



OFFICE OF
DIETARY
SUPPLEMENTS

What Dietary Supplements are US Children Taking?



Mary Frances Picciano, PhD
Office of Dietary Supplements
National Institutes of Health



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**

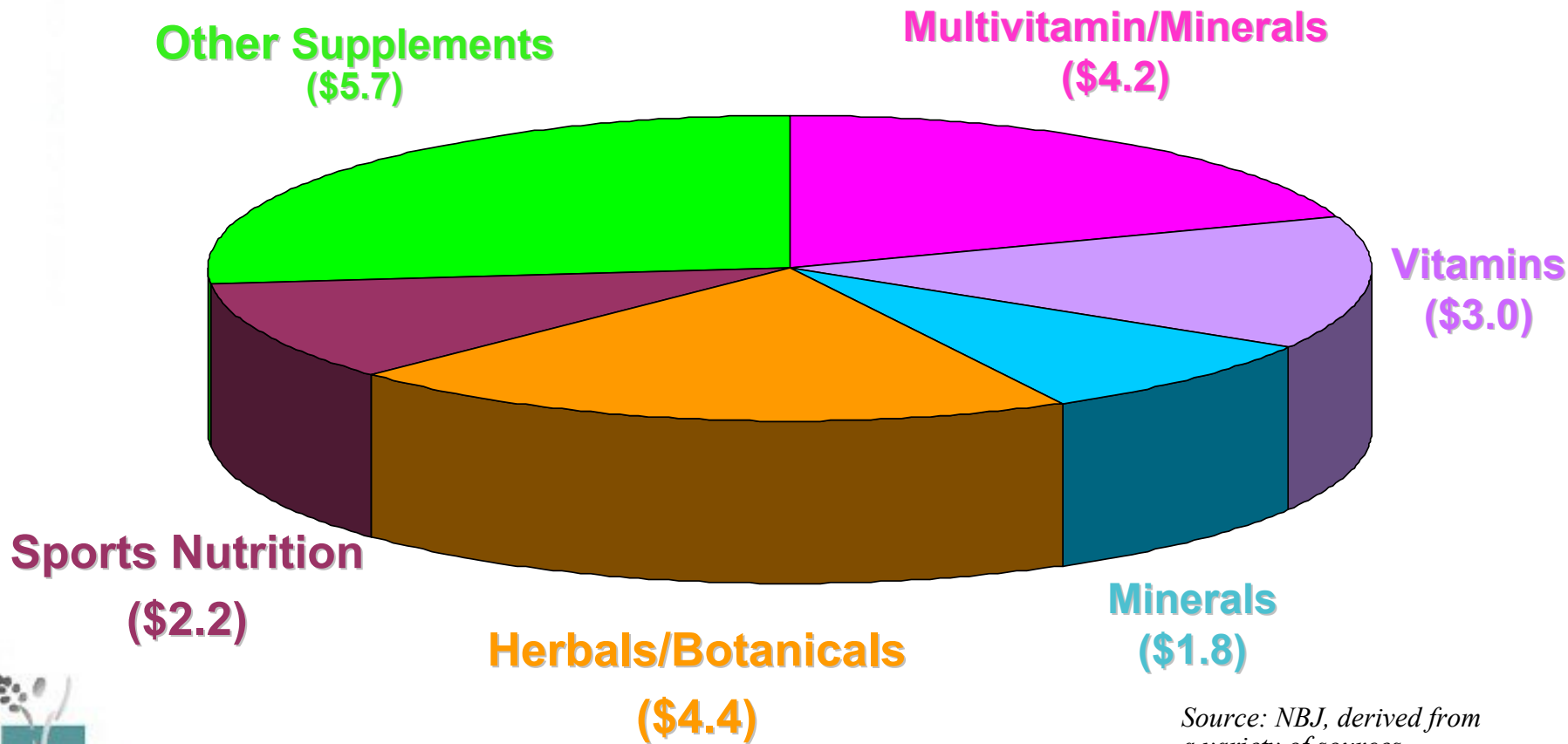
Nutrition Business Journal



How much money do Americans spend on dietary supplements?



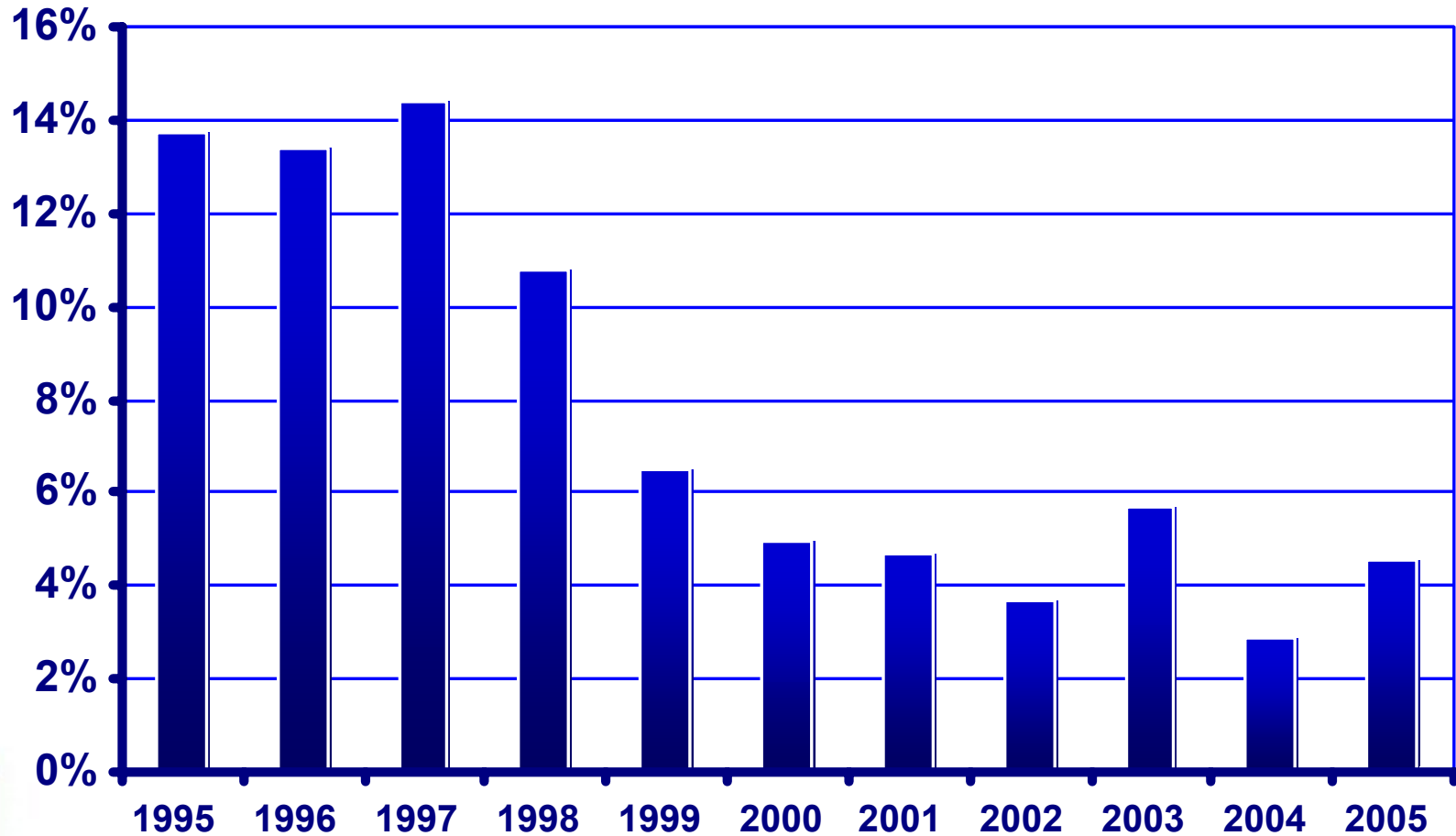
Dietary Supplement Sales in 2005: \$21.3 Billion



Source: NBJ, derived from a variety of sources



Supplements Annual Growth: 1995-2005

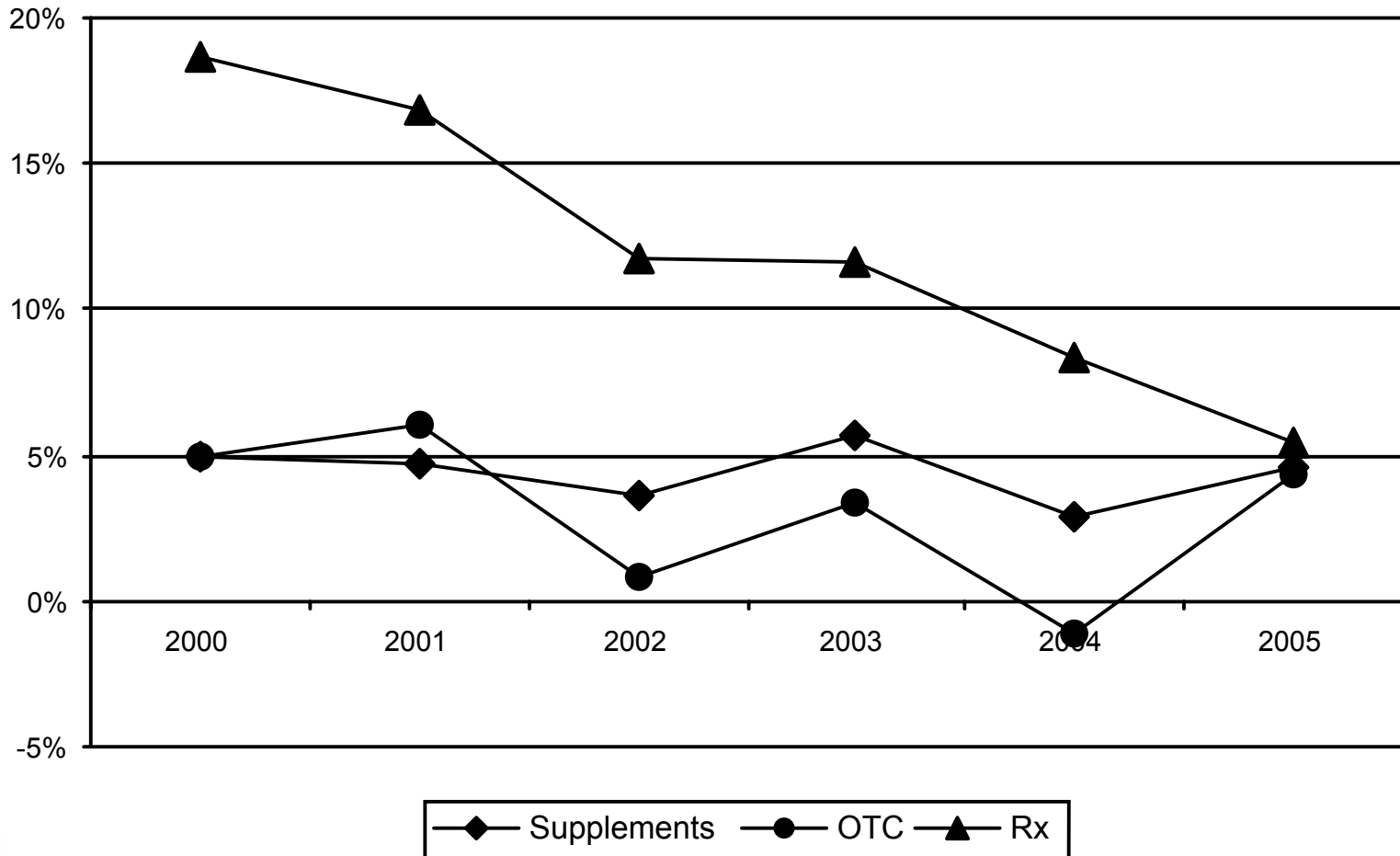


Source National Business Journal



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**
- **NHANES 1999-2000 & 2001-2002 data analyzed for prevalence of use of dietary supplements for children**



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**
 - Click on either
 - [NHANES 1999-2000](#)
 - [NHANES 2001-2002](#)



How many US children use dietary supplements?

What dietary supplements are used most often?

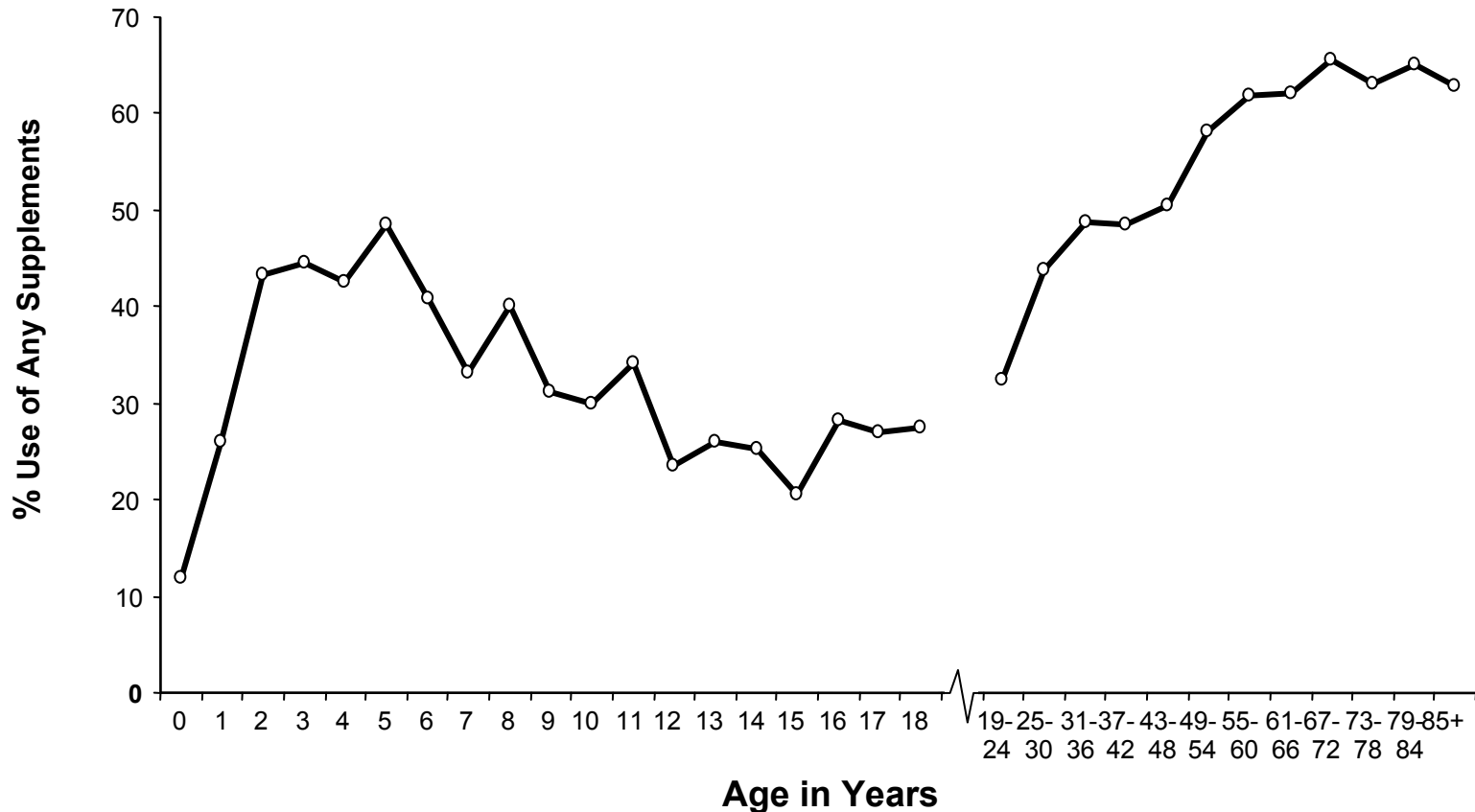


NHANES 1999- 2000 & 2001-2002 sample size

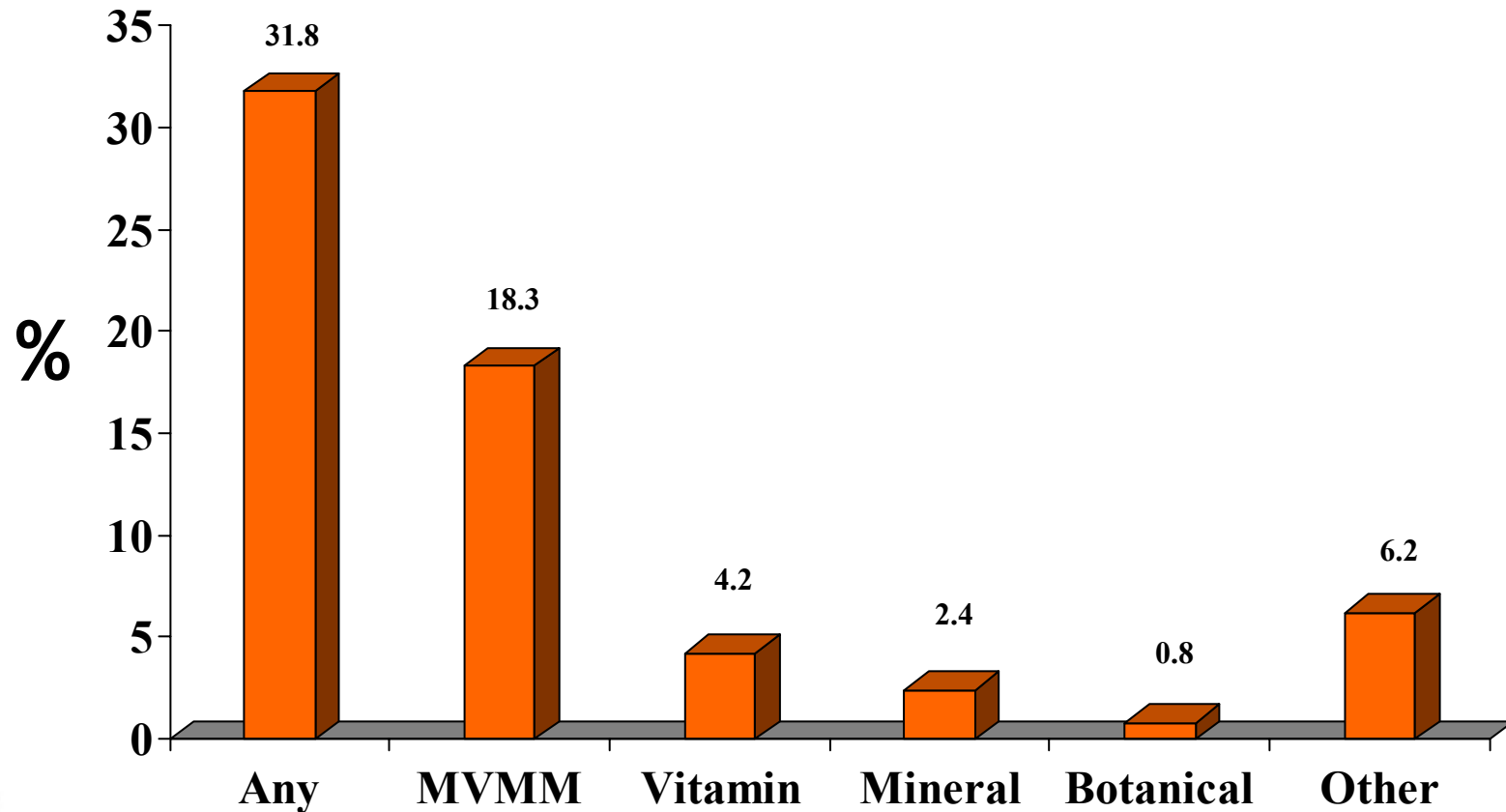
Total sample	21, 004 individuals		
	Children in sample (#)	Supplement Users	
		#	%
	10,136	2,487	31.8
Females	5,020	1,272	32.8
Males	5,116	1,215	30.8



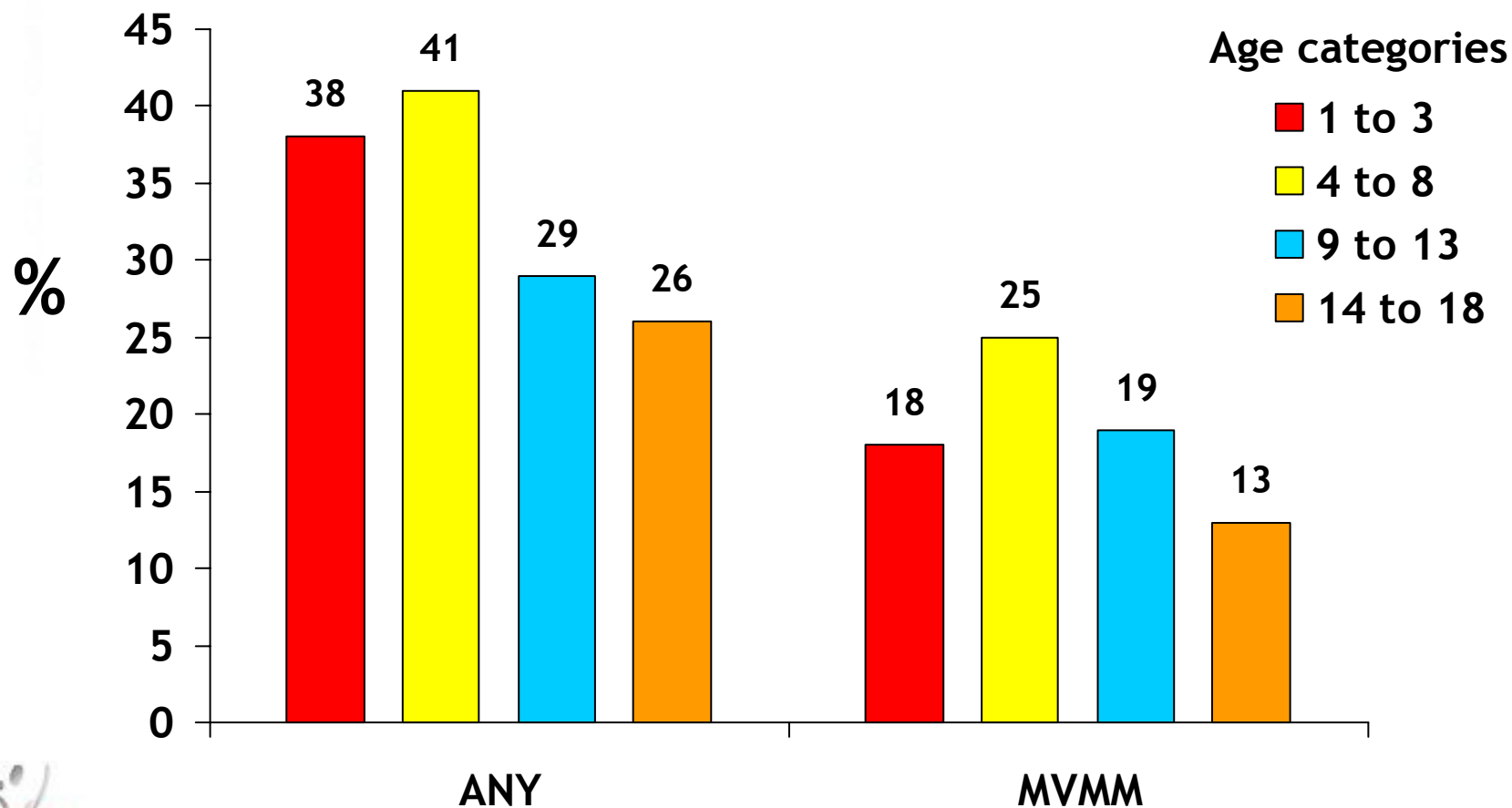
Prevalence of any dietary supplement use among children and adults (NHANES 99-02)



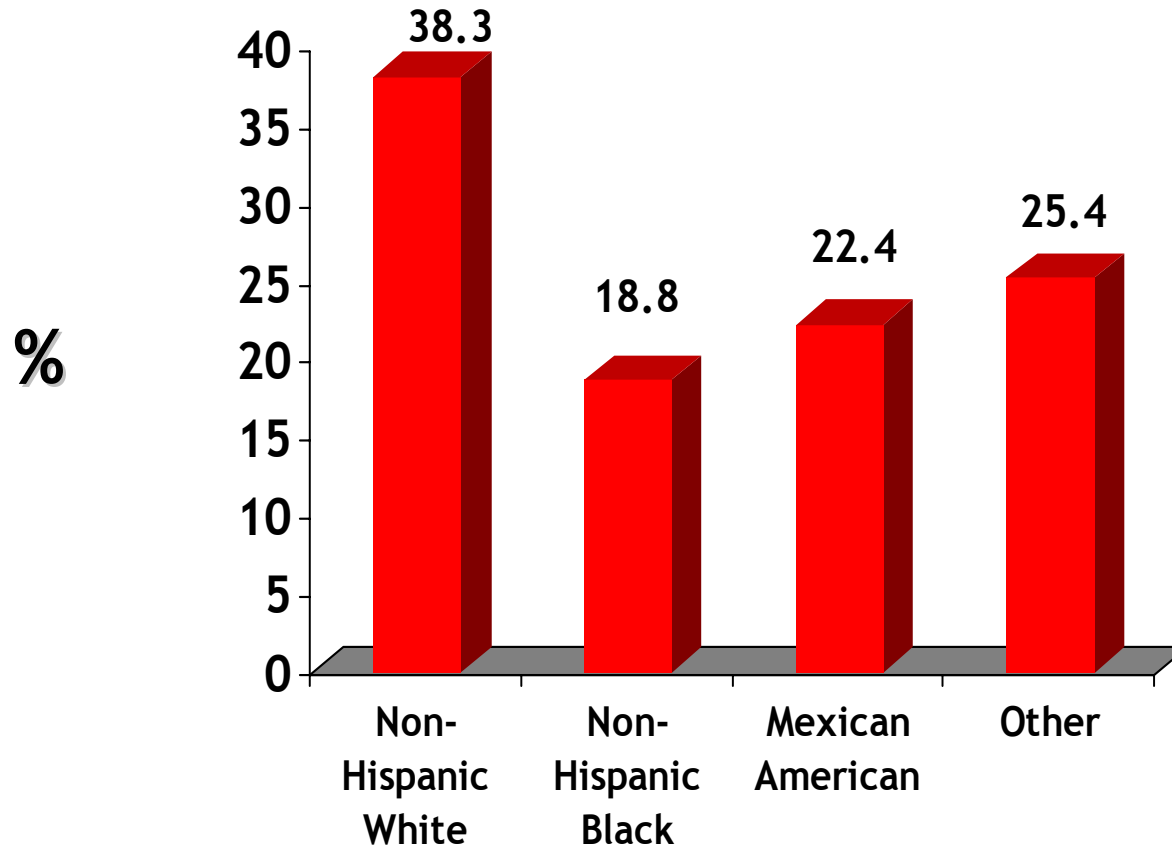
Prevalence of Dietary Supplement Use Among US Children NHANES 99-02 (n=10,136)



Prevalence of Dietary Supplement Use Among US Children by Age NHANES 99-02 (n=9096)



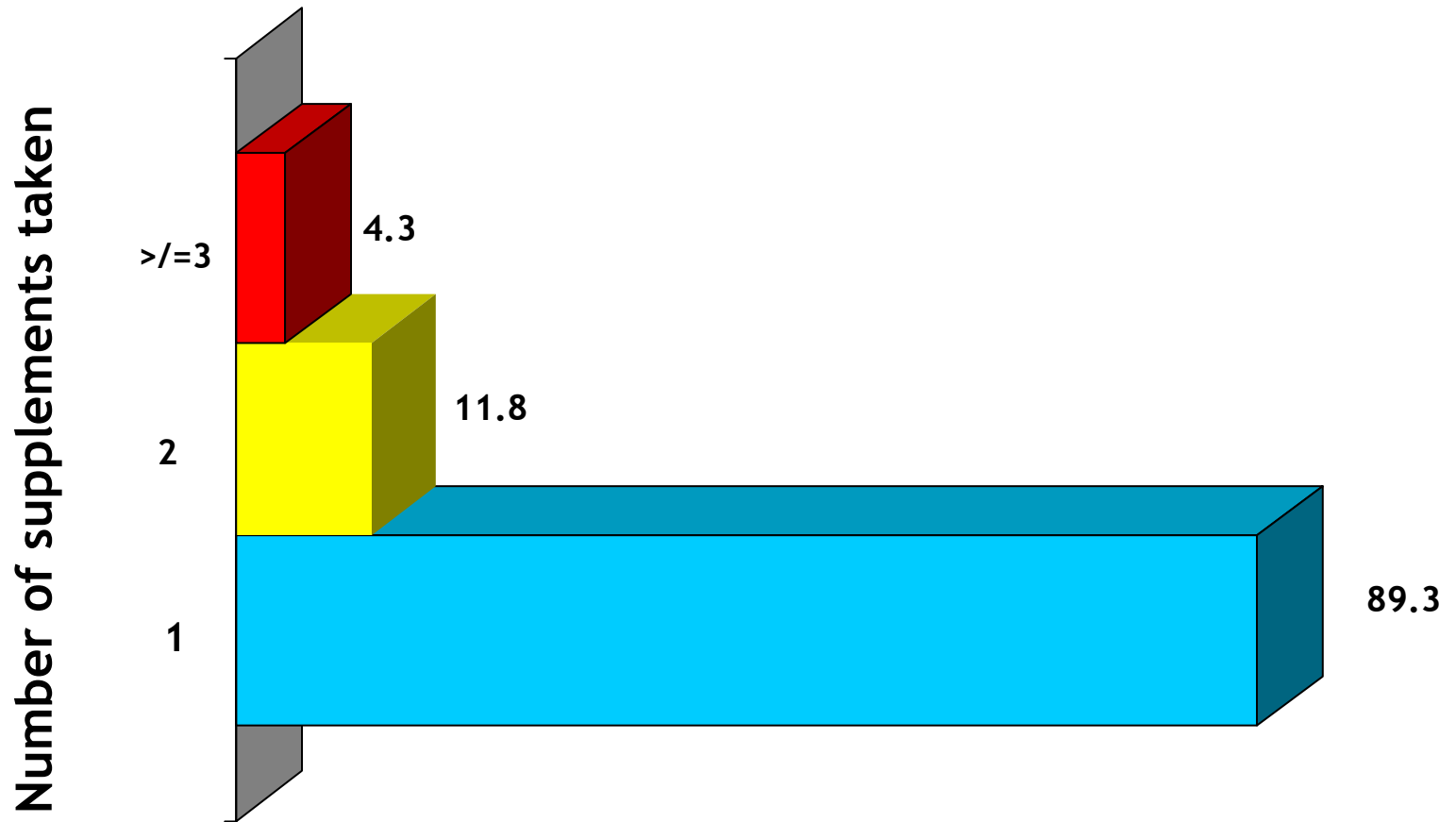
Prevalence of Dietary Supplement Use Among US children by Race/Ethnicity NHANES 99-02 (n=10,136)



**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

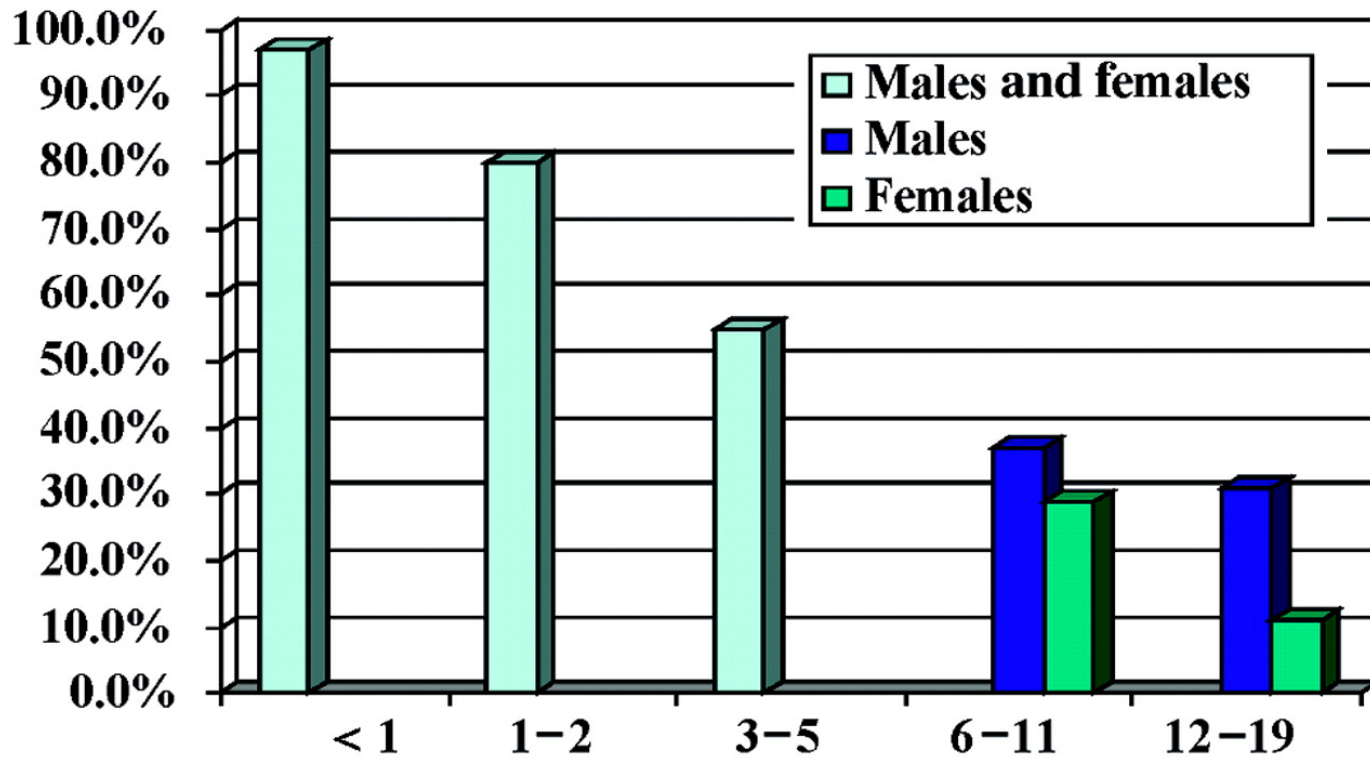


American Academy of Pediatric recommendations for supplements

- **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 FI)
- **Calcium**
 - To meet recommended intake



Percentage of US Children Meeting the Recommended Intake for Calcium

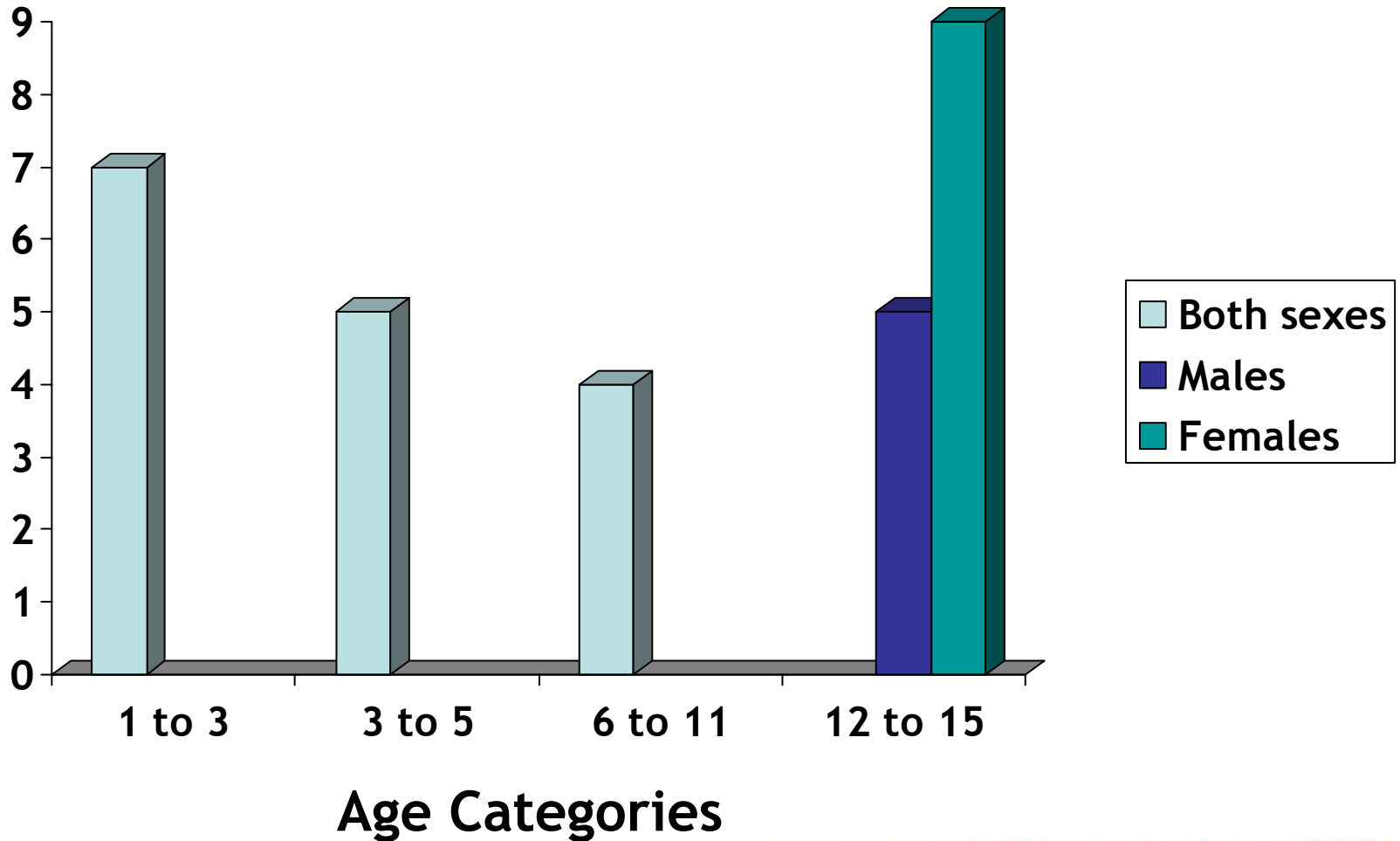


Greer, F. R. et al. *Pediatrics* 2006;117:578-585

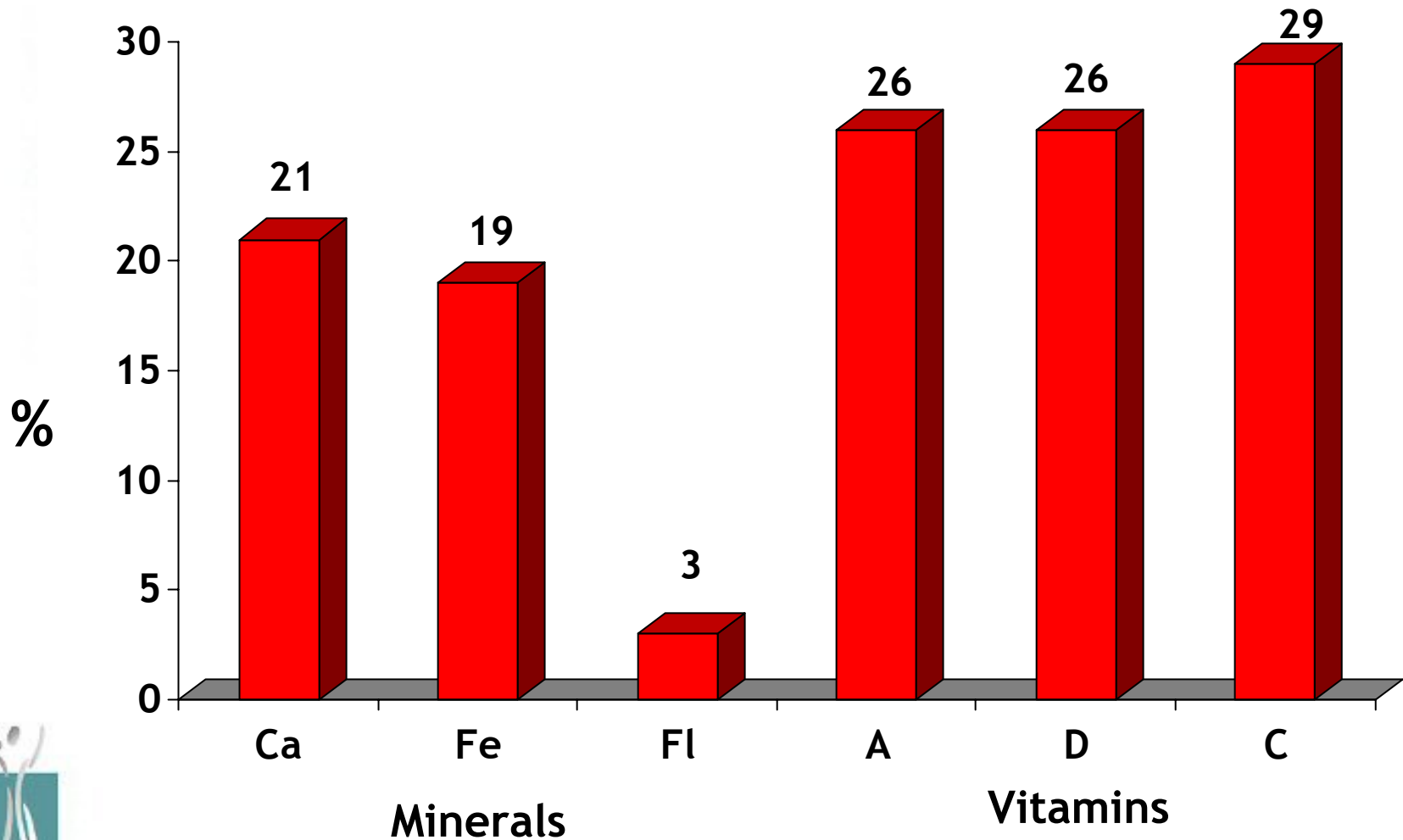
Copyright ©2006 American Academy of Pediatrics



Prevalence of Iron Deficiency: NHANES 1999-2000



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



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

