AGENDA

- Brief background
- Latest trends in dietary supplements sales
- Recent national findings of dietary supplement use by US children
  - Who, What, How many
- American Academy of Pediatrics recommendations for dietary supplements
- Key nutrients of concern relative to usage patterns
Dietary Supplement Health and Education Act
1994

- Assured consumer access to supplements
- Defined dietary supplements
- Established Regulatory Framework
- Established the Office of Dietary Supplements at the NIH
Dietary Supplements: DSHEA Definition

- Product intended to supplement the diet
- Contains one or more of the following:
  - Vitamin
  - Mineral
  - Herb or other botanical (*not* tobacco)
  - Amino acid
  - Other dietary substance
Top 10 Dietary Supplements for 2004

- Multivitamins/minerals
- Calcium
- B vitamins
- Vitamin C
- Glucosamine/Chondroitin
- Vitamin E
- Other vitamin combinations
- Coenzyme Q10
- Fish oils
- Vitamin A/β-Carotene

Nutrition Business Journal
How much money do Americans spend on dietary supplements?
Dietary Supplement Sales in 2005: $21.3 Billion

- Multivitamin/Minerals ($4.2)
- Vitamins ($3.0)
- Minerals ($1.8)
- Herbals/Botanicals ($4.4)
- Sports Nutrition ($2.2)
- Other Supplements ($5.7)

Source: NBJ, derived from a variety of sources
Supplements Annual Growth: 1995-2005

Source National Business Journal
Supplements in Context
US Sales Growth (annual %)

Source National Business Journal
How Many US Children Use Dietary Supplements Today?

- Nationally representative data are available from the National Health and Nutrition Examination (NHANES) Surveys.

- NHANES is a continuous survey of about 5,000 people per year from 15 communities to assess the health and nutritional status of adults and children in the United States.

In NHANES surveys dietary supplement use is recorded

Participants (or their Proxy) are asked during the home interview:

• if they have taken any vitamins, minerals, or other dietary supplements in the past month?
• to include prescription and non-prescription supplements
• if they have taken any antacids (for calcium intake)
• to furnish supplement containers (seen 2/3 of time)
• to provide details of use: how long, how often, how much?
At NHANES, recorded supplements are matched to known supplement:

- 45% exact or near exact match
- 30% generic match
- 5% close match
- 5% name could match 2 supplements
- 12% default match
  - Defaults created based upon NHANES data
- 2% no match
- 1% product was a prescription medicine
Dietary Supplement Database available for approximately 5000 products

- Labels are obtained from manufacturers, retailers and the internet
- Currently available at http://www.cdc.gov/nchs/nhanes.htm
  - scroll to Data Sets and Related Documentation
  - Clink on either NHANES 1999-2000
  - NHANES 2001-2002
How many US children use dietary supplements?

What dietary supplements are used most often?
<table>
<thead>
<tr>
<th>Total sample</th>
<th>21,004 individuals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Children in sample (#)</td>
<td>Supplement Users #</td>
</tr>
<tr>
<td>10,136</td>
<td>2,487</td>
</tr>
<tr>
<td>Females</td>
<td>5,020</td>
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<tr>
<td>Males</td>
<td>5,116</td>
</tr>
</tbody>
</table>
Prevalence of any dietary supplement use among children and adults (NHANES 99-02)
Prevalence of Dietary Supplement Use Among US Children

NHANES 99-02 (n=10,136)

- Any 31.8%
- MVMM 18.3%
- Vitamin 4.2%
- Mineral 2.4%
- Botanical 0.8%
- Other 6.2%
Prevalence of Dietary Supplement Use Among US Children by Age  

NHANES 99-02  

(n=9096)
Prevalence of Dietary Supplement Use Among US children by Race/Ethnicity

NHANES 99-02 (n=10,136)

%  

- Non-Hispanic White: 38.3%
- Non-Hispanic Black: 18.8%
- Mexican American: 22.4%
- Other: 25.4%
How many supplements do children supplement users take?
Percentage Distribution of Number of Supplements taken by U.S. Children
NHANES 99-02 (n=2487)
Demographic/Lifestyle Variables
Associated with Dietary Supplement Usage
in US Children (NHANES 99-02)

For use of any and most commonly taken supplements, associations were positive for:

- Family annual income
- Any health insurance
- No smokers in the household
- Household not WIC certified
- Less child total screen time/day
- BMI classified as “risk of underweight” or “probably a healthy weight”
Is there evidence to indicate that children may benefit from nutrients furnished by dietary supplements?
Consumer spending far exceeds research dollars.

Consumer Spending: $1000

ODS Research: $1
American Academy of Pediatric recommendations for supplements

- **Vitamin D**
  - 200 IU/day if ingesting < 500 ml/day of fortified milk

- **Iron**
  - 1mg/kg/day for high risk children

- **Fluoride**
  - 0.25 mg/day until age 3 if drinking water low (<3ppm F)

- **Calcium**
  - To meet recommended intake
Percentage of US Children Meeting the Recommended Intake for Calcium


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Prevalence of key nutrients furnished by children’s intake of supplements

<table>
<thead>
<tr>
<th>Minerals</th>
<th>Vitamins</th>
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<tbody>
<tr>
<td>Ca</td>
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<tr>
<td>D</td>
<td>26</td>
</tr>
<tr>
<td>C</td>
<td>29</td>
</tr>
</tbody>
</table>
Key questions that remain to be answered

- To what extent do supplements contribute to overall nutrient intakes?
- Do dietary supplements contribute additional nutrients to diets already deemed adequate or do they fill gaps?
- How do total nutrient intakes relate to nutrient status biomarkers and other health outcomes?
Summary

- Dietary supplement usage patterns among US children is widespread but differs markedly from adults.

- Nutrient intakes from dietary supplement provide several key nutrients of concern.
Summary

- Dietary assessment from foods alone will underestimate risk for inadequate and excessive intakes.

- Total nutrient intakes of US children and relative contributions from foods and supplements is much needed information.
Tools are in development to assist the dietitian

- Assessment Methodology and Validation Studies are underway
- Dietary Supplement Ingredient Database
  - Cooperative venture of ODS, USDA and NCHS
- NOADS (NHANES Online Analyst for Dietary Supplements)
  - Web based tool for real time analysis
  - Stop by the ODS booth to evaluate it
OFFICE OF DIETARY SUPPLEMENTS

Visit the ODS Web site http://ods.od.nih.gov

or e-mail to ods@nih.gov