



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.

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:

$$\text{Ankle BP} \div \text{Arm BP} = \text{ABI}$$

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.

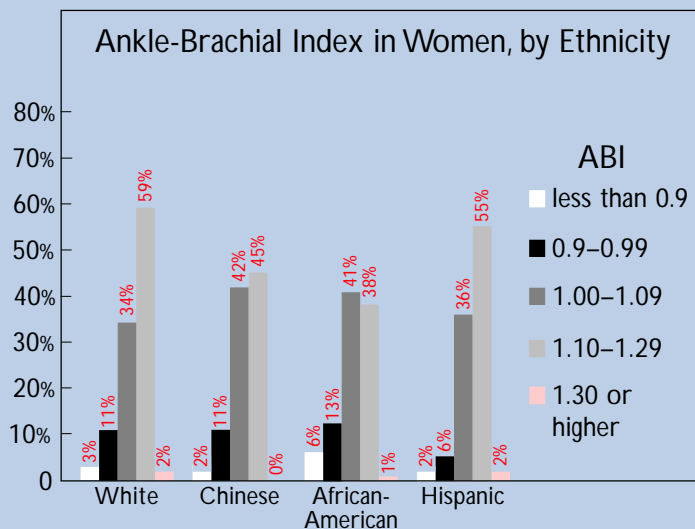
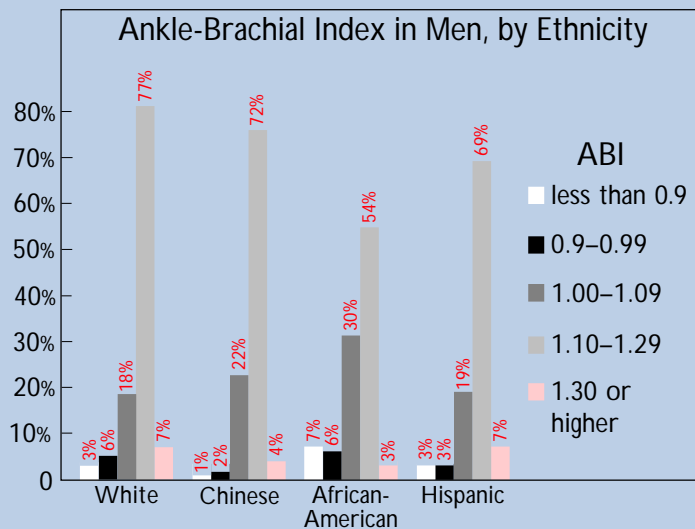
After the ABI test, we sent the results to all participants. At the time, we considered an ABI of 0.80 or lower to be an indication of PAD, and we specifically alerted participants whose ABI was in this range. Many experts believe that an ABI of 0.90 is actually a better level to use, so MESA has recently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

Season's Greetings FROM EVERYONE AT JHU

JHU Changes: Old Friends Leaving, New Ones Stepping in to Fill the Void

John Thomas Blake Moving On

On November 1, 2004, **John Thomas Blake**, affectionately known as TJ, left MESA to pursue almost full-time work in the Methodist Church and some part-time work in research in the Hagerstown area.

TJ and his wife Alicia will both graduate in May from Howard University Divinity School with Master of Divinity degrees. As might be expected, TJ has maintained an almost perfect 4.0 grade point average over the years. It is TJ's hope that he and Alicia will be given a combined pastorate somewhere in Maryland, Pennsylvania, or West Virginia.

During his time with MESA, TJ was instrumental in the start-up phases of the project. Later, as his university studies took more time, he moved more to recruitment

and retention of the cohort, working just one day a week. When MESA was first getting underway, he helped us find space, got the phones in place, actively worked as the recruitment coordinator, and generally kept things moving in the first year of recruitment.

Prior to joining MESA, TJ worked as a Sleep Technician in the Hagerstown area. He went to the homes of people who were participating in the Cardiovascular Health Study and set up sleep monitors, returning in the morning to pick up the equipment. TJ worked as a Navy medical corpsman before moving to Maryland to be close to his family.

TJ has been a very important part of the MESA team, and we wish him Godspeed and all the very best for the coming work in ministry.

Joel Hill, Project Director, Retiring

Joel Hill has been working for the Johns Hopkins University since 1986 in a wide variety of positions. But on December 31, 2004, she will retire and move to Vermont with her husband.

Joel began her career with Hopkins in 1986 as the study coordinator for the Atherosclerosis Risk in Communities Study (ARIC), a cardiovascular study of adults, aged 45–65, in Western Maryland. In 1988 she also became the study coordinator for the Cardiovascular Health Study (CHS), a study of adults, aged 65 and older, also in Western Maryland. Joel was promoted to a faculty position in 1988. Over these many years she has taught courses in methods and management of epidemiologic studies to graduate students about to enter the world of public



Back row, from left to right: Lance Ambrose, Sheila Odum, Dr. Moyses Szklo, Shirlene Waller, Carol Christman, Rosie Zelke, TJ Blake, Ruth Barkman, and Gene Graves. In front: Joel Hill and Vonda Colson. Not shown (but still with us!): Sara Hammond.

health research. In 1999 Joel became the project director for MESA.

In 1990 Joel completed her master's degree in Organizational Development, and in 2000 she was ordained as a Deacon in the Episcopal Church.

In retirement, Joel will be living and working in Vermont. She and her husband have purchased 17 acres of wooded land and will be living "off the grid." That means that their electricity will be supplied from solar cells and a wind generator! They won't have a telephone line so will use cell phones exclusively on their "mountaintop." The property has a well (300 feet deep) and a septic system (phew!)

Joel plans to continue her work in the church and will be starting a number of projects in the Diocese of Vermont.

Joel will continue to consult with MESA in a limited way over the next 12-15 months, as the project moves ahead and into new phases of study. We wish her well and look forward to continued work with her.

New Leadership in MESA

On October 28, 2004, Dr. Moyses Szklo, MESA's principal investigator, announced the formation of a new leadership team for MESA and MESA Family: Carol Christman will assume the responsibilities for MESA, and Shirlene Waller will assume leadership of MESA Family.

Carol Christman has worked for Johns Hopkins since 1987, starting as a lab technician in the Hagerstown office with the Atherosclerosis Risk in Communities (ARIC) project. Following successful work in the lab, she learned the procedures and skills needed to acquire data as a sonographer in ARIC. She worked as a sonographer, technician, interviewer, and staff contributor until the project began to wind down in 1998. At that time Carol joined the Cardiovascular Health Study and later, in February 2000, began working for MESA.



Carol became the clinic coordinator for MESA and was instrumental in the start-up phases of the field center in the Woodlawn area of Baltimore.

As clinic coordinator Carol has been responsible for quality control measurements, oversight of the clinic schedule, and general operations of the field center. Carol lives in Shepherdstown, West Virginia, and commutes to work from there each day—a sometimes daunting endeavor, especially in the wintertime.

Shirlene Waller began her work with Hopkins in 1994 as an interviewer with a cancer research project. She then went to work with the Women's Health in Aging Study (WHAS) and the Experience Corps in 1998. She worked as a recruiter and as a technician in both of these studies.

In 1999 she assumed responsibility for data management in MESA. As the data manager, she has been responsible for creating and implementing all steps in the data collection process of the study. Data collection tasks begin the first time a participant walks through the door, and they really never end. Once the information is transmitted to Seattle, there are endless tasks to be completed to ensure that the data is complete and ready for analysis by MESA's investigators.

Shirlene has also held many part-time positions, among them working as a caregiver for the elderly. She lives in Baltimore with her son.

We wish both of these women much success with their new leadership roles. They'll both do a great job, and our MESA and MESA Family field center will be better for it in the years to come. ♥

*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



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!

The MESA Messenger is produced by the Multi-Ethnic Study of Atherosclerosis (MESA). MESA is funded by the National Heart, Lung, and Blood Institute (NHLBI).

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Multi-Ethnic Study of Atherosclerosis
Coordinating Center
University of Washington, Box 354299
6200 NE 74th St., Building 29, Suite 310
Seattle, WA 98115