



The Clinical Research Center

Spotlight on Science: Testing a New Form of Medium Chain Fat on Patients with Long Chain Fatty Acid Oxidation Disorders; PI: Gerard Berry MD

Long chain fatty acid oxidation disorders (LC-FAOD) are a group of autosomal recessive diseases in which the **body is unable to break down long chain fats into usable energy**. These disorders occur in approximately **1 in 14,000 births** and can have serious metabolic side effects including rhabdomyolysis, hypoglycemia, hypotonia/weakness and cardiomyopathy. The disorders are now identified through newborn screening, but previously, when identified clinically had a **high mortality rate**.

Patients with LC-FOAD follow a very low fat diet. They are allowed about 10% of their calories from fat compared to the average American diet of approximately 35% of total calories from fat. The diet is then supplemented with medium chain triglyceride (MCT) oil to ensure they are receiving adequate calories to promote continued growth without the harm of ingesting excessive long chain fats.

A new protocol began in July in the Clinical Translational Study Unit (CTSU, Harvard Catalyst CRC) sponsored by **Ultragenyx Pharmaceutical Inc.** testing a new form of medium chain fat on patients with LC-FAOD to assess the effect on energy metabolism, tolerance and safety. The first study visit had multiple components that needed to occur in a timely sequence in order to ensure patient safety including the preparation of a nutrient/calorie controlled meal to be served immediately after blood sampling. Prior to the scheduled visit the **outpatient Metabolic Dietitian team** and the **CTSU research nutrition team** collaborated to design a meal following the protocol parameters. The meal was then prepared in the metabolic kitchen and served to the patient where he reported that it “tasted just like his Mom cooked it.”

For every first clinical trial visit there can be a few “bumps in the road” while getting underway, however the initial visit of this protocol occurred seamlessly due to the exceptional communication between the study Coordinators, Metabolic Dietitians, CTSU Nursing, Research Pharmacy and the CTSU nutrition team. This collaborative effort is what we strive for each day in the Clinical Translational Study Unit of the Clinical Research Center (CRC).



From left to right:
Kayla Arouchon MS; Nicolle Quinn MS, RD, LDN;
Sophia Kon; Kalin Charette;
Fran Rohr MS, RD, LDN; Vera Anastasoiaie;
Ann Wessel MS, RD, LDN



CTSU Update: Scheduler Version 2.9 Released

“Scheduler” is a web-based tool that allows investigators, study staff, and CRC staff to schedule research subjects for CTSU study visits and manage CRC resources. We have received positive feedback from study teams who appreciate the increased access and transparency to the CTSU schedule.

Version 2.9 has exciting new features, such as:

- Study staff can cancel visits within 24 hours.
- Study staff have access to the Resource Gantt Charts in the Appointments Module. This feature allows users to see resources already booked.



CTSU Focus Group: We Want Your Input!

We held our first focus group regarding the new Scheduling System and it was wonderful to hear the positive things study teams had to say, as well as, what can still be improved. We still want to hear from you! We have two more sessions scheduled for August (dates below). The sessions will be located in the CTSU and pizza will be served. Please note that the sessions are limited to 8 people each. Please RSVP to [Tina Kim](#) indicating the date you would like to attend.



- Wednesday, August 20th @ 1-2pm
- Thursday, August 21st @ 1-2pm

Project Management/Study Coordinator Services

CATALYST-SUBSIDIZED SERVICES—Click [HERE](#) to Apply

Subsidized hours for Junior Investigators (Assist. Prof. and below) are now available; guidelines below:

Project Management Services

(a mix of RN project manager, non-RN project manager, data manager and study coordinator)

- ◆ Junior Investigators eligible, used only once; 150 hrs, up to 1 year
- ◆ Senior investigators (Assoc and Prof) can petition for the subsidized hours one time only.
- ◆ If Project Management hours are allocated, then the number of subsidized coordinator hours decrease to 100 hours

Study Coordinator Hours Only

- ◆ Junior Investigators eligible, used only once; 200 hours up to 1 year

Note: Data Management Only requests will always be funded by investigator. If paired with a study coordinator or project manager, then the investigator is eligible; we do not support data entry only requests with study coordinator support.



Upcoming Courses

Register Here: [CRC Education Courses](#)

Sept 16, Oct 21, Nov 18, Dec 16
CRC Grand Rounds

Aug 18&21, Sept 29&30, Dec 11&12
Orientation for New Study Coordinators

Aug 20, Sept 24, Oct 15, Nov 11, Dec 10
Coordinator Rounds

Sept 4, Dec 2
I2b2 Information Session

Aug 13, Sept 9, Oct 9, Nov 6, Dec 4
REDCap Information Session

Sept 18, Nov 11
REDCap How-To: Building a Database

September 9, 11, 12
Introduction to Clinical Research

September 15—November 4
Introduction to Biostatistics



Recent CRC Staff Publications *(with CRC staff as first or last author)*

Anderson, Edwin, Pragmatic Research Design. *The Clinical Researcher*, Volume 28 issue 3, p60-63.

Boyle TP, Paldino MJ, Kimia AA, Fitz BM, Madsen JR, **Monuteaux MC**, **Nigrovic LE**. Comparison of rapid MRI to CT for ventricular shunt malfunction. *Pediatrics*. 2014;134:e47-54.

Deanehan JK, Nigrovic PA, Milewski MD, TanTanny SP, Kimia AA, Smith BG, **Nigrovic LE**. Synovial fluid findings in children with knee monoarthritis in Lyme endemic areas. *Pediatr Emerg Car*. 2014;30(1):16-9.

de Ferranti, S., **Feldman, H.**, **Milliren, C. E.**, **Denhoff, E. R.**, Steltz, S., & **Osganian, V.** (2014). Using high dose omega-3 fatty acid supplements to lower triglyceride levels in 10-19 year-olds. *Clinical Pediatrics*, 53(5), 428-38.

Kapur K, Bhaumik R, Charlene Tang X, Hur K, Reda DJ, Bhaumik DK. Sample size determination for longitudinal designs with binary response. *Stat Med*. 2014.

Mekitarian FE, Horita SM, Gilio AE, **Nigrovic LE**. CSF lactate as a diagnostic biomarker for bacterial meningitis in children from Sao Paulo. *Int J Emerg Med*. 2014;7(1):7-14.

Sammaliev M, Wijeratne K, Ohiomoba H, Ng MW. Cost-effectiveness of a disease management program for early childhood caries. *Journal of Public Health Dentistry* 2014 (in press).

For a complete list of CRC staff publications from the past 6 months, please see pages 4 & 5



New Staff

Lindsay Toto, Clinical Research Specialist I

Tess Buccigrosso, Clinical Research Coordinator I

Chiefs' Corner

Dear Colleagues,

As we approach the dog days of summer, our Center remains as busy as ever. Our *Introduction to Clinical Research* course starts September 9th and this 2 ½ day course provides an introduction to the methods and practice of clinical research and a guide to the relevant BCH resources available to do clinical research at the hospital; a to-do for any clinical researcher at the hospital! We will also have our first annual CRC Poster Day on Day 1 of the course showcasing the great work our staff do with all of you!

Enjoy the rest of the summer,

Ellis and Voula



Recent CRC Staff Publications

- Bhaumik DK, **Kapur K**, Bhaumik R, Reda D. Sample size determination and hypothesis testing for the mean of a lognormal distribution. *J Environ Stats* 2013, 5(1): 1-19.
- Bhaumik DK, **Kapur K**, Balakrishnan, N, Gibbons RD, Keating JP. Small sample tests for shape parameter of a gamma distribution. *Commun Stat Sim Comp*
- DeMaso DR, Labella M, Taylor GA, **Forbes PW**, Stopp C, Bellinger DC, Rivkin MJ, Wypij D, Newburger JW. Psychiatric Disorders and Function in Adolescents with d-Transposition of the Great Arteries. *J Pediatr*. 2014 Jul 22. [Epub ahead of print]
- Duro D, **Mitchell PD**, Mehta NM, Bechard LJ, Yu YM, Jaksic T, Duggan C. Variability of resting energy expenditure in infants and young children with intestinal failure-associated liver disease. *J Pediatr Gastroenterol Nutr*. 2014 May;58(5):637-41.
- Fallon EM, **Mitchell PD**, Nehra D, Potemkin AK, O'Loughlin AA, Gura KM, Puder M. Neonates with short bowel syndrome: an optimistic future for parenteral nutrition independence. *JAMA Surg*. 2014 Jul 1;149(7):663-70.
- Gooding, H.C., **Milliren, C.**, St Paul, M., Mansfield, M. J., & DiVasta, A. (2014). Diagnosing dysglycemia in adolescents with polycystic ovary syndrome. *Journal of Adolescent Health*, 55(1), 79-84.
- Johnson KB, Michelson KA, Lyons TW, **Nigrovic LE**, Lanschaft A, Leviton A, Kimia AA. Pediatric status epilepticus: How common is cerebrospinal fluid pleocytosis in the absence of infection? *Seizure*. 2014; 23(7):573-5.
- Katz-Wise, S. L., Blood, E. A., **Milliren, C. E.**, Calzo, J. P., Richmond, T. K., Gooding H. C., & Austin, S. B. (2014) Sexual orientation disparities in BMI among U.S. adolescents and young adults in three race/ethnicity groups. *Journal of Obesity*, epub 2014 Apr 29.
- Khwaja OS, Ho E, Barnes KV, O'Leary HM, Pereira LM, Finkelstein Y, Nelson CA, Vogel-Farley V, Degregorio G, Holm IA, Khatwa U, **Kapur K**, Alexander ME, Finnegan DM, Cantwell NG, Walco AC, Rappaport L, Gregas M, Fichorova RN, Shannon MW, Sur M, Kaufmann WE. Safety, pharmacokinetics, and preliminary assessment of efficacy of mecasermin (recombinant human IGF-1) for the treatment of Rett syndrome. *Proc Natl Acad Sci U S A*. 2014 Mar 25; 111(12):4596-601.
- Lee JJ, **Mitchell PD**, Hood HC, Grand RJ, Cohen LE. Potential role of IGF-1 z score to predict permanent linear growth impairment in children with IBD. *J Pediatr Gastroenterol Nutr*. 2014 Apr;58(4):472-6.
- Lerner EB, Dayan P, Brown K, Fuchs S, Leonard J, Borgianni D, Babcock L, Hoyle JD, Kwok M, Lillis K, **Nigrovic LE**, Mahajan P, Rogers A, Schwartz H, Soprano J, Tsarouhas N, Turnipseed S, Funai T, Foltin G. Pediatric prehospital patients: Can we aggregate data among emergency medical services systems? *Prehosp Emerg Car*. 2014;18(1):52-9.
- Mehta NM, Raphael B, Guteirrez I, **Quinn N**, **Mitchell PD**, **Litman HJ**, Jaksic T, Duggan CP. Comparison of Body Composition Assessment Methods in Pediatric Intestinal Failure. *J Pediatr Gastroenterol Nutr*. 2014 Mar 6. [Epub ahead of print]
- Mehta SN, Volkening LK, **Quinn N**, Laffel LM. Intensively managed young children with type 1 diabetes consume high-fat, low-fiber diets similar to age-matched controls. *Nutr Res*. 2014 May;34(5):428-35. Epub 2014 Apr 21.
- Mullen MP, Andrus J, Labella MH, **Forbes PW**, Rao S, McSweeney JE, Kulik TJ, DeMaso DR. Quality of life and parental adjustment in pediatric pulmonary hypertension. *Chest*. 2014 Feb;145(2):237-44.
- Pappa HM, **Mitchell PD**, Jiang H, Kassiff S, Filip-Dhima R, DiFabio D, **Quinn N**, Lawton RC, Bronzwaer M, Koenen M, Gordon CM. Maintenance of Optimal Vitamin D Status in Children and Adolescents with Inflammatory Bowel Disease: A Randomized Clinical Trial Comparing Two Regimens. *J Clin Endocrinol Metab*. 2014 Jun 13:jc20134218. [Epub ahead of print]

- Pound CM, **Williams K**, Grenon R, Aglipay M, Plint AC. Breastfeeding Knowledge, Confidence, Beliefs, and Attitudes of Canadian Physicians. *J Hum Lact* August 2014 vol. 30 no. 3 298-309.
- Putman, M. S., **Milliren, C. E.**, Derrico, N., Uluer, A., Sicilian, L., Lapey, A., Sawicki, G., Gordon, C. M., Bouxsein, M. L., & Finkelstein, J. S. (2014). Compromised bone microarchitecture and estimated bone strength in young adults with cystic fibrosis. *Journal of Clinical Endocrinology and Metabolism*, epub 2014 Jun 13.
- Sánchez Fernández I, Klehm J, An S, Jillella D, **Kapur K**, Zelener J, Rotenberg A, Loddenkemper T. Comparison of risk factors for pediatric convulsive status epilepticus when defined as seizures ≥ 5 minutes versus seizures ≥ 30 minutes. *Seizure*. 2014.
- Sánchez Fernández I, Vendrame M, **Kapur K**, Klehm J, Uysal S, Gedik M, An S, Jillella D, Zelener J, Syed S, Gooty V, Rotenberg A, Loddenkemper T. Comparison of pediatric patients with status epilepticus lasting 5-29 minutes versus ≥ 30 minutes. *Epilepsy Behav*.
- Schonfeld D, Bressan S, Da Dalt L, Henien MN, Winnett JA, **Nigrovic LE**. Pediatric Emergency Care Applied Research Network (PECARN) head injury clinical prediction rules are reliable in practice. *Arch Dis Child*. 2014;99:427-31.
- Shore BJ, Hutchinson S, Harris M, Bae DS, **Kalish LA**, Maxwell W, Waters P. Epidemiology and prevention of cast saw injuries: results of a quality improvement program at a single institution. *J Bone Joint Surg Am* 2014;1-8.
- Singh, T. P., **Milliren, C. E.**, Almond, C., & Graham, D. (2014). Survival Benefit from Transplant in Patients Listed for Heart Transplantation in the United States. *Journal of the American College of Cardiology*, 63(12), 1169-78.
- Song JW, **Mitchell PD**, Kolasinski J, Ellen Grant P, Galaburda AM, Takahashi E. Asymmetry of White Matter Pathways in Developing Human Brains. *Cereb Cortex*. 2014 May 8. [Epub ahead of print]
- Thome-Souza S, Kadish NE, Ramgopal S, Sánchez Fernández I, Bergin AM, Bolton J, Harini C, Libenson M, Olson H, Peters J, Poduri A, Rotenberg A, Takeoka M, Kothare SV, **Kapur K**, Bourgeois BFD, Loddenkemper T. Safety and retention rate of rufinamide in 300 patients: A single pediatric epilepsy center experience. *Epilepsia* 2014 1-10.
- Vanderpluym, C., Graham, D.A., Almond, C.S., Blume, E.D., **Milliren, C. E.**, & Singh, T.P. (2014). Survival in patients removed from the heart transplant waiting list before receiving a transplant. *Journal of Heart and Lung Transplant*, 33(3), 261-9.
- Walters, MM, **Forbes PW**, Buonomo C, Kleinman PK. Healing patterns of clavicular birth injuries as a guide to fracture dating in cases of possible infant abuse. *Pediatr Radiol*. 2014 Apr 29. [Epub ahead of print]
- Zenlea, I. S., Burton, E. T., Askins, N., **Milliren, C. E.**, Thompson-Brenner, H., & Rhodes, E. T. (2014). Binge eating at the start of a pediatric weight management program. *Clinical Pediatrics*, epub 2014 Jun 24.
- Zenlea, I., **Milliren, C. E.**, Mednick, L., & Rhodes, E. (2014). Depression Screening in Adolescents in the United States: A National Study of Ambulatory, Office-Based Practice. *Academic Pediatrics*, 14(2), 186-91.