

# FINANCIAL REPORT OF BIOMEDICAL RESEARCH AND TRAINING IN NUTRITION, FY 2004

## THE LEADER IN FEDERALLY SUPPORTED NUTRITION RESEARCH AND TRAINING

In Fiscal Year 2004, the NIH continued to lead all Federal agencies in financial support of nutrition research and training, with a total of \$1.0 billion. This total represents the combined individual contributions of the 19 NIH institutes and four centers that supported biomedical nutrition

research and training. Actual obligations for FY 2004 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 NIDDK, NCI and NHLBI, collectively accounting 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 2004  
(in thousands of dollars)**

Institute / Center (IC)	Nutrition Research and Training*	Total IC Obligations**	Nutrition as Percentage of Total IC Obligations
NCI	226,990	4,727,365	4.8
NHLBI	194,222	2,882,601	6.7
NIDCR	9,367	382,013	2.5
NIDDK	230,750	1,829,473	12.6
NINDS	10,587	1,498,203	0.7
NIAID	19,972	4,141,769	0.5
NIGMS	3,623	1,915,130	0.2
NICHD	50,738	1,247,939	4.1
NEI	20,253	650,961	3.1
NIEHS	23,962	708,554	3.4
NIA	61,453	1,021,376	6.0
NIAMS	4,262	499,368	0.9
NIDCD	3,316	380,737	0.9
NIMH	20,015	1,379,225	1.5
NIDA	3,318	991,510	0.3
NIAAA	14,074	427,223	3.3
NINR	5,187	134,279	3.9
NHGRI	226	490,564	0.0
NIBIB	340	286,684	0.1
NCCR	49,568	1,191,556	4.2
NCCAM	54,550	116,590	46.8
NCMHD	8,661	190,824	4.5
FIC	2,264	65,160	3.5
OD <sup>+</sup>	15,606	327,267	4.8
<b>TOTAL<sup>++</sup></b>	<b>1,033,304</b>	<b>27,486,371</b>	<b>3.8</b>

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

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

+Office of the Director (OD) includes Office of Dietary Supplements and Office of Behavioral and Social Sciences Research.

++Total excludes obligations for National Library of Medicine 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 47 percent, 13 percent and 7 percent, respectively, for FY 2004.

## TRAINING, 1995-2004

NIH nutrition research and training dollars have increased steadily during the past decade, growing from \$429 million in FY 1995 to \$1.0 billion in FY 2004. Actual obligations for nutrition research and training by NIH component during the past 10 years are shown in Table 2. Overall, the trend in current dollars has been steadily upward for most ICs.

## TRENDS IN NUTRITION RESEARCH AND

**Table 2. Actual Obligations for Nutrition Research and Training by NIH Component, Fiscal Years 1995-2004 (Thousands of Dollars)**

NIH Component	1995	1996	1997 <sup>a</sup>	1998	1999 <sup>b</sup>	2000	2001	2002	2003 <sup>c</sup>	2004
<b>Total</b>	<b>\$428,687</b>	<b>\$438,813</b>	<b>\$453,306</b>	<b>\$494,443</b>	<b>\$553,519</b>	<b>\$694,909</b>	<b>789,269</b>	<b>\$916,964</b>	<b>\$1,035,343</b>	<b>\$1,033,304</b>
NCI	112,781	116,567	121,739	119,829	113,223	171,491	184,535	204,425	228,797	226,990
NHLBI	73,466	75,306	88,943	118,886	124,233	130,491	146,592	184,367	193,795	194,222
NIDCR	6,408	6,087	8,225	6,755	9,109	9,261	10,671	10,148	9,547	9,367
NIDDK	75,980	93,322	98,673	105,026	130,115	151,007	182,613	203,741	231,671	230,750
NINDS	1,738	1,190	999	4,032	3,870	9,048	10,358	10,150	10,139	10,587
NIAID	7,963	7,873	10,973	12,355	13,907	16,115	17,631	16,806	24,608	19,972
NIGMS	2,503	2,628	2,265	2,120	2,088	2,854	2,326	2,340	2,843	3,623
NICHD	32,818	28,823	29,585	28,401	35,029	41,602	45,549	50,957	56,818	50,738
NEI	16,634	14,218	14,913	15,665	17,438	20,796	23,724	26,891	21,032	20,253
NIEHS	4,826	4,068	5,806	7,078	6,615	10,839	14,286	22,644	23,680	23,962
NIA	20,516	20,203	19,226	20,763	26,720	31,380	42,579	55,990	61,970	61,453
NIAMS	3,998	2,717	4,846	4,569	4,544	4,531	2,984	3,366	2,928	4,262
NIDCD	2,150	2,366	2,716	2,514	1,757	1,610	1,478	2,881	2,734	3,316
NIMH	8,446	7,481	7,158	7,363	7,450	11,782	15,153	18,941	18,945	20,015
NIDA	2,621	2,878	2,226	1,980	3,450	4,100	4,492	5,093	4,111	3,318
NIAAA	3,901	3,992	7,046	7,632	8,089	9,424	7,790	9,869	11,663	14,074
NINR	3,106	1,851	2,401	2,775	3,434	4,487	5,134	5,862	7,231	5,187
NHGRI	-	-	-	-	-	-	1,287	1,362	3,279	226
NIBIB	-	-	-	-	-	-	-	-	343	340
NCRR	22,130	21,626	25,446	26,345	31,759	34,431	35,032	37,479	42,913	49,568
NCCAM	-	-	-	-	10,305	28,985	34,394	42,369	53,301	54,550
NCMHD	-	-	-	-	-	-	-	-	7,116	8,661
FIC	166	97	120	354	382	676	663	1,282	2,767	2,264
OD	26,535	25,520	-	-	-	-	-	-	13,111	15,606

<sup>a</sup> In FY 1997 Women's Health Initiative transferred to NHLBI.

<sup>b</sup> In FY 1999 includes funding for the National Center for Complimentary and Alternative Medicine.

<sup>c</sup> In FY 2003, Office of the Director (OD) includes Office of Dietary Supplements and Office of Behavioral and Social Sciences Research.

As shown in Table 3, total NIH expenditures for nutrition research and training have increased consistently since FY 1995 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 \$605 million, or 141 percent, increase between FY 1995 and FY 2004 in current (unadjusted) dollars. In constant dollars (i.e., adjusted for inflationary price increases), nutrition research and training support in FY 2004 represented an 86 percent increase over the FY 1995 level.

In FY 2002, the NIH led all Federal agencies in financial support of nutrition research and training with a total of \$917 million, as shown in Figure 1.

**Table 3. Actual Obligations, NIH Biomedical Nutrition Research and Training, in Current and Constant Dollars, and as a Percentage of Total NIH Obligations FY 1995-2004 (in thousands of dollars)**

Fiscal Year	Nutrition Research and Training, Current Dollars*	Nutrition Research and Training, Constant Dollars**	Total NIH Obligations <sup>+</sup>	Current Nutrition Dollars as a Percentage of Total NIH Obligations
1995	428,687	428,687	10,901,647	3.9
1996	438,813	431,141	11,471,293	3.8
1997	453,306	434,448	11,979,278	3.8
1998	494,443	466,568	12,777,283	3.9
1999	553,519	507,864	14,710,791	3.8
2000	694,909	615,371	16,843,082	4.1
2001	789,269	674,625	20,068,232	3.9
2002	916,964	760,823	22,294,111	4.1
2003	1,035,343	825,954	26,134,505	4.0
2004	1,033,304	796,797	27,486,371	3.8

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

\*\*Based on biomedical R&D price index, FY 1995 = 100 percent.

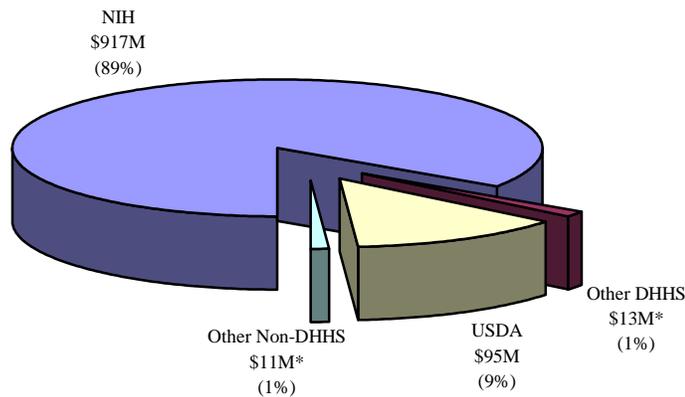
<sup>+</sup>Total excludes obligations for National Library of Medicine and Buildings and Facilities.

### 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 2002**



\* 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 \$1.0 billion for FY 2004.

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," "Obesity, Anorexia, and Appetite Control," "Other Diseases and Nutrition," "Cardiovascular Disease and Nutrition" and "Lipids (Fats and Oils)."

### **Support by Extramural and Intramural Categories**

The NIH supports two broad categories of research: extramural and intramural. The extramural programs are responsible for approximately 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 10 percent of its budget, is the intramural program. Nearly all of the NIH institutes 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 2004 are shown in Table 5.

Extramural projects comprised about 95 percent of nutrition related expenditures in Fiscal Year 2004 (\$984 million). Research grants continue to comprise the largest category of support, with \$671 million and 2,948 projects. Program Projects made up the second largest category during this period, with \$85 million and 124 projects. Contracts ranked third, with \$75 million and 153 projects. Centers comprised the fourth largest category of support, with \$60 million (174 projects). The intramural program represented 5 percent of expenditures for nutrition research and training during FY 2004, with funding of \$50 million (134 projects).

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 FY2004, NIH spent \$10.3 million on 103 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 \$3.1 million for 99 fellowships in FY 2004.

**Table 4. Actual Obligations, NIH Biomedical Nutrition Research and Training, by  
HNRIM Classification Category, FY 2004  
(in thousands of dollars)**

Nutrition Research Classification	Number of Grants and Contracts	Actual Obligations	Percent of Total
01 - Maternal Nutrition	204	56,003	5
02 - Infant and Child Nutrition (0-12 years)	327	91,516	9
03 - Adolescent Nutrition (13-18 years)	149	44,322	4
04 - Adult Nutrition (19-65 years)	214	80,704	8
05 - Nutrition of the Elderly (65+ years)	259	111,226	11
06 - Cardiovascular Disease and Nutrition	792	281,757	27
07 - Cancer and Nutrition	1085	295,456	29
08 - Other Diseases and Nutrition	918	281,611	27
09 - Trauma (Including Burns) and Nutrition	34	4,668	<1
10 - Infection--Immunology and Nutrition	252	60,214	6
11 - Obesity, Anorexia, and Appetite Control	944	261,218	25
12 - Genetics and Nutrition	586	155,864	15
13 - Nutrition and Function	350	111,792	11
14 - Nutrient Interactions	275	69,718	7
15 - Other Conditions and Nutrition	228	51,035	5
16 - Nutritional Status R&D	161	51,567	5
17 - Carbohydrates	251	60,588	6
18 - Lipids (Fats and Oils)	631	215,297	21
19 - Alcohols	58	15,716	2
20 - Proteins and Amino Acids	203	58,986	6
21 - Vitamins	496	170,263	16
22 - Minerals and Essential Trace Elements	348	86,953	8
23 - Water and Electrolytes	119	30,441	3
24 - Fiber	16	11,910	1
25 - Other Nutrients In Food	53	15,981	2
26 - Food Composition R&D	12	2,360	<1
27 - Bioavailability of Nutrients	28	12,275	1
28 - Effects of Technology on Foods and Diets	12	5,938	<1
29 - Other Research in Food Sciences	11	3,131	<1
30 - Food Consumption Survey R&D	20	6,552	<1
31 - Dietary Practices, Food Consumption, & Determinants	412	128,168	12
32 - Studies of Methods for Informing & Educating the Public	51	14,053	1
33 - Other Research in Nutrition Education	21	8,265	<1
34 - Effects of Government Policy & Socioeconomic Factors	40	10,702	1
35 - Parenteral, Enteral, and Elemental Nutrition	49	19,561	2
36 - Dietary Supplements: Nutrient Ingredients	577	180,104	17
37 - Dietary Supplements: Botanical & Other Non-nutrient Ingredients	456	119,193	12
51 - Prevention and Nutrition	723	244,998	24
52 - International Nutrition Research	111	17,625	2
53 - Epidemiological Nutrition Research	353	90,561	9
54 - Nutrition Education for Professionals	156	26,493	3
55 - Nutrition Education for the Public	97	29,473	3
56 - Clinical Trials of Nutrients/Nutrition	410	178,596	17

\* 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 \$1,033,305 in FY 2004.

**Table 5. Actual Obligations, NIH Biomedical Nutrition Research and Training,  
by Category of Support, FY 2004  
(in thousands of dollars)**

Funding Mechanism	Item	Breakdown		Total	
		Number	Cost	Number	Cost
<b>Extramural</b>					
Research Grants	Regular	2,629	557,168		
	Clinical Trials	319	114,234		
	Total			2,948	671,402
Program Projects	Regular	116	69,840		
	Clinical Trials	8	14,755		
	Total			124	84,595
Contracts	Regular	112	42,023		
	Clinical Trials	41	32,492		
	Total			153	74,515
Centers	Regular	165	55,393		
	Clinical Trials	9	4,849		
	Total			174	60,242
Training	Training Grants	103	10,332		
	Fellowships	99	3,110		
	Total			202	13,442
Research Resources Support		138	44,779		
Career Development Awards		261	26,404		
Reimbursement Agreements		23	7,636		
Facilities Renovation/Repair		1	699		
Subtotal, Extramural				4,024	983,714
<b>Intramural</b>					
Projects				134	49,591
Training				0	
Subtotal, Intramural				134	49,591
<b>Total NIH Biomedical Nutrition Research &amp; Training</b>				<b>4,158</b>	<b>1,033,305</b>