CALL FOR ABSTRACTS

The joint MSU/WSU Pediatric Research Day Committee invites and encourages submissions of abstracts for presentation at our 13th Annual Pediatric Research Day. Abstract submissions must involve child-health related research. In addition to the poster session, some individuals will be selected to give a short oral presentation and will be notified in advance. Trainee Research awards will be given for the best oral and poster presentations. Undergraduate students, medical students, residents, medical fellows, graduate students, Post-doctoral fellows, staff, others (e.g., laboratory assistants, genetic counselors, nurses, etc) and faculty are encouraged to submit an abstract. Faculty will not be selected for oral presentation and are not eligible for awards.

DEADLINE FOR ABSTRACTS: Monday, February 3, 2014

Instructions for Submission

- Microsoft word document, 11 pt font, Times New Roman font, single spaced, 1 inch margins.
- Title of abstract not to exceed 200 characters (including spaces)
- Author(s) names and affiliations. No titles. The first author of the abstract is assumed to be the presenting author and must be underlined and bold.
- Body Formatting: not to exceed 2500 characters (including spaces).
- Two abstract samples are attached for your reference.

Please note: if your abstract is not in the correct format, it will be returned to you for proper formatting and may risk being excluded from the program. Any revised abstract must be submitted before the original deadline date.

Selected oral presentations will be 10 minutes in duration followed by a 5 minute question and answer session. Posters are to be set-up between 8:00 – 8:45am and left for display throughout the conference. Two poster sessions are scheduled from 12:50pm – 1:50pm and 3:35pm – 4:35pm; the presenting author is required to be present at the poster during the assigned time. Available poster boards are four feet high by eight feet wide.

Email your abstract(s) as a word document attachment to Michelle Volker at volkerm@msu.edu and follow the registrations instructions below. You must submit a registration form with the abstract submission. Investigators may submit multiple abstracts if desired.
13th Annual Pediatric Research Day  
New Frontiers in Pediatrics  
Wednesday, March 19, 2014  
The Breslin Student Events Center, Michigan State University  
East Lansing, MI  

Registration Form

First Name: ______________________ Last Name: ______________________

Degree/Title: ______________________________________________________

Circle One:

Undergraduate Student      Medical Student           Resident          Graduate Student
Post-doctoral (PhD) Fellow      Medical (MD/DO) Fellow     Faculty     Other

Affiliation: ______________________________________________________

Address: ______________________________________________________

Phone: ______________________________________________________

E-Mail Address: ________________________________________________

$20.00 Registration Fee (Faculty ONLY)

Office Use Only:

Paid:________  
Cash:________  
Check No:________

Fax your completed registration form to Michelle Volker at 517-355-7254 (payment will be expected on March 19) or mail with payment to 1355 Bogue Street, B136, East Lansing MI, 48824. Make checks payable to Michigan State University. A confirmation will be emailed to the address provided above. If any questions, feel free to contact Michelle at 517-355-4664.
The PRISM Score Predicts the Length of Stay in Patients with Developmental Disabilities and Pre-Existing Morbidities Admitted to a Pediatric Intensive Care Unit

Mark Kadrofske, Dennis Super, Robert Bilenker and Maroun Mhanna. Department of Pediatrics, MetroHealth Medical Center, Case Western Reserve University, Cleveland, OH

Background: Children with developmental disabilities and pre-existing morbidities (DDPM) are frequently admitted to the pediatric intensive care unit (PICU). Owing to their complex underlying clinical conditions, these patients often have an increased length of stay (LOS) in the PICU.

Objective: To determine if a physiology-based mortality index, the Pediatric Risk of Mortality (PRISM) score, can predict the PICU LOS in children with DDPM.

Design/Methods: This is a retrospective cohort analysis of 2028 consecutive admissions admitted to a tertiary care level 1 PICU between January 1998 and February 2001, of which 1768 (87%) had data available to complete the objective. DDPM patients were defined as having one (or more) of the following conditions: chromosome anomalies, syndromes/sequences, meningomyelocele, mental retardation, cerebral palsy, muscular dystrophies, spinal muscular atrophies, seizure disorders with developmental delays, CLD/BPD, complex congenital heart disease or severe gastrointestinal disorders.

Results: The DDPM patients (n = 398) have a longer LOS in comparison to the non-DDPM patients (n = 1370) by approximately two days (mean 5.4 vs 3.0 days, respectively; p < 0.001). The longer LOS for the DDPM patients occurs when the primary admitting diagnosis is either a respiratory problem (6.2 vs 3.2 days, p < 0.005) or sepsis/shock (12.6 vs 2.5 days, p < 0.001). There were no differences in LOS between the two groups when patients were admitted for neurologic, surgery/post-op, or FEN/GI problems. The DDPM patients have a higher PRISM score than non-DDPM patients for all primary admitting diagnoses combined (5.0 vs 3.9, respectively; p < 0.005). There is a positive linear correlation between the PRISM score and LOS for both DDPM (Spearman rank rho = 0.44, p < 0.01) and non-DDPM patients (rho = 0.38, p < 0.01) for all admitting diagnoses combined. Approximately 10% of all DDPM patients had a prolonged (> 14 d) LOS vs 3.5% for the non-DDPM patients. Based on ROC curves, a PRISM score of ≥ 6 was found to be the optimal cutoff value in predicting a prolonged LOS for both DDPM and non-DDPM patients.

Conclusions: The PRISM score is able to predict, at least in part, the LOS in patients with DDPM. The PRISM score may assist clinicians in the management and discharge planning of critically ill patients with pre-existing morbidities and special needs.
Increased Parenteral Amino Acids Administered to Preterm Neonates Result in Greater De Novo Glutamine Synthesis

Mark Kadrofske, Prabhu Parimi, Lourdes Gruca and Satish Kalhan. 1Schwartz Center for Metabolism & Nutrition, Case Western Reserve University, Cleveland, OH; 2Department of Chemistry, Michigan State University, East Lansing, MI.

Background: Whole body glutamine production may be insufficient in the acutely ill low birth weight (AI-LBW) preterm neonate. An increase in anaplerotic flux into the TCA cycle could provide increased carbon for de novo glutamine synthesis (D-Gln). However, we hypothesize that AI-LBW neonates receiving increased parenteral amino acids (AA) will only increase AA oxidation for energy production and will not increase D-Gln.

Objective: To determine if increased parenteral AA administration increases D-Gln.

Design/Methods: Neonates <32 weeks gestational age (GA) with birth weights (BW) ≤1800 grams were randomized within 48 hours after birth to receive either 1.5 or 3.0 g.kg⁻¹.d⁻¹ parenteral AA solution for 19 hours. L-[5-¹⁵N]glutamine, L-[1-¹³C,¹⁵N]leucine, L-[²H₅]phenylalanine, and [¹⁵N₂]urea were administered intravenously by prime-constant rate infusion. Rates of appearance (Ra) of AA and urea were determined by stable isotope dilution. Glutamine production from protein breakdown (B-Gln) = 1.07 x Ra phenylalanine. D-Gln = Ra glutamine minus B-Gln.

Results: Eight neonates received 1.5 g.kg⁻¹.d⁻¹ and six neonates received 3.0 g.kg⁻¹.d⁻¹ AA load. The GA (29 ± 3 vs. 30 ± 2 weeks), BW (1189 ± 291 vs. 1282 ± 310 grams) and total energy intake (46 ± 4 vs. 52 ± 5 kcal.kg⁻¹.d⁻¹) were not different between the two groups.

Rates of Appearance (Ra) of Amino Acids and Urea*

<table>
<thead>
<tr>
<th>Group</th>
<th>Gln Ra*</th>
<th>B-Gln*</th>
<th>D-Gln*</th>
<th>Phe Ra*</th>
<th>Urea Ra*</th>
<th>Leu N Ra*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.5 g/kg/d</td>
<td>428 ± 62</td>
<td>59 ± 13</td>
<td>369 ± 60</td>
<td>55 ± 12</td>
<td>501 ± 252</td>
<td>401 ± 39</td>
</tr>
<tr>
<td>3.0 g/kg/d</td>
<td>578 ± 96**</td>
<td>70 ± 15</td>
<td>508 ± 90**</td>
<td>65 ± 14</td>
<td>859 ± 281**</td>
<td>599 ± 85**</td>
</tr>
</tbody>
</table>

#mean ± SD; *μmol/kg/h; **p<0.05

The Ra of glutamine, urea, and leucine N were significantly greater in the 3.0 g/kg/d group. The higher AA load also resulted in greater D-Gln. Phe Ra was not different.

Conclusions: Increased parenteral AA given to AI-LBW neonates result in greater AA oxidation as predicted; however, and contrary to our hypothesis, it also results in greater D-Gln.