The Forced Oscillation Technique

One of the many ways in which physicians try to understand why patients have breathing problems is by measuring their lung function. This is usually accomplished by a test called spirometry. Spirometry involves a patient breathing out hard and fast into a machine that records the flow and volume of gas being expired. From this test the physician can estimate the size of the lungs and how well air is flowing in and out of the lungs. However, in order to do spirometry accurately, patients must be able to understand the instructions and give good, consistent effort. This may be difficult for many reasons, such as inability to forcefully blow due to chest pain or muscle weakness, or the inability to understand the technique or cooperate with the testing. These issues may be important in some pediatric or elderly patients, patients with underlying muscle disease or on mechanical ventilators, or patients with language barriers.

Recently, another technique to measure lung function without the problems associated with spirometry has become more popular, even though it has been around for many years and used as a research tool. This test is called the forced oscillation technique. In this test, the patient simply breathes quietly through a tube while a small flow of gas is pushed in and out of (or oscillated in) their lungs. By measuring the pressure generated due to the gas flow at different frequencies of oscillation, the machine can calculate how much resistance there is in the airways and estimate the amount of stiffness in the lung tissue. The test appears to be very good at picking up the effects of bronchodilator medication and also the response to methacholine, which is a commonly used medication to help diagnose asthma. The biggest advantage of this test is that the patient does not have to do anything special other than breathe quietly for a few seconds through the tube. They do not need to take deep breaths or blow air our hard and fast. In addition, the information from this test appears to relate to many important physiological properties of the lung. In fact, we have been using this technique as a research tool in the Vermont Lung Center for many years. Currently, Dr. Kaminsky is running a study to see if the forced oscillation technique will help determine whether participants with asthma have airways that are more likely to close down compared to healthy volunteers. The forced oscillation technique is not widely used clinically yet, but with further research and understanding of its advantages and limitations, it may not be long before we see the test used as another way to help understand why patients have trouble with their breathing.
In late March and early April 2009 an outbreak of H1N1 influenza virus infection was detected in Mexico. Since that time this infection has swept the world and is a cause of major concern, as most people lack any immunity to this virus.

This new virus arose from genes of a human virus mixing with genes from a swine virus. This can happen because the influenza viruses are able to infect human and pigs (and birds). Some of the genes from this virus originally came from the major flu pandemic that occurred in 1918, and killed millions of people world-wide ("The Spanish Flu").

The signs and symptoms of influenza are similar to those of seasonal influenza and include fever, cough, sore throat and muscle aches. However gastrointestinal symptoms appear to be more common with pandemic H1N1 influenza A than is typical in seasonal influenza.

Whereas seasonal influenza typically affects elderly patients this pandemic form of influenza affects younger age groups. One reason for this may be that a similar virus was last circulating the general population in 1957, and so those over the age of 60 may have some immunity to the virus. Risk factors for severe disease include pregnancy, underlying illness, younger age and obesity.

Public-health measures will be our best line of defense against this infection. This includes encouraging people who are sick to stay at home, hand-washing and vaccination. Children, pregnant women, healthcare workers and those with chronic underlying illness all need to be immunized.
List of Current VLC Studies

**ASTHMA**

Study of Acid Reflux in Children with Asthma (SARCA)
Primary Investigator: Charles Irvin, Ph.D., Director, VLC
Coordinator: Stephanie Burns
Who: Children age 6-17 with asthma who do not have heartburn
What: 9 visits over 7 months
Compensation: up to $550

Methacholine Bronchoprovocation – Influence of High Potency Corticosteroids in Asthma Study (MeCIS)
Primary Investigator: Charles Irvin, Ph.D., Director, VLC
Coordinator: Stephanie Burns
Who: Children aged 12-17 and Adults with and without asthma
What: Nonasthmatics: 1 visit
Asthmatics: 5 Visits over 16 weeks
Compensation: $50 per visit

Novel Application of the Forced Oscillation Technique in Subjects with Asthma
Primary Investigator: David Kaminsky, M.D.
Coordinator: Laurianne Griffes
Who: People with stable asthma, moderate to severe asthma and people without asthma
What: Up to 2 visits, each lasting about 1.5 hours
Compensation: up to $100

**IDIOPATHIC PULMONARY FIBROSIS (IPF)**

Centocor CNTO888PUL2001: A Phase 2, Multicenter, Multinational, Randomized, Double-blind, Placebo-controlled, Parallel-group, Dose-ranging Study Evaluating the Efficacy and Safety of CNTO 888 Administered Intravenously in Subjects with Idiopathic Pulmonary Fibrosis
Primary Investigator: Yolanda Mageto, M.D.
Coordinator: Stephanie Burns
Who: People with Idiopathic Pulmonary Fibrosis
What: IV infusions every 4 weeks for 48 weeks, 3 follow up visits through week 72.
Compensation: $30 per visit.

**CYSTIC FIBROSIS**

A randomized, double-blind, placebo-controlled parallel group study to investigate the safety and efficacy of two doses of tiotropium bromide (2.5 µg and 5 µg) administered once daily via the Respimat® device for 12 weeks in patients with cystic fibrosis.
Primary Investigator: Laurie Whittaker, M.D.
Coordinator: Joan Lippmann
Who: People with Cystic Fibrosis
What: 8 visits over 12 weeks
Compensation: Up to $800.

**SARCOIDOSIS**

For more information on these studies, please visit our website @
www.vermontlung.org
The white blood cell called the eosinophil, has the primary responsibility of fighting a parasitic infection in your body, but they also play a roll in allergic reactions such as allergic asthma. We count the eosinophils in your sputum samples because they can tell us about the severity of your asthma. In general the more eosinophils found in your sputum the more severe your asthma.

The name itself means eosin—loving. Eosin is the name of a red dye we use to stain the tiny packages contained inside of the cell so we can see them under a microscope. These packages, called granules, hold a toxic chemical that the eosinophils secrete to kill parasites. Normally when your immune system detects that a parasite has invaded your body it will trigger the release of chemicals which attract eosinophils to the infected area. Sometimes allergic reactions, like those in asthma, will trigger the same chemicals to be released in your lungs, which in turn causes eosinophils to accumulate there. The eosinophils should only use their toxic granules to kill parasites, but sometimes they release the toxins in inappropriate places. When they are released inside of your lungs the potent toxins damage the sensitive lining of your airways. This damage may promote the bronchial hyper-responsiveness, obstruction or injury which you experience as asthma.

Because asthma research has indicated the role of eosinophils in asthma, asthma treatment now includes the use of steroid inhalers which play a key role in stopping the accumulation of eosinophils in your lungs and mitigating the damage caused by those which are already there.
Sputum: Why We Like It

If you have participated in any of our asthma related studies there is a good chance that you have provided us with a sputum sample. I am the person who swings by to whisk off your cup of “spit” to the lab for processing.

So, let’s discuss sputum. In Latin sputum simply means “to spit” and that is pretty much what we mean by the word when we use it. The sputum sample you provide is a mix of mucus, phlegm, and saliva from the lungs, bronchi and trachea. These sticky fluids contain cells from inside your respiratory system.

It is the cells that are brought up in the mucus that are of particular interest to us. These cells, called white blood cells, are part of your immune system. There are 5 types of white blood cells found in sputum, each of which has a unique and specific means of protecting you.

When the cells in your lungs detect a disturbance or irritation, your body will begin to invite specific types of white blood cells to pass out of the blood vessels and into the affected tissue. Because we know what each of the five types of cells do we can learn a lot about what is causing your asthma by counting up each type of white blood cell in your sputum.

To count the cells we put them on a glass slide that can be looked at under a microscope. Cells that are mixed in with sticky fluid and debris can be very difficult to count so the first thing I need to do is to isolate the cells from the rest of the sputum. Luckily the cells stick together and form white clumps which are usually large enough to pick out with a pair of forceps (tweezers). As a general rule a person with severe asthma will produce many large clumps where as a person with well controlled asthma would produce clumps which are fewer and smaller in size. A sample from a healthy person without asthma may contain none at all.

So, I pick out the clumps with my forceps, being very careful to leave all of the mucus behind. The clumps get combined into a single container. I add a chemical to the selected sputum which dissolves the goo causing the cells to stick together. I then dilute the sample and filter it to remove any large debris.

This leaves me with free floating cells in liquid. A quick spin in a machine called a centrifuge will make the cells settle to the bottom of the container so that the fluid can be collected off the top. I save this fluid to test for any signaling chemicals that the cells might be making to communicate with other cells. Meanwhile, I apply the cells to the surface of a glass microscope slide so that we can look at them under a microscope.

This is what your sputum really looks like:

Not gross but really more like a piece of modern art isn’t it?

Each of the slides I make contain approximately 35,000 cells like the ones shown here. I count 200 to 500 cells while tracking how many cells of each type there are. I calculate the percentages of each cell type and these percentages are the basis of our analysis.

I do hope you have a better understanding of what happens to your sputum when you leave it with us. For more information check out the next edition of the Spirogram where we will put a spotlight on the first of five cell types in our ongoing white blood cell series: the neutrophil.
Asthma is a common problem and patients often have conditions that overlap with asthma such as chronic obstructive pulmonary disease (COPD). In asthma, airways constrict limiting airflow for a number of reasons including inflammation, smooth muscle activity, and changes in the airway cells. Effective treatment of asthma requires a team approach between the health care provider and the patient who knows their condition the best. In our laboratory we study the biology of asthma including effects of asthma medications on the structure and function of the lungs. Our goal is to better understand current treatments and to help develop new approaches to treatment. With this in mind, we describe a brief and general overview of current asthma treatment.

Asthma Treatment Overview

Drug therapy has advanced tremendously over the last 15 to 20 years and treatments today are dramatically different from those that were used by our parents and grand parents. The general strategy is to create a regime with a maintenance drug that should control the condition entirely with rare exceptions. A short acting medicine known as a rescue inhaler is to be used very rarely (twice a month or less).

Rescue medication usually consists of short acting beta agonists taken with an inhaler or rarely a nebulizer. These medicines do not treat the inflammation but do open the air tubes or bronchi. Again, they are to be used rarely if at all if the maintenance therapy is adequate.

The mainstay of therapy today is inhaled steroids which come in a variety of names. Inhaled steroids reduce inflammation in the airways and reduce the tendency for airways to constrict. The lowest minimum dose required is generally best. Inhaled steroids have greatly fewer side effects than oral steroids taken in pill form. One of the greatest achievements of the recent pharmacological revolution is to reduce the need to use steroid pills which have so many side effects. Inhaled steroids are part of the maintenance class of medications designed to be used daily.
List of Current VLC Studies

ASTHMA

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Primary Investigator: Charles Irvin, Ph.D., Director, Vermont Lung Center
Coordinator: Stephanie Burns
Who: Children age 6-17 with asthma who do not have heartburn
What: 9 visits over 7 months
Compensation: up to $550

Methacholine Bronchoprovocation – Influence of High Potency Corticosteroids in Asthma Study (McCIS)
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Who: Children aged 12-17 and Adults with and without asthma
What: Nonasthmatics: 1 visit
Asthmatics: 5 visits over 16 weeks
Compensation: up to $50 per visit

Asthma Exacerbations: Physiology, Upper Airway and Fibrin
Primary Investigator: Charles Irvin, Ph.D., Director, Vermont Lung Center
Coordinator: Laurianne Griffes
Who: People with stable asthma and people without asthma
What: 2 Visits, each lasting about 3 hours
Compensation: up to $225

Forced Oscillation Mechanics in Mild Asthmatics
Primary Investigator: Lennart K.A. Lundblad, Ph.D.
Coordinator: Laurianne Griffes
Who: People with mild asthma and people without asthma
What: 3 visits
Compensation: up to $150

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Primary Investigator: Yolanda Mageto, M.D.
Coordinator: Stephanie Burns
Who: People with Idiopathic Pulmonary Fibrosis
What: IV infusions every 4 weeks for 48 weeks, 3 follow up visits through week 72.
Compensation: $30 per visit.

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A randomized, double-blind, placebo-controlled parallel group study to investigate the safety and efficacy of two doses of tiotropium bromide (2.5 µg and 5 µg) administered once daily via the Respimat® device for 12 weeks in patients with cystic fibrosis.
Primary Investigator: Laurie Whittaker, M.D.
Coordinator: Joan Lippmann
Who: People with Cystic Fibrosis
What: 8 visits over 12 weeks
Compensation: Up to $800.

For more information on these studies, please visit our website @ www.vermontlung.org

Ask Dr. Charlie

I see these nose irrigation things at the drug store. Do they work?
Surprisingly they do. Recent clinical trials show a marked reduction in symptoms of rhinosinusitis with regular saline nasal irrigation. Just be careful not to be too rigorous with the irrigation.

When I am at work my asthma is worse. Is this real?
It might be. We recognize a type of asthma called occupational asthma due to exposures to asthma triggers. If you find that your symptoms are better on the weekends or during a vacation away from work, this diagnosis should be considered.

TEE off and SAVE!
The American Lung Association GOLF privilege Card 2009 is now available. Your purchase helps to make a difference in the fight against lung disease through research, education and advocacy.

Call 1-800-LUNG USA or visit lungne.org
Side Effects: sometimes they’re a good thing

Anne E. Dixon, MD

One of the things we always worry about with medications is the possibility that drugs may have unwanted side-effects. Sometimes these “side-effects” can actually be a good thing. There has been a lot of publicity lately about potential good “side effects” associated with the use of cholesterol-lowering medication or “statins”. These medications have been used for many years to treat high cholesterol, particularly in people who have heart disease and diabetes. There have been a number of reports lately suggesting that there may be other benefits associated with using these medications, that they don’t just reduce cholesterol, but may have other effects on health.

Researchers in Denmark recently investigated the effect of statin medication in people that were admitted to the hospital with pneumonia1. They found that people who were taking a statin medication actually seemed to do better, in fact fewer of the people taking the statin medications died as a result of having pneumonia. Another recent study reported that people who were taking part in a study of statin medication have a lower risk of having problems with blood clots2.

So should we all rush out and ask our doctors to prescribe statin medications? The answer is no. These medications may still have unwanted side-effects. We need studies that carefully control who is getting the statin medication and who is not. Until we have that information though, it’s worth remembering that sometimes side-effects may not be such a bad thing.

We are currently taking part in an important asthma study for children between the ages 6 and 17 years. This study, the “SARCA Study” (Study of Acid Reflux in Children with Asthma) is sponsored by the National Institutes of Health, and we are participating in it as part of the American Lung Association-Asthma Clinical Research Centers network. We are trying to determine whether treatment of gastro-esophageal reflux disease in children can improve control of their asthma. Many may think that gastro-esophageal reflux disease simply affects adults (how many children complain of indigestion?) but pediatricians have long realized that reflux is common in children, may cause chronic cough, and maybe even aggravate asthma. Children may not have any obvious symptoms of reflux, and so it may be hard to pinpoint the cause of the cough or worsening asthma.

This study enrolls children with symptoms of poorly controlled asthma. The children perform lung function tests (blowing into a machine), and with the help of their parents answer questions about their asthma symptoms. Some children receive treatment for reflux, the treatment for acid reflux (prevacid®, generic name lanzoprazole) is very commonly used to treat both adults and children with acid reflux, other children receive a placebo (a pill that looks the same, but doesn’t contain any medication). Neither the study coordinators, or the child (or their parents) know which treatment the child is on.

Nationwide we hope to recruit about 400 children to this important study. Poorly controlled asthma is a major cause of illness and hospitalization in young children, and so this is a particularly important study which we are excited to be a part of.
New Faces at the Vermont Lung Center
Melissa Gaudio and Sandra Diehl

What do you do at the Vermont Lung Center?
I am an Administrative Assistant. I organize and keep the office in tip-top shape and also provide hands-on help to the research coordinators. I help look over patient charts and enter the research data. I also have my LNA so I am able to help with patient care.

Where did you grow up?
We moved a lot. I was born in New York and have lived in Missouri, Pennsylvania, and Vermont. I have been in Vermont for 8 years.

Where did you go to school?
I went to UVM.

Why did you choose to live in Vermont?
After living in so many cities and states this always felt like home! It is so beautiful and I LOVE IT! I feel very fortunate to live in a place where people go on vacation and to escape their busy lives! It is truly very special and a fantastic place to raise my boys.

What is your favorite thing about working in research?
I love learning and problem solving and research gives me an outlet to do so all the time! I have already learned so much in the short time I have been with the Lung Center.

The Vermont Lung Center staff is responsible for making sure you know what is expected of you in regards to the study.

Once the study is explained to you, you will be asked to read and sign an "Informed Consent". This form is designed to explain everything you need to know about the study.

Studies may be therapeutic (involving observation of lung function). However The Vermont Lung Center can make no claims that your involvement in a research study will improve your condition.

Compensation may or may not be provided to you for your involvement in a study. If compensation is provided, it is meant to cover your time and expenses incurred—it does not constitute employment.

If interested in volunteering for a research study, please call us at (802) 847-2193.

Join the American Lung Association in the fight for air.
Walk for healthy lungs and clean air in your community!
September 19, 2009 Battery Park, Burlington, VT
Learn more at fightforair-walk.org or call Danielle Pinders At 802-876-6861 -

What do you do at the Vermont Lung Center?
I am a Clinical Research Coordinator for people with Cystic Fibrosis. I work primarily at the Vermont Children’s Hospital where I recruit patients and their parents who are interested in participating in a trial; I guide them through the study period and make sure all the data gets processed correctly. In addition I stay in contact with the sponsors of the trials and take care of the regulatory aspects of a study.

Where did you grow up?
I grew up in a town called Etten-Leur in the Netherlands. It is about the same size as Burlington and is situated in a rural agricultural setting. I lived there till I was 21 when I came to Vermont.

Where did you go to school?
I went to college in a small town close to where I grew up. In the Netherlands we have very specialized colleges and I attended one that trained me to become a laboratory technician. For this program I had to do a year long internship which I did at UVM. After I graduated I decided to stay at UVM for a Master’s degree in the department of Animal Science.

Why did you choose to live in Vermont?
My husband and I met in Vermont and after having lived in both Vermont and the Netherlands together we agreed that Vermont was a nice place to raise our family. So when my husband got a job offer last year at UVM we decided to come back to Vermont to enjoy the outdoors, and the quality of life.

What is your favorite thing about working in research?
Working in clinical research keeps me challenged as I want to do the best I can every day for the patients who are involved with the research since they put a lot of hope into it. The interaction with the children and their families is something I really enjoy.
**Asthma**

**Study of Acid Reflux in Children with Asthma (SARCA)**
Primary Investigator: Charles Irvin, Ph.D., Director, Vermont Lung Center
Coordinator: Stephanie Burns
Who: Children age 6-17 with asthma who do not have heartburn
What: 9 visits over 7 months
Compensation: up to $550

**Methacholine Bronchoprovocation – Influence of High Potency Corticosteroids in Asthma Study (MeCIS)**
Primary Investigator: Charles Irvin, Ph.D., Director, Vermont Lung Center
Coordinator: Stephanie Burns
Who: Children aged 12-17 and Adults with and without asthma
What: Nonasthmatics: 1 visit
Asthmatics: 5 Visits over 16 weeks
Compensation: $50 per visit

**Asthma Exacerbations: Physiology, Upper Airway and Fibrin**
Primary Investigator: Charles Irvin, Ph.D., Director, Vermont Lung Center
Coordinator: Laurianne Griffes
Who: People with stable asthma and people without asthma
What: 2 Visits, each lasting about 3 hours
Compensation: up to $275

**Novel Application of the Forced Oscillation Technique in Subjects with Asthma**
Primary Investigator: David Kaminsky, M.D.
Coordinator: Laurianne Griffes
Who: People with stable asthma, moderate to severe asthma and people without asthma
What: Up to 2 visits, each lasting about 1.5 hours
Compensation: $100

**Idiopathic Pulmonary Fibrosis (IPF)**

**Centocor CTN0888PUL2001: A Phase 2, Multicenter, Multinational, Randomized, Double-blind, Placebo-controlled, Parallel-group, Dose-ranging Study Evaluating the Efficacy and Safety of CTN 888 Administered Intravenously in Subjects with Idiopathic Pulmonary Fibrosis**
Primary Investigator: Yolanda Mageto, M.D.
Coordinator: Stephanie Burns
Who: People with Idiopathic Pulmonary Fibrosis
What: IV infusions every 4 weeks for 48 weeks, 3 follow up visits through week 72.
Compensation: $30 per visit.

**Cystic Fibrosis**

A randomized, double-blind, placebo-controlled parallel group study to investigate the safety and efficacy of two doses of tiotropium bromide (2.5 µg and 5 µg) administered once daily via the Respimat® device for 12 weeks in patients with cystic fibrosis.
Primary Investigator: Laurie Whittaker, M.D.
Coordinator: Joan Lippmann
Who: People with Cystic Fibrosis
What: 8 visits over 12 weeks
Compensation: Up to $800.

For more information on these studies, please visit our website @
[www.vermontlung.org](http://www.vermontlung.org)

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### Ask Dr. Charlie

**If I get the flu will my asthma worsen?**

Yes, it is well known that influenza and other viruses are common causes of asthma attacks. These viruses also cause a prolonged worsening of asthma.

**What can I do to prevent this? Is the flu shot safe if I have asthma?**

There are two things that can help prevent your asthma from worsening. First, make sure that you and your family get a flu shot. Getting a flu shot this year it is even more important than usual. The flu shot is safe and will not worsen your asthma as our study (*New England Journal of Medicine*) in 2001 showed. Second, wash your hands frequently, especially when you have just come home.
One of the most important components of your immune system is a group of cells called white blood cells. About 50 to 80% of all the white blood cells in your body are neutrophils, making them the most abundant type of white blood cell found in your body. To ensure that they are always available your body will produce upwards of 100 billion neutrophils each day. Normally these cells circulate in your blood, waiting to be called upon to fight off infection. They are the main component of pus, and give it that white color. They are also the first white blood cells to respond to when something triggers your asthma.

When the fast acting neutrophils in the blood detect the chemical S.O.S. signals released at the site of tissue irritation or infection they track down the source of the signal. They will move out of the blood vessels and into the tissue of the airways in order to congregate at the site of irritation. If there is bacteria present they can trap and kill the bacteria by swallowing it inside of themselves and releasing the antimicrobial enzymes which they have stored in little packets called granules. Neutrophils also have the ability to activate and release their own specialized set of chemicals which amplify the inflammatory response of the other types of white blood cells. This amplification of the immune response is intended to be an invitation for the other white blood cells of your immune system to join the neutrophils in fighting off the irritation, but the intensity of this reaction is also what promotes and prolongs your asthma symptoms, specifically those related to inflammation. Over long periods of time the same enzymes that give neutrophils their antimicrobial capabilities can also cause damage to the tissues of your lungs, which is just one of many reasons that it is important to keep you asthma in check. The neutrophils will continue to congregate at the site of irritation until the chemical signal that they are following is shut off, which occurs once the irritation has subsided. The neutrophils that are left behind die off on their own within two days, but most have already done so within a few hours.
Here at the University of Vermont/Fletcher Allen Health Care, we care for critically ill patients in our intensive care units (ICUs). Often these patients have severe infections, have been badly injured in accidents, or have just undergone major surgeries. Critical care is already very expensive and consumes a large portion of the United States’ health care budget. With the American population aging, we expect that there will be even more patients needing ICU care over the coming decades. Therefore, it is very important to conduct research to learn how to better care for our critically ill patients. Currently, much of our ICU research at UVM/FAHC surrounds our interest in nutrition in critical illness. Much more information on how, what, and when to feed ICU patients is needed, so our research focuses on this topic. In some ways, research in the ICU is much different than other research involving outpatients with lung diseases like asthma, COPD, or pulmonary fibrosis. The patients in our studies are all very sick and their illness happens unexpectedly. They are usually on respirators and therefore, we can’t ask them if they want to participate. Instead, we ask their family members or someone they have designated to make their medical decisions. Also, we cannot schedule when our patients start participating in our studies. To find patients who might be eligible, we look through the ICUs at FAHC every day.

We are currently working on 3 different research studies involving critically ill patients here at UVM/FAHC. The first is a multicenter randomized trial to test fish oil as a treatment for acute lung injury (ALI). ALI happens when the lungs get very injured, usually from a severe infection, pneumonia, or trauma. ALI is believed to be caused by unchecked inflammation in the body which damages the fragile lungs, and it occurs in over 200,000 patients each year in the United States. Patients with ALI cannot breathe on their own and need a respirator, and they are often in the ICU for weeks. Fish oil, which contains omega-3 fats, might be beneficial in ALI because it has multiple anti-inflammatory properties. We just enrolled the last patient into this trial in December 2008, and we are currently waiting to finish collecting all the data before we know the results, which should happen in a few months.

The second ICU study here at UVM is called the REDOXS Study. REDOXS stands for Reducing Deaths due to Oxidative Stress. This trial is a large randomized controlled trial led by the Canadian Critical Care Trials Group, and we are one of 35 sites that are participating. Eventually 1200 patients will be enrolled into this study, all of whom are on a respirator and have at least 2 body organs that are not working well. The REDOXS Study tests whether or not glutamine and antioxidant supplements given to very sick critically ill patients might lead to an increase in survival. The trial won’t be finished for another 2 or 3 years, but we are excited to be able to participate in it.

The third ICU study we are working on involves figuring out if omega-3 fats (fish oil) are metabolized differently in critically ill patients than in healthy patients. Since fish oil is considered a “food supplement” and not a drug by the US Food and Drug Administration, there are not any stringent tests or regulations that it has to pass before being marketed and used. Thus, we really don’t know the best dose of fish oil to use in ICU patients, and this metabolic study will help us to answer these questions.

We plan to continue our ICU research program and to perform several future trials over the coming years. If you have any questions about ICU research, please call Renee Stapleton at 847-9902 or Julie Martin at 847-8765.
Research participant interview with Rhonda Simays
Participating in Weight Loss and Asthma

You had gastric bypass surgery in 2007. How did you hear about this type of procedure?
I have friends who have had the surgery and were pleased with the results and despite assorted challenges, would have done it again.

What made you select this type of surgery?
I wanted the permanent approach – as opposed to lap band surgery, which can be reversed – as I was making a full commitment to change, and I wanted the results quickly.

Are you happy with the results of the surgery? (not counting the complications)
I was speaking with another person about the results of surgery and her comment was that it was “like being let out of jail” and I agree with that. One looks normal and so one feels normal. The outwards changes are also a manifestation of the inward ones – knees that don’t ache and not getting winded climbing stairs and I don’t mention the truly serious complications that obesity induces.

The Vermont Lung Center contacted you about a research study called “Weight Loss and Asthma” because you were a patient in the Bariatric Clinic at Fletcher Allen. How did you feel about being approached to participate in a study in this manner?
I had a wonderful experience being “studied”. The staff was ever so courteous and truly considerate and as a bonus, they’re fun. The benefit to the study is that you have a rather thorough baseline study of your lungs if it was ever needed for future reference. And if there were unidentified problems, they would have discovered that. That seemed a real bonus to me.

Would you recommend this study to others?
By all means I would recommend the study. It really does not take that much time and the staff is so congenial about working around your schedule. Along with the personal benefits, the bigger picture is, of course, fitting the profile and helping in a health study that may actually impact others.

You were diagnosed with asthma. How has asthma affected you’re your life?
The saddest part of the asthma is that I did not know I had it as a child, I just knew I would get winded far more quickly than the other kids and could not keep up. Physical activity was what I wanted but was a real struggle with the asthma limiting my efforts. If it were known and I had been treated, growing up would have been more fun and I probably would not have had weight issues as a child.

Does asthma run in your family?
Yes, one of my four sisters has asthma too.

As a person with asthma, how did having gastric bypass surgery affect your breathing?
Loss of the weight means I do not get winded with walking around town or climbing the stairs.

If there was another research study that you were eligible for, would you consider participating?
Easily - -

Ask Dr. Charlie
Charles G. Irvin, PhD

Does cold winter air cause asthma?
While cold air is a trigger for an acute asthma attack, cold air does not cause asthma. You can prevent cold air asthma attacks by breathing through your scarf which warms and humidifies the inspired air or by using your asthma medications.

What is a peak flow meter?
A peak flow meter is a small plastic device that, after taking a big breath, you blow into as hard as you can. When your asthma gets worse or you have a sudden attack, the peak flow (in liters per minute) falls. For many patients, this is only objective evidence that they have asthma and that it is getting better or worse.
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Primary Investigator: Charles Irvin, Ph.D., Director, Vermont Lung Center
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Primary Investigator: Charles Irvin, Ph.D., Director, Vermont Lung Center
Coordinator: Stephanie Burns
Who: Children aged 12-17 and Adults with and without asthma
What: Nonasthmatics: 1 visit
Asthmatics: 5 Visits over 16 weeks
Compensation: $50 per visit

Study of the Impact of Body Mass Index on Asthma
Primary Investigator: Anne Dixon, M.D., Director of Clinical Research
Coordinator: Laurianne Griffes
Who: Premenopausal women with asthma and without asthma who have a Body Mass Index of 35-50
What: Nonasthmatics: 1 visit
Asthmatics: 2 visits
Compensation: up to $75

Weight Loss and Asthma
Primary Investigator: Anne Dixon, M.D., Director of Clinical Research
Coordinator: Laurianne Griffes
Who: People with asthma and without asthma undergoing gastric bypass or laparoscopic banding surgery
What: Asthmatics- 10 visits over 12 months; Non-Asthmatics- 4 visits over 12 months
Compensation: up to $750 for asthmatics, up to $250 for people without asthma

Asthma Exacerbations: Physiology, Upper Airway and Fibrin
Primary Investigator: Charles Irvin, Ph.D., Director, Vermont Lung Center
Coordinator: Sherburn Lang
Who: People with stable asthma and people without asthma
What: 2 Visits, each lasting about 3 hours
Compensation: up to $225

Forced Oscillation Mechanics in Mild Asthmatics
Primary Investigator: Lennart K.A. Lundblad, Ph.D.
Coordinator: Sherburn Lang
Who: People with mild asthma and people without asthma
What: 3 visits
Compensation: up to $15

Role of Leukotrienes and Adenosine in Hyperpnea-Induced Bronchospasm Determined by Dynamic Analysis of Exhaled Breath Condensate
Primary Investigator: John Morrison, D.O.
Coordinator: Laurianne Griffes
Who: People with physician-diagnosed Exercise-Induced Asthma
What: 2 visits
Compensation: up to $100

IDIOPATHIC PULMONARY FIBROSIS (IPF)

Effects of Bosentan on Morbidity and Mortality in Patients with Idiopathic Pulmonary Fibrosis - a Multi Center, Double-Blind, Randomized, Placebo-Controlled, Parallel Group, Event-Driven, Group Sequential, Phase III Study.
Primary Investigator: Gerald Davis, M.D.
Coordinator: Joan Lippmann
Who: People with Idiopathic Pulmonary Fibrosis
What: 2 visits within 4 weeks, then every 4 months visits and monthly laboratory tests.
Compensation: Travel reimbursement for travel of 20 or more miles.

CYSTIC FIBROSIS

A randomized, double-blind, placebo-controlled parallel group study to investigate the safety and efficacy of two doses of tiotropium bromide (2.5 µg and 5 µg) administered once daily via the Respimat® device for 12 weeks in patients with cystic fibrosis.
Primary Investigator: Laurie Whittaker, M.D.
Coordinator: Joan Lippmann
Who: People with Cystic Fibrosis
What: 8 visits over 12 weeks
Compensation: Up to $800.

For more information on these studies, please visit our website @ www.vermontlung.org
Lung Cancer: The Multi-Disciplinary Approach

The Vermont Lung Center at Fletcher Allen and the University of Vermont launched a new weekly multi-disciplinary clinic in December 2007 to provide care for patients with lung cancer. This clinic is specifically designed to facilitate and coordinate the care of patients who have a suspected or newly diagnosed lung cancer. The multi-disciplinary clinic involves a team of specialists including thoracic surgeons, medical oncologists, radiation oncologists, pulmonologists, gastroenterologists, radiologists, pathologists and cytopathologists, nurses, research staff, and cancer patient support staff specialists. All work together at a single location at the same time. Each clinic begins with a treatment planning conference involving patient case presentations and discussion among the multi-disciplinary team. Following the planning conference patients are seen by the appropriate specialists.

Lung cancer is the leading cause of death due to cancer; the National Cancer Institute estimates that 215,020 Americans will be diagnosed with lung cancer in 2008, and that year 161,840 patients will die of cancer of the lung. There are approximately 425 new cases of lung cancer in Vermont each year.

The FAHC-UVM Lung Cancer Multi-Disciplinary Clinic has seen a growing population of patients with lung cancer from throughout Vermont and upstate New York. A key feature of the new clinic is the “Nurse Navigator” who coordinates patient care across all modalities. Brent Devenney, RN serves as the patient’s first contact, providing cancer-specific teaching and being available to patients throughout their cancer care experience. He also plays a central role in coordinating tests and appointments, and in the communication links among the FAHC specialists, the patients, and their primary care providers. Patients see multiple specialists in a single visit to the clinic. The clinic is held weekly, allowing for patients to be seen and have a treatment plan developed quickly. During 2008 a total of 265 patients were seen in this clinic, and an additional 152 cases were discussed at the multidisciplinary conference that precedes it.

The Lung Cancer Multi-Disciplinary Clinic offers a gateway for research related to lung cancer. A new database system supported by the FAHC “James M. Jeffords Institute for Quality & Operational Effectiveness” provides information for tracking patients and to augment other research studies. Research projects related to pulmonary function, advance directives and end-of-life issues, and other studies are underway. The clinic offers patients the opportunity to participate in the latest lung cancer treatment clinical trials, while at the same time enhancing educational opportunities for physicians and students in training. The goal of the Lung Cancer Multi-Disciplinary Clinic is to provide high-quality multidisciplinary compassionate and personalized patient care as efficiently as possible. The results of the first year suggest it is off to a very good start.