Food and Nutrition Board Impact on Public Health

(and whatever else I want to talk about)

Dennis M. Bier, M.D.

BCM Baylor College of Medicine

USDA Agricultural Research Service

Children's Nutrition Research Center

Texas Children's Hospital

FNB: 25 Years in Retrospect

When one pauses at one of these milestones, one may do several things -- one can look back with some pride, perhaps not untouched by the powers of hindsight, at the road that has been traversed and the hills that have been scaled. One can stop to draw a breath and perhaps contemplate a little the contemporary scene and one's relevance to it. One can look ahead into a region of poor visibility and try to discern the features of the countryside to be surmounted. I hope that as individuals you will try each of these from your own vantage points; collectively as a Board, the agenda of your sessions makes provision for this.

Arthur Geoffrey Norman. Chairman Division of Biology and Agriculture
FNB:Twenty-Five Years in Retrospect.

FNB Members 1940

John D. Black
Henry Borsook
Frank G. Boudreau
George R. Cowgill
Joseph S. Davis
Martha M. Elliot
Conrad A. Elvehjem
Icie Macy Hoobler
Phillip C. Jeans
Norman Jolliffe
Glen King

L. A. Maynard
James S. McLester
Helen Mitchell
S. C. Prescott
Lydia J. Roberts
William C. Rose
G. Cullen Thomas
Russell M. Wilder
Robert R. Williams
John B. Youmans

7 Physicians, 8 Biochemists, 2 Home Economists, 2 Agricultural Economists,
1 Food Technologist, 1 Food Industry Executive.
1941: Added 2 Physicians, 5 Biochemists, 1 Home Economist, 1 Physiologist

Goal Direction:
Still Applicable at Age 80

…they thought of nutrition as an agenda based on science rather than a science as such. The agenda was to feed all Americans better. The scientists were all from the sciences related to nutrition. They described themselves not as nutritionists, but as physicians, biochemists, psychologists, or even, as in the case of John Black, as an economist working on nutrition. They had, in a sense, the same view of nutrition as one may have of medicine: activities based on science and directed toward a certain end.

Jean Meyer
50th Anniversary Symposium

Public Health Mission: Sound Familiar?

"It is no longer a question of a few experts in our colleges and research centers talking about vitamins and minerals. What we must do now is make people understand that nutrition is not an academic matter but a thoroughly practical consideration, concerning every person in the country -- producers, processors, marketers, consumers, nutritional experts -- everyone!"

Russell M. Wilder, M.D.
Chair, Department of Medicine, Mayo Clinic
First FNB Chair

The Impediments

1. Most available data were on young men with some data on babies. There were no data on children eighteen months to eighteen years.
2. The data on women were grossly inadequate. Women were treated as small men, which led, in particular, to underestimating their iron requirements. Data on needs during pregnancy or the efficiency of lactation were very poor.
3. There were no data on aging, with essentially no data on men and women above the age of twenty-five. The bulk of the studies had been done on graduate students and where large numbers were required, on military recruits.
4. Even though data on the energy consumption of each type of activity were available, there was very little knowledge on the variability of energy expenditures in both sexes and at all ages.
5. All data were for "healthy populations," even though it was known that there were areas, including some limited areas in the U.S., where the majority of the population was parasitized.

Jean Meyer
50th Anniversary Symposium

Food Fortification:
An Unqualified and Lasting Success

At the first meeting of the Board, the question of the enrichment of white flour and bread came under discussion and a proposal of the Council on Foods of the AMA, previously given at a Food and Drug Hearing, was endorsed.]

In late 1941, in response to a request from the Food and Drug Administration, it issued a "Statement of Policy in the Matter of Addition of Specific Nutrients to Foods". This statement approved the addition of certain nutrients to specific foods and opposed others. Guidelines for future decisions were laid down. This policy statement was reissued with minor revisions in 1948, 1953, 1958, and 1961. It has had a very salutory influence on food manufacturing and marketing practices, and on public education as well.

Leonard Amby Maynard
25th Anniversary Symposium, p.9

FNB Members 50th Anniversary

RICHARD J. HAVEL (*Chair*), Cardiovascular Research Institute, University of California School of Medicine, San Francisco
DONALD B. McCORMICK (*Vice Chair*), Department of Biochemistry, Emory University School of Medicine, Atlanta, Georgia
EDWIN L. BIERMAN, Division of Metabolism, Endocrinology, and Nutrition, School of Medicine, University of Washington, Seattle
EDWARD J. CALABRESE, Environmental Health Program, Division of Public Health, University of Massachusetts, Amherst
JOHANNA T. DWYER, Department of Medicine, Tufts University Medical School and Frances Stern Nutrition Center, New England Medical Center Hospital, Boston, Massachusetts
JOHN W. ERDMAN, Jr., Division of Nutritional Sciences, University of Illinois, Urbana
CUTBERTO GARZA, Division of Nutritional Sciences, Cornell University, Ithaca, New York
DeWITT S. GOODMAN (*deceased*), Institute of Human Nutrition, Columbia University, New York, New York
M.R.C. GREENWOOD, Nutrition and Internal Medicine, University of California, Davis
JANET C. KING, Department of Nutritional Sciences, University of California, Berkeley
JOHN E. KINSELLA, School of Agriculture and Environmental Sciences, University of California, Davis
LAURENCE N. KOLONEL, Cancer Center of Hawaii, University of Hawaii, Honolulu
WALTER MERTZ, Human Nutrition Research Center, Agricultural Research Service, U.S. Department of Agriculture, Beltsville, Maryland
MALDEN C. NESHEIM, Office of the Provost, Cornell University, Ithaca, New York
ARNO G. MOTULSKY (*Ex Officio*), Center for Inherited Diseases, University of Washington, Seattle
ROY M. PITKIN (*Ex Officio*), Department of Obstetrics and Gynecology, University of California, Los Angeles
STEVE L. TAYLOR (*Ex Officio*), Department of Food Science and Technology, University of Nebraska, Lincoln

At 50: Nichts Neues im Westen

It is remarkable … that the principles upon which the Board was established 5O years ago remain so pertinent to what we are about today.

Richard J. Havel, M.D.
FNB Chair
50th Anniversary Symposium

Public

CRITICAL HEALTH APPLICATIONS

That Depend on the Dietary Reference Intakes (DRIs)

NUTRITION MONITORING

-Assess the nutritional health of the nation

-U.S. National Health and Nutrition Examination Survey (NHANES) and What We Eat in America (WWEIA) analyses

-Canadian Community Health Survey (CCHS) analyses

DIETARY GUIDELINES

-U.S. *Dietary Guidelines for Americans*

-USDA Food Patterns

-Canada's Food Guide

HEALTH PROFESSIONALS

-Dietary counseling and education

-Healthy diets for institutions (hospitals, schools, prisons)

NUTRITION RESEARCH

-Researchers study how diet can help prevent diseases

-Used as a frame of reference in research

ASSISTANCE PROGRAMS

-Guide the design of healthier federal nutrition assistance programs

-School Meals, WIC, SNAP, Child and Adult Care Programs

-Administration on Aging programs

NUTRITION LABELING

-May be used for Nutrition Facts label and Supplement Facts label

-Key tools to help consumers make healthier food choices

FOOD POLICIES

-National, state, and local food policies to improve health

-Wellness policies in schools

MILITARY

-Ensure nutrient needs are met for armed forces

-Meal planning

-Food procurement including military rations

GLOBAL NUTRIENT STANDARDS

-Framework is used by many other countries and international organizations when setting their own standards

FOOD AND SUPPLEMENT INDUSTRIES

-Develop healthy foods and safe supplements

for more information, visit www.iom.edu/dri

INSTITUTE OF MEDICINE
OF THE NATIONAL ACADEMIES

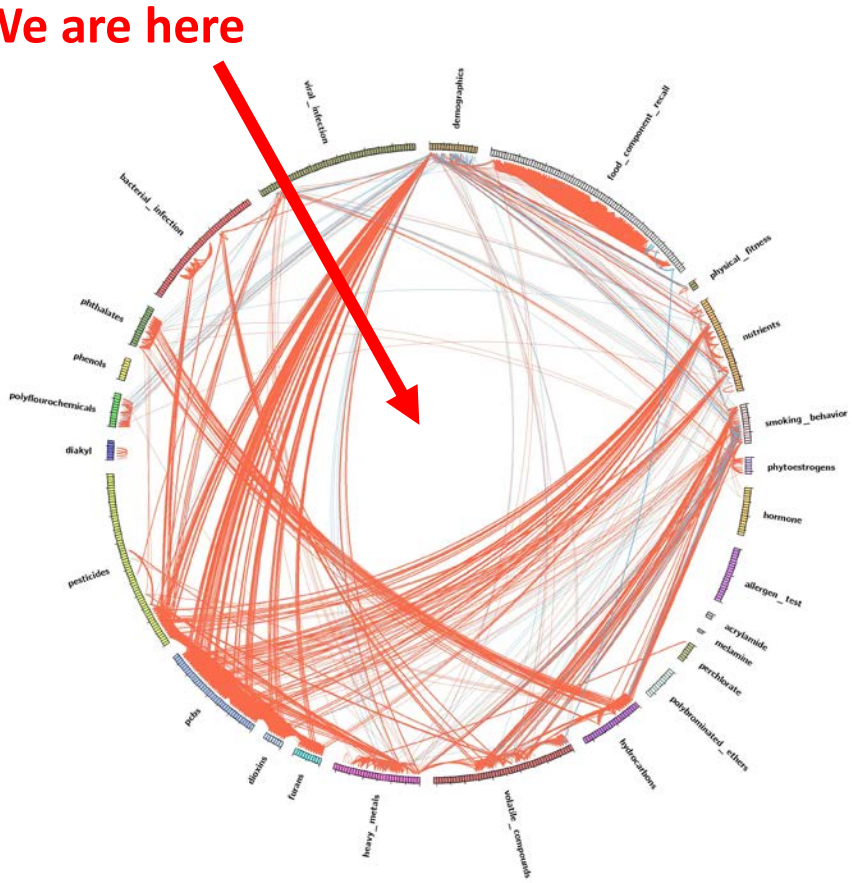
Present Projects Under Development

- Obesity Prevention Portfolio
- Food Safety
  - Innovative Food Technology
- Guidelines for Feeding Infants and Young Children Under Age 2
- New Evidence on the Nutrient Content of Human Milk:
  - A Model for the Derivation of Age-Specific Nutrient Requirements
- Nutrition During Pregnancy and Lactation: Exploring New Evidence
- Strategic Planning for a New Reviews of the DRI
  - Macronutrients
- Innovative Foods and Ingredients
- Impact of Increasing Temperatures and Greenhouse Gases on Nutritional Quality, Safety and Availability of Foods
- Research Design, Evidence Synthesis, and Communications in Diet and Chronic Disease Relationships

Challenges for the Present: Big Data and The Truly Complex Interdependencies within the Exposome

The Epigenetic 21st Century

- How are environmental signals (food being one of the biggest) transduced to gene expression?
- What are the rules for handling the massive amount of data? Hierarchies?
- Public Health
- Agriculture
- Ecology
- Sustainability
- Zoonoses



Modified Globe of Chirag Patel

More Challenges For The Present

- Precision Nutrition
  - Who's normal anymore, anyway?
  - Genomics and its Omni-omics consequences
  - Biomarker validation without "body counts"
  - Algorithm basis for NCD recommendations
- Establishing The Objective Evidence-Base
  - Formal Systematic Reviews
  - Grading of Evidence Level
- Dealing With Uncertainty
  - Do we still "have to give them a number"?
  - Ranges, significant digits?

Step 2. What To Do With The Evidence

"Every now and then, I find myself in a room filled with people who are wrong."

Frank Cotham
The New Yorker
July 30, 2018

Immediate Priorities for the Future. Otherwise We Cannot Move Forward.

- **Independent, objective measurements of dietary intake**
  - Defensible, Generally-agreed-upon definition of “validation”
- **Comprehensive food composition databases**
  - Accounting for variation and its consequences
- **Interrogation of Diet-Exposome interdependencies**
  - Genome Wide Association Studies
  - Epigenome Wide Association Studies
  - Environment Wide Association Studies
  - Engagement Wide Association Studies
- **Innovative study designs that allow approaches to causality**
  - Arthur C. Clarke’s Second Law
  - Ethical and Safety Guidelines that will permit interventional studies in humans

Challenges For The Future

- **Inclusivity**
  - **Food Industry has legitimate nutrition questions that need answers**
  - **Need for Independent broker mechanism that permits financing**
- **Money**
  - **Either the FNB is as important as we think it is, or it's not.**
  - **If it is, it needs base funding for innovation.**
    - **Endowment**
    - **Congressional Appropriation**

Mark Lynch
The Daily Toon