

Examining Special Nutritional Requirements in Disease States: A Workshop*

April 2-3, 2018

**The Proceedings that were published chronicle the presentations and discussions at the workshop. The statements and opinions contained in proceedings are those of the participants and are not endorsed by other participants, the planning committee, or the NASEM.*

Disclosures: Barbara Schneeman

AFFILIATION/FINANCIAL INTERESTS	ORGANIZATION
Grants/Research Support:	None
Scientific Advisory Board/Consultant/Board of Directors:	McCormick Science Institute WHO Nutrition Guidance Expert Advisory Group- subgroups on Nutrition and Health; Nutrition Policies Food and Nutrition Board, NASEM 2020-25 Dietary Guidelines Advisory Committee
Speakers Bureau:	None
Stock Shareholder:	N/A
Employee: Retired	Emeritus Professor of Nutrition-UC Davis; Former Director of the FDA Office of Nutrition, Labeling, and Dietary Supplements

Examining Special Nutritional Requirements in Disease States: A Workshop*

PLANNING COMMITTEE

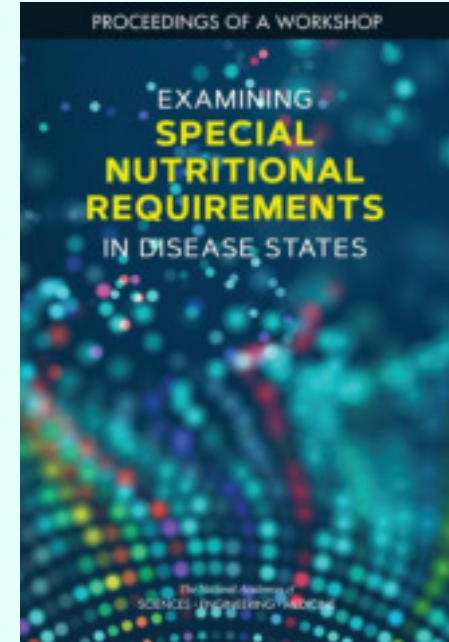
Barbara O. Schneeman (*Chair*)
Patsy M. Brannon
Steven K. Clinton
Alex R. Kemper
Erin Macleod
Bernadette P. Marriott
Patrick J. Stover
David L. Suskind
Gary D. Wu

SPONSORS

Academy of Nutrition and Dietetics
American Society for Nutrition
Crohn's and Colitis Foundation
Health Canada
National Institutes of Health
U.S. Food And Drug Administration

FNB Staff

Maria Oria
Alice Vorosmarti
Cypress Lynx
Ann L. Yaktine



**The Proceedings that were published chronicle the presentations and discussions at the workshop. The statements and opinions contained in proceedings are those of the participants and are not endorsed by other participants, the planning committee, or the NASEM.*

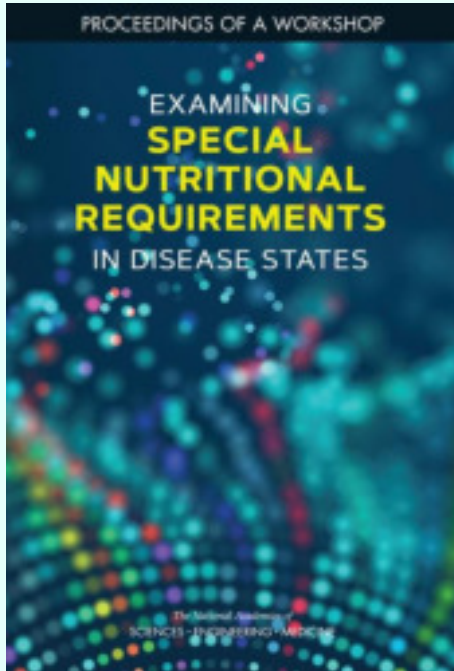
Statement of Task

The National Academies proposes to convene a public workshop **to explore the evidence for special nutritional requirements in disease states and medical conditions that cannot be met with a normal diet.** The workshop will **explore how these requirements may apply to the management of acute or chronic conditions or diseases** that include inborn errors of metabolism, burns or surgical trauma, cancer, inflammatory bowel disease, traumatic brain injury, and other non-communicable diseases or medical conditions. The workshop will review the currently available evidence used to determine potential **nutritional requirements that are not encompassed within the normal population variation.** The workshop discussions will also **encompass the strengths and limitations of different types of evidence** in establishing whether special nutritional requirements exist for a given disease or medical condition and in establishing the safety and efficacy of such therapies.

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 (DRIs).
 - 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.

Workshop Topics

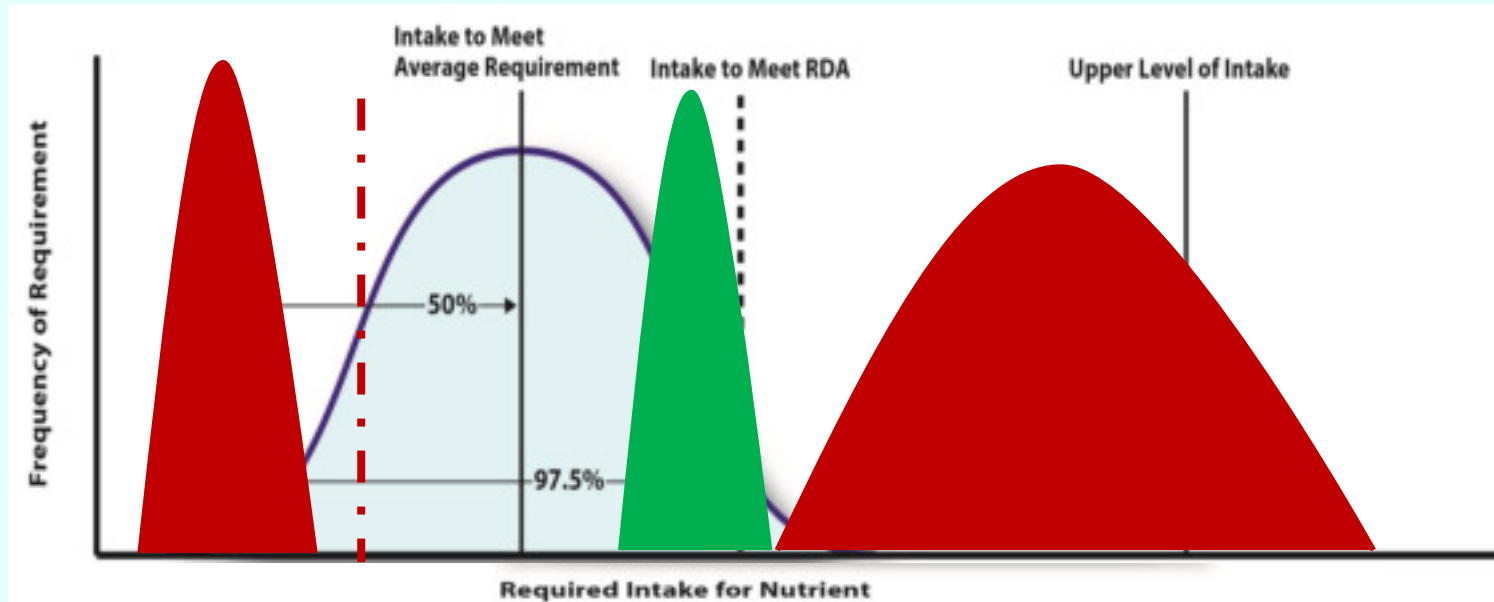


- Disease-induced Loss of Function or Deficiency
 - Genetic diseases
 - Tissue dysfunction and regeneration
 - Conditionally essential nutrients in disease
- Building the Evidence Base
- Potential Opportunities

What Constitutes Distribution Outside DRI?

Disease with increased average nutritional requirement?

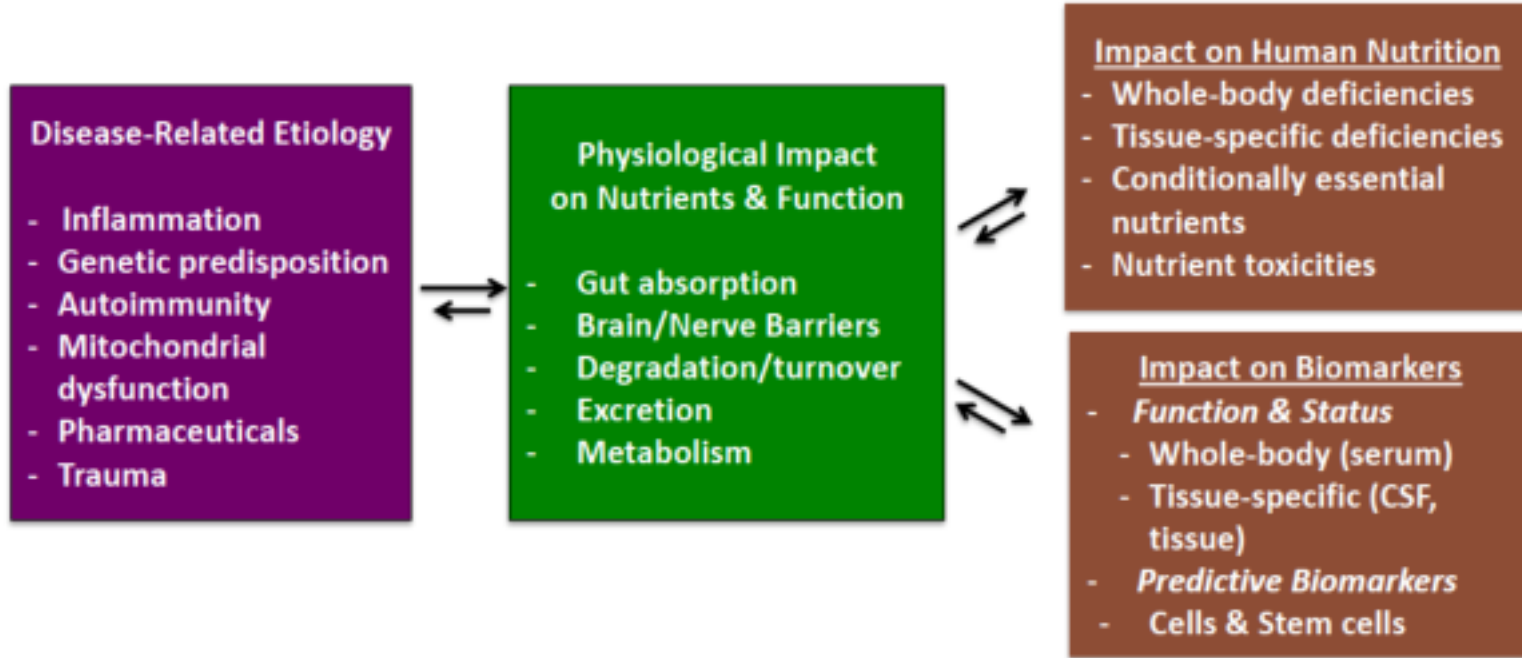
Disease with distribution shifted outside of DRI distribution?



Patsy Brannon, Ph.D.

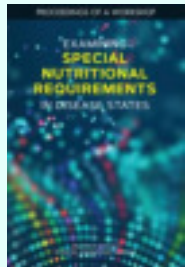
Clinical populations have specific nutritional needs that are different from healthy subjects

Disease influences whole-body nutrient status and/or specific tissue nutrient status



Examples of Disease Induced Loss or Function or Deficiency

- Genetic diseases
 - Inborn errors of metabolism: PKU
 - Mitochondrial Metabolic disorders
 - Complex IEM: Methylmalonic Acidemia
- Tissue dysfunction and regeneration
 - Intestinal Failure
 - Cystic fibrosis
 - Inflammatory bowel disease
 - Blood-brain barrier dysfunction
 - Chronic kidney disease
- Conditionally essential nutrients in disease
 - Sickle cell anemia
 - Surgery
 - Traumatic brain injury
- Building the Evidence Base
 - Types and strength of evidence
 - Innovative causal design
 - Challenges of complex diseases
- Potential Opportunities



Observations from the Workshop

- Understanding the genetic and/or metabolic factors that result in a disease condition increases the ability to identify special nutrient requirements.
- Special nutrient requirements can be the cause of a disorder but also can be the consequence of a disorder.
- The importance of examining nutritional status in the context of the disease process. Valid biomarkers are needed
- Understanding special dietary requirements/patterns as well as special nutrient requirements
- Recognizing the relationship between reducing risk for disease, treatment of disease, and management of disease

Observations from the Workshop

- How can special nutrient requirements impact management of disease?
 - The nature of the disease involves a special nutrient requirement (e.g. IEM)
 - A consequence of the disease process impacts nutritional status (e.g. inflammatory bowel disease)
 - The disease process results in an acute change in nutritional requirements (e.g. certain types of trauma)

Examining Special Nutritional Requirements in Disease States: A Workshop*

PLANNING COMMITTEE

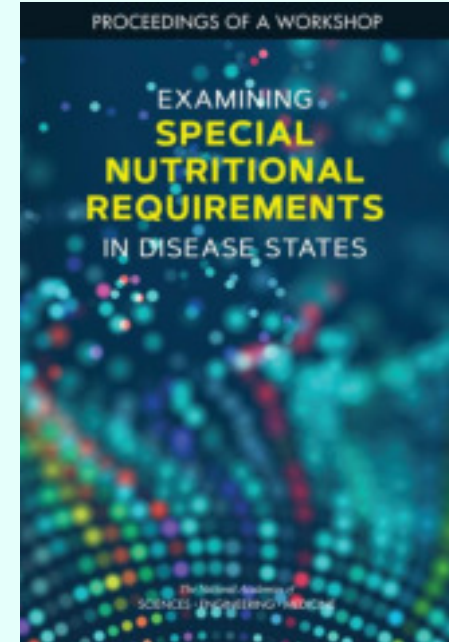
Barbara O. Schneeman (*Chair*)
Patsy M. Brannon
Steven K. Clinton
Alex R. Kemper
Erin Macleod
Bernadette P. Marriott
Patrick J. Stover
David L. Suskind
Gary D. Wu

SPONSORS

Academy of Nutrition and Dietetics
American Society for Nutrition
Crohn's and Colitis Foundation
Health Canada
National Institutes of Health
U.S. Food And Drug Administration

FNB Staff

Maria Oria
Alice Vorosmarti
Cypress Lynx
Ann L. Yaktine



**The Proceedings that were published chronicle the presentations and discussions at the workshop. The statements and opinions contained in proceedings are those of the participants and are not endorsed by other participants, the planning committee, or the NASEM.*