Adventist Health Studies

better health for everyone!

Report 2009

VOLUME VI

Adventist Health Study-2 Begins Eighth Year

We are now into the eighth year of AHS-2, although for most of you it will be between 2-6 years ago that you enrolled. No doubt many are wondering when the pay-off will come from your work of completing that long questionnaire! Although the main results about risk of cancer are still three to four years away, there are already some interesting facts emerging. Please refer to the articles inside titled "Some Early Results and Observations About Black Members in AHS-2" and "Religion and Health."

Our funding challenges are still with us and they have inevitably slowed down productivity and the pace of analysis and publishing results. However the study is basically very "healthy", and we are frantically writing grant applications through the end of 2009 and into 2010. The fiscal emergency at our funding agency has abated considerably so we are very hopeful that we will succeed in obtaining new funding during the next 12 to18 months.

The most important thing that I wish to emphasize this year is how important it is when you receive that short questionnaire each two years about any hospitalizations, to complete it and mail it back (generally takes about five to ten minutes to complete). Please even now, pull it out from under that pile of books, and get it back to us quickly. It is never too late to do that! Although mailing each of these to you costs only about 15 cents, multiply that by 96,000 persons, and it is a lot of money ($14,400). Mailing them the second, third, and fourth times to those who are unable to respond to the first mailings, becomes even more costly.

Lastly, it is really important that we are able to contact you easily when necessary. This is something that we do only rarely. It could be that there is an apparent conflict in the information that you provided us, or perhaps you reported information about a cancer, but we could not find a record at the cancer registry etc., etc. Please write new contact information in the box on the back page and mail it to us, or give us a call. As with all your other information, this is never shared with any other organization and is kept very secure.

I hope that you find some articles of interest in this news-letter. Although these are very long-term studies, the pay-off is generally large, for ourselves, our families and our neighbors. Thank you for your patience, and we will keep you informed year by year. As usual, let me conclude by again expressing our enormous gratitude for your interest and continuing involvement with AHS-2.

Yours truly,
Gary E. Fraser
Director

In this issue

It is necessary that there are 5,000 – 6,000 new cancers among AHS-2 participants before analyses can begin, and we are about 60% toward that number. We hope that you are not contributing to the study by providing a cancer, but if so, your experience has at least one positive aspect. You become particularly informative and valuable to our study

What Is Our Timetable for Results About Cancer?

The main goal of AHS-2 has always been to find whether diet affects the risk of common cancers. A remarkable thing about studies of this sort is that they will also usually provide much information about many medical disorders other than cancer. So we have already produced some results about diabetes, high blood pressure and body weight. However, what about our main goal which is the cancers?

The bottom line is that these results will not be available for another 3 to 4 years. One challenge that all cancer researchers face is that unlike say heart attacks, cancers in particular parts of the body (breast, bowel, stomach, etc.) are really quite rare. Each is in many respects a different disease, though with some common features. Thus, it takes a long time for several hundred cancers of one sort to accumulate even from a large group such as the 96,000 members of AHS-2.

It is also the nature of statistics that analyses on a small number of cases have the weakness that the results are uncertain. Let us imagine (although we do not know it), that the truth is that vegetarians have half the risk as compared to non-vegetarians for some cancer. When trying to identify this truth in a study with a small number of cases, we could only be fairly certain that the truth lies somewhere between vegetarians having one-tenth the risk of non-vegetarians, and no risk difference at all. This is not a satisfying result. It allows too wide a range for the estimated true result.

If on the other hand we had waited till many more cancers were observed, it would be possible to state that the truth almost certainly lies between vegetarians having a 40% to 60% reduction in risk compared with non-vegetarians. This is a much more precise and useful result.

As we wait to find enough cancers, study investigators are carefully studying the high quality dietary information that you provided, so it will be immediately ready to answer questions about diet and cancer in 2-3 years.

Walking a Mile a Day Keeps This Doctor in Great Shape!

She might not think of herself as the poster child for health and longevity, but 101 year-old Los Angeles physician Geraldine Burton Branch, MD, MPH, exemplifies so many benefits of the Adventist lifestyle that her secrets are worthy of emulation.

For one thing, the effervescent Dr. Branch—who got her doctor of medicine (MD) degree from New York Medical College in 1936, and her master of public health (MPH) from UCLA in 1960—has integrated the principles of healthy living so seamlessly into her daily life that they've become second nature to her.

"A good lifestyle is very important," she observes. "I have a longevity gene, but you can void your longevity gene if you don't take care of yourself."

How does she do that? For starters, the diminutive doctor walks a mile every morning around her Hancock Park neighborhood. And she maintains a list of longevity foods—more than 50 of them—which she believes assist her in living an active, productive life.

She's been busy! As one of the nation's first African-American female physicians, Dr. Branch has enjoyed an active and influential career in three medical specialties.

"I started out with an internship and residency in obstetrics/gynecology," she reveals. "But when I started working in maternal child health for the County of Los Ange-

So we must wait till there are between 500 to 1,000 new cases for each of breast, prostate, and colon cancers. Then we will be able to produce stronger and more helpful results. At present we are about two-thirds the way toward that point.

How do we identify these new cancers? In two ways:

a. First, each two years you receive a short questionnaire that asks if you have been hospitalized recently. If so, did you have a new cancer? In addition, we ask whether you had a new cancer that was diagnosed and treated outside of hospital (we do not need information about non-melanoma skin cancers). This is very important information, although we need to verify its accuracy in some way.

b. Second, we periodically match all the names, addresses, birthdates and social security numbers of our study members to the computer files of your state's cancer registry. This is done in such a way that carefully protects the privacy of your information. Thus we can find all study members from your state who have developed a new cancer, as doctors are supposed to report these.

Interestingly, no previous study has attempted to match with all 50 state cancer registries (and also the Canadian registries). The paperwork is tedious but we are proving that it is possible. We have AHS-2 members in all 50 states, and all provinces and territories of Canada.

We find that most cancers reported by members on the short questionnaires each two years, are also in the cancer registries. But the registries do miss some cancers and the questionnaire is an important backup method. At present about 30% of AHS-2 study members are not finding time to return these important questionnaires, despite up to four mailings.

Really there are just two important sources of information that we need to successfully complete this study. The first is all the dietary and other information that you so carefully provided in the first long questionnaire, and the second is the information about any new cancers—or their absence. This is why it is so important that you return the two-yearly short AHS-2 questionnaires.

Thank you for helping us find more accurate results!

les, they sent me to get my MPH and promoted me to assistant district health officer."

At this point, she diverges from describing her career trajectory to talk about a few of her accomplishments. Among other things, Dr. Branch worked closely with the late Los Angeles County Supervisor Kenneth Hahn in persuading the Board of Supervisors to build Martin Luther King Hospital, now known as King/Drew Medical Center, on the west side of town.

When she finally retired as assistant district health officer, Dr. Branch took a good hard look at her community and decided to do something about the lack of quality health care for seniors in South Central Los Angeles at the time.

"I'm not going to let anybody die on my doorstep," she observes, "so I came out of retirement and opened a senior health center. I called Kenny" —her name for Supervisor Hahn— "and told him, 'I need an ambulance right here at my health center.' He said, 'Let's train the firemen to do that. All they do is play cards and drink coffee'." Despite the Supervisor's caricaturized assessment of their activities, firemen have served as paramedics ever since.

Dr. Branch

Looking back on her career and life, Dr. Branch is optimistic about the future, yet modest about her accomplishments. Given the strength of her intellect and the persistence of her resolve to solve problems, it's a safe bet that she will continue to advocate for healthful living for the rest of her life.

"If you see a need, why sit and complain about it?" she asks, with a twinkle in her eye. "Do something to straighten it out!"

Some Early Results and Observations About Black Members in AHS-2.

Although the results about diet and cancer are still a few years off, we can look at causes of other sickness and ill health. In addition, there are some interesting dietary habits and other results that particularly apply to Black members in AHS-2. Here are a few of those:

What about meats in the diet?

About 25% of Black members eat no meat and are therefore vegetarian. This is not new as we reported this before. However, it was interesting, and to us unexpected, that the kind of meat that non-vegetarian Blacks eat is different to that generally eaten by non-vegetarian Adventists of other ethnicities. While the non-vegetarian Adventists of other ethnicities eat on average about 34% of their meat as beef or red meat, the Black non-vegetarians eat only 22% of their meat as red meat and more clearly prefer fish or chicken (78% of their meat).

Special vegetable foods in the diets of many Blacks.

If you are not Black, West Indian, or from the South, how often do you eat poke salad, pigeon peas, okra-corn-tomatoes, field peas, kale, johnnycake, callaloo, dasheen, soursop punch and many others? Do you even know what they are? We soon realized that if we were to properly measure the diets of all members in our study that we had to extend and amend the first version of our dietary questionnaire. Working with two experienced Black nutritionists, one from the South originally, and one from the West Indies, we conducted studies to find which of these foods accounted for important parts of the diet in some people. We found that it was necessary to add about 20 items to the questionnaire, and that in total these foods accounted for more than 30% of the calories eaten by Blacks living in the South or West Indians living in the U.S.

What about overweight in Black members?

Researchers use a statistic called the body mass index (BMI) to decide whether someone is overweight. Below 25 is not considered overweight, 25-29.9 is considered overweight, and 30 or above obese. There has been a little discussion whether these boundaries should apply equally to Black and non-Black persons, and they do not exactly fit everybody (e.g. body builders may have high values from muscle, not fat).

Nevertheless, those discussions cannot conceal the fact that on average AHS-2 members are overweight (average BMI is 27.1), and that this is particularly so for Black members. The average BMI in Black Adventist men is 27.4, and in Black women is 29.6. Black women in general have a serious challenge here, and you can see that it is also true for Black Adventist women. Remember that overweight is responsible for many cases of high blood pressure, diabetes, heart attacks and also certain cancers.

Dairy Intake by Black AHS-2 members.

It is interesting that our lacto-ovo vegetarians are not high dairy, but their dairy intake sits about half way between that of vegans (no dairy) and Adventist non-vegetarians. However, overall Black Adventists eat a good deal less dairy than White Adventists. Actually, it is about ¼ less dairy fat and about 1/3 less dairy protein. We are uncertain why but it could be because lactase deficiency is more frequent among Blacks. Lactase is an enzyme necessary to digest the large amount of lactose sugar that occurs in cows' milk. If lactose remains undigested, it leads to stomach upsets. Asians in AHS-2 eat even less dairy food and perhaps for the same reason.

Broken bones in Black AHS-2 members.

Broken bones that occur outside of traffic accidents or major trauma are most commonly due to *osteoporosis* or thinning of the bones. As in some other studies, it is interesting that in AHS-2 also, Blacks have many fewer problems with broken wrists and broken hips. Both of these are fairly common fractures as one gets older, particularly in women. We know that low levels of estrogen in post-menopausal women, low levels of physical activity, being underweight, poor protein intake (either vegetable or animal protein will help), and low sun exposure with low blood vitamin D, will all increase risk of broken bones.

So why do Blacks have less thinning of the bones?

This is especially a puzzle seeing the extra pigment in the skin blocks some of the sun's rays and levels of blood vitamin D in Black subjects are much lower than in others. We found this in AHS-2 Blacks also, where their blood levels are 50.1 nmol/l and those of non-Blacks average 77.1 nmol/l. One might expect more broken bones in Blacks, but it is not the case! We do not have the whole answer to this puzzle. Perhaps Blacks have a genetic advantage in this respect.

The "Nuts and Bolts" of Promoting this Large Study in 4,500 Churches

By Patti Herring, PhD

While the main results that you are looking for are still a little way off, we thought some would be interested in how we were able to recruit such a large number of church members into the Adventist Health Study-2 (AHS-2). Reaching nearly 200,000 members and having 96,000 return the questionnaire is a phenomenal response. How did we do this? Well—undeniably with the help of YOU—the church members who took the time to complete the lengthy questionnaire; also the local church helpers (recruiters) in every church who assisted us in promotion and data collection; and of course your pastor, and thousands like him in Adventist churches throughout the US and Canada.

It was not surprising that it was easier recruiting in some churches than in others, easier in some geographical areas than in others, and easier in some ethnic groups than in others. As the Black Researcher who led out in Black recruitment, it is not easy to admit that it was a lot harder process in the Black churches than in many other churches. Nonetheless, in the final analysis the pastors' role in our success (in all the churches) cannot be overemphasized. They are the gatekeepers at the churches and their positive influence upon you, their members, was invaluable. This is especially true in Black churches. Gaining the cooperation of Blacks into research studies is a long recognized challenge. We will not go into the various reasons WHY Blacks are a harder group to reach, which many of you might already know, but we thought you might be interested in one important aspect of the HOW (nearly 26,000 Blacks, and over 71,000 non-Blacks successfully participated).

At every church, the pastors gave us the names of one or more church members (volunteer recruiters) who they thought capable and willing to help promote the study at their churches. Each church had an AHS-2 goal based on its membership. In Black churches, when the pastor and the volunteer recruiter themselves completed and returned a questionnaire, the response from their members also was significantly better. They *came much closer to reaching the church's goal than those churches in which the pastor or volunteer recruiter* did not participate in the study.

This provides evidence that the pastor's influence, and that of the designated local church member recruiter, were important factors in promoting member cooperation and enthusiasm. For the most part, pastors were very supportive of the Study and their support spilled over to making public appeals to their members to participate. Almost certainly the members mostly did not know whether their pastor completed or did not complete the questionnaire, but it seems that the extra enthusiasm of those pastors who did participate showed, and motivated the whole church in a special way.

Clearly, we were able to recruit such a large cohort of Adventists into our study, especially the Black members, because of the efforts and attitudes of the large number of dedicated pastors and church helpers across the country and Canada. Therefore, to you, church recruiters, and pastors we say THANK YOU; in part because of you—the Adventist Church and our health message will continue to make headlines. It will be of particular interest to find the effects of a more conservative (or is it really "progressive"!) Adventist lifestyle among our Black members. There are some special health challenges there, and it is possible that we will see extra large effects of a prudent lifestyle. Stay tuned!

You can already start to see the great potential of this study. We need you to stay involved in order to fulfill this potential. ***If you are a Black study member we especially need you to complete and turn in the small follow-up questionnaire that you receive each two years.*** *This is really important to the study.*

In Black churches, when pastors and local church AHS-2 representatives THEMSELVES completed the AHS-2 questionnaire, then so did many more of their members!

What do we mean by "vegetarian"? Are there different kinds?

As Adventists, many of us have been brought up and educated to prefer a particular way of eating. For some it is a goal yet to be achieved, and for others it is not a high priority. Central to the diets of all vegetarians is the absence of meat. Interestingly, a category labeled pesco-vegetarian is sometimes talked of, which allows those who eat fish as the only flesh food to still call themselves vegetarian!

Yet meats are only one component of a diet that typically contains hundreds of items in the U.S. and Canada. How meaningful is it to characterize a whole diet just on the basis of one food group? As we will see this is less than ideal, yet the absence of meats is a very important dietary characteristic. Meat is an important source of calories, protein, iron, and vitamin B12 for non-vegetarians, and these must be made up by other foods in vegetarian diets.

Thus we find that vegetarian diets differ in many ways from those of non-vegetarians aside from the absence of meat. For instance, vegetarians eat more of many vegetable food groups, including nuts, legumes and many fruits. They are much more likely to choose whole grain breads and cereals, to use margarines based on poly-unsaturated plant oils rather than butter as a bread spread. The levels of carotenoids in their blood are higher, these being pigments found in many fruits and vegetables that they eat in greater quantities. It may well be some of these differences that account for certain differences in their health experience, and not just the absence of meats.

The history of vegetarianism actually begins in its most organized form in the early 19th century in Great Britain. Even today there are more vegetarians there per 1000 subjects than in any other country, perhaps excepting India. This introduces the idea that there are several motivations for vegetarianism and there are other types of vegetarian than those we have been used to in Adventism.

Probably it is still true that most vegetarians, in the West at least, hold to their diet out of respect for animal rights. Certainly this is a dominant theme among those (relatively small number) who are vegan and eat no animal products at all. Many vegans will not even wear leather shoes. Health as a reason underlying the choice of a vegetarian diet is a more recent idea but is becoming more prominent, partly perhaps because of our previous work in Adventists.

Another major reason for vegetarian choices is religious asceticism. Most practicing Eastern Orthodox adherents may spend up to half the year effectively vegetarian. What they call "fasts" are not actually periods of no food, but the absence of meats and dairy foods. At least one study has demonstrated that as a consequence they have lower blood cholesterol levels.

Aside from Adventists there is really only one large group of vegetarians who have had their health experience thoroughly investigated. These are the British vegetarians. Results suggest that they also receive benefits with respect to risk of heart attack and in lower mortality than typical British subjects. Yet the degree of benefit seems somewhat less than California Adventist vegetarians.

In this regard it is interesting that the British vegetarians (of whom few are vegan) differ little from British non-vegetarians in their use of tea, cakes, pastries, certain dairy items, and with respect to their intake of many nutrients. They do consume more fruit and vegetables, but less than half as much as non-vegetarians in some Mediterranean countries.

Many Hindus are vegetarian because they see it as a religious virtue, building both on animal rights (in fact sacredness), and also better health. In India the vegetarian foods are rather different from those we find in the U.S. Vegetarian diets in India have evolved over time, and differ in different regions of the country. Typically they are characterized by consumption of cereals and grains, lentils and legumes, some other vegetables and fruits, and nearly always dairy. The risk of heart disease or diabetes among vegetarians and non-vegetarians there does not differ much, and this may be attributed to the consumption of large portions of white rice and other refined grains. There is also a higher intake of clarified butter (also called ghee) in Indian diets in general. Calorie consumption is often high.

In summary, the label "vegetarian" is actually a rather vague term, and even among Adventists to judge the diet simply on the basis of consumption of meat or not, is probably a mistake. On average an Adventist vegetarian does better, but it is also easy for a vegetarian to be at high risk of chronic disease. Giving attention also to other aspects of the diet aside from meat, even when you are a vegetarian, makes a lot of sense!

Study Update

Religion and Health

Research studies have shown that individuals of any denomination who attend church live longer. In 2005 the National Institute on Aging awarded a grant to Loma Linda University to try to better understand this relationship. In fall 2006 a special 20-page Adventist Religion and Health Study questionnaire was sent out to about 20,000 who were members of AHS-2. Almost 11,000 individuals responded. Loma Linda investigators thought that life stress would have a cumulative effect on individuals but that religious beliefs and activities would usually reduce (though occasionally increase) the impact of this stress. For example, a belief that God is a "helping God" would decrease stress, while a belief that stress in the life was a punishment from God might increase stress. Religious belief might lead to better health habits as well.

Thus, this questionnaire measured various stressors, religious beliefs and behaviors (e.g., a meaning for life, gratitude, forgiveness, Sabbath-keeping, prayer, church support, importance of religion in daily life), variables which religion might influence and which in turn would influence health (e.g., exercise, optimism, social support,), and a variety of potential outcomes (perceived mental health, perceived physical health, life satisfaction).

Additionally, in 2007, about 500 Adventists living in the Los Angeles, Riverside, and San Bernardino agreed to attend clinics where their blood pressure, blood, urine, and saliva samples were taken, memory was measured, balance and gate assessed, and body size measurements were recorded.

A report has been published in the International Journal of Epidemiology describing the study (http://ije.oxfordjournals.org/cgi/content/extract/dyn244). More than 10 other reports (many preliminary) have been presented or have been accepted for presentation at professional organizations. Another report on life stresses and risk of fibromyalgia has been accepted for publication and a number of other papers are being written.

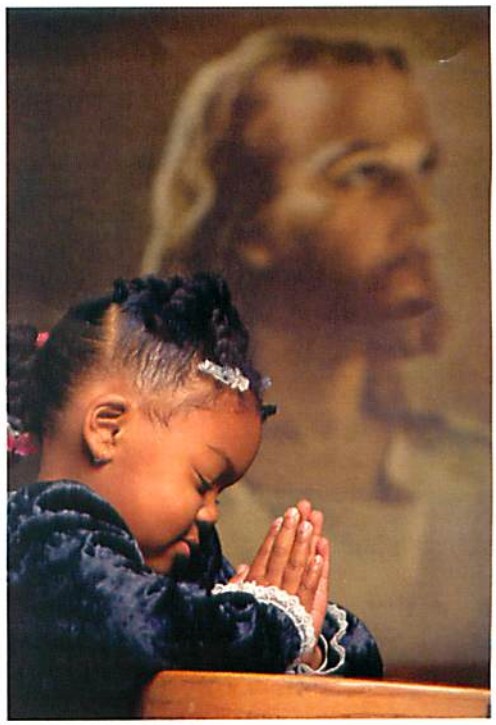
Some early findings:

a) In general when compared to national norms, Adventists were in better mental and physical health than non-Adventists. Overall, they had a better quality of life. This was true separately for both Black and White Adventists.

b) Adventists attended church, and prayed more frequently than non-Adventists except for one group: Black Adventist women did not pray more frequently than Black non-Adventist women—not because they were any less likely to pray than other Adventist groups, but because Black non-Adventist women prayed much more frequently than Black non-Adventist males and all White non-Adventists!

This fall and winter another religion and health questionnaire will be sent to the 11,000 current participants. Next year our 500 clinic participants will be asked to return again. These data will show whether stress in the life in 2006-2007 predicts poor health 3-4 years later. It may also be that strong religious belief may reduce the impact of high stress?

We greatly appreciate those of you who participated in 2006-2007 and hope that you will do so again in the coming year. For those of you who have greater interest in this project we have more information on the Internet at http://www.llu.edu/public-health/health/adventist-religion-health.page



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Are you moving this year?

Every year in the USA and Canada about 15% of the general population move house and change their address. If you are one of these can you please notify our AHS-2 office of your change of address? It makes it so much easier to keep in contact and reduces the expense of follow-up. Notification of change of telephone number and email is also appreciated. To update your contact details: phone (800-247-1699) or email (ahs2@llu.edu) or write Adventist Health Studies, Loma Linda University or visit our website, www.adventisthealthstudy.org.