University of Wisconsin
Clinical Sciences Center

Center Focus

Newsletter of the
Cystic Fibrosis Center

Spring, 2011

Off To College

It is that time of year when you or your kids are heading off to college. We have taken advice from patients and families who have already experienced college as well as advice from the CF Center in Chicago, IL. We have some helpful hints that you may want to consider:

- See your current CF care team about a month before school starts to review your current health status, intervention plan and make sure all prescriptions are up to date.
- Identify the location and phone number for the student health services and a place where you can be seen if you become ill or if there is an emergency. Check with your insurance company about out of network benefits.
- Contact the college's office of disability to let them know that you have CF. You may never need their services, but in the event of an illness or hospitalization, they can help guide you and interface with professors or create and individualized education plan (IEP). They may also allow you to register early to ensure you have the most flexible schedule to accommodate your daily treatments.
- Think about who needs to know about your CF to help if you become ill. Many students share this information with their resident advisor, the student health services, the office of disabilities and a friend or roommate to help you in an emergency.
- If possible, request a private room. If not, we recommend that you consider telling your roommate that you have CF and need to take medication and perform daily treatments.
- If possible, request a room with air-conditioning.
- Make sure there is access to a refrigerator to store medication and extra food.
- A microwave is helpful to sterilize airway treatment supplies. If that is not possible, create a plan of how you will sterilize and dry your supplies.
- Does the electrical wiring in the room meet the needs of your equipment? You may want to consider surge protectors for your air-conditioner, refrigerator and airway clearance equipment.
- Make sure you have enough medication with you or access to your pharmacy for refills. Identify a pharmacy near campus that can fill medication and provide supplies. When traveling to and from home, remember to bring your medication and supplies with you.
- Always have the number of the CF center with you in case you have questions or concerns. Now that you are away from home, you can call us directly and speak with our staff.
- Our CF center can work with you to schedule clinic visits during breaks and days off to continue being seen in clinic at least four times a year.
- If you are going to school out of state, we can help you identify a CF center that is close to you. We encourage you to check with your insurance company to find out what services will be covered… you don't want to be stuck with a big bill.
- Try to balance your CF care with your school and social life. We know what college is like, but want you to remember to get plenty of rest and keep up with your CF cares!
- Remember, college scholarships are available for people with CF. The following website can help navigate CF scholarships. *http://cfscholarships.com*

CF Family Education Day Videos

The videos of CF Family Education Day are located at our CF Center website:

http://uwcfcenter.org

At your convenience, you can view Dr. Bob Beall's presentation on the CF Foundation and research update, Beth Sufian's presentation on the CF patients with regard to matters such as social security benefits, health insurance and necessary accommodations for work or school, and the ask the experts panel discussion.

Chronic Medications for the Maintenance of Lung Health

If we turn the clock back 20 to 30 years, at that time, there was no DNase (Pulmozyme®), there was no tobramycin solution for inhalation (TOBI®) and there was no aztreonam lysine for inhalation (Cayston®). Nowadays, we have all of these medications and many other choices of treatments for CF lung disease. How do we choose which drugs for which patients? In order to answer that question, the CF Foundation convened a panel of experts to guide CF care centers. This committee produced a document, "Cystic Fibrosis Pulmonary Guidelines: Chronic Medications for Maintenance of Lung Health". (If you are interested, you can go to Pub Med to read this article. The first author is Patrick A Flume, and the specific citation is American Journal of Respiratory and Critical Care Medicine, volume 176, pp. 957-969, 2007.) Here is a summary of the committee's recommendations.

Some of the recommendations are divided by the patient's severity of lung disease. This is defined by the following percent predicted FEV_1:

Normal: FEV_1 is greater than 90% predicted

Mild lung disease: FEV_1 is 70-89% predicted

Moderate lung disease: FEV_1 is 40-69% predicted

Severe lung disease: FEV_1 is less than 40% predicted

Because pulmonary function testing can generally be successfully performed after a child reaches 6 years of age, all of the following recommendations in the guideline document are for patients 6 years of age and older.

Bronchodilators:

β2-adrenergic receptor agonists (such as albuterol): The committee recommends the chronic use of β2-adrenergic receptor agonists (such as albuterol) to improve lung function.

Inhaled anticholinergic agents (such as ipratropium bromide [Atrovent®]): The committee stated that there was insufficient evidence to recommend for or against routinely providing the chronic use of inhaled anticholinergic bronchdilators.

Inhaled corticosteroids:

The committee looked at seven studies of the use of inhaled corticosteroids in CF. None of these studies demonstrated a statistically significant improvement in lung function. Thus, the committee recommended against the routine use of inhaled corticosteroids in CF patients who do not have asthma or allergic bronchopulmonary aspergillosis (ABPA).

Oral corticosteroids

For CF patients without asthma or ABPA, the committee recommends against the chronic use of oral corticosteroids.

Leukotriene modifiers

The committee looked at three studies of the use of leukotriene modifiers (such as Singulair®). The conclusion was that the evidence was insufficient to recommend for or against routinely providing the chronic use of a leukotriene modifier.

Oral nonsteroidal anti-inflammatory drugs

A 4-year study by Konstan and coworkers showed that patients who received large doses of ibuprofen had a slowing in the decline of FEV_1 percent predicted. The effect was most dramatic for patients with CF who were less than 13 years of age at the time of enrollment in the study. Therefore, the committee recommends the chronic use of oral ibuprofen for patients with an FEV_1 of greater than 60% predicted. (Please see comment below.)

Macrolide antibiotics

For patients with *Pseudomonas aeruginosa* persistently present in cultures, the committee recommends the chronic use of azithromycin to improve lung function and to reduce exacerbations. (Please see comment below.)

Antistaphlococcal antibiotics

The committee recommends against the prophylactic use of oral antistaphlococcal antibiotics.

Recombinant human DNase (Pulmozyme®)

The committee examined the use of Pulmozyme® for both patients with moderate to severe lung disease and for patients with normal pulmonary functions or mild lung disease. For patients with moderate to severe lung disease, the committee ***strongly*** recommends the chronic use of Pulmozyme® to improve lung function and reduce exacerbations. For patients who are asymptomatic or with mild lung disease, the committee recommends the chronic use of Pulmozyme® to improve lung function and reduce exacerbations.

Hypertonic saline

The committee recommends the chronic use of inhaled hypertonic saline to improve lung function and to reduce exacerbations.

Aerosolized antibiotics

Tobramycin solution for inhalation (TOBI®): The committee examined the use of TOBI® for both patients with moderate to severe lung disease and for patients with normal pulmonary functions or with mild lung disease. For patients with moderate to severe lung disease and with *Pseudomonas aeruginosa* persistently present on culture, the committee ***strongly*** recommends the chronic use of TOBI® to improve lung function and reduce exacerbations. For patients who are asymptomatic or with mild lung disease and who have *Pseudomonas aeruginosa* persistently present in cultures, the committee recommends the chronic use of inhaled TOBI® to reduce exacerbations.

Other inhaled antibiotics (colistin, gentamicin, ceftazidime): The committee stated that the evidence was insufficient to recommend for or against routinely providing these other antibiotics chronically.

Please note that this publication was from 2007, and thus was prior to the FDA approval of aztreonam lysine for inhalation (Cayston®). We speculate that if Cayston® had been considered by this committee, the recommendations for this inhaled antibiotic would be identical to the recommendation for TOBI®.

Comments on the above information

Ibuprofen: Although ibuprofen is recommended by the CF Foundation committee, why is this not in widespread use? The ibuprofen dosing recommended for CF patients is much larger than what one would take for fever or muscular aches. When ibuprofen is started, there must be two blood levels obtained. For pediatric patients, the dose would need to be adjusted for growth and this would require repeat monitoring of blood levels. Because of these factors and the possibility of side effects (such as gastrointestinal bleeding or decreased kidney function), many CF centers are reluctant to use this treatment. Of the 110 CF centers and 55 affiliate programs, only 33 of these sites are prescribing ibuprofen. In looking at patients who may benefit the most from this treatment, namely children 6 to 13 years of age who have an FEV_1 of greater than 60% predicted, only 3.6% of patients nationally are receiving ibuprofen chronically.

Azithromycin: The section above on macrolide antibiotics states that azithromycin should be considered for CF patients who have *Pseudomonas aeruginosa* persistently present on cultures. Please remember that this guideline document was published in 2007. A study of the chronic use of azithromycin in CF patients who are uninfected with *Pseudomonas aeruginosa* was published in the Journal of the American Medical Association in 2010 (the specific citation is JAMA 2010; May 5; volume 303(17), pages 1707-1715.) The main findings of this study is that there was a significant reduction in pulmonary exacerbations and a significant increase in weight gain in patients treated with azithromycin. The CF Foundation has provided a fact sheet for CF Care centers stating that CF patients who are 6 years of age and older should be considered for treatment with azithromycin regardless of their *Pseudomonas aeruginosa* culture status.

How should we best treat children less than 6 years of age? The guideline document recognizes that this is a gap in knowledge and studies need to be done in young patients. Some of these therapies probably should be used in young patients before lung disease is established.

Lastly, how should these recommendations be applied to me or my child? This discussion should occur with your CF care provider. Although we have all of the above multiple therapies, there are no studies that have evaluated the optimal combination of treatments. We as care providers do have concern about the treatment burden; we recognize that airway clearance and inhaled antibiotics and inhaled hypertonic saline and inhaled Pulmozyme® is quite time consuming. You and your care provider can discuss which of these therapies may be of the most benefit.

Clinical Care Guidelines for Cystic Related Diabetes – What You Need to Know!

Cystic Fibrosis Related Diabetes (CFRD) occurs in about 20% of adolescents and 40-50% of adults with CF. It is caused by a combination of insulin insufficiency and insulin resistance. CFRD has a negative impact on lung function, weight loss, and survival, making it very important to diagnosis and treat this disease as soon as possible.

In December 2010, the CF Foundation released new guidelines for the screening, diagnosis, and management of CFRD. A full copy of the guidelines can be found at *www.care.diabetesjournals.org*.

One of the biggest changes to the guidelines regards the age and frequency of screening. **It is recommended that screening began at 10 years of age and be conducted on a yearly basis.** Patients should be screened for diabetes by completing an oral glucose tolerance test (OGTT). This test is done after an overnight fast. Patients will have a fasting blood sugar level tested. They will then drink a pre-measured glucose solution and have blood sugar tested again two hours later. The fasting level should be ≤ 126 mg/dL and the 2 hour level should be ≤ 200 mg/dL. This test should be repeated if the first test is positive for CFRD.

Patients who are in the hospital for a pulmonary exacerbation should also have blood sugars tested during the first 48 hours of admission to check for CFRD. Additionally, patients who receive continuous tube feedings should be checking blood sugars on a monthly basis. Finally, women with CF who are planning on pregnancy or who are pregnant and patients awaiting lung transplantation need to be screened for CFRD.

Insulin remains the recommended way to treat CFRD. Changes to diet are not encouraged since people with CF need high calorie diets with plenty of protein, carbohydrate, fat, and salt.

We will do our best to help every one of our patients and families obtain an OGTT as indicated by the guidelines and get the right treatment. Although it is one more test/diagnosis to think about, early detection and treatment will have a positive outcome on health!

From the desk of Danelle O'Neill

Executive Director, Cystic Fibrosis Foundation – Wisconsin Chapter

Announcing State Advocacy Chairs for Wisconsin

We are excited to announce that Gina Hedstrom and Stephanie Hammar will serve as the new State Advocacy Chairs for the Wisconsin Chapter. They will work to build relationships between our local CF community and elected officials in order to increase support for the Foundation's efforts to advance research for CF, improve access to care, increase awareness of the disease.

Please let us know if you are interested in helping Gina and Stephanie write and call elected officials about these important issues. You can contact me at (608) 298–9902 or via email at *doneill@cff.org*. They will help you with what to say – they just need you to say it! They will also keep you updated on additional opportunities to advocate on behalf of people with CF.

National Update

Recently, the Cystic Fibrosis Foundation announced the expansion of its collaboration with Vertex Pharmaceuticals for the discovery and development of additional drugs aimed at treating the underlying cause of cystic fibrosis. The new program will support development of a potential new drug called VX-661, designed to treat people with the most common genetic defect in CF, the Delta F508 mutation. Nearly 90 percent of people with CF in the United States have at least one copy of this mutation.

VX-661 is known as a "corrector" and aims to move the defective CF protein to its proper place at the cell surface. Another corrector, known as VX-809, is already in clinical trials. By developing multiple correctors, the Foundation increases the chances of bringing new therapies to the CF community as quickly as possible.

"This new agreement will further leverage the successful collaboration with Vertex to accelerate the discovery and development of new drugs to treat a wide variety of CF patients," said Robert J. Beall, Ph.D., president and CEO of the CF Foundation. "Given the recent announcement of promising data of other compounds in the CF pipeline, we're optimistic that the CF Foundation is on the right path to fundamentally change the treatment of CF by targeting the cause of the disease."

The Foundation's investment, which will be up to $75 million over five years, will also expedite the discovery and early development of other new correctors. With the Foundation's expanded support, Vertex plans to begin a Phase 2 study of VX-661 by the end of 2011 and expects to enroll people with CF who have the Delta F508 mutation. A Phase 2 clinical trial is underway to test combinations of VX-770 and VX-809 in individuals with two copies of Delta F508 mutation. Data from the first part of this trial is expected in the middle of 2011.

With your support, we can advance new treatments from the test tube to the patients who need them. We can help people with CF get the best medical care possible to stay healthy. We can pursue every opportunity for promising research that can lead us to a cure. Please contact me today at (608) 298-9902, (262) 798-2060, or via email: doneill@cff.org and find out about volunteer activities, events and other ways to support our mission.

Cystic Fibrosis Care And Research In Wisconsin

The CF Foundation has strong collaborations in Wisconsin, which includes CF Foundation-accredited care, research and therapeutics development centers. Over the past five years the CF Foundation has invested approximately $3.1 million in Wisconsin research programs. The CF Foundation believes that outstanding medical care provided by the CF Care Centers – combined with new and effective CF therapies developed through our research program – will ultimately lead to significant advances in life expectancy and quality of life among CF patients.

Approximately 638 CF patients are treated at multiple CFF-accredited centers in Wisconsin. Funds from the CF Foundation, aide these centers in providing comprehensive, high quality and consistent care to help patients manage their complex disease.

Despite the considerable advances being made in cystic fibrosis research, we still lose a patient every day to this disease, and, for the first time in the Foundation's 56-year history, science is outpacing our funding capabilities. Consequently, the CF Foundation is stepping up our fundraising efforts to ensure that the CFF has the financial means to pursue all promising CF therapies through the remainder of this decade.

Did You Know?

- The CF Foundation produces a series of patient health education Web casts hosted by CF experts. Visit us at *www.cff.org/LivingWithCF/Webcasts*.
- The CF Foundation has a Legal Hotline, call (800) 622-0385 or e-mail: *CFLegal@cff.org*.
- The CF Foundation has a pharmacy to serve your needs, visit *www.cfservicespharmacy.com* or call: (800) 541-4959.
- The CF Foundation has a CF Patient Assistance Foundation providing co-payment and co-insurance assistance for eligible medications and devices. Visit: *www.cfpaf.org*, or call (888) 315-4154.
- You can learn more about promising CF drugs now in clinical trials by visiting our website at *www.cff.org/clinicaltrials*.

Ways To Support and Help

Our volunteers are the number one reason why nearly 90 cents of every dollar of Foundation revenue goes to support vital CF research, medical and education programs. In Wisconsin, we raised $1.3 million in 2010. This was accomplished through the efforts of six staff members, and thousands of volunteers.

In 2010, the Wisconsin Chapter hosted 27 events across the state, and benefited from over 11 community-based events. To everyone who volunteered their time, organized friends and families to raise money via our events, helped the day of the event, licked stamps, stuffed envelopes, made calls, and set up walk routes we say ***THANK YOU!***

Now more than ever, we need volunteers to step forward and ***help us reach our goal of finding a cure for CF!*** Please consider contacting us today to discuss your involvement. We need all types of volunteers, and we are flexible and willing to work with busy schedules and time restrictions. The more people we have involved, the more we can accomplish.

Madison Chapter Events

Please mark your calendars for these upcoming events. To learn more, or sign up for events visit our website at *http://www.cff.org/Chapters/madison/* or call us at (608) 298-9902 for more information.

Great Strides

The CF Foundation's ***biggest event of the year – national goal is $35.5 million!***

Great Strides walks on April 30, 2011 at:

- Wildwood Park, Marshfield
  Staff contact: Lois Baseler (*lbaseler@cff.org*)

Great Strides walk on May 7, 2011 at:

- Carson Park, Eau Claire
  Staff contact: Lois Baseler (*lbaseler@cff.org*)

Great Strides walks on May 21, 2011 at:

- Harris Park, Dodgeville
  Staff contact: Lois Baseler (*lbaseler@cff.org*)
- Twining Park, Monroe
  Staff contact: Alyssa Harvey (*aharvey@cff.org*)
- Wisconsin Dells Ducks, Wisconsin Dells
  Staff contact: Alyssa Harvey (*aharvey@cff.org*)

Great Strides walks on May 22, 2011 at:

- Elver Park, Madison
  Staff contact: Alyssa Harvey (*aharvey@cff.org*)
- Pfiffner Park, Stevens Point
  Staff contact: Lois Baseler (*lbaseler@cff.org*)

Great Strides walks on September 17, 2011 at:

- Myrick Park, La Crosse
  Staff contact: Lois Baseler (*lbaseler@cff.org*)

Tuesday, June 28
Mallards Game, Madison

Take the family out to the ballpark and support CF!
Join us as the Madison Mallards baseball team features the Cystic Fibrosis Foundation in their Community Spotlight! The CF Foundation will receive $2 from every $10 ticket sold by our volunteers and office staff. We are looking for volunteers to help us sell tickets. Please contact the Madison office at (608) 298-9902 for more information.

July 18, 2011
65 Roses Golf Tournament, La Crosse Country Club, Onalaska
Staff contact: Alyssa Harvey (*aharvey@cff.org*)

Description: Presented by Multistack, the fifth annual event is held at a private country club and includes 18 holes of golf with on-course contests. The evening program includes cocktails, dinner, live and silent auctions, and featured speaker.

August 8, 2011
SKINS Golf Tournament, Nakoma Country Club, Madison
Staff contact: Danelle O'Neill (*doneill@cff.org*)

Description: Experience one of Madison's most exclusive golf courses while enjoying challenging on-course contests, a wonderful lunch, great cocktails and an entertaining post-golf reception. We also offer terrific prizes, friendly volunteers and, of course, great golf for a great cause.

September 16, 2011
Keg & Cork, Capital Brewery, Middleton
Staff contact: Alyssa Harvey (*aharvey@cff.org*)

Description: Join us for a casual beer, wine and food tasting event benefiting CFF. Madison vendors participate in this "after work happy hour" event. Live music sets a fun atmosphere for people to mingle as they walk around the venue, sampling the food and drinks. Keg and Cork features auctions, raffles and more!

NEW EVENT!!
October 8, 2011
Cycle for Life, KEVA Sports Center, Middleton
Staff contact: Alyssa Harvey (*aharvey@cff.org*)

Description: Our 1st Annual Cycle for Life will offer two bike tour options. Cycling is done at your own pace. Each ride will begin and end at the same location. Cycle for Life is fully supported with well-stocked rest stops, bike mechanics, ride marshals, breakfast and so much more! Don't miss out on the fun!

November 11, 2011
Olive with a Twist, the Madison Concourse Hotel
Staff contact: Danelle O'Neill (*doneill@cff.org*)

Description: Olive With a Twist, Madison's premiere gala event, is a chic gathering with all the makings of an intimate dinner party. In its fifth year, guests will be treated to a red carpet experience, unique auctions, a sit-down dinner and terrific entertainment.

To learn more about the work of the Wisconsin Chapter of the CF Foundation and how you can help those with the disease, please contact me at *doneill@cff.org*. Again, thank you for your support!

Amy's Story…

Amelia (Amy) was diagnosed with cystic fibrosis through newborn screening. We received a call from her pediatrician that the results of the newborn screening showed probability of CF and that she would need to go to University of Wisconsin Hospital for a sweat test to confirm the diagnosis. Our pediatrician was going on vacation and didn't want us to get a letter in the mail so he came over to the house to fill us in. We were devastated with this news. This was our first child and we knew little of the disease. Our devastation though motivated us to research this disease and find out what we were facing. Our only past knowledge of this disease was very little and frightening. We were determined though that Amy would have the best she could. We went up to UW, not knowing what we would encounter and were very surprised with the amount of information and support given on that first day. UW takes this disease seriously and wants the best for the patients and families involved. After that visit we focused on the positive of "everything happens for a reason" and we were given this as our challenge to face. At that point we decided we would continue to learn more and support the research that has made our daughter's future so much brighter than it could have been with this diagnosis prior to early treatment. We have enrolled in multiple research studies from the beginning and will continue as long as it will help.

We were lucky that the in home daycare we had chosen was run by someone who know cystic fibrosis and was not at all concerned about caring for Amy. Bobbi the owner had 2 cousins who had died of cystic fibrosis in the past and was committed to helping. She organized Cystic Fibrosis Mini Marches for the daycare the first year Amy was there and continues to have these annually still. Amy is Seven years old and the daycare has raised $9,315 through the years. We are again planning one for this year. In advertising in the paper a few years ago we found there was another child about Amy's age in Monroe that also has CF and she has joined the march each year since, as Co-leaders of the march. Our family members continue to donate to the Cystic Fibrosis Foundation each year this way.

We are very lucky to have supportive families that keep the hope alive that a cure will be found in Amy's lifetime. Amy is an inspiration to many she has contact with. She surprises her medical staff and school staff on how much she knows of her medical status. We have always felt it is important that Amy knows what her disease is and how to deal with it. She will one day have to care for herself, so instead of waiting until then she needs to start learning now so she will be used to it then. We want Amy to understand why she has to do her treatments instead of just because she is told to.

Amy is in 2nd grade at St. Victors Catholic School. She loves to play soccer, dance, tumbling, and swimming. She loves her brother and her animals. She looks forward to her future possibilities and plans to be a teacher she says. We look forward to a future where her cystic fibrosis will not limit her because it has been cured.

Everyday we wish we could take Amy's place with this disease, but know we can't so we will do everything in our power to support those that can make her future bright through the research that is being done. We support the Cystic Fibrosis Foundation and feel blessed that there is so much support to battle this disease. We will continue to celebrate each day that Amy is "healthy" and deal with those she is not.

VX-770

Summary of VX-770 manuscript in the November 18, 2010 issue of the New England Journal of Medicine

A team of researchers, led by Frank Accurso, MD (University of Colorado) and funded by Vertex Pharmaceuticals, reported on the safety of a new drug, called VX-770, in adults with CF in the November 18, 2010, issue of the New England Journal of Medicine, one of the most prestigious medical journals. VX-770 is a pill that is taken twice per day. In studies of cells, VX-770 actually improves the function of the gene that causes CF for certain CF mutations. The most common mutation that VX-770 may help is G551D, which occurs in 4-5% of people with CF. None of the current CF treatments available can improve the function of the gene that causes CF, they just treat the effects of CF mutations.

In the study reported in the New England Journal, Dr. Accurso and colleagues gave VX-770 or a placebo to 39 adults with CF for either 14 or 28 days. The primary goal of this study was to determine if VX-770 is safe. There were no significant adverse effects attributed to VX-770. For the group of study participants who received VX-770 for 28 days, their lung function (as measured by FEV_1) improved by, on average, 9% and their sweat test improved. For some study participants, their sweat test results became normal.

The authors concluded that VX-770 was safe and that there was evidence of clinical benefit. This is only the first step in getting this drug approved for use in patients with CF. This drug would only help a small percentage of people with CF, but Vertex Pharmaceuticals is exploring other drugs that could help people with CF with more common mutations, including F508del (the most common mutation).

Keep an eye out for additional reports in the future of this promising drug.