Future Directions for the FNB

• Nutrients in Life: Where we are after 100 years and where are we headed?

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THEN	NOW	FUTURE CONSIDERATIONS
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Vitamin A time line, before FNB



\rightarrow FNB

Leading to the DRI model – evolution over time



For Vitamin A

DRI review, in 2001 IOM report on Micronutrients

What did we have to base these DRIs on?

Adults? -- Dark adaptation studies conducted in the 1940-70s, totaling 13 individuals

Men and Women? -- Could not establish separate values, because too few women had been studied

Adolescents and children? -- "*No data are available to estimate an average requirement for children and adolescents.*" -- 2001 DRIs for children 1-18 y are based on scaling from adults, based on metabolic body weight

Infants, and milk? Vitamin was A considered, but carotenoids were <u>not</u> considered because bioconversion from milk wasn't known

Nor, in the 2000 IOM study on antioxidant nutrient that included Carotenoids, were carotenoid DRIs set, or carotenoids considered for their vitamin A value

Since 2001:

Additional new studies--

- A much clearer understanding of nutrient absorption, turnover and disposal
 -- stable isotopic kinetic studies in men, women, and children sex and age specific data
- A much clearer understanding of the relationship of turnover to body stores
- A much clearer understanding of the impact of inflammation on micronutrient assessment
- Much improved analytical techniques, leading to discoveries of new metabolites, concentrations in complex tissues and milk

1. FUTURE -- The DRI process – examine, assess and possibly transform

Take a new, critical look at the model

- -- Because a more rapid, more nimble process might be developed
- -- Current ~18-month studies are too expensive and too slow
- -- Can recommendations for a "general healthy population" be made more relevant to specific populations?

Find consensus on a consistent plan for updating

-- Because many are out of date...out of sync with modern knowledge

Personalized nutrition—

genotypic differences can be detected and related to function

Example: BCO1 SNPs

The FASEB Journal • Research Communication

Two common single nucleotide polymorphisms in the gene encoding β -carotene 15,15'-monoxygenase alter β -carotene metabolism in female volunteers

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Figure 6. Allele frequencies of A379V and R267S+A379V variants in 3 different ethnic groups according to Hapmap (www.hapmap.org). European, Utah residents with Northern and Western European ancestry; A379V, at least one T allele; R267S+A379V, at least one T allele in both R267S and A379V.

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For the FNB to assume a more proactive role, providing advice for healthy living and a longer health-span

Chronic disease relevance — a revisiting of the Diet and Health report of 1989?

--A more global rather than nutrient-by-nutrient recommendation

4. Expand the outreach...

The FNB's work is highly dependent on:

- Consultants
- Study committee members
- Workshop participants
- Public testimony

--Look for ways to expand engagement with the professions and the public