

2014



# University of Maryland School of Medicine Amish Research Clinic Annual Newsletter

## Greetings from the Amish Research Clinic

We hope that this newsletter finds you and your family healthy and happy. Next year will be our 20<sup>th</sup> anniversary! Since we began our research 19 years ago, we have enrolled over 6,000 Amish volunteers in our studies. Most of these volunteers have participated in more than one study. This newsletter comes to you each year to keep you informed about our new studies and what we have learned from the studies that we have completed. Some of the diseases we have studied include diabetes, osteoporosis, high blood pressure, cholesterol abnormalities, breast density, celiac disease, longevity, seasonal affective disorder, obesity, heart disease and wellness. We currently have 12 active studies. None of this work could be



possible without our compassionate Amish volunteers and the Amish Community, who have provided their partnership and support. Together, our research has resulted in new discoveries and it has helped us better understand the causes of a number of diseases. As described in this newsletter, the results of some of our studies have already had an impact on health in the Amish as well as in other populations. Many of our studies continue to need volunteers. Thousands of Amish volunteers have benefited from participating because it provides a number of health benefits including free medical evaluations and screenings for a

number of common diseases and disorders. Participating in research studies also provides the opportunity to contribute to new knowledge, which may help millions of people with the diseases that we study.

Some of the studies are conducted at our clinic in Lancaster. Free transportation to and from the clinic is provided. Other studies are conducted right in your own home. Not only do you gain lots of knowledge about your health but with most studies, we even pay you for your time and effort. If you have any questions or you are interested in participating in any of our studies, please call 717-392-4948. You can also write us a note. Please make sure you include your address so we can get back to you.



## Our Mission Statement

The Amish Research Clinic contributes to improvements in healthcare through research. We serve as a resource for health information and knowledge to the Amish Community.

## Staff

- Alan Shuldiner, M.D.
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- Julie Douglas, Ph.D.
- Richard Horenstein, M.D.
- Nisa Maruthur, M.D.
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- Susan Shaub, R.N., Research Nurse
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- Patrick Donnelly, R.D.C.S., Sonographer
- Maryann Drolet, BSMT, ASCP, Research Specialist
- Sylvia Newcomer, BSMT, ASCP, Research Specialist
- Elizabeth Zehr, Laboratory Assistant
- Nancy Weitzel, Clinic Supervisor/ Research Nurse

# Ongoing Studies

The wellness study provides comprehensive testing to all adult participants at no cost.

## Wellness Study (active)

The Amish Wellness Study continues to recruit participants. This study offers all Amish adults basic wellness screening including tests of cholesterol, blood sugar, thyroid, bone strength, and heart health. We have found that high cholesterol and hypothyroidism (low thyroid function) are quite

common in the Amish. Blood is also being collected and stored at the University of Maryland for research on genetic and non-genetic factors in health and disease. The research team hopes to visit all Amish households. Testing takes place in our "Wellmobile" housed in a large motor vehicle which visits each

Church district. If we haven't visited your Church district yet, we will be there in the future. To date, over 2500 Amish individuals ages 18 and older have enrolled in the Wellness Study, which is funded by the University of Maryland Program for Personalized and Genomic Medicine. Thank you!

## PPAR Study (active)

This study has resumed recruitment and will take in five additional participants. The purpose of the study is to determine why some people do not respond to pioglitazone, a drug used to treat diabetes. Participants take the drug for 12 weeks. We

take measurements before and after the drug course to assess response. We will then look for genes responsible for individual differences in response. We will finish the analyses this year and come back with more information in next year's

newsletter. We thank the 30 Amish who have participated in the study so far.

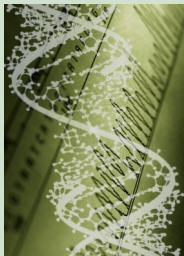


## MiACT Study - Metabolic Impact of ApoC-III (active)

Based on our exciting finding that about 1 in 20 Amish people carry a gene change that helps them to clear dietary fat from their blood faster and may help prevent heart disease, we are conducting a study to learn more about this gene change called APOC3 R19X. People with this gene change

make less of a substance in the body called ApoC-III. The new study is helping us to learn how ApoC-III works and whether lowering it in other people might be a useful way to prevent heart disease. We are comparing people with and without the gene change for how their fat is distributed

in their bodies, how their bodies process dietary fat, cholesterol and sugar, and how fat and cholesterol move around in their bloodstream. So far over 100 people have enrolled in the study, which is funded by the National Institutes of Health.



## Ongoing Studies cont.

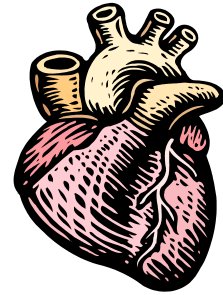
### Pear 1 (active)

Cardiovascular disease is the leading cause of death in the United States with heart attacks (also known as myocardial infarction) being the most common form of this disease. When a person has a heart attack, aspirin is the most commonly given drug in order to help patients get better. Aspirin works by preventing blood clots, which is a common reason why people have heart attacks. While aspirin prevents the formation of blood clots in many people, some patients do not benefit (or get a reduced benefit) from taking this drug. This is known as aspirin resistance.

The reason why some people have aspirin resistance may be due to differences in their genes. Genes are made up of chemical building blocks called DNA and pass on information from generation to generation.

In some cases, some of this genetic information can lead to higher disease risk as well as differences in how the body reacts to certain drugs. In this study, we will evaluate how differences in the gene PEAR1 and other factors determine how well people respond to 3 different doses of aspirin. This information may be very important in helping doctors

prescribe the best dose of aspirin based on the patient's genetic make up to prevent or treat a heart attack.



### Osteoporosis Study (active)



This study was started in March 1997 and thanks to our many wonderful Amish participants, we are making great progress in studying genes that are important for bone health. We have found regions on chromosome 7 and 21 and variations in a gene called EIF2AK3, that are likely to influence bone health. This study remains

active and in particular we are now studying the factors that cause some people to lose more bone after middle age while other people tend to be very slow "bone losers." If you have participated in the Wellness Study and your heel study indicated you may need further testing, you may call the clinic to arrange an appointment for a dexas-

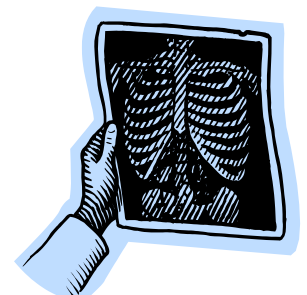
can. The dexascan will be performed free of charge as part of the Osteoporosis Study.

### Osteoporosis Pseudoglioma (OPPG) Study (active)

Osteoporosis pseudoglioma syndrome (OPPG) is a rare genetic disorder of weak bones (osteoporosis), blindness (from birth) and sometimes behavioral problems. Although OPPG is extremely rare in the general population (about 60 people with OPPG are known worldwide), many children with OPPG have been diagnosed in the Old Order Mennonite community in PA (15 children so far). OPPG can lead to multiple broken bones (fractures) of the upper and lower leg bones and back. Dr

Streeten has been studying OPPG for 15 years, trying to find a new treatment that will help strengthen the bones in people with OPPG. Traditional medications used to treat osteoporosis can help in OPPG but do not totally prevent fractures. We completed a 6 month study of lithium, which was shown to strengthen the bones of mice with OPPG and it did strengthen the bones in children with OPPG but worsened behavioral problems in those who had behavior problems at baseline. We are now

studying the quality of bones in OPPG with a special type of x-ray called pQCT, a painless procedure which gives detailed pictures of the bones to help us understand why the bones are so fragile in OPPG.



## Amish Imaging and Mental Illness Study (active)



We continue our new study to learn more about mental health problems in the Amish community. The study also aims to find out more about brain differences that make it more likely someone will have mental health problems. This is a family study, so we would like several people from the same family to participate. This study has two parts. The first part involves completing a brief survey that asks about feelings and behaviors.

We mail this survey to your home. For the second part of the study, participants travel by van with other family members to Baltimore, MD. In Baltimore, participants complete other study tasks and tests. We use a method that takes pictures of your brain; this is called magnetic resonance imaging (MRI). We can use these pictures to understand the brain circuits, or wirings, which are related to mental health. These brain wirings are often heritable, meaning that they run in families. The study tasks in Baltimore, MD take about seven hours to complete. The van

ride takes about two hours each way, so volunteers are gone for about 11 hours. Study participants are compensated for their time and effort, usually around \$250. Amish adults and children aged 12 and above are eligible to participate. We enroll persons with and without histories of mental health problems. If you would like to learn more about this study, please contact the Amish Research Clinic at (717-392-4948).

## Genetics of Pain Study (active)

Pain is the primary reason that patients seek medical attention. Recent medical advances have dramatically increased



life expectancy and, therefore, the number of people living with chronic diseases and chronic pain. More than 116 million Americans are chronically in pain, and they make more than 70 million visits to healthcare providers at a cost of more than \$600 billion every year. Most of the patients have their pain for five or more years, causing decreased quality of life and in-

creased stress for the entire family. Scientists believe that there is a link between our genes and how we sense pain, which is why some people require more pain medication than others after the same injury or develop chronic pain after recovering from an illness. However, exactly which genes are involved in determining these differences are not known. The goal of this research project is to gain a better understanding of how our genes control pain sensing and why some people feel more pain than others. We plan to recruit 100 participants and measure their response to pain from heat, cold and pressure. While the participants will experience some temporary pain from

heat, cold and pressure produced by an instrument placed on their arms, they will not be injured in any way. The study will require around 3 hours and participants will be compensated for their time and effort. If you are interested in participating, please call our clinic @ 717-392-4948 and find out more information.



## The Amish Family Diabetes Study (active)

Diabetes is a very common disease caused by increased sugar in the blood. There are two major types of Diabetes. Type 1 occurs in children and the only treatment is insulin since the body cannot make its own. Type 2 diabetes is more common and generally occurs in overweight adults. Diet, weight loss, pills and sometimes insulin injections are needed to keep the blood sugar under control. Diabetes runs in families. The goal of this project is to identify

genes involved in diabetes. Thanks to many of the Lancaster Amish, we have recruited over 1300 volunteers. One of the genes we identified in the Amish that is involved in type 2 diabetes, called GRB10 appears to also be important in other populations around the world. We continue to study which genes are involved in the development of Type 2 diabetes so that we can better identify people at risk for diabetes and also find new ways to prevent and

treat it. Symptoms of diabetes may include fatigue, increased thirst, hunger and urination. If left untreated, diabetes can lead to eye, liver, kidney, nerve and blood vessel problems. If you or someone in your family is experiencing these symptoms and would like to be tested for diabetes, please call the clinic at 717-392-4948. All testing is free and usually done in your home.

### Our Amish Liaisons:

**Mary Esch**

**Naomi Esh**

**Sadie Fisher**

**Sarah Fisher**

**Sarah Glick**

**Hanna King**

**Naomi Stoltzfoos**

**Barbie Stoltzfus**

**Fannie Stoltzfus**

**Katie Stoltzfus**

**Mary Stoltzfus**

**Susie Fisher**



## New Studies



### Omega 3 Study

We are starting a new study to learn whether omega-3 fish oil can help to reduce the type of fat that causes health problems. Fat that accumulates in the gut appears to promote inflammation more than fat that accumulates in other areas of your body and this may put you at increased risk of heart disease. Omega-3 fish oil lowers blood fats (triglycerides) but we are not sure whether it also reduces inflamma-

tion of fat. To be eligible for this study, Amish men and women older than 18 years need to have a fasting triglyceride levels above 150 with an increased waistline (35 inches or more in women and 40 inches or more in men). If eligible, participants will be assigned to take either omega-3 or placebo capsules (4 each day). At the beginning and end of the 9 month study, pictures of your fat will be taken using a tech-

nique called magnetic resonance imaging (MRI). We will remove a small amount of fat from your belly by aspiration and blood and urine collection will be performed at the beginning and end of the study. All studies will be conducted in Lancaster and participants will be compensated for their time and effort. If you think you may be eligible for this study and are interested in participating, please call.

### LP(a) (active)

Cardiovascular disease (CVD) is a leading cause of human morbidity and mortality in the world. A high cholesterol level in the blood is an important independent risk factor for atherosclerosis, the underlying cause of CVD. Recent evidence from large cohorts suggest that a particular protein that is associated with cholesterol, called Lp(a) may be an important determinant of heart disease and stroke. Lp(a) concentrations are under strict genetic control that are minimally influenced by age, gender, weight, and diet. However, the specific genes involved are not completely known. Moreover, no practical method for lowering of Lp(a) levels is currently available. The objective of this pro-

posal is to define the genetic architecture of Lp(a) to glean insights into how Lp(a) is regulated. These insights may lead to new ways to treat or prevent CVD. We are particularly interested in two regions on chromosomes 6 & 11. Participants of this study will be asked to provide a blood sample and also undergo other tests to look at blood vessels in the neck and brain using ultrasound and MRI. Identification of the genes that influence Lp(a) levels may lead to the design of novel therapeutic strategies to lower Lp(a) levels to prevent or treat CVD in patients with diabetes.

Many of our  
studies  
continue to  
need  
volunteers.

**2013 Publications can be viewed on this website...**

**<http://medschool.umaryland.edu/endocrinology/publications.asp>**

## Seasonal Affective Disorder Study (inactive)

(We are no longer recruiting for these studies but analysis continues at the university's laboratory)



Seasonal affective disorder (SAD) affects millions of Americans. People with SAD have low mood, low energy, gain weight, and feel sleepy through the winter. Decreased day length triggers SAD in some individuals and light therapy treats SAD. Some patients need medications or talk therapy for a full improvement. This is the first study of SAD in the Amish. Our

findings reporting the frequency of SAD and heritability of the disorder, both lower than expected, have been published in the *Journal of Affective Disorders*. We have also published an article on validating the questionnaire we used in the Amish. The genetic analysis of SAD in collaboration with Australian researchers did not identify any major genetic marker for SAD. It is more likely that SAD is a result of the environment than of genes, and it is interesting to

identify the factors that may protect many Amish from SAD. We will be working on obtaining a grant to be able to study actual patients with SAD in the clinic in greater detail in the following years, to find out how we can predict who will better respond to light treatment. In the meantime, patients who experience problems with SAD or depression can call the clinic for a list of referrals to mental health professionals in the area.

## PAPI Study (inactive)

The goal of this study is to understand why some people do not respond to medications used commonly to prevent heart attacks, aspirin and clopidogrel (Plavix). In this 8-day study, participants took clopidogrel and aspirin and had blood samples tested to see how well the medications prevent the blood from clotting. PAPI participants also received free testing for heart problems, high cholesterol, liver, kidney, and thyroid

problems. More than 650 subjects participated in this study. Searching the genome, we found a gene called CYP2C19 that is an important determinant of response to clopidogrel. The test is now being used to better treat people with heart disease, who have received stents. To further explore why some people respond more than others to clopidogrel (Plavix), we invited eighteen participants into a study in which three different dosages of clopidogrel were

taken over three different 8-day periods. This study showed that a higher dose of clopidogrel may be used in some patients with resistance to the usual dose of clopidogrel. We have also found an interesting gene that predicts response to aspirin called *PEAR1*. A new study was initiated to study this gene further.

## Salt Loading and Thiazide Intervention (inactive)

Based on our exciting finding of a gene called STK39, we are studying (1) why some people can get rid of excess salt and water in their diets and control their blood pressure, but others develop increased blood pressure when they eat diets that have a lot of salt in them and (2) why a commonly prescribed blood pressure medication, thiazide, only works in

some, but not all high blood pressure patients. Participants of the SALT study spent half a day in our clinic and took thiazide for 4 weeks. The study has completed the recruitment phase and we successfully recruited 125 subjects, therefore this study is currently not recruiting any new volunteers.

We are now analyzing the da-

ta and will keep everyone updated on our findings. We would like to thank everyone that completed the study, including many more that expressed an interest and agreed to be screened for eligibility.





## Breast Density Study (inactive)

Some of the diseases we have studied include diabetes, osteoporosis, high blood pressure, cholesterol abnormalities, breast density, celiac disease, longevity, seasonal effective disorder, obesity, heart disease and wellness

Breast density refers to the amount of dense glandular tissue in the breast. It is measured by a routine mammogram or x-ray of the breast to detect unsuspected cancer. Dozens of studies have suggested that dense breasts are more cancer prone. But no one knows exactly why. With the help of nearly 1,500 Amish women, we've been trying to an-

swer that question by searching for the genes that determine density. So far we've discovered over half a dozen genes that influence breast density in the Amish and other populations of European descent. Several of these genes are also associated with the risk of breast cancer. Over the coming year, we hope to use these findings to better understand the link between breast density and breast cancer. Meanwhile, we would like to remind all Amish women of

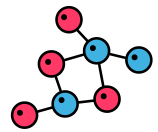
the importance of getting a routine mammogram. The National Cancer Institute recommends that women over the age of 40 years have a mammogram every 1-2 years coupled with a breast exam by a doctor to improve the early detection of breast cancer. By doing so, a woman may reduce her risk of dying from breast cancer by about 17% (if she is 40 to 49 years old) and by about 30% (if she is 50 years or older). If you need assistance scheduling a mammogram, please call us at 717-392-4948.

## Zinc Study (inactive)

Based on increasing knowledge of genes that affect diabetes, we enrolled 60 participants in a study to evaluate the effect of a zinc supple-

ment on blood sugar and insulin levels. The participants spent two mornings in the clinic and took a zinc supplement for 14 days in between. We found that some people improve their insulin levels in response to

zinc while others do not. We will apply for funding for a larger and longer study of zinc to treat diabetes.



Front row: Elizabeth Shaub Zehr, Second row Maryann Drolet, Yvonne Rohrer, Donna Trubiano, Sue Shaub, Sylvia Newcomer Third row Theresa Roomet, Mary Morrissey and Nancy Weitzsl . Not pictured : Patrick Donnelly (photographer)

### New Addition to our clinic family

New Mommy  
Elizabeth Zehr

New Grandma  
Sue Shaub

Born:  
December 25, 2013  
**Declan Shawn Zehr**



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*Amish  
Research  
Clinic*

