MINUTES OF THE NUTRITION COORDINATING COMMITTEE (NCC) MEETING, NATIONAL INSTITUTES OF HEALTH (NIH)
Rockledge 2, Conference Room 9100-9104, Bethesda MD
Oct 5, 2006 2:00- 4:00 PM

WELCOME

Dr. Van Hubbard, Director, Division of Nutrition Research Coordination (DNRC), convened the meeting at 2:01 PM and welcomed participants. Participating via phone were Ms. Jean-Charles Azure, IHS; Dr. Shirley Blakely, FDA; Dr. Rosalind Breslow, NIH NIAAA; Ms. Tammy Brown, IHS; Dr. Deborah Galuska, CDC NCCDPHP; Dr. David Klurfeld, USDA; Dr. Molly Kretsch, USDA; Ms. Michele Lawler, HRSA; Dr. Elizabeth Maull, NIH NIEHS; Dr. Deborah Olster, NIH OBSSR; Dr. Marshall Plaut, NIH NIAID; Dr. Srinivasan Rajaraman, TATRC USAMRMC; and Dr. Susan Welsh, USDA CRSEES. The agenda for the meeting is provided as Appendix A, and the list of attendees is provided as Appendix B.

APPROVAL OF MINUTES FROM THE July 6, 2006 NCC MEETING

Minutes from the July 6, 2006 NCC Meeting had previously been sent to NCC members via email. Dr. Hubbard asked if there were any other corrections to the minutes. There were none. Dr. Dan Raiten, National Institute of Child Health and Human Development (NICHD), made a motion to approve the minutes, and Dr. Sharon Ross, National Cancer Institute (NCI), seconded the motion. The minutes were thus approved and will be posted on the DNRC website, http://www.dnrc.nih.gov, along with the minutes from previous NCC Meetings.

COMPUTATIONAL MODELING OF HUMAN MACRONUTRIENT METABOLISM AND BODY COMPOSITION

Dr. Kevin D. Hall, Laboratory of Biological Modeling, NIDDK, presented the NCC with information about the construction of a mathematical model that will help to shed light on questions relating to how the body adapts to changes in the amount and composition of diet, how body composition is regulated during weight gain and loss, and how energy expenditure adapts to under-and over-feeding. Because changes in body weight and composition are the result of complex interactions among metabolic fluxes contributing to macronutrient balances, a mathematical model was needed to understand these interactions.

Dr. Hall's model used measured dietary macronutrient intake during semistarvation and refeeding as model inputs and computed whole body energy expenditure, de novo lipogenesis, and gluconeogenesis as well as turnover and oxidation of carbohydrate, fat, and protein. Published in vivo human data provided the basis for the model components that were integrated by fitting a few unknown parameters to the classic Minnesota human starvation experiment. The model simulated the measured body weight and fat mass changes during semistarvation and refeeding and predicted the unmeasured metabolic fluxes underlying the body composition changes. The resting metabolic rate matched the experimental measurements and required a model of adaptive

thermogenesis. Refeeding caused an elevation of de novo lipogenesis that, along with increased fat intake, resulted in a rapid repletion and overshoot of body fat. By continuing the computer simulation with the prestarvation diet and physical activity, the original body weight and composition were eventually restored, but body fat mass was predicted to take more than one additional year to return to within 5% of its original value. The model was validated by simulating a recently published short-term caloric restriction experiment without changing the model parameters. The predicted changes in body weight, fat mass, resting metabolic rate, and nitrogen balance matched the experimental measurements, thereby providing support for the validity of the model.

In order to see how this model could be applied to women, especially those who were obese, Dr. Hall used data of 14 overweight women described in a paper by O de Boer et al. Since women had not been used in the development of the model, it was unclear as to how well it could be used to predict outcomes in women. Surprisingly, the model did a very good job of matching the predicted changes in body weight and fat mass with the actual measurements in O de Boer's study.

Future research will continue to facilitate the investigation of diet and the effect on metabolism, body weight, and composition. Looking at the role of macronutrients during periods of human growth is an area that Dr. Hall is currently pursuing. He welcomed any ideas from the NCC regarding other directions to which the model could be applied.

HHS SECRETARY'S PREVENTION INITIATIVE

CAPT Rick Troiano, ODPHP/OS provided an update on the Prevention Priority, which is being led by RADM Penelope Royall and is one aspect of Secretary Leavitt's Priorities for America's Healthcare initiative (http://www.hhs.gov/500DayPlan/priorities.html). The Prevention Priority is organized around the four pillars of the President's Healthier US Initiative:

1. Be Physically Active Each Day
2. Eat a Nutritious Diet
3. Get Preventive Screening
4. Avoid Risky Behaviors

Objectives 2, 3, and 4 are being led by FDA, CMS, and the Assistant Secretary for Public Affairs, respectively. The activities under these objectives include promoting recommendations from the FDA Calories Count and Keystone Reports (http://www.cfsan.fda.gov/~dms/nutrcal.html), promoting screenings covered by Medicare part D, and developing internet-based programs for youth to encourage healthy choices.

Under the physical activity objective, the department is sponsoring an IOM workshop to address the question of whether there is sufficient scientific

evidence to proceed to develop a set of comprehensive physical activity guidelines for the general population. The workshop will be held October 23 and 24 at two IOM locations (http://www.iom.edu/CMS/3788/36887.aspx).
A Federal Steering Committee has been working with the IOM Planning Committee to plan the workshop.

The IOM Planning Committee members are:

Bill Haskell, Stanford University Prevention Research Center, Chair
Rodney Dishman, University of Georgia
Joseph Donnelly, University of Kansas
Bruce Jones, USACHPPM, Aberdeen
Miriam Nelson, Tufts University

The Federal Steering Committee members are:

RADM Royall, Director, Prevention Priority for America's Healthcare and Project Director, PA Guidelines for Americans
CAPT Troiano, Coordinator, PA Guidelines for Americans
Melissa Johnson, President's Council on Physical Fitness and Sports; Physical Activity Outreach Coordinator, PA Guidelines for Americans
Bill Kohl, CDC; Physical Activity Science Coordinator, PA Guidelines for Americans

Based upon the outcome of the IOM workshop, a decision will be made whether to proceed to convene a federal advisory committee to develop a report that would serve as the foundation for HHS to develop PA guidelines. The committee's deliberations will be informed by a systematic literature review to be conducted under the leadership of the Division of Nutrition and Physical Activity, CDC. The Department's vision is that the PA guidelines would complement and inform the Dietary Guidelines and vice versa.

NIH OFFICE OF DIETARY SUPPLEMENTS (ODS)
Dr. Christine Swanson provided the NCC with several updates from ODS:

The ODS Trans-NIH/Agency Dietary Supplement Working Group Meeting will be held October 19th (start time 12:30) in the Neurosciences Center. The meeting will focus on "NIH Actions and Activities on Selected Evidence-Based Reviews." Please contact Dr. Ken Fisher in ODS for further information.

On October 11th, NIAAA/ODS/NIDDK will hold a symposium entitled *Alcohol, Intestinal Bacterial Growth, Intestinal Permeability to Endotoxins, and Medical Consequences.* The meeting will be held at the DoubleTree Hotel in Rockville. There is no registration charge and registration will remain open until the meeting is fully subscribed.

The ODS fall seminar series has started. Next week's speaker is Dr. Catherine Woteki of Mars Inc. Her presentation, entitled *Cocoa Flavonols: A Case Study of Translational Research,* will be given October 11th (starting at 11 am in the Neurosciences Building). Details can be found in Appendix C. Dr. Mary Frances Picciano is the organizer of the seminar series. The full seminar schedule can be found in Appendix D.

The *ODS 2005 Annual Bibliography of Significant Scientific Advances in Dietary Supplement Research* is published. This issue contains 25 original peer-reviewed research papers nominated by editors of relevant journals. For the first time, the annual publication includes links to NIH policies and guidelines related to characterization of test materials used in dietary supplement research. Please contact Dr. Rebecca Costello in ODS for details or to request for additional copies of the publication.

ODS will be sending a memo to NIH IC Directors to coordinate the ODS co-funding activities for both grants and conferences/workshops for fiscal year 2007. Please contact Dr. Costello for additional information.

UPDATE FROM THE DHHS OFFICE OF DISEASE PREVENTION AND HEALTH PROMOTION (ODPHP)

Ms. Kathryn McMurry provided the NCC with several updates from ODPHP:

- DRI Update

DRI Research Recommendations:

This project has been a collaborative effort between HHS, USDA, Health Canada, and the IOM synthesize the research recommendations from the DRI reports. A workshop was held in June, 2006, and the workshop summary and a searchable database are scheduled to be released on October 20. Kathryn reminded the NCC members that, as Federal Employees, they could contact the National Academies to receive a free copy of the report once it is released (http://www7.nationalacademies.org/ocga/RequestReport.asp).

This project has been a very successful partnership and has been completed within about a year from initiation.

Review of the DRI Model:

After extensive discussions among the Federal DRI Steering Committee, a new Task Order has been awarded to IOM to conduct Review of Dietary Reference Intakes and Related Processes using an open public process.

The task order requests the convening of a public workshop to solicit information on a number of issues related to the development and application of Dietary Reference Intakes (DRIs), coordination of this workshop with a similar workshop

to be held in Canada under the sponsorship of Health Canada, and a report of the discussions that arose during these workshops.

The task order places particular focus on, but is not limited to, issues encountered in the production and application of the eight volumes of reports of DRIs that were completed by the Food and Nutrition Board (FNB) of the Institute of Medicine over the period from 1997-2004.

This review will not provide recommendations or consensus on issues but will describe the range of stakeholder inputs as to "lessons learned" from the recently completed comprehensive DRI process. These inputs will be useful in informing future DRI updates.

This project is being funded by the HHS Office of the Secretary/ Office of Public Health and Science and Office of Disease Prevention and Health Promotion, NIH/Division of Nutrition Research Coordination/ Diabetes, Digestive and Kidney Diseases, NIH/Office of Dietary Supplements, NIH/National Cancer Institute, Food and Drug Administration, CDC/ National Center for Health Statistics (NHANES), and USDA/ Agricultural Research Service

- HP2010 Midcourse Review

The MCR is on schedule to be published in 2006. The next step will be Departmental clearance by all agencies, which will take place within the next few weeks. The agency directors, including NIH, are being briefed on the project.

- Prevention Summit

The National Prevention Summit will be held on Oct. 26-27 (http://www.healthierus.gov/steps/summit.html). Registration is now closed; there is a waiting list in the event of cancellations.

UPDATE OF DNRC ACTIVITIES

Nutrition Education Subcommittee (NES). Dr. Jean Pennington, DNRC, provided an update of the activities of the NIH NCC NES. For the calendar year 2006, the NES has received 34 documents for review including five from NIH, 14 from other DHHS agencies, and 15 from USDA. Materials reviewed or under review since the last NCC meeting are:

- *Eat Smart, Live Strong. Nutrition Education for Older Adults* (FNS, USDA)
- *The Healthy Family Cookbook* (FNS, USDA)
- *Loving Your Family, Feeding their Future Nutrition Education through the Food Stamp Program* (FNS, USDA)
- *Eat Smart, Live Strong. Nutrition Education for Older Adults, Session 2* (FNS, USDA)
- *Eat Smart, Live Strong. Nutrition Education for Older Adults, Sessions 3 and 4* (FNS, USDA)

- *5 A Day Web Consumer Pages* (CDC, DHHS)
- *Iron Deficiency Web Page* (CDC, DHHS)
- *Week 2 Menus and Recipes for Eat Smart Play Hard Healthy Lifestyles Web Pages* (FNS, USDA)
- *Tipsheet: Fats in the Diet* (FDA, DHHS)
- *With Every Heartbeat is Life* (NHLBI, NIH, DHHS)
- *Balanced Choices* (ORS, NIH, DHHS)
- *Brighter Futures Physical Activity and Healthy Eating for Young Women* (HRSA, DHHS)
- *Eating Well as You Get Older* (NIA, NIH, DHHS)
- *Grow It, Try It, Like It!* (FNS, USDA)
- *BodyWorks 4 Teens* (IHS, DHHS)

A listing of reviewed and published NIH nutrition education materials is provided on the DNRC website. Updates from NCC members should be communicated to the DNRC. The DNRC thanks the following individuals for their continued service on the NES: Rosalind Breslow (AAA), Becky Costello (ODS), Darla Danford (NHLBI), Janet de Jesus (NHLBI), Barbara Gross (DNRC), Rachel Fisher (DNRC), Wendy Johnson-Taylor (DNRC), Maureen Leser (CC), Carolyn Miles (NIDDK), Susanne Strickland (NICHD), and Elaine Trujillo (NCI). Representation on the NES from other ICs would be appreciated. If you are interested in participating on the NES, please contact Dr. Hubbard.

International Committee Information:
Dr. Dan Raiten, NICHD, reminded the NCC that there is a new director of the Fogarty International Center: Dr. Roger Glass. Dr. Glass comes to NIH from the Viral Gastroenteritis Section at the Centers for Disease Control and Prevention in Atlanta, Georgia where he served as chief. Dr. Raiten encouraged the NCC members to introduce themselves to the new director if they have not had the chance to meet him yet.

Dr. Raiten also updated the NCC on the WHO nutrition and HIV effort. Guidelines for the care of infants and children have been drafted and will be field tested in Africa next month.

In addition, Dr. Raiten presented information about a conference proposal titled, "*Developing Evidence Base for Interventions to Ameliorate Micronutrient Insufficiencies in Resource-limited Settings*." The impetus for the proposal of this 4-day conference comes from a need for the community of research scientists and program/policy planners involved in micronutrient research to develop a process that would facilitate both the development of a valid and reliable evidence base and the translation of that science into meaningful, effective, and sustainable interventions to resolve specific nutritional problems. This is especially important in light of questions being asked in the international community about ethics and sustainability of doing micronutrient trials in resource limited settings, the methodologies available for assessing outcomes and monitoring programs, and of course fiscal constraints that will dictate much more

effective defense of continuing support of these types of projects. An effort is being put forth to put together a supporting consortium to make this conference a reality, and Dr. Raiten's hope is to include the full range of NIH/USG ICs and agencies. The detailed proposal can be found in Appendix E.

HNRIM Update

Mr. Jim Krebs-Smith, DNRC, reported that the *Financial Report, FY 2005: NIH Program in Biomedical and Behavioral Nutrition Research and Training* has been drafted, is currently under final review, and will be available on the HNRIM website by mid-October.

Mr. Krebs-Smith also provided an explanation of Knowledge Management for Disease Coding (KMDC) and how it will impact HNRIM. Knowledge Management (KM) refers to the use of enhanced analytic tools and text-mining applications to automate the process of "disease coding" and the related reporting of expenditures by disease and special interest areas across NIH IC's. In the long run, KMDC is likely to be advantageous to the HNRIM data collection process by facilitating a more consistent application of standardized nutrition definitions and codes across Institutes. In mid-September, DNRC staff (Mr. Krebs-Smith, Ms. Regan, and Dr. Starke-Reed) met with members of of the KM management team and the NIH Budget Office to discuss the automated process of disease coding. KMDC will not be applied to grant reporting until FY07 and to intramural and contract reporting in FY08. Ms. Regan and Mr. Krebs-Smith will both be involved in the fingerprinting process, which will involve the development of definitions for nutrition and dietary supplements. During this process, Mr. Krebs-Smith and Ms. Regan will be in touch with NCC members.

Ms. Karen Regan made an announcement to the NCC members regarding a change in the reporting process of nutrition funding to HNRIM. In the past, it was possible for projects and associated funding to be added after the December 15th deadline. This will no longer be the case, starting with FY06 data reporting. Ms. Regan encouraged the ICs to work closely with their budget office in identifying nutrition related projects as completely as possible. She especially emphasized the importance of identifying grants co-funded by ODS, as these are occasionally missed in many IC's initial submission. To facilitate the identification of FY06 dietary supplement related projects, each NCC rep will be sent a letter with the list of ODS co-funded grants for their IC. This list should be shared with the person in charge of reporting nutrition funding to the budget office. The change being implemented is in preparation for the transition to KMDC in the upcoming year.

HHS Obesity Related Activities

Dr. Van Hubbard, DNRC, provided follow-up to a working group meeting held on Systems Thinking and Obesity earlier this summer. Out of this meeting arose an interest in mapping obesity activity and interactions across HHS. To initiate this project, the DNRC recently transferred funds as part of a task order to NCI to

complete a Network Mapping activity. At this time, the effort will only map obesity related interactions within HHS, though there is interest among USDA and DOD to expand this project in the future. The survey is currently under development, and as it is created, input from the ICs will be extremely important in producing a valuable survey instrument. This effort is also responsive to one of DHHS's priority questions about obesity activity and level of interactions within the department.

Dr. Hubbard also provided an update on the Interagency Working Group on Overweight and Obesity Research. The goal of this working group is to identify gaps in obesity research across Federal Agencies. In addition to the three task groups already identified (Policy Option Implications Research, Translation/ Communication Research, and Food Choices and Lifestyle Behavior Research), a fourth component relating to physiologic sciences will be added. Col Karl Friedl, DOD, will be one of the co-leads for this task group. The other co-lead will be nominated by the NIH Obesity Research Task Force. A notice will be sent out as soon as this individual is identified. Dr. Hubbard asked that NCC members share any new obesity-related initiatives with this group.

REPORTS FROM NCC MEMBERS AND LIAISIONS

Ms. Holly McPeak, ODPHP, provided a recap of the "Game On! The Ultimate Wellness Challenge" event that took place on the Mall earlier in the day (October 5, 2006). The event was the culmination of an effort to inform, motivate, and mobilize support for school wellness - sound nutrition and physical activity - and to support learning through Game On! activities. The Game On! The Ultimate Wellness Challenge event was an all-inclusive, fun and FREE event for 5th-8th grade students, parents, teachers, administrators, and others to celebrate coming back-to-school with a fresh approach. Game On! integrated nutrition, physical activity and learning through a series of activity stations that stimulated minds and bodies. Participation by adults and children was rewarded – not performance!

Game On! is the product of a partnership between Action for Healthy Kids, the U.S. Department of Health and Human Services, and the U.S. Departments of Agriculture and Education, as well as other leading organizations. Partners worked with districts, communities, and schools to host Game On! events in every state.

NEXT NCC MEETING
The next meeting will be November 2, 2006

ADJOURNMENT
The meeting was adjourned at 3:48 PM.

LIST OF APPENDICES

APPENDIX A: NIH NUTRITION COORDINATING COMMITTEE MEETING AGENDA

Thursday, October 5, 2006
2:00-4:00pm
Rockledge 2, CR#9100-9104

1. Welcome…….. Van Hubbard

2. Approval of Minutes of the July 6, 2006 meeting…….. Van Hubbard

3. Scientific Presentation:

"*Computational Modeling of Human Macronutrient Metabolism and Body Composition"*
Presented by
Dr. Kevin D. Hall, Laboratory of Biological Modeling, NIDDK

4. HHS Secretary's Prevention Initiative……..…….Rick Troiano, ODPHP/OS

5. ODS Activities Update …… Christine Swanson, ODS

6. ODPHP Activities Update ……..Kathryn McMurry, ODPHP/OS

7. Current DNRC Update of Activities…..……..…..DNRC Staff
- Nutrition Education Subcommittee Update……..Jean Pennington*
- International Committee Information…….Pam Starke-Reed/Dan Raiten*
- HNRIM Update……Jim Krebs-Smith/Karen Regan
- HHS Obesity Related Activities……..…Van Hubbard

8. Reports from NCC Members and Liaisons……..NCC Members

9. Next Meeting - November 2, 2006

10. Old Business

* Expanded updates will be included in the minutes of the meeting.

APPENDIX B. NCC MEETING ATTENDEES FOR OCTOBER 5, 2006

	Members Present	Members Absent	Alternates Present
Chairperson:	V Hubbard		P Starke-Reed
NIH Members:			
NCI		J Milner	S Ross
NHLBI	D Danford		
NIDCR		R Nowjack-Rayner	
NIDDK		C Miles	
NINDS		M Mitler	
NIAID	M Plaut		
NIGMS		S Somers	
NICHD		G Grave	D Raiten
NEI		N Kurinij	
NIEHS	E Maull		
NIA		J Hannah	
NIAMS		J McGowan	
NIDCD		B Wong	
NIMH		P Muehrer	
NIDA		G Lin	
NIAAA	R Breslow		
NINR		Y Bryan	
NCCAM		M Klein	
NCRR		L Yager	
FIC		J Herrington	
NHGRI		M.K. Holohan	
NIH Liaison Members:			
CC	N Sebring		
CIT		J Mahaffey	
CSR		S Kim	
NLM		S Phillips	
OBSS	D Olster		
OC		M Stern	
ODS		P Coates	
OD/ODP	B Portnoy		
OLPA			
ORWH			
PRCC		M Vogel-Taylor	
Agency Liaison Representatives:			
CDC/NCCDPHP	D Galuska		
CDC/NCHS		V Burt	
FDA	K Ellwood		S Blakely
HRSA	M Lawler		
IHS	T Brown		J Azure
ODPHP	K McMurry		
USDA	M Kretsch		D Klurfeld
DOD	K Friedl		
OPHS		M Terpeluk	

DNRC: R Fisher, W Johnson-Taylor, J Krebs-Smith, C McDade-Ngutter, J Pennington, K Regan, L Somuah

Guests: C Davis (NCI), J Dwyer (ODS), A Ershow (NHLBI), K Hall (NIDDK), C Johnson (NCHS), R Kuczmarski (NIDDK), H McPeak (ODPHP), S Rajaraman (TATRC USAMRMC), C Swanson (ODS), R Troiano (ODPHP/OS), S Welsh (USDA CRSEES)

APPENDIX C

Office of Dietary Supplements Fall 2006 Seminar Series

"Cocoa Flavonols: a Case Study of Translational Research"

Catherine Woteki, Ph.D.

Date: October 11, 2006

Time: 11:00 am – 12:00 pm

Location: 6001 Executive Blvd.
(Neuroscience Building)
Room A1, Bethesda, MD

Hosted by: Office of Dietary Supplements,
National Institutes of Health

Catherine Woteki, Ph.D.

Global Director of Scientific Affairs for Mars, Incorporated

Dr. Catherine Woteki is the Global Director of Scientific Affairs for Mars, Incorporated, a multinational food, confectionery, and pet care company. She joined Mars, Inc. in August, 2005, and in this role manages the company's scientific and regulatory positions on matters of health, nutrition, and food safety.

Prior to joining Mars Inc., Dr. Woteki was Dean of Agriculture and Professor of Human Nutrition at Iowa State University. Previously, she served as the first Under Secretary for Food Safety at the US Department of Agriculture overseeing the Food Safety and Inspection Service and the US government's Office for the Codex Alimentarius and coordinating U.S. government food safety policy development and USDA's continuity of operations planning. She also worked for two years in the White House Office of Science and Technology Policy where she co-authored the Clinton Administration's science policy statement, "Science in the Public Interest" and as the Deputy Under Secretary for Research in the U.S. Department of Agriculture.

Dr. Woteki received the Bachelor of Science degree in biology and chemistry from Mary Washington College (1969), and Master of Science (1971) and Doctor of Philosophy (1974) degrees in human nutrition from Virginia Polytechnic Institute and State University

Research Interest:

- Food safety and nutrition policy, chronic disease prevention, and population health surveillance and monitoring. Dr. Woteki is the author of over 60 refereed scientific articles and 12 books and technical reports. During her tenure as Director of the Food and Nutrition Board, she directed responsibility for 27 studies and she co-authored a nutrition book for the public entitled, Eat for Life, which became a Book of the Month Club selection.

APPENDIX D – ODS 2006 FALL SEMINAR SCHEDULE

OFFICE OF DIETARY SUPPLEMENTS

National Institutes of Health
Office of Dietary Supplements
2006 Fall Seminar Schedule

September 13, 2006

Deborah Hansen, Ph.D.
Research Biologist, Division of Genetic and Reproductive Toxicology, FDA National Center for Toxicological Research

Topic: "Cardiovascular and Developmental Effects of Citrus Aurantium: Preliminary Observations"
Location: Neuroscience Center Building, 6001 Executive Blvd, Room A1
Time: 11:00a.m. - 12:00 p.m.

October 11, 2006

Catherine Woteki, Ph.D.
Global Director of Scientific Affairs for Mars Incorporated, McLean, Virginia

Topic: "Cocoa Flavonols: a Case Study of Translational Research"
Location: Neuroscience Center Building, 6001 Executive Blvd. Room A1
Time: 11:00 am – 12:00 pm

November 8, 2006

Tsunenobu Tamura, M.D.
Professor of Nutrition Sciences and Obstetrics and Gynecology
University of Alabama at Birmingham

Topic: "Folate and Human Reproduction"
Location: Neuroscience Center Building, 6001 Executive Blvd. Room C
Time: 11:00 am – 12:00 pm

December 13, 2006

Robert Russell, M.D.
Senior Scientist and Director, Jean Mayer USDA Human Nutrition Research Center on Aging
Professor of Medicine and Nutrition, Tufts University School of Medicine

Topic: "Setting Nutritional Requirements for Vitamin A and Carotenes- what we know and what we don't know"
Location: Neuroscience Center Building, 6001 Executive Blvd. Room B1
Time: 11:00 am – 12:00 pm

APPENDIX E: DEVELOPING EVIDENCE BASE FOR INTERVENTIONS TO AMELIORATE MICRONUTRIENT INSUFFICIENCIES IN RESOURCE-LIMITED SETTINGS

Proposal for a four-day conference

Site: To be determined site

Date: June, 2007

Background

In most cases the impetus for exploring individual MN in the developing world has been an assumption that a given MN is playing a role in either the etiology or natural history of a major public health concern. If one starts with the operating premise that the justification for interventions in such scenarios begins with two elements, basic science documenting the importance of the MN in a given functional domain and surveillance evidence indicating that a population-wide deficiency exists then once that evidence has been documented an intervention can be designed and clinical trials would follow. .However, experience has taught us that the process of going from such evidence to sustainable efficacious interventions is much more complex.

Historically there are numerous case studies that exemplify the factors contributing to success and failure of strategies to ameliorate micronutrient deficiencies. Unfortunately for every success story such as the use of vitamin A to treat and prevent blindness, there are many more failures. Even in the face of overwhelming evidence of the biological importance of a given MN and documentation of rampant dietary insufficiencies problems can exist in terms of successful implementation of intervention strategies, e.g., iron.

A new conundrum has recently emerged in which the advent of new evidence indicating potential adverse interactions between a supplemented MN and a given disease, again iron, or potential interactions between treatments, e.g., anti-TB drugs and antiretroviral drugs (ARV) in TB/HIV infected individuals and the further potential for drug/nutrient interactions presents even more levels of complexity to scientists/clinicians and program planners in making appropriate decisions about a given intervention. Further, an evolving body of evidence makes it clear that the response to a micronutrient intervention can differ depending on the pre-intervention status of the individual, i.e., a deficient individual may have a different response than in an individual who is not deficient. The response in the latter scenario while perhaps not meeting the classical definition of “toxicity,” may nevertheless be adverse.

A further ethical dilemma is presented in the design of intervention trials that historically have included placebo controls. In settings were MN deficiencies/food insecurity may be endemic it becomes increasingly hard to defend the need to study an essential nutrient and yet also justify such placebo arms. Thus it is difficult to design a randomized clinical trial in the traditional sense which creates significant difficulties in being able to truly answer core questions about the role of specific nutrients in health and disease particularly in resource-limited settings.

Finally, the absence of a well conceived plan that includes consideration of capacity needs, cultural relevance, and necessary resources for the development of a sustainable process to address either food insecurity (lack of available food systems to provide an accessible, available food supply) or to incorporate an efficacious intervention into the local health care

armamentarium presents an additional ethical concern to funding agencies and the countries in which such research takes place.

Clearly, a need exists for the community of research scientists and program/policy planners to develop a process that would facilitate both the development of valid and reliable evidence base and the translation of that science into meaningful, effective and sustainable interventions to resolve specific nutritional problems.

Proposal:

To help coalesce the community's views and approach to addressing the problems outlined above, a four-day conference is proposed that will consist of daily sessions that could include both plenary presentations and working group sessions.

The conference will also focus on such issues as surveillance, assessment, and the socio/behavioral factors to be considered in the design and evaluation of observational studies and intervention protocols. Case studies will be developed to help identify research and translational activities that have worked as well as those that haven't in an effort to identify a "best practices" approach to the design and evaluation of studies and to address issues pertaining to data evaluation and implementation of efficacious interventions to ameliorate micronutrient related health issues. Additional emphasis will be given to capacity building and training particularly in the context of technological requirements and considerations for various interventions, i.e., supplementation, increased dietary diversity, food fortification, etc.

Goals:

The overriding goals of the conference would be to engage the global food/nutrition community (researchers, clinicians, caregivers, program and policy makers) aimed at developing:

- A priority-based research agenda to address basic, clinical and operational needs. Such an agenda would be based on issues identified as highest priority and may be used as the basis for programmatic activities by agencies involving in research and program development and evaluation.
- A "best practices" approach to the conduct of MN research including consideration of
  - Protocol design
  - Assessment methodologies for assessing nutrition status.
- The development of model process for both researchers to aid in their design of protocols and for reviewers and programmers who will review such protocols.
- A process of translation of evidence into culturally appropriate, sustainable interventions.

Products:

- An Executive summary outlining the adequacy of current data, research priority and meeting recommendations with regard to design, implementation, interpretation and translation of data to meaningful programs.
- A proceedings to be published in the peer-reviewed literature of the entire workshop including presentations, discussion group summaries, and recommendations.

Draft Outline

Day I Making the case: Conceptual Overview: Evidence Base for Selection of Appropriate Interventions The focus would be on the underlying premise that MN malnutrition is an outcome of food systems that fail to provide in accessible ways foods of the types and variety that provide balanced nutrition. An additional focus would be on how to determine the difference between food insecurity and specific nutritional needs associated with a specific health outcome and how to address the latter in the context of endemic food insecurity.

A. Food Security versus Direct Biological link: a discussion of the need for research to make direct link between nutrition and health outcome, e.g., TB, HIV etc., versus the generic humanitarian goal of provided food to people because it is essential for health. What are the specific needs of people beyond provision of adequate diets, e.g., where does impact of food insecurity end and HIV (or any other condition) begin?.
B. Generic versus Indigenous solutions: overview of the need to develop culturally appropriate, indigenous and sustainable solutions to nutritional problems. Focus would include a discussion of the need to develop protocols that would address nutrition and health in the context of individual settings **and** the need for protocols that would provide evidence that could be generalizable across settings.
C. Interface between Science and Programs: how to establish collaborative efforts to translate biological evidence to the implementation of evidence-based culturally appropriate and sustainable interventions

Day 2 Case Studies: each could include extensive coverage of the basic science, surveillance evidence and elements contributing to success or failure of interventions

A. Vitamin A and blindness: elements of a success story
B. MN and HIV infection: what's the problem?
C. Iron deficiency anemia: a conundrum for the ages
D. Interface between diet/nutrition, infectious disease, non-communicable diseases

Day 3

I. Social/Behavioral Factors influencing the decision to use an intervention. This session would be a comprehensive coverage of attitudes, beliefs, cultural norms, about use interventions. Discussions could include stigma, gender issues, role of traditional medicine etc.
II. Ethical issues in the design of intervention trials in resource-limited settings. Placebos etc. (Many of these issues are being generically addressed by a special NIH committee on international extramural research which could be a valuable resource to this aspect)

Day 4

I. Methodological issues in the conduct of surveillance and other studies of the relationship between food/nutrition and health outcomes with an emphasis on resource-limited countries.

A. Conceptual overview
B. Dietary assessments; food composition, seasonal variations, etc.
C. Availability of field appropriate biochemical assessment methodologies for assessing nutritional status
D. Other indices of health outcomes/Biomarkers for women, infants, and children

II. It's not "one size fits all": Technological requirements and considerations for the development of appropriate sustainable intervention strategies

A. Supplements
B. Food fortification
C. Increased dietary diversity
D. Genetic modification of indigenous foods
E. Other