The Food and Nutrition Board's *International Impact*

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FNB Member: 1990-1997
(FNB Chair: 1994)

FNB Committees

1973-80: Nutrition of the Mother and Preschool Child (Received PhD in 1972)

1985-90: Military Nutrition Research

1987-92: Nutritional Status during Pregnancy and Lactation

Chair: Gestational Weight Gain Subcommittee

1990-95: Dietary Reference Intakes

2015-17: Inclusion of Chronic Disease Endpoints in DRIs

FNB's Contributions to Global Recommendations and Policies

To discuss a sampling:

1. **Nutrient Recommendations**
2. **Food Insecurity, Hunger and Obesity Worldwide**
3. **Sustainable Food Supply and Diets**
4. **Advancing Agricultural and Food Research Locally and Globally**

Global Harmonization of Nutrient Recommendations

- Initiated by the FNB in 2005
- Co-chaired: Cutberto Garza & Janet King
- Workshop of international experts
- Charge: to identify concepts needed to develop a framework for global nutrient recommendations
- Report published 2007

Concepts

Evaluate criteria

Extrapolate if necessary

Adjust for:
- Food sources
- Host factors

Consider
- Genetic variation
- Long-term health

Average nutrient requirement (ANR)

Estimated from a distribution of requirements based on a specific criterion in healthy individuals

Individual nutrient level$_x$ (INL$_x$)

Derived from the distribution of the ANR; x=percentile chosen

Upper nutrient level (UNL)

Using a LOAEL/NOAEL with an appropriate uncertainty factor

Methods of using NIVs

Assessment/evaluation
- Individuals
- Populations

Diet Planning
- Individuals
- Populations

Applications

Regulatory issues and trade

Labeling

Public health planning

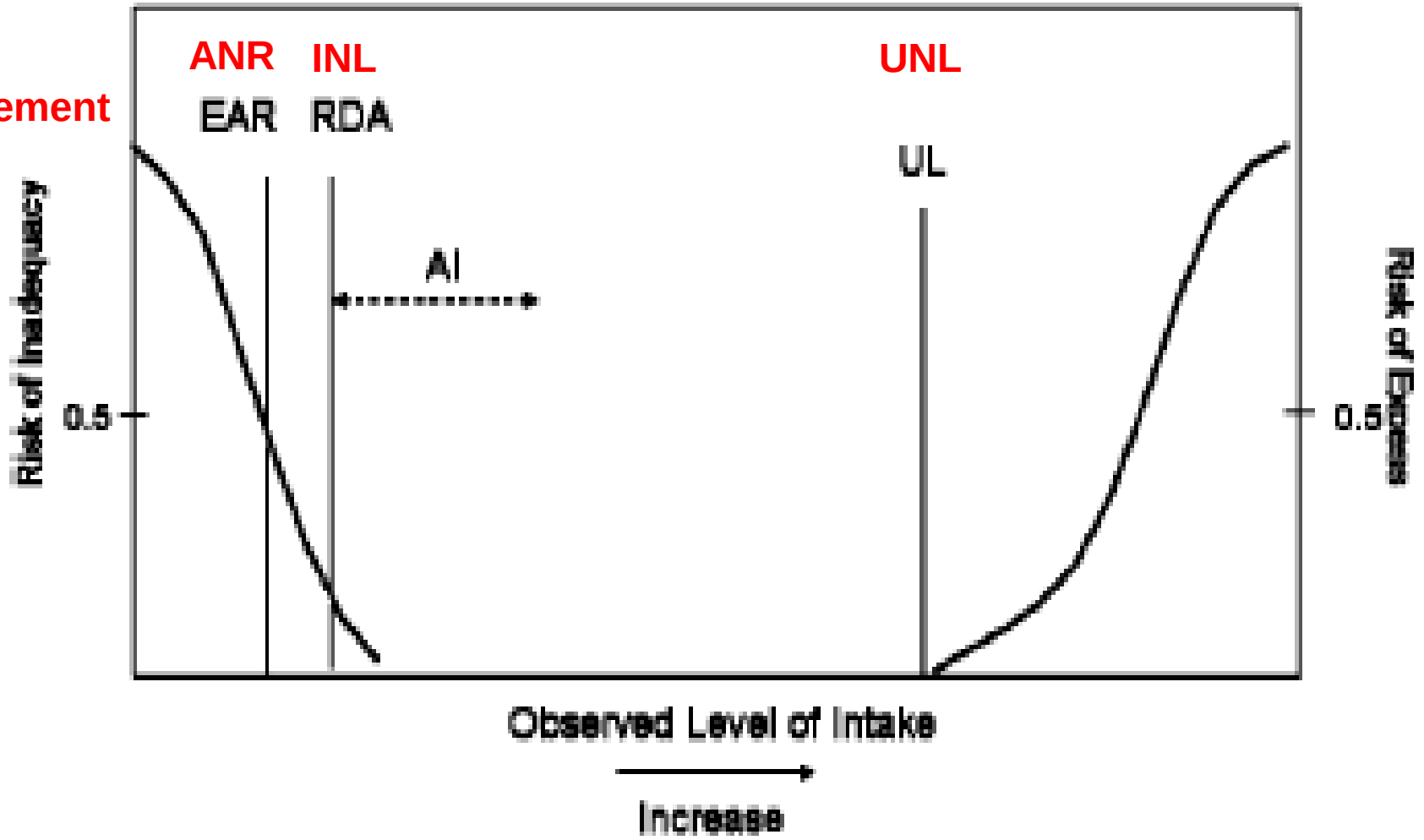
Fortification

Dietary guidance

Acronyms may change with various languages

FNB's Dietary Reference Intakes (1994) Framework for International Values

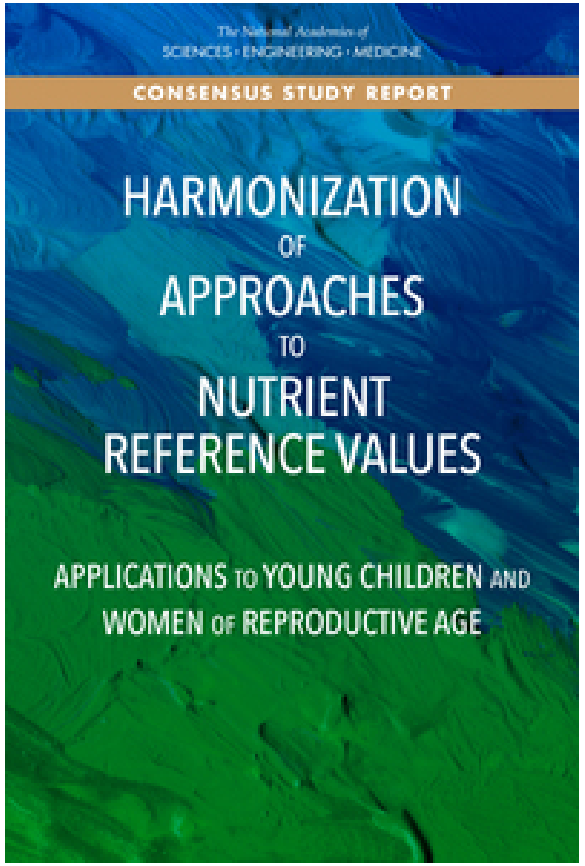
International Values
- **Average nutrient requirement**
- **Individual nutrient level**
- **Upper nutrient level**



A Decade Gap Between Recommending Global Values & Establishing Intake Values

- FNB initiated the activity
- Rome, September, 2017: Joint Workshop with the FNB, WHO, and FAO.
- Global Consensus:
  - To develop global standardized definitions/terms
  - To recognize the special needs of geographical regions or countries (i.e., foods, bioavailability, health status)
- Primary Goals:
  - To base future recommendations on biology and diet influences
  - To reduce differences due to data interpretation.

Application of Harmonized Nutrient Reference Values for Young Children and Women of Reproductive Age



- FNB funded by Gates Foundation to do the work
- International committee members
- Report completed in 2018
- Conclusions & Recommendations:
  - A Global Body should oversee the process
  - Established criteria for nutrient reference values
    - ✓ Regularly updated
    - ✓ Clear, transparent process
    - ✓ Rigorous, relevant methods
    - ✓ Document key factors that may influence values
    - ✓ Report the strength of evidence

Current Status of Global Nutrient Recommendations

- **Individual countries or regions are using the harmonized template**
  - **European Food Safety Authority**
  - **SE Asia**
  - **United Kingdom**
  - **Scandinavian Countries**
- **Manuscript comparing IOM & EFSA values**
  - **Allen, LH, Carriquiry, AL, Murphy, SP. Adv Nutr, Nov. 2019**

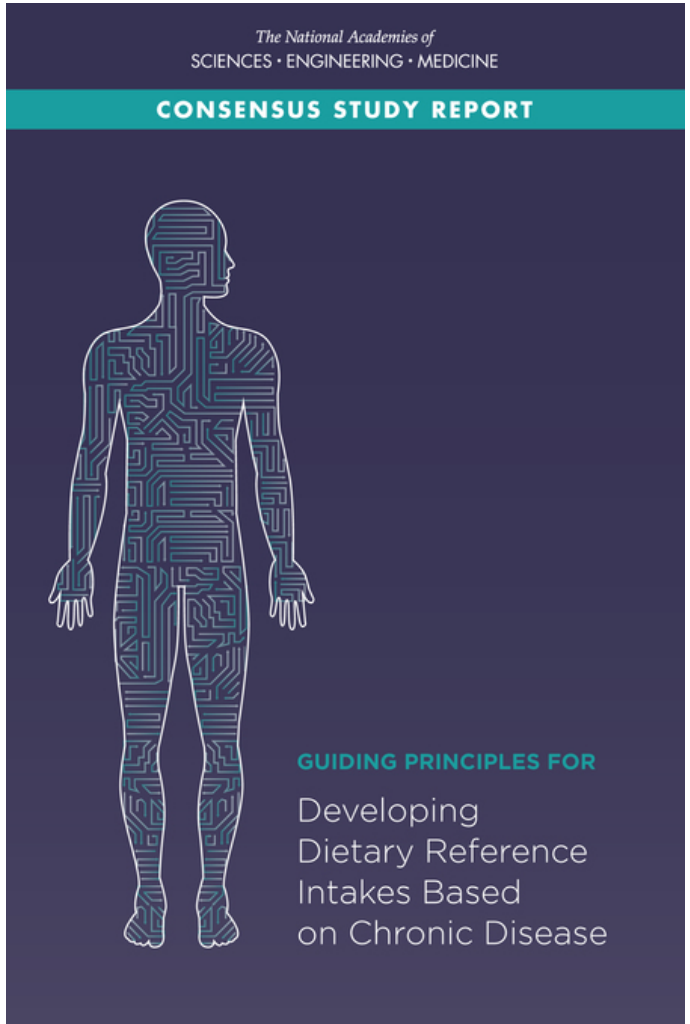
New US/Canadian DRI Challenge: Chronic Disease

- **1994 DRI Report. Recommended including chronic disease endpoints in future DRIs.**
- **2015. NIH funded a committee to assess the scientific issues for establishing DRI chronic disease endpoints**
- **2017 AJCN Publication.**

Options for basing Dietary Reference Intakes (DRIs) on chronic disease endpoints: report from a joint US-/Canadian-sponsored working group[1–3]

Elizabeth A Yetley,[4] Amanda J MacFarlane,[5] Linda S Greene-Finestone,[5] Cutberto Garza,[6 8] Jamy D Ard,[9] Stephanie A Atkinson,[10] Dennis M Bier,[11] Alicia L Carriquiry,[12] William R Harlan,[13] Dale Hattis,[14] Janet C King,[15 17] Daniel Krewski,[18] Deborah L O'Connor,[19,20] Ross L Prentice,[21,22] Joseph V Rodricks,[23] and George A Wells[24]*

FNB Committee:
Chronic Disease DRIs. Guiding Principles. 2017



Key Recommendations:

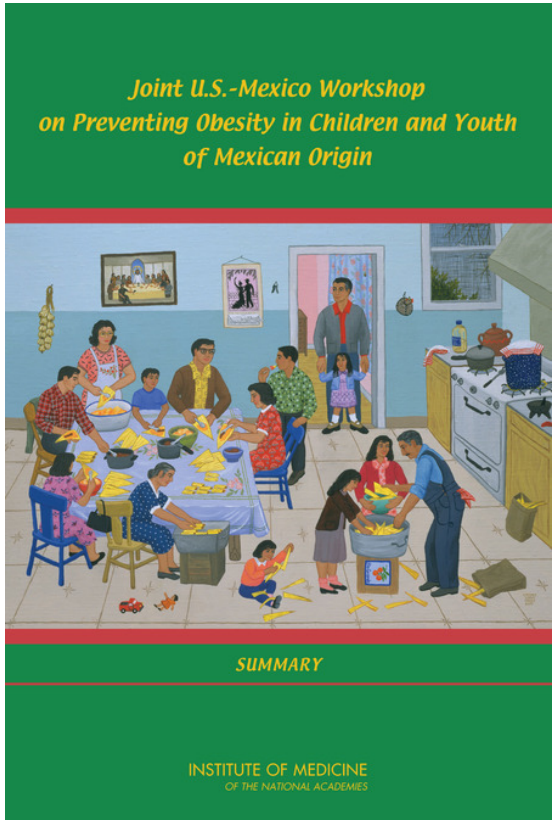
- DRI committees should develop recommendations to prevent nutrient deficiencies and toxicities ***and*** for reducing chronic disease risk.

- Two subcommittees likely needed due to different expertise and methods.
  - Establish DRIs
  - Adjust DRIs for reducing chronic disease risk

- Need to establish harmonized approaches to reduce chronic disease globally

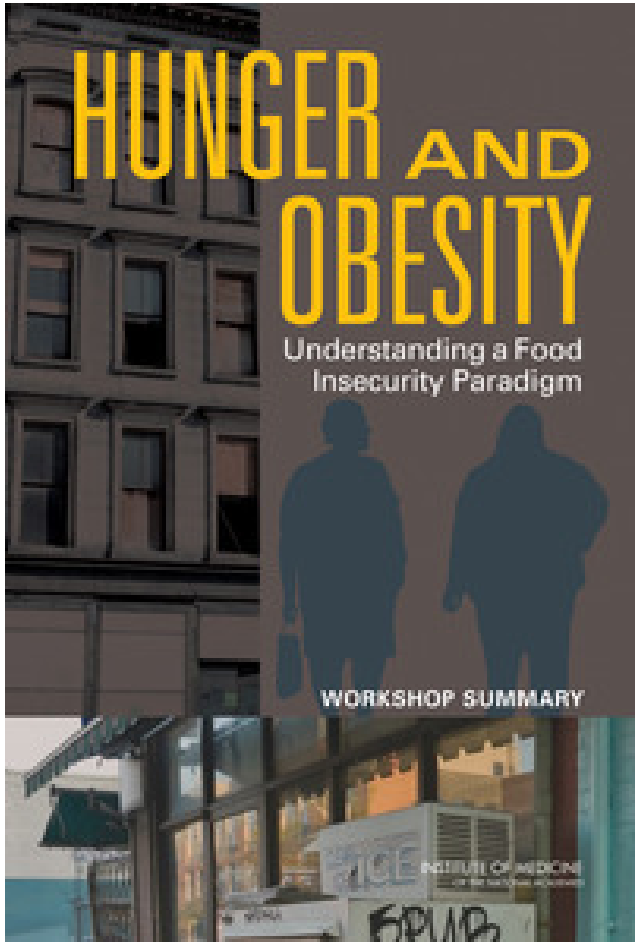
Global Obesity and Hunger

2007

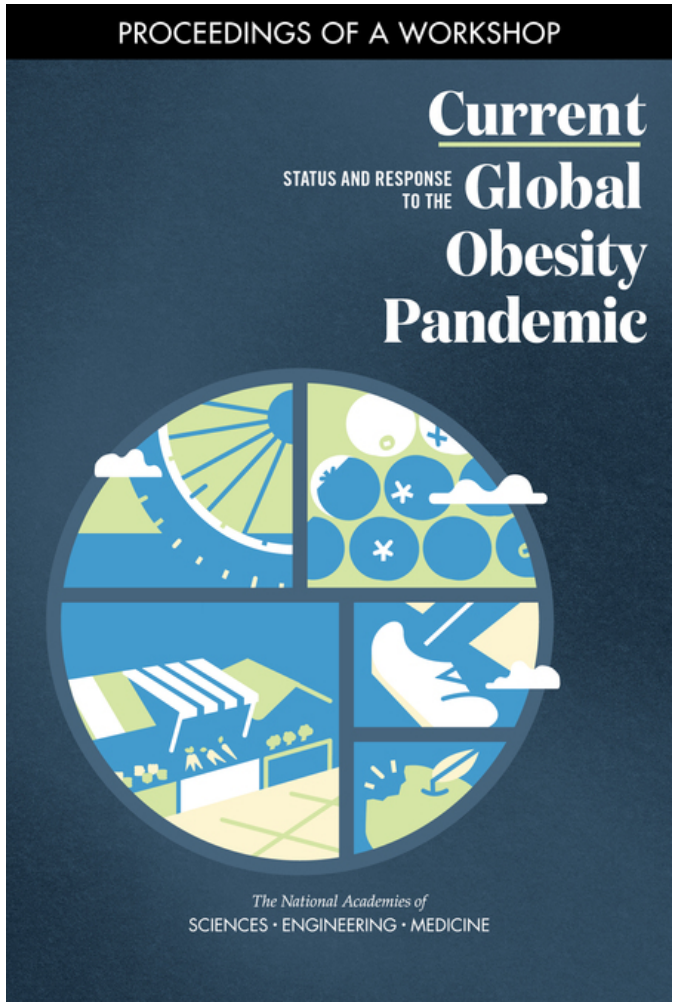


2010

2011



2019



Sustainable Diets: Healthy People & a Healthy Planet (2014)

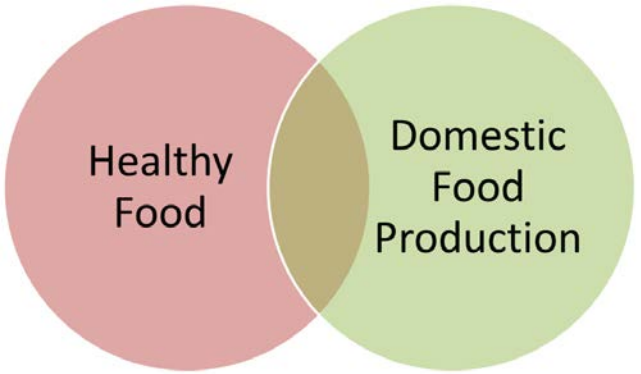
Need to explore the effect of food & nutrition policies on the environmental impact of our food systems.

Environment ⟷ Diet

Global Issue: USDA, UN, and FAO

A sustainable diet has not been defined

Challenge: merge healthy food and food production



Sustainable Diets Need to Address: Climate Literacy, Food, Nutrition & Health

Today:

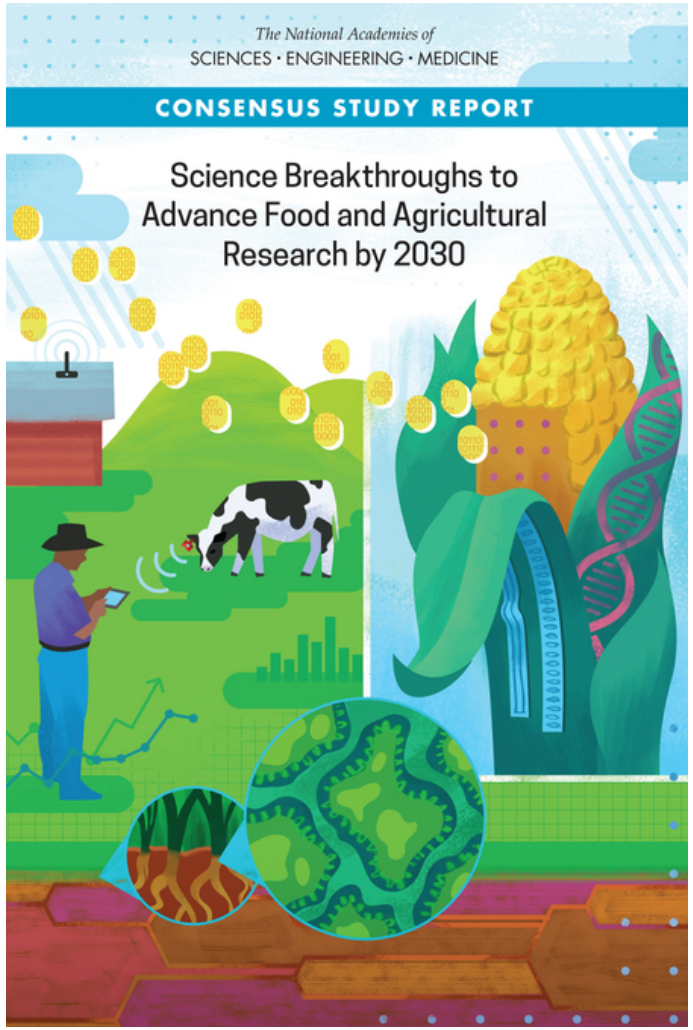
Food & Agriculture Policies are Based on Yield

Future:

Food & Agriculture Policies are Based on Air Quality & Environmental Management

How will this shift affect nutrition & health?

FNB Suggested a Roadmap: Advancing Food & Agricultural Research by 2030



Advances needed to make the U.S. food and agricultural system more efficient, resilient, and sustainable:

- Increase nutrient use efficiency in crops,
- Reduce soil loss and degradation,
- Mobilize genetic diversity for crop improvement,
- Optimize water use in agriculture,
- Improve farm animal genetics
- Develop precision livestock production systems
- Detect and treat plant and animal diseases early & rapidly
- Reduce food loss and waste throughout the supply chain

Next Steps for the FNB

- A renewed interest in food and agriculture is essential.
  - Stimulate interest of the next generation of scientists.
  - Enhance mechanisms to conduct multidisciplinary work
- Features of a future robust food and agricultural research workforce
  - Talented individuals proficient in addressing challenges cross the the food system
  - Develop & use innovative approaches, i.e., think outside the box

FNB's 100th Anniversary: Potential Topics

- Novel methods to mediate the effect of the climate on the food supply & nutrients
- Innovative food technologies—genetic food modification & plant-based alternatives
- New approaches to combat the obesity epidemic throughout the life-cycle (e.g., prevent)
- Harmonized nutritional recommendations reflecting strong global collaborations