

FINANCIAL REPORT OF BIOMEDICAL RESEARCH AND TRAINING IN NUTRITION, FY 2002

THE LEADER IN FEDERALLY SUPPORTED NUTRITION RESEARCH AND TRAINING

In Fiscal Year 2002, the NIH continued to lead all Federal agencies in financial support of nutrition research and training, with a total of \$917 million. This total represents the combined individual contributions of the 18 NIH institutes and three centers that supported biomedical nutrition research and training. Actual

obligations for FY 2002 biomedical nutrition research and training for all NIH institutes and centers (ICs) are shown in Table 1 as amounts and as percentages of their total obligation.

Leading the ICs in total dollars expended in support of nutrition research were NCI, NIDDK and NHLBI, collectively accounting for nearly two-thirds of the total NIH nutrition related spending.

**Table 1. Actual Obligations, NIH Biomedical Nutrition Research and Training,
as a Percentage of Total ICD Obligations, by NIH Component, FY 2002
(in thousands of dollars)**

| Institute / Center (IC) | Nutrition Research and Training* | Total IC Obligations** | Nutrition as Percentage of Total IC Obligations |
|----------------------------|--|---------------------------|--|
| NCI | 204,425 | 4,177,830 | 4.9 |
| NHLBI | 184,367 | 2,569,794 | 7.2 |
| NIDCR | 10,148 | 342,292 | 3.0 |
| NIDDK | 203,741 | 1,560,013 | 13.1 |
| NINDS | 10,150 | 1,325,193 | 0.8 |
| NIAID | 16,806 | 2,339,779 | 0.7 |
| NIGMS | 2,340 | 1,722,890 | 0.1 |
| NICHD | 50,957 | 1,110,459 | 4.6 |
| NEI | 26,891 | 580,047 | 4.6 |
| NIEHS | 22,644 | 644,730 | 3.5 |
| NIA | 55,990 | 891,282 | 6.3 |
| NIAMS | 3,366 | 447,682 | 0.8 |
| NIDCD | 2,881 | 341,260 | 0.8 |
| NIMH | 18,941 | 1,245,292 | 1.5 |
| NIDA | 5,093 | 892,639 | 0.6 |
| NIAAA | 9,869 | 383,174 | 2.6 |
| NCRR | 37,479 | 1,010,169 | 3.7 |
| FIC | 1,282 | 56,787 | 2.3 |
| NINR | 5,862 | 120,217 | 4.9 |
| NCCAM | 42,369 | 104,334 | 40.6 |
| NHGRI | 1,362 | 428,248 | 0.3 |
| TOTAL⁺ | \$916,964 | \$22,294,111 | 4.1 |

* Actual obligations. Source: Human Nutrition Research and Information Management (HNRIM) System database.

** Obligations. Source: NIH Office of Program Planning and Evaluation.

⁺ Total excludes obligations for National Library of Medicine, Office of the Director, and buildings and facilities.

Leading NIH components in terms of the percentage of total IC budget dedicated to nutrition research and training were NCCAM, NIDDK and NHLBI, with 40.6 percent, 13.1 percent and 7.2 percent, respectively, for FY 2002.

TRENDS IN NUTRITION RESEARCH AND TRAINING, 1993-2002

NIH nutrition research and training dollars have increased steadily during the past decade, growing from \$373 million in FY 1993 to \$917 million in FY 2002. Actual obligations for nutrition research and training by NIH component during the past 10 years are shown in Table 2. The trend in dollars has been steadily upward for most ICs.

Table 2. Actual Obligations for Nutrition Research and Training by NIH Component, Fiscal Years 1993-2002 (Thousands of Dollars)

| NIH Component | 1993 ^a | 1994 ^b | 1995 | 1996 | 1997 ^c | 1998 | 1999 ^d | 2000 | 2001 | 2002 |
|---------------|-------------------|-------------------|------------------|------------------|-------------------|------------------|-------------------|------------------|------------------|------------------|
| Total | \$373,251 | \$400,701 | \$428,687 | \$438,813 | \$453,306 | \$494,443 | \$553,519 | \$694,909 | \$789,269 | \$916,964 |
| NIA | 18,595 | 19,942 | 20,516 | 20,203 | 19,226 | 20,763 | 26,720 | 31,380 | 42,579 | 55,990 |
| NIAAA | 4,303 | 3,431 | 3,901 | 3,992 | 7,046 | 7,632 | 8,089 | 9,424 | 7,790 | 9,869 |
| NIAID | 6,322 | 6,763 | 7,963 | 7,873 | 10,973 | 12,355 | 13,907 | 16,115 | 17,631 | 16,806 |
| NIAMS | 5,426 | 5,520 | 3,998 | 2,717 | 4,846 | 4,569 | 4,544 | 4,531 | 2,984 | 3,366 |
| NCI | 94,326 | 104,939 | 112,781 | 116,567 | 121,739 | 119,829 | 113,223 | 171,491 | 184,535 | 204,425 |
| NICHD | 33,118 | 31,165 | 32,818 | 28,823 | 29,585 | 28,401 | 35,029 | 41,602 | 45,549 | 50,957 |
| NIDCD | 2,375 | 2,162 | 2,150 | 2,366 | 2,716 | 2,514 | 1,757 | 1,610 | 1,478 | 2,881 |
| NIDCR | 3,550 | 4,164 | 6,408 | 6,087 | 8,225 | 6,755 | 9,109 | 9,261 | 10,671 | 10,148 |
| NIDDK | 72,714 | 70,049 | 75,980 | 93,322 | 98,673 | 105,026 | 130,115 | 151,007 | 182,613 | 203,741 |
| NIDA | 3,028 | 2,548 | 2,621 | 2,878 | 2,226 | 1,980 | 3,450 | 4,100 | 4,492 | 5,093 |
| NIHES | 4,671 | 4,654 | 4,826 | 4,068 | 5,806 | 7,078 | 6,615 | 10,839 | 14,286 | 22,644 |
| NEI | 15,538 | 16,057 | 16,634 | 14,218 | 14,913 | 15,665 | 17,438 | 20,796 | 23,724 | 26,891 |
| NIGMS | 2,465 | 2,169 | 2,503 | 2,628 | 2,265 | 2,120 | 2,088 | 2,854 | 2,326 | 2,340 |
| NHLBI | 67,879 | 70,545 | 73,466 | 75,306 | 88,943 | 118,886 | 124,233 | 130,491 | 146,592 | 184,367 |
| NIMH | 10,592 | 7,760 | 8,446 | 7,481 | 7,158 | 7,363 | 7,450 | 11,782 | 15,153 | 18,941 |
| NINDS | 1,826 | 1,777 | 1,738 | 1,190 | 999 | 4,032 | 3,870 | 9,048 | 10,358 | 10,150 |
| NINR* | 2,988 | 2,787 | 3,106 | 1,851 | 2,401 | 2,775 | 3,434 | 4,487 | 5,134 | 5,862 |
| NCRR | 23,524 | 21,995 | 22,130 | 21,626 | 25,446 | 26,345 | 31,759 | 34,431 | 35,032 | 37,479 |
| FIC | 10 | 89 | 166 | 97 | 120 | 354 | 382 | 676 | 663 | 1,282 |
| NHGRI | - | - | - | - | - | - | - | - | 1,287 | 1,362 |
| OD | - | 22,183 | 26,535 | 25,520 | - | - | 10,305 | 28,985 | 34,394 | 42,369 |

^a In FY 1993 the three research institutes of ADAMHA were transferred to NIH, and NCNR was made an institute and renamed NINR.

^b In FY 1994 includes funding for the Women's Health Initiative.

^c In FY 1997 Women's Health Initiative transferred to NHLBI.

^d In FY 1999 includes funding for the National Center for Complimentary and Alternative Medicine

As shown in Table 3, total NIH expenditures for nutrition research and training have increased consistently since FY 1993 and have constituted approximately 4 percent of total NIH obligations during that time. This table also shows total NIH biomedical nutrition research and training support in constant, as well as current dollars. For example, nutrition research and training support showed a \$544 million, or 146 percent, increase between FY 1993 and FY 2002 in current (unadjusted) dollars. In constant dollars (i.e., adjusted for inflationary price increases), nutrition research and training support in FY 2002 represented an 80 percent increase over the FY 1993 level.

In FY 2000, the latest year for which complete data for all agencies are available, the NIH led all Federal agencies in financial support of nutrition research and training with a total of \$695 million, as shown in Figure 1. This total represented 84 percent of all Federal expenditures and 99 percent of all DHHS nutrition research and training expenditures in FY 2000.

Table 3. Actual Obligations, NIH Biomedical Nutrition Research and Training, in Current and Constant Dollars, and as a Percentage of Total NIH Obligations FY 1993-2002 (in thousands of dollars)

| Fiscal Year | Nutrition Research and Training, Current Dollars | Nutrition Research and Training, Constant Dollars* | Total NIH Obligations | Current Nutrition Dollars as a Percentage of Total NIH Obligations |
|-------------|--|--|-----------------------|--|
| 1993 | 373,251 | 373,251 | 9,919,955 | 3.8 |
| 1994 | 400,701 | 385,768 | 10,579,468 | 3.8 |
| 1995 | 428,687 | 398,894 | 10,901,647 | 3.9 |
| 1996 | 438,813 | 398,128 | 11,471,293 | 3.8 |
| 1997 | 453,306 | 397,498 | 11,979,278 | 3.8 |
| 1998 | 494,443 | 422,146 | 12,777,283 | 3.9 |
| 1999 | 553,519 | 455,759 | 14,710,791 | 3.8 |
| 2000 | 694,909 | 548,429 | 16,843,082 | 4.1 |
| 2001 | 789,269 | 597,764 | 20,068,232 | 3.9 |
| 2002 | 916,964 | 670,197 | 22,294,111 | 4.1 |

* Actual obligations. Source: Human Nutrition Research and Information Management (HNRIM) System.

**Based on biomedical R&D price index, FY 1993 = 100 percent.

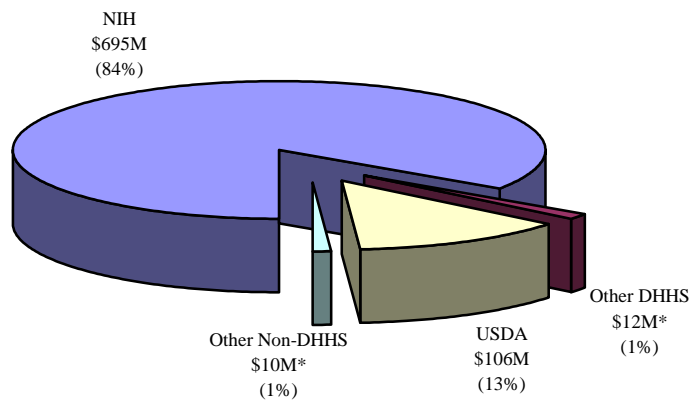
†Total excludes obligations for Office of the Director, National Library of Medicine, and buildings and facilities.

EXPENDITURES BY HNRIM SYSTEM CATEGORY AND INTEREST AREA

The NIH nutrition research support in the HNRIM system classification categories and the number of grants or contracts funded in each category are shown in Table 4. The column labeled "actual obligations" represents the *nutrition* funding for projects in each classification category, not the funding for the classification category per se. For example, a study of

the effects of smoking and diet on coronary heart disease and obesity that was considered to be 60 percent nutrition-related and had a total budget of \$100,000 would contribute \$60,000 toward the actual obligations reported for the area "Cardiovascular Disease and Nutrition" as well as \$60,000 toward the actual obligations reported for the area "Obesity, Anorexia, and Appetite Control." As this example illustrates, a grant or contract may appear in more than one category.

Figure 1. Federal Expenditures in Support of Human Nutrition Research and Training, FY 2000



* Estimate

Source: Human Nutrition Research and Information Management (HNRIM) System database

Thus, if all actual obligations in the 43 categories were summed, the sum would exceed the total nutrition expenditures for that fiscal year. The column labeled "percent of total" represents the nutrition funds expended in a given category in relation to total NIH obligations for nutrition research and training, which totaled \$917 million for FY 2002.

Although NIH nutrition research encompasses all of the classification categories, the largest component is concentrated in the area of Research in the Biomedical and Behavioral Sciences (codes 1 - 25 and 35 - 37). Codes 51 through 56 represent NIH Special Interest Areas. The most frequently assigned nutrition classification codes include "Cancer and Nutrition," "Other Diseases and Nutrition," "Cardiovascular Disease and Nutrition," and "Obesity, Anorexia, and Appetite Control."

Support by Extramural and Intramural Categories

The NIH supports two broad categories of research: extramural and intramural. The extramural programs are responsible for approximately 80-85 percent of the total NIH resources in the form of research grants or

contracts. Through these programs, NIH makes awards of various kinds to institutions throughout the United States and the world. Extramural awards are based on a two-tiered peer-review assessment - one for scientific merit and one for program relevance.

Within the NIH itself, and accounting for approximately 11 percent of its budget, is the intramural program. All of the NIH institutes except NIGMS have an intramural component of laboratory and clinical research programs. More than 2,000 intramural research projects are in progress at all times, making the NIH the largest center for biomedical and behavioral research in the world. Boards of scientific counselors are responsible for assessing the quality and direction of the intramural program, and the NIH Office of the Director provides scientific and policy oversight.

The NIH relies on three major funding mechanisms as the administrative instruments for accomplishing its program goals through the efforts of scientists outside the NIH (i.e., extramurally): grants and cooperative agreements (financial assistance awards) and contracts (acquisition awards). Financial support by NIH of extramural nutrition research and training is provided through all three of these major funding mechanisms. Support of

extramural nutrition research utilizes research project grants, program project grants, center grants, contracts, and cooperative agreements.

All of these may include clinical trials; research resources support; reimbursement agreements; research career development awards; and new, academic, and teacher investigator awards. Extramural training in biomedical and behavioral nutrition research is supported through National Research Service Awards, with training grants awarded to institutions and fellowships awarded to individuals. The intramural nutrition program consists of research projects and training. The actual obligations in biomedical nutrition research and training by category of support for Fiscal Year 2002 are shown in Table 5.

Extramural projects comprised about 95 percent of nutrition related expenditures in Fiscal Years 2002 (\$871 million). Research grants continue to comprise the largest category of support, with \$594 million and 2,477 projects. Program Projects made up the second largest category during this period, with \$82 million and 124 projects. Contracts ranked third, with \$72 million and 141 projects. Centers comprised the fourth largest category of support, with \$50 million (161 projects). The intramural program represented 5 percent of expenditures for nutrition research and training during FY 2002, with funding of \$46 million (147 projects).

Nutrition Research Training

The NIH supports training in biomedical and behavioral nutrition research in both the extramural and the intramural programs. Within the extramural program, two basic mechanisms are used for nutrition training support: institutional awards and individual awards. The institutional awards, commonly called “training grants,” are designed to enable institutions to make training awards to individuals selected by them for predoctoral and postdoctoral research training. In FY2002, NIH spent \$9.2 million on 89 training grants in nutrition. The predoctoral and postdoctoral individual National Research Service Awards, called “fellowships,” are awarded to provide pre- and postdoctoral research training to individuals to broaden their scientific background and extend their potential for research. Expenditures for fellowships in nutrition were \$2.5 million for 83 fellowships in FY 2002.

**Table 4. Actual Obligations, NIH Biomedical Nutrition Research and Training, by
HNRIM Classification Category, FY 2002
(in thousands of dollars)**

| Nutrition Research Classification | Number of Grants and Contracts | Actual Obligations | Percent of Total |
|--|--------------------------------------|-----------------------|------------------------|
| 01 - Maternal Nutrition | 182 | 46,362 | 1.7 |
| 02 - Infant and Child Nutrition (0-12 years) | 334 | 84,209 | 3.2 |
| 03 - Adolescent Nutrition (13-18 years) | 133 | 34,047 | 1.3 |
| 04 - Adult Nutrition (19-65 years) | 224 | 77,398 | 2.1 |
| 05 - Nutrition of the Elderly (65+ years) | 233 | 99,326 | 2.2 |
| 06 - Cardiovascular Disease and Nutrition | 748 | 262,944 | 7.1 |
| 07 - Cancer and Nutrition | 873 | 262,353 | 8.3 |
| 08 - Other Diseases and Nutrition | 792 | 242,531 | 7.5 |
| 09 - Trauma (Including Burns) and Nutrition | 26 | 3,220 | 0.2 |
| 10 - Infection--Immunology and Nutrition | 214 | 45,444 | 2.0 |
| 11 - Obesity, Anorexia, and Appetite Control | 738 | 215,810 | 7.0 |
| 12 - Genetics and Nutrition | 461 | 133,002 | 4.4 |
| 13 - Nutrition and Function | 300 | 106,947 | 2.9 |
| 14 - Nutrient Interactions | 218 | 47,440 | 2.1 |
| 15 - Other Conditions and Nutrition | 213 | 53,406 | 2.0 |
| 16 - Nutritional Status R&D | 180 | 54,610 | 1.7 |
| 17 - Carbohydrates | 285 | 63,882 | 2.7 |
| 18 - Lipids (Fats and Oils) | 616 | 208,720 | 5.9 |
| 19 - Alcohols | 69 | 14,009 | 0.7 |
| 20 - Proteins and Amino Acids | 186 | 49,315 | 1.8 |
| 21 - Vitamins | 470 | 175,001 | 4.5 |
| 22 - Minerals and Essential Trace Elements | 324 | 81,208 | 3.1 |
| 23 - Water and Electrolytes | 123 | 31,607 | 1.2 |
| 24 - Fiber | 13 | 11,894 | 0.1 |
| 25 - Other Nutrients In Food | 49 | 12,155 | 0.5 |
| 26 - Food Composition R&D | 17 | 3,392 | 0.2 |
| 27 - Bioavailability of Nutrients | 23 | 6,447 | 0.2 |
| 28 - Effects of Technology on Foods and Diets | 12 | 4,594 | 0.1 |
| 29 - Other Research in Food Sciences | 14 | 4,562 | 0.1 |
| 30 - Food Consumption Survey R&D | 12 | 3,899 | 0.1 |
| 31 - Dietary Practices, Food Consumption, & Determinants | 301 | 102,571 | 2.9 |
| 32 - Studies of Methods for Informing & Educating the Public | 33 | 9,033 | 0.3 |
| 33 - Other Research in Nutrition Education | 10 | 2,781 | 0.1 |
| 34 - Effects of Government Policy & Socioeconomic Factors | 15 | 6,137 | 0.1 |
| 35 - Parenteral, Enteral, and Elemental Nutrition | 43 | 9,147 | 0.4 |
| 36 - Dietary Supplements: Nutrient Ingredients | 341 | 108,154 | 3.2 |
| 37 - Dietary Supplements: Botanical & Other Non-nutrient Ingredients | 249 | 73,398 | 2.4 |
| 51 - Prevention and Nutrition | 605 | 228,626 | 5.8 |
| 52 - International Nutrition Research | 71 | 13,544 | 0.7 |
| 53 - Epidemiological Nutrition Research | 280 | 79,955 | 2.7 |
| 54 - Nutrition Education for Professionals | 118 | 15,932 | 1.1 |
| 55 - Nutrition Education for the Public | 66 | 14,603 | 0.6 |
| 56 - Clinical Trials of Nutrients/Nutrition | 287 | 159,416 | 2.7 |

* The actual obligations represent the *nutrition* funding for projects in each classification area, not the funding of the classification area per se. A grant or contract may be assigned to more than one of these areas. Thus, summing the expenditures by area will yield a value that exceeds the total expenditures and summing the percent of total will yield a value greater than 100 percent.

** The total expenditure, in thousands of dollars, of the NIH nutrition program was \$916,964 in FY 2002.

**Table 5. Actual Obligations, NIH Biomedical Nutrition Research and Training,
by Category of Support, FY 2002
(in thousands of dollars)**

| Funding Mechanism | Item | Breakdown | | Total | |
|---|-----------------|-----------|---------|--------------|----------------|
| | | Number | Cost | Number | Cost |
| Extramural | | | | | |
| Research Grants | Regular | 2,266 | 488,867 | | |
| | Clinical Trials | 211 | 104,977 | | |
| | Total | | | 2,477 | 593,844 |
| Program Projects | Regular | 120 | 71,315 | | |
| | Clinical Trials | 4 | 10,803 | | |
| | Total | | | 124 | 82,118 |
| Contracts | Regular | 100 | 40,090 | | |
| | Clinical Trials | 41 | 32,458 | | |
| | Total | | | 141 | 72,548 |
| Centers | Regular | 153 | 44,215 | | |
| | Clinical Trials | 8 | 6,100 | | |
| | Total | | | 161 | 50,315 |
| Training | Training Grants | 89 | 9,195 | | |
| | Fellowships | 83 | 2,498 | | |
| | Total | | | 172 | 11,693 |
| Research Resources Support | | | | 106 | 32,312 |
| Career Development Awards | | | | 229 | 21,029 |
| Reimbursement Agreements | | | | 16 | 5,393 |
| Facilities Renovation/Repair | | | | 4 | 1,556 |
| Subtotal, Extramural | | | | 3,430 | 870,808 |
| Intramural | | | | | |
| Projects | | | | 147 | 46,156 |
| Training | | | | 0 | |
| Subtotal, Intramural | | | | 147 | 46,156 |
| Total NIH Biomedical Nutrition Research & Training | | | | 3,577 | 916,964 |