or "traditional," heart disease risk factors -- as well as age and sex, to predict one's chance of having a heart attack in the next 10 years. (Framingham, by the way, is the name of the town in Massachusetts where the longest-running population study of cardiovascular disease still operates.)

Recommendations for doctors on how best to manage patients to help prevent heart attacks vary according to a patient's heart attack risk. If the risk of having a heart attack is low, current recommendations emphasize maintaining a lifestyle that includes exercise, a heart-healthy diet, not smoking, and weight loss for those who are overweight. If the risk is high, recommendations also include using medications such as aspirin and those that treat high cholesterol and high blood pressure. Recommendations are less clear, though, for the approximately 23 million adult Americans whose heart attack risk falls in between low and high (called "intermediate risk"). Are lifestyle changes alone enough or are medications also necessary to reduce the risk of heart attack? The answer to this question would be clearer if we could better predict heart attack risk in this intermediate risk group.

Data from MESA are being used to do just that. In addition to the traditional Framingham risk factors, MESA has measured many additional, novel risk markers and is testing them to see if they improve risk prediction. Among these risk markers are:

- coronary artery calcium score from CT scans
- carotid artery wall thickness from ultrasound
- ankle brachial index
- brachial flow mediated dilation
- C-reactive protein (a blood test of inflammation)
- family history of heart disease.

Results from a recent analysis of these markers in improving risk prediction were recently published in a leading scientific journal in 2012, the *Journal of the American Medical Association (JAMA).* We found that among these tests, the coronary artery calcium score was best at identifying which persons with intermediate Framingham Risk Scores were actually at high risk of a heart attack within ten years. While this study moves us closer to better risk prediction and treatment, more research is needed to explore both the costs and benefits of coronary artery calcium screening in intermediate risk persons.

## Your Neighborhood and Your Health – Are They Connected?

*Ana Diez Roux, MD, PhD, University of Michigan*

*Note: Dr. Diez Roux was recently recognized in an interview about her work related to environmental factors affecting health (such as neighborhoods). You can see this video at this web site: http://obssr.od.nih.gov/video/human_science/roux/index.aspx".*

Have you ever thought that your neighborhood might not help you be healthy? Actually research has shown that the places where people live may affect their cardiovascular health in ways that they had not thought about. We have known for a long time that toxic substances in the environments such as air pollution or chemicals in the soil affect health, but recent studies have shown that many other neighborhood factors may be important to health. This includes things like access to healthy foods and recreational resources which may encourage health behaviors or levels of violence which can influence health through stress. Even the ways in which neighborhoods are designed and the extent to which they encourage residents to walk may be important to cardiovascular health.

The MESA Neighborhood Study is collecting important information on the areas where MESA participants live. We obtain information on the types of food stores that are in the area and what they sell. We evaluate the presence of parks and recreational facilities. We ask MESA participants and other neighbors about how safe they feel as well as whether they feel that their neighbors get along with each other and work together towards common goals. We obtain information on crimes and car crashes in the neighborhood. We also determine whether the neighborhood is walkable using maps and information on whether there are places for people to walk. We use this information to study how these factors, as well as changes in these factors over time, affect the cardiovascular health of MESA participants.

So far the MESA Neighborhood Study has found that there are many differences across neighborhoods in how much they contribute to healthy environments. And these differences matter. Persons living in neighborhoods with better access to healthy foods do indeed tend to have better diets. Persons living in more walkable neighborhoods are also more physically active than those who do not. In addition, persons with better access to healthy food and physical activity resources are less likely to develop diabetes and become obese over time. There is even some evidence that stressors in the neighborhood such as violence or lack of safety may influence the levels of stress hormones like cortisol and that neighborhood stressors are related to the presence of mental health problems in residents. We are currently studying whether changes in neighborhoods over the course of the MESA study are related to changes in the cardiovascular health of MESA participants.

Many factors affect cardiovascular health, from genes to neighborhoods. By integrating all this information the MESA Neighborhood study may help us identify new ways of intervening to improve cardiovascular health that go beyond medical care. For example, community development initiatives that improve access to healthy foods, create new recreational spaces, or improve safety may have important cardiovascular health effects. With your help, the MESA Neighborhood Study will help us identify what policies or interventions may be most effective.

## What's coming up on our next phone visit?

In the next few months we will be calling you again to see how you are and hear about any changes in your life. Here is what you can expect when we talk next:

We will continue to ask about changes to your information and the contact people you've given us. Ideally, we would like to have information for 2 to 3 people who can help us get in touch with you if we are having trouble reaching you. This time we'll take a few minutes to review past addresses as well as your current one.

The main interview will continue to include most of the questions we ask you each time, because learning about changes in these areas is very important. Some questions we won't need to ask again are the ones we may have asked about your summer and winter activities.

There are a few new health questions, too. Among the new ones, we will ask about any prescription medications you are currently taking. Just like in clinic, we will ask you for the name and strength of the medication, how often it is prescribed, and how often you take it.

Our interviewers always enjoy visiting with you, and look forward to talking with you again. We understand how busy you may be, so we thank you very much for taking the time to talk with us.

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