CHS Heartbeat
Newsletter of the Cardiovascular Health Study ~ Fall 2003

Looking Back at the Cardiovascular Health Study: A Historical Perspective

By Annette Fitzpatrick, PhD, CHS Investigator, University of Washington
and Jean Olson, MD, PhD, CHS Project Officer, National Health, Lung, and Blood Institute

It has been an incredible fifteen years! In 1988, the Cardiovascular Health Study (CHS) began as a study to learn about how to prevent heart disease and stroke in older adults. You came on board in 1989–90 or 1992–93, and what an experience it's been! Together, we have done and learned so much. During the years of seeing you at the clinics and talking to you on the phone, we not only documented your health but also learned about you and your family. And since then you have become our family. *You* are CHS.

This fall, *Heartbeat* highlights some CHS milestones and some of the major contributions to science you have made. Thanks!

A Few CHS Milestones: What You Did

1988 CHS got its official start. We had one year to prepare for your arrival.

1989–90 We recruited our first 5,201 participants from Forsyth County, NC; Sacramento, CA; Washington County, MD; and Pittsburgh, PA. We began seeing you annually and collecting information about your health. You gave us measurements of and information about your:

- blood pressure (arm, ankle, lying down)
- height, weight, and girth
- social activities and networks
- levels of stress and depression
- cognition and memory
- physical function and physical activity
- heart's health (ECG and echocardiography)
- carotid arteries and abdominal aorta (ultrasound)
- diet and medications
- lung function
- blood chemistry

1992–93 We invited a few more of you to join: an additional 687 African-American participants were enrolled in CHS.

1991–99 You came to the clinic each year and provided us with more data about your health over time. And you patiently allowed us to add a few new procedures:

Continued on page 2

- Magnetic resonance imaging (MRI) gave us a picture of your brain (1992–94);
- Some of you allowed us to measure your bone density and body composition (1994–95);
- We took a picture of your eye (retinal photography) to look at its very small blood vessels (1996–97).

1999–present You continue to tell us about your health and allow us to collect information about hospitalizations.

For all that you have done for us—and the list above is only the tip of the iceberg—we thank you.

What You and We Have Accomplished

If you joined the CHS because you wanted to contribute to science, so that doctors would have more information on what they could do to prevent cardiovascular disease for you and future generations, you have succeeded. Using the CHS data, the CHS investigators have written over 240 papers that have been published in highly-regarded scientific journals such as the *Journal of the American Medical Association* and the *New England Journal of Medicine*. From this body of work have come a number of insights and changes in health care policy at the national level, an accomplishment all of you should be proud of. For example, although a number of sources and studies were involved in these landmark events, data from CHS contributed to the following:

- We demonstrated a new and better way to identify which older adults have a high risk of stroke or heart attack: the presence of *subclinical* (hidden and without symptoms) cardiovascular disease. We also showed that older adults without subclinical disease have a very low risk for heart attack and stroke.[1]
- In an effort to reduce heat attacks, the National Cholesterol Education Project established new guidelines for controlling cholesterol.[2]
- The Joint National Committee on the Detection of Hypertension lowered the level at which blood pressure is considered to be high (hypertension). We used to consider a systolic blood pressure of 160 high; but now 140 or above is considered high, and scientists think that even people with blood pressure above 130 should be warned about hypertension.[3]
- The National Institutes of Health (NIH) acknowledged that health care professionals had not been adequately treating high blood pressure in older adults, and they started campaigns to better identify and treat it.[4]
- We learned a lot about the role of markers of inflammation, such as C-reactive protein (CRP), in heart disease. As a result, the Centers for Disease Control and the American Health Association made a joint statement to health care professionals about how to use the markers to screen patients for heart disease.[5]
- We learned that lung function continues to get worse in older adults who continue to smoke.[6]

For making a difference in medical science and health care policy, we thank you.

Other Contributions You Have Made

Your loyalty has helped doctors learn so much about healthy, functioning older adults. For example:

- Because you agreed to have an MRI of your brain, we learned what normal brains look like in people over 65. Before CHS, scientists and doctors didn't have this information, because brain imaging was done only after someone had a stroke or other neurological change.[7]
- Because you agreed to have a carotid ultrasound, ECGs, and echocardiography, we discovered how important it is to look for subclinical cardiovascular disease; and we learned that subclinical disease can increase a person's risk of future heart disease.[1]
- TWe learned that a very simple, low cost test, the Ankle-Brachial Index (ABI), could identify subclinical cardiovascular disease. (Remember when we took your blood pressure in both your arm and your ankle?) The ABI also helped us identify people who needed to be tested more thoroughly and watched more carefully for heart disease.[8]
- We've begun to understand more about "healthy aging" and what constitutes frailty in older adults. We hope this knowledge will help more seniors live longer, healthier lives.[9,10]
- You showed us how important it is for older adults to keep their spirits up and guard against depression—a disease that can have serious health consequences.[11]
- You brought attention to a lesser known heart condition—congestive heart failure—and are helping doctors develop the best treatments for it.[12]

You have made so many other contributions that we can't even begin to list. For the knowledge you have brought to the scientific community, we thank you.

The Future of CHS

As you know, we are still calling you. It is very important that we stay in touch and continue to see how you are doing. We really have so much more to learn about the health and function of people your age, and you are continuing to show us the way. Although you have not been scheduled for annual clinic examinations for the past few years, there may be opportunities for new studies in the future. We are examining a number of options for continuing the relationship that we have had with you for 15 years, because the need to learn more about your physical and mental health is great. When we call, please consider taking the time to chat with us. And if you are up to it, come back to the clinic or let us visit you at your home. Although we're not sure what will be coming up, we'd love to see you again.

Remember, too, that you can call your clinic any time, to let us know how you're doing. We'd love to hear from you!

Continued on page 4

Finally, if you'd like a list of the 240 articles that have been published about you and the CHS, please write or call. We'd be happy to provide you with copies of any articles you'd like to read. You can find a list of the articles on our website, *http://chs-nhlbi.org.*

Information about the accomplishments we discussed in this newsletter came from the following articles:

[1]Kuller L, Borhani NO, Furberg C, Gardin JM, Manolio TA, O'Leary DH, Psaty BM, Robbins J. Prevalence of Subclinical Atherosclerosis and Cardiovascular Disease and Association with Risk Factors in the Cardiovascular Health Study. Am J Epidemiol 1994; 139:1164-79.

[2]Manolio TA, Furberg CD, Wahl PW, Tracy RP, Borhani NO, Gardin JM, Fried LP, O'Leary DH, Kuller LH. Eligibility for Cholesterol Referral in Community-dwelling Older Adults: Implications from The Cardiovascular Health Study. Ann Int Med 1992; 116:641-649.

[3]Psaty BM, Furberg CD, Kuller LH, Borhani NO, Rautaharju PM, O'Leary DH, Bild DE, Robbins J, Fried LP, Reid C. Isolated Systolic Hypertension and Subclinical Cardiovascular Disease in the Elderly: Initial Findings from the Cardiovascular Health Study. JAMA 1992; 268:1287-1291.

[4]Psaty BM, Savage PJ, Tell GS, Polak JF, Hirsch CH, Gardin JM, McDonald RH. Temporal Patterns of Antihypertensive Medication Use Among Elderly Patients, The Cardiovascular Health Study. JAMA 1993; 270:1837-1841.

[5]Tracy RP, Lemaitre R, Psaty BM, Cushman M, Meilahn EN, Kuller LH. Relationship of C-Reactive Protein to Risk of Cardiovascular Disease in the Cardiovascular Health Study. Arterioscler Thromb Vasc Biol 1997; 17:1121-1127.

[6]Higgins MW, Enright PL, Kronmal RA, Schenker MB, Anton-Culver H, Lyles M. Smoking and Lung Function in Elderly Men and Women: The Cardiovascular Health Study. JAMA 1993; 269:2741-2748.

[7]Bhadelia RA, Anderson ML, Polak JF, Manolio TA, Beauchamp N, Knepper L, O'Leary DH. Prevalence and Associations of MRI-Demonstrated Brain Infarcts in Elderly Subjects With a History of Transient Ischemic Attack: The Cardiovascular Health Study. Stroke 1999; 30(2):383-8.

[8]Newman AB, Shemanski L, Manolio TA, Cushman M, Mittelmark M, Polak JF, Powe NR, Siscovick D. The Ankle Arm Index as a Predictor of Cardiovascular Disease and Mortality in the Cardiovascular Health Study. Arterioscler Thromb Vasc Biol 1999; 19:538-545.

[9]Burke GL, Arnold AM, Bild DE, Cushman M, Fried LP, Newman A, Nunn C, Robbins J. Factors associated with healthy aging: the cardiovascular health study. J Am Geriatr Soc 2001; 49(3):254-262.

[10]Fried LP, Tangen CM, Walston J, Newman AB, Hirsch C, Gottdiener J, Seeman T, Tracy R, Kop WJ, Burke G, McBurnie MA. Frailty in older adults: evidence for a phenotype. J Gerontol A Biol Sci Med Sci 2001; 56(3):M146-M156

[11]Schulz R, Beach SR, Ives DG, Martire LM, Ariyo AA, Kop WJ. Association between depression and mortality in older adults: the Cardiovascular Health Study. Arch Intern Med 2000 Jun 26;160(12):1761-8.

[12]Gottdiener JS, Arnold AM, Aurigemma GP, Polak JF, Tracy RP, Kitzman DW, Gardin JM, Rutledge JE, Boineau RC. Predictors of congestive heart failure in the elderly: the Cardiovascular Health Study. J Am Coll Cardiol. 2000 May;35(6):1628-37.

CHS Heartbeat is produced by the Cardiovascular Health Study Coordinating Center, University of Washington, Seattle, WA. The study is financially supported by The National Heart, Lung, and Blood Institute, NO1-HC-85079.

CARDIOVASCULAR HEALTH STUDY
University of Washington, Box 354922
Collaborative Health Studies Coordinating Center
6200 NE 74th St., Suite 310
Seattle, WA 98115