Newsletter of the Multi-Ethnic Study of Atherosclerosis
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Winter 2005
No. 5

The MESA Messenger

Listen up you guys. The MESA participants have been askin' me, so now I'm askin' you. What have you found out from this study?

Excellent question! In the last issue of The MESA Messenger, Dr. Alain Bertoni provided one of the first answers to that question when he wrote about the computed tomography (CT) scan of the heart. The heart CT showed us which of you have calcium deposits in your coronary arteries, and how much. And that information enabled us to calculate your coronary calcium score. We hope that in the future we'll be able to use the coronary calcium score to help us predict heart disease and stroke. Stay tuned.

In the meantime, in this and future newsletters we'll provide other answers to the question, What have you found out from this study? Next up: ***the ankle-brachial index (ABI) test***, which you have had done either once or twice by now. It isn't a widely-used test in doctors' offices, but it could become more common. Find out more, in the article below.

Studying the Arteries, Part 1: Arteries of the Leg

From the National Heart, Lung, and Blood Institute's MESA Project Office

The blood vessels that carry blood from the heart to the legs are called peripheral arteries. Sometimes, fatty buildup in the artery walls reduces or blocks blood flow through these arteries, a condition called peripheral arterial disease (PAD). Slightly more than 10% of Americans over age 65 have PAD. The condition is more common in people who smoke or have high cholesterol levels or diabetes mellitus. Peripheral arterial disease reduces blood supply to tissues. It can cause pain in one or both calves, buttocks, or thighs that is present during walking and is relieved by rest; but some people with PAD do not have symptoms or leg pain.

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The Ankle-Brachial Index (ABI) is the result of a very simple exam and an equally simple calculation.

We first measured the ***systolic*** blood pressure (BP) in both your lower leg and your arm. (The systolic reading measures pressure in the artery during that split second in which the heart is pumping out blood.)

We then divided your ankle BP by your arm BP to determine your ABI:

Ankle BP ÷ Arm BP = ABI

For example, if your ankle BP were 140 and your arm BP were 125, your ABI would be 1.12.

MESA

Leg Arteries, continued from page 1

A way to detect PAD is to measure the "ankle brachial index," or ABI, which compares blood pressure in the arm and lower leg. One of the goals of MESA is to compare the ABI test with other tests we do to determine the condition of the blood vessels of the heart, neck, arms, and abdomen. We will also compare the ABI as a screening tool with other more sophisticated or expensive tests for finding people with a higher risk for cardiovascular disease.

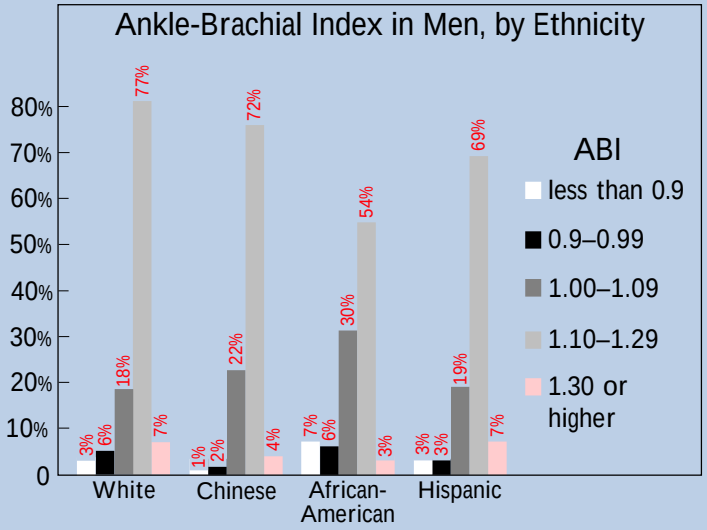
After the ABI test, we sent the results to all participants. At the time, we considered an ABI of 0.80 or lower to be an indication of PAD, and we specifically alerted participants whose ABI was in this range. Many experts believe that *an ABI of 0.90 is actually a better level to use,* so MESA has recently adopted this level, too.

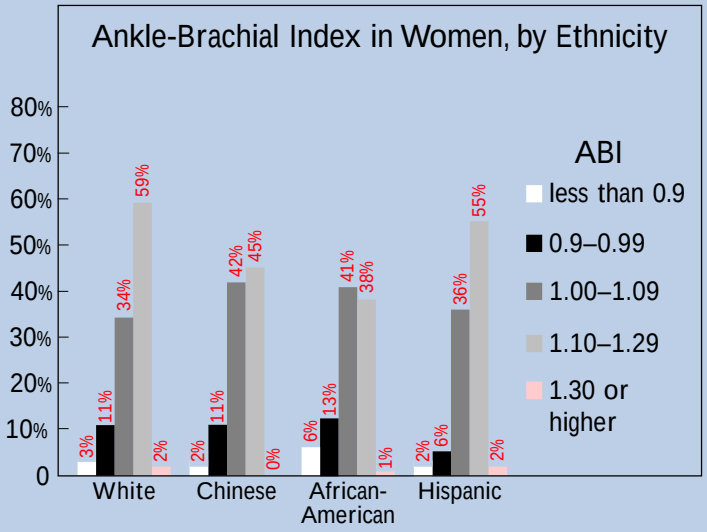
The graphs to the right show the proportion of people, within gender and ethnic groups in MESA, with different ABI levels. ABI levels of 1.00–1.19 and 1.20–1.29 are considered "normal," and the large majority of the MESA participants have ABIs in this range. A higher proportion of African-Americans had ABIs less than 0.9, compared to other ethnic groups. And a higher proportion of men had ABIs of 1.30 or more, compared to women; however, this doesn't necessarily mean, as you might expect, that these men have "super-healthy" arteries.

We also found that . . .

- Women have lower (worse) ABI than men, as a group.
- ABI is lower (worse) among older people.
- ABI is lower (worse) among people with diabetes and hypertension and among smokers.
- People whose ABI indicates PAD also tend to have artery disease in the neck and heart. However, this is not always the case, which tells us that there may be several factors that determine how and when disease develops in arteries in different parts of the body.

In the next issue: neck (carotid) arteries!





A New MESA Ancillary Study: MESA Lung

By R. Graham Barr, MD, DrPH, Assistant Professor of Medicine and Public Health at Columbia University

Chronic obstructive pulmonary disease (COPD) is currently the fourth leading cause of death in the United States. In 2000, in the US, 120,000 people died from COPD—an increase of 67% from 1980. Over the last two decades, the number of cases among women nearly doubled, and the number of cases among African Americans increased by two-thirds. In 2000, for the first time, more women died from COPD than men.

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Happy New Year
From All of Us at Columbia

MESA News and Updates from the Columbia Field Center

By Cecilia Castro, MD, Study Coordinator of MESA at Columbia University

The MESA study has been in your mind and in your life now for almost four years! We started seeing you in July 2000, and now at least 400 (more one-third) of you have had your third exam.

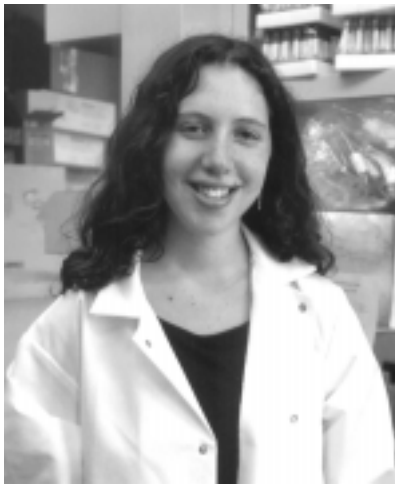
As many of you know, we are extending MESA to the siblings and parents of our Hispanic participants. We have invited these family members to participate in a study called **MESA Family**. We also are inviting MESA participants to be part of the **MESA Stress Study**, which will help us learn about the role that stress plays in the development of cardiovascular disease. We are going to measure levels of stress hormones in your saliva and urine. In addition, we hope you will participate in other two upcoming studies: **MESA Lung Study** and **MESA Air**. Both of these studies are described in detail on pages 2, 5, and 6 of this newsletter.

Left to right: Dr. Steven Shea (principal investigator), Cecilia Castro (Study Coordinator for MESA and all substudies), Niurka Suero (recruitment coordinator), Sailaja Malla (events coordinator), Flor Camarena (clinic staff), Maria Teresa Minaya (clininc staff and recruiter), Ramona Jayasena (data manager), Olga Gonzales (clinic staff and recruiter) and Vijay Nayudupalli (clinic staff).

Niurka Suero (recruitment coordinator)

A reminder from our MESA interviewers: The third examination started last April and will be completed in July 2005, and the fourth examination will start in September 2005. We will also continue to call you approximately every nine months for follow-up interviews. During those calls we ask you about your medical conditions, if you've been hospitalized, and if you've had any medical or surgical procedures.

These phone calls are made by Niurka Suero, our recruitment coordinator, and Gerardo Febres and Benjamin Delbanco, staff who assit her. You might



Renee Saenger, our new lab technician

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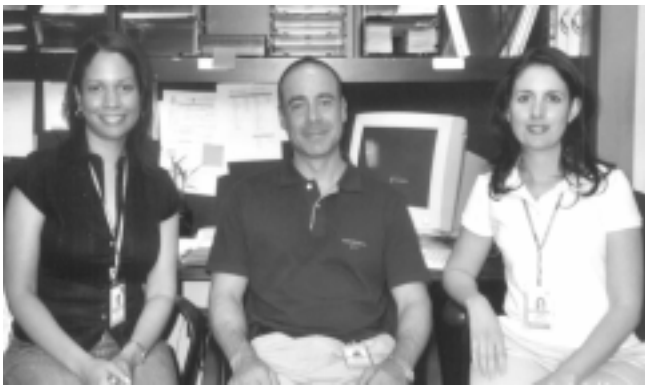


Maria Teresa Minaya (recruiter MESA Family and clinic staff), Dr.Walter Palmas (Principal Investigator for the MESA Family), and Olga Gonzales (recruiter MESA Family and clinic staff)

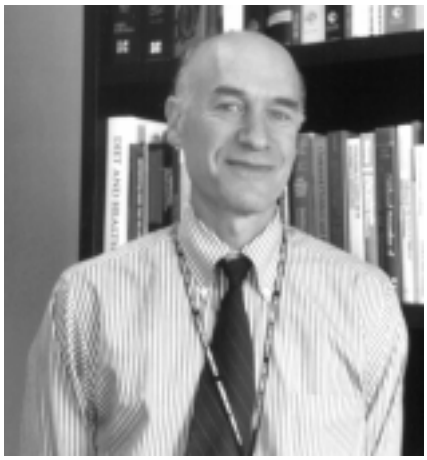
also receive other phone calls from our MESA Family recruiters, Maria-Teresa Minaya, Olga Gonzales, Milka Monegro, and Rosely Jimenez—a great group of girls from the Dominican Republic.

The clinic staff include **Vijay Nayudupalli** and **Flor Camarena**, from India and the Dominican Republic, respectively; and **Maria Teresa Minaya** and **Olga Gonzales**, who see you during your clinic visits. Other members of our staff are **Ramona Jayasena**, who is our data manager, and **Sailaja Malla**, who is the events coordinator; they are from Sri Lanka and India, respectively. **Andy Morales and Digna Cabral** escort you to your CT scan at St. Francis Hospital in Long Island.

Graham Barr, MD, DrPH, Co-Principle Investigator and Principal Investigator for the MESA Lung and MESA Air studies.

Dr. Graham Barr (co-principal investigator) is an internist and epidemiologist with a particular interest in lung diseases like asthma and emphysema. He is the prinicipal investigator for **MESA Lung** and **MESA Air**.

Dr. Steven Shea is our principal investigator for MESA at Columbia. Some of you have spoken to him on the phone when he has called you to answer questions about the study.



Steven Shea, MD, MS,Principle Investigator, Columbia University Field Center

Left to right: Renee Saenger (lab tech), Cecilia Castro (Study Coordinator for MESA and all substudies), Maria-Teresa Minaya (clinic staff and recruiter), Olga Gonzales (clinic staff and recruiter), Sailaja Malla (events coordinator), Niurka Suero (recruitment coordinator) and Ramona Jayasena (data manager).

We are very grateful to you for all your kindness and patience during these past four years, and for making the time to come to the clinic for your procedures and questionnaires.

Thank you for taking part in MESA, a study that will answer many questions about cardiovascular disease. ♡

In the New Year, may your right hand always be stretched out in friendship but never in want

COPD & MESA Lung, continued from page 2

Chronic—*constant, permanent, incurable*
Obstructive—*blocked, closed off*
Pulmonary—*pertaining to the lungs*
Disease—*a condition with specific signs and symptoms*

Despite the magnitude of the problem, many people have never heard of COPD. COPD is a term doctors use to describe a lung disease that affects a person's ability to exhale (move air out of the lungs). The two most common types of COPD are emphysema and chronic bronchitis. Emphysema is caused by the destruction of lung tissue. Chronic bronchitis is caused by inflammation and swelling—and therefore narrowing—of the airways. In many cases, people with COPD have both emphysema and chronic bronchitis. Cigarette smoking is the most common cause of COPD (although only about 10–15% of people who smoke will develop COPD)—and even former smokers can develop COPD many years after quitting. Inhaling some types of industrial dust and chemicals on-the-job over a long period of time can also cause COPD; air pollution, genetics, and other factors we don't yet fully understand may also contribute to COPD.

Treatment options for COPD are limited. Smoking cessation is essential to the treatment and prevention of COPD. Many therapies improve symptoms, but the only medical treatment proven to reduce mortality from COPD is oxygen therapy. There is therefore an urgent need for a better understanding of COPD and new therapies.

A new study in MESA, **MESA Lung,** aims to improve our understanding of COPD, help us develop better therapies, and find out if therapies that currently work for cardiovascular disease might also be helpful for COPD. Approximately half of MESA participants will be offered the opportunity to participate in MESA Lung. The study will involve one extra questionnaire and a simple, safe breathing test called spirometry. We hope that you will help us in our quest to better understand and improve treatments for this under-diagnosed disease. ♡

Spirometry measures the amount of air that you can blow out of your lungs and how fast you can blow it out.

A New MESA Ancillary Study: The MESA Air Pollution Study

By Joel Kaufmann, MD, Director of Occupational and Environmental Medicine at the University of Washington

Have you ever wondered how air pollution might affect your health? Recent research points to a potentially important relationship between air pollution—especially tiny soot particles—and heart disease. To learn more, MESA is launching a new ancillary study, **The MESA Air Pollution Study**. We want to find out how these exposures in the environment might affect the development of cardiovascular disease.

Soot, smoke, smog, and haze in the air—what we consider air pollution—include gases and very tiny particles (one-thirtieth of the width of a human hair) that can be inhaled deeply into the lungs and affect our health. There are many sources of pollution, including emissions from cars and trucks, coal-burning power plants, and burning wood.

Air pollution exposures vary from community to community, and from person to person. How much air pollution you are exposed to depends on where you live, where you work, and the characteristics of the buildings in which you live, work, and spend time. The MESA Air Pollution study will use questionnaires and air pollution measurements in your community to estimate each participant's exposures

All of you will be invited to participate in the MESA Air Pollution Study. For many of you, participation will be as simple as completing a short questionnaire; but we will ask some of you to have additional health testing and get involved with the study's air pollution measurement program. The health tests for the MESA Air Pollution Study will be similar to those you have for MESA. You will be able to get more information about the study from your MESA clinic.

The MESA Air Pollution Study is funded by the U.S. Environmental Protection Agency and has won the largest

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The MESA Air Pollution Study, continued from page 5

research grant ever made by that agency. This generous grant shows that your participation in MESA has made it a unique and important study on how and why cardiovascular disease occurs. The valuable information we collect during the MESA Air Pollution Study will be used for years to come in the effort to understand, and protect people from, the effects of air pollution. Stand by for more information on this important study! ♡

Why We Think Sticking with MESA to the End Is So Important!

By Gregory Burke, MD, MS, Principal Investigator at Wake Forest University

Many of you often ask why we want you to repeatedly come in for clinic visits and answer questions about your health over the phone. And just what is it that makes MESA so important, anyway? For those questions, we have three answers.

1 Repeating the same tests and asking the same questions over and over might seem redundant, but, as a matter of fact, MESA is designed that way for a good reason. When MESA started, none of you had any signs of cardiovascular disease (CVD). Over many years, some of you will, unfortunately, develop CVD. As that happens, we will begin to better understand why some people develop CVD and other do not. Observations like these take time, and we will not be able to make them unless you stay with the study.

2 We're studying a lot of new and improved ways to measure risk factors for CVD. Once again, it's going to take time to figure out if these new methods can really help us predict and treat (and perhaps prevent) CVD before it begins to affect people's health.

3 MESA is unique! Unlike the participants of many past CVD studies, you come from diverse ethnic backgrounds and range in age from your 40s to your 80s. So what we learn from MESA over the years will benefit *many* different groups of people.

So, is sticking with MESA important? Yes! Do *you* make a difference? Yes!

Could we do this without you? No way!

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