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Health and Medicine Division  
Food and Nutrition Board

**Examining Special Nutritional Requirements in Disease States:  
A Workshop**

**Planning Committee on Examining Special Nutritional  
Requirements in Disease States**

**April 2-3, 2018  
The National Academy of Sciences Building  
Lecture Room  
2101 Constitution Avenue, NW  
Washington, DC**

**Workshop Objectives**

- Examine pathophysiological mechanisms by which specific diseases impact nutrient metabolism and nutrition status and whether this impact would result in nutrient requirements that differ from the Dietary Reference Intakes.
  - Explore the role of genetic variation in nutrition requirements.
  - Examine nutrient requirements in certain chronic conditions or acute phases for which emerging data suggest a contribution of nutrition status to disease outcomes. Consider the scientific evidence needed to establish such relationships and discuss principles about the relationship between nutrition requirements and specific diseases.
  - Explore how a disease state impacts nutrient metabolism and nutrition status and, conversely, what is the impact of nutrition status on the disease state.
- Identify promising approaches and challenges to establishing a framework for determining special nutrient requirements related to managing disease states.

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**WORKSHOP DAY 1: APRIL 2, 2018, 8:00 AM – 5:15 PM**

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8:00 AM                      Registration

**Session 1: Introduction of the Concepts and Context of the Workshop**

Moderator: Barbara Schneeman, University of California, Davis

8:30                      Origins of the Workshop  
                             *Barbara Schneeman, University of California, Davis, Planning  
                                 Committee Chair*

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- 8:50                      What Defines a Special Nutritional Requirement?  
*Patsy Brannon, Cornell University*
- 9:10                      The Underlying Biological Processes of Special Nutritional  
Requirements  
*Patrick Stover, Texas A&M University*
- 9:30                      Moderated Panel Discussion and Q&A
- 10:00                     Break

**Session 2: Addressing Nutrient Needs due to Loss of Function in Genetic Diseases**

Moderator: Erin MacLeod, Children's National Health System

- 10:20                     Understanding the Basis of Nutritional Needs in PKU  
*Denise Ney, University of Wisconsin-Madison*
- 10:40                     Nutritional Inadequacies in Mitochondrial-Associated Metabolic  
Disorders  
*Marni Falk, The Children's Hospital of Philadelphia (via Zoom)*
- 11:00                     Contribution of Nutrients in Complex Inborn Errors of Metabolism:  
The Case of Methylmalonic Aciduria (MMA)  
*Charles Venditti, National Human Genome Research Institute,  
National Institutes of Health*
- 11:20                     Lessons Learned: What We Know about Nutrition Management for  
Inborn Errors of Metabolism  
*Sue Berry, University of Minnesota*
- 11:40                     Moderated Panel Discussion and Q&A
- 12:00 – 1:00 PM      Lunch

**Session 3: Disease-Induced Loss of Function and Tissue Regeneration**

Moderator: Alex Kemper, Nationwide Children's Hospital

- 1:00                      Examples of GI Dysfunction and Malabsorption of Nutrients:  
Intestinal Failure  
*Chris Duggan, Boston Children's Hospital (via Zoom)*
- 1:30                      Examples of GI Dysfunction and Malabsorption of Nutrients: Cystic  
Fibrosis  
*Sarah Jane Schwarzenberg, University of Minnesota Masonic  
Children's Hospital*
- 1:50                      Nutritional Requirements for Inflammatory Bowel Disease  
*Dale Lee, Seattle Children's Hospital*

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- 2:10 Blood-Brain Barrier Dysfunction and Resulting Brain Nutrient Deficiencies  
*Martha Field, Cornell University*
- 2:30 Macro- and Micronutrient Homeostasis in the Setting of Chronic Kidney Disease  
*Alp Ikizler, Vanderbilt University*
- 2:50 Moderated Panel Discussion and Q&A
- 3:15 Break

**Session 4: Diseased-Induced Deficiency and Conditionally Essential Nutrients in Disease**

Moderator: Bernadette Marriott, Medical University of South Carolina

- 3:30 Arginine as an Example of a Conditionally Essential Nutrient: Sickle Cell Anemia and Surgery  
*Claudia Morris, Emory University School of Medicine*
- 3:50 Nutrition Needs in Hypermetabolic States: Burns, Cachexia, and Surgery  
*Paul Wischmeyer, Duke University School of Medicine*
- 4:10 Traumatic Brain Injury: Pathophysiological Mechanisms and Potential Nutrient Needs  
*Angus Scrimgeour, U.S. Army Research Institute of Environmental Medicine*
- 4:30 Metabolic Turnover, Inflammation, and Redistribution: Impact on Nutrient Requirements  
*Jesse Gregory, University of Florida*
- 4:50 Moderated Panel Discussion and Q&A
- 5:15 Meeting adjourns

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**WORKSHOP DAY 2: APRIL 3, 2018, 8:00 AM – 1:00 PM**

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8:00 – 8:30 AM Registration

**Session 5: Building the Evidence Base: Research Approaches for Nutrients in Disease States**

Moderator: David Suskind, University of Washington

- 8:30 Type and Strength of Evidence Needed for Determining Special Nutrient Requirements  
*Amanda MacFarlane, Health Canada*

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8:50	Identification and Validation of Biomarkers in Disease States <i>Patrick Stover, Texas A&amp;M University</i>
9:10	Innovative Causal Designs for Efficacy. What Type of Evidence is Needed? <i>Nicholas Schork, J. Craig Venter Institute</i>
9:30	Examples of a Complex Disease <ul style="list-style-type: none"><li>• Inflammatory Bowel Disease <i>Gary Wu, University of Pennsylvania</i></li><li>• Cancer <i>Steve Clinton, Ohio State University</i></li></ul>
10:15	Moderated Panel Discussion and Q&A
10:45	Break
<b>Session 6: Future Opportunities</b>	
11:00	Principles Learned from Workshop Presentations <i>Barbara Schneeman, University of California, Davis</i>
11:20	Panel Discussion <i>Susan Barr, University of British Columbia</i> <i>Kristen D'Anci, ECRI Institute</i> <i>Tim Morck, Spectrum Nutrition LLC</i> <i>Virginia A. Stallings, Children's Hospital of Philadelphia</i>
12:30	Sponsor Remarks <i>Paul Coates, National Institutes of Health</i> <i>Patricia Hansen, U.S. Food and Drug Administration</i> <i>Caren Heller, Crohn's and Colitis Foundation</i> <i>Chantal Martineau, Health Canada</i> <i>Sarah Ohlhorst, American Society for Nutrition</i> <i>Alison Steiber, Academy of Nutrition and Dietetics</i>
1:00	Meeting adjourns