FINANCIAL REPORT OF BIOMEDICAL RESEARCH AND TRAINING IN NUTRITION, FY 1999-2001

THE LEADER IN FEDERALLY SUPPORTED NUTRITION RESEARCH AND TRAINING

In Fiscal Years 1999 through 2001, the NIH continued to lead all Federal agencies in financial support of nutrition research and training, with totals of $554 million, $695 million and $789 million, respectively. These totals represent the combined individual contributions of the 18 NIH institutes and three centers that supported biomedical nutrition research and training in those fiscal years. Actual obligations for FY 1999-2001 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 ICs in expenditures supporting nutrition research for all three fiscal years were NCI, NIDDK and NHLBI, collectively accounting for nearly two-thirds of the total

Table 1. Actual Obligations, NIH Biomedical Nutrition Research and Training, as a Percentage of Total ICD Obligations, by NIH Component, FY 1999-2001 (in thousands of dollars)

	FY 1999			FY 2000			FY 2001		
ICD	Nutrition Research and Training*	Total ICD Obligations**	Nutrition as % of Total Obligations	Nutrition Research and Training*	Total ICD Obligations**	Nutrition as % of Total Obligations	Nutrition Research and Training*	Total ICD Obligations**	Nutrition as % of Total Obligations
NCI	113,22	2,918,050	3.9	171,491	3,314,580	5.2	184,535	3,758,56	4.9
NHLBI	124,23	1,788,008	6.9	130,491	2,027,286	6.4	146,592	2,298,03	6.4
NIDCR	9,109	233,605	3.9	9,261	268,621	3.4	10,671	306,152	3.5
NIDDK	130,11	1,018,063	12.8	151,007	1,167,110	12.9	182,613	1,399,18	13.1
NINDS	3,870	900,245	0.4	9,048	1,028,204	0.9	10,358	1,175,59	0.9
NIAID	13,907	1,565,201	0.9	16,115	1,777,154	0.9	17,631	2,041,31	0.9
NIGMS	2,088	1,203,079	0.2	2,854	1,366,994	0.2	2,326	1,535,05	0.2
NICHD	35,029	748,626	4.7	41,602	857,354	4.9	45,549	975,537	4.7
NEI	17,438	394,601	4.4	20,796	449,759	4.6	23,724	510,241	4.6
NIEHS	6,615	374,527	1.8	10,839	441,960	2.5	14,286	564,663	2.5
NIA	26,720	594,556	4.5	31,380	685,695	4.6	42,579	785,413	5.4
NIAMS	4,544	307,160	1.5	4,531	349,555	1.3	2,984	396,305	0.8
NIDCD	1,757	229,162	0.8	1,610	263,448	0.6	1,478	300,282	0.5
NIMH	7,450	858,520	0.9	11,782	972,127	1.4	15,153	1,106,09	1.4
NIDA	3,450	611,061	0.6	4,100	694,561	0.6	4,492	790,185	0.6
NIAAA	8,089	258,874	3.1	9,424	291,928	3.2	7,790	340,151	2.3
NCRR	31,759	562,082	5.7	34,431	676,077	5.1	35,032	817,098	4.3
NINR	3,434	69,600	4.9	4,487	89,415	5.0	5,134	104,294	4.9
FIC	382	35,307	1.1	676	43,446	1.6	663	50,430	1.3
NCCAM	10,305	40,464	25.5	28,985	77,808	37.3	34,394	89,120	38.6
NHGRI	-	-	-	-	-	-	1,287	381,971	0.3
TOTAL+	**553,519**	**14,710,791**	**3.8**	**$694,909**	**16,843,082**	**4.1**	**789,269**	**19,725,680**	**4.0**

* 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 NHGRI, National Library of Medicine, Office of the Director, and buildings and facilities.

NIH nutrition related spending. Leading in terms of percentage of total IC budget dedicated to nutrition research and training for all three years were NCCAM, NIDDK and NHLBI, with 25.5 percent, 12.8 percent and 6.9 percent, respectively, for FY 1999. Corresponding FY 2000 figures for these ICs were 37.3 percent, 12.9 percent and 6.4 percent; and were 38.6 percent, 13.1 percent and 6.4 percent for FY 2001.

TRENDS IN NUTRITION RESEARCH AND TRAINING, 1992-2001

NIH nutrition research and training dollars have increased steadily during the past decade, growing from $344 million in FY 1992 to $789 million in FY 2001. 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 1992-2001 (Thousands of Dollars)

NIH Component	1992	1993[a]	1994[b]	1995	1996	1997[c]	1998	1999[d]	2000	2001
Total	**$343,788**	**$373,251**	**$400,701**	**$428,687**	**$438,813**	**$453,306**	**$494,443**	**$553,519**	**$694,909**	**789,269**
NIA	19,163	18,595	19,942	20,516	20,203	19,226	20,763	26,720	31,380	42,579
NIAAA	-	4,303	3,431	3,901	3,992	7,046	7,632	8,089	9,424	7,790
NIAID	5,153	6,322	6,763	7,963	7,873	10,973	12,355	13,907	16,115	17,631
NIAMS	5,152	5,426	5,520	3,998	2,717	4,846	4,569	4,544	4,531	2,984
NCI	83,651	94,326	104,939	112,781	116,567	121,739	119,829	113,223	171,491	184,535
NICHD	32,882	33,118	31,165	32,818	28,823	29,585	28,401	35,029	41,602	45,549
NIDCD	2,405	2,375	2,162	2,150	2,366	2,716	2,514	1,757	1,610	1,478
NIDCR	3,392	3,550	4,164	6,408	6,087	8,225	6,755	9,109	9,261	10,671
NIDDK	74,844	72,714	70,049	75,980	93,322	98,673	105,026	130,115	151,007	182,613
NIDA	-	3,028	2,548	2,621	2,878	2,226	1,980	3,450	4,100	4,492
NIEHS	4,035	4,671	4,654	4,826	4,068	5,806	7,078	6,615	10,839	14,286
NEI	15,008	15,538	16,057	16,634	14,218	14,913	15,665	17,438	20,796	23,724
NIGMS	2,677	2,465	2,169	2,503	2,628	2,265	2,120	2,088	2,854	2,326
NHLBI	65,070	67,879	70,545	73,466	75,306	88,943	118,886	124,233	130,491	146,592
NIMH	-	10,592	7,760	8,446	7,481	7,158	7,363	7,450	11,782	15,153
NINDS	1,873	1,826	1,777	1,738	1,190	999	4,032	3,870	9,048	10,358
NINR*	3,437	2,988	2,787	3,106	1,851	2,401	2,775	3,434	4,487	5,134
NCRR	24,989	23,524	21,995	22,130	21,626	25,446	26,345	31,759	34,431	35,032
FIC	56	10	89	166	97	120	354	382	676	663
NHGRI	-	-	-	-	-	-	-	-	-	1,287
OD	-	-	22,183	26,535	25,520	-	-	10,305	28,985	34,394

[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 1992 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 $445 million, or 129 percent, increase between FY 1992 and FY 2001 in current (unadjusted) dollars. In constant dollars (i.e., adjusted for inflationary price increases), nutrition and research training support in FY 2001 represented a 68 percent increase over the FY 1992 level.

In FY 1997, 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 $453 million, as shown in Figure 1. This total represented 81 percent of all Federal expenditures and 98 percent of all DHHS nutrition research and training expenditures in FY 1997. NIH nutrition expenditures have consistently represented between 70 and 80 percent of total Federal nutrition expenditures over the past decade.

Table 3. Actual Obligations, NIH Biomedical Nutrition Research and Training, in Current and Constant Dollars, and as a Percentage of Total NIH Obligations FY 1992-2001 (in thousands of dollars)

Fiscal Year	Nuition Research and Training, Current Dollars	Nutrition Research and Training, Constant Dollars*	Total NIH Obligations	Current Nutrition Dollars as a Percentage of Total NIH Obligations
1992	343,788	343,788	8,879,398	3.9
1993	373,251	360,978	9,919,955	3.8
1994	400,701	372,979	10,579,468	3.8
1995	428,687	385,535	10,901,647	3.9
1996	438,813	384,641	11,471,293	3.8
1997	453,306	383,964	11,979,278	3.8
1998	494,443	407,736	12,777,283	3.9
1999	553,519	440,166	14,710,791	3.8
2000	694,909	529,819	16,843,082	4.1
2001	789,269	576,953	20,068,232	3.9

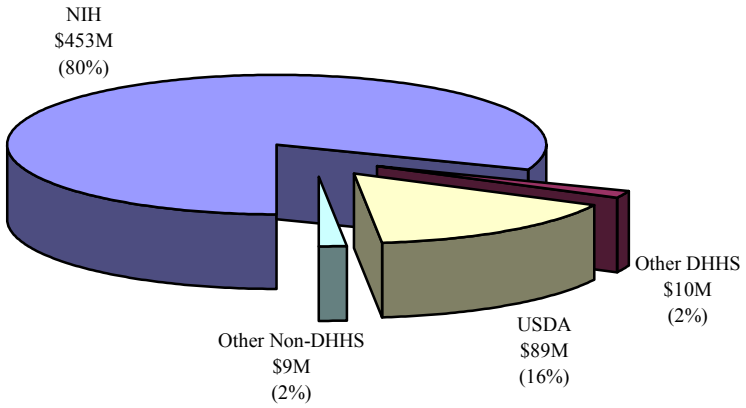
*Based on biomedical R&D price index, FY 1992 = 100 percent.

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 1997



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

Thus, if all actual obligations in the 41 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 $554 million for FY 1999, $695 million for FY 2000 and $789 million for FY 2001.

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," "Lipids (Fats and Oils)," "Cardiovascular Disease and Nutrition," and "Prevention of Disease."

Two new nutrition classification codes were developed to identify research related to dietary supplements, and approved by the NIH NCC and the Interagency Committee on Human Nutrition Research (ICHNR). The new codes -- "Dietary Supplements: Nutrient Ingredients" and "Dietary Supplements: Botanical and Other Non-nutrient Ingredients" (HNRIM codes 36 and 37, respectively) -- have been applied to FY 1999 and later data. In addition to their use in characterizing nutrition research, the new codes are also used by the NIH Office of Dietary Supplements (ODS) to identify and capture relevant research for their CARDS (Computer Access to Research on Dietary Supplements) database. Co-utilization of the HNRIM database minimizes duplication of effort and avoids overlapping requests to NIH Institutes and Centers.

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 OD 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 for fiscal years 1999 - 2001 are shown by category of support in Table 5.

Extramural projects comprised about 95 percent of nutrition related expenditures in each of the fiscal years 1999 ($534 million), 2000 ($665 million) and 2001 ($751 million). Research grants continue to comprise the largest category of support throughout this period, with $338 million and 2,167 projects in FY 1999, $424 million and 2,196 projects in FY 2000, and $486 million and 2,213 projects in FY 2001. Program Projects made up the second largest category during this period, with $62 million and 110 projects in FY 1999; $79 million and 135 projects in FY 2000; and $79 million and 121 projects in FY 2001. Contracts ranked third, with $48 million and 105 projects in FY 1999; $57 million and 121 projects in FY 2000; and $70 million and 119 projects in FY 2001. Centers comprised the fourth largest category of support in all three years, with $38 million (139 projects) in FY 1999, $49 million (145 projects) in FY 2000, and $52 million (156 projects) in FY 2001. The intramural program represented between 5 and 6 percent of expenditures for nutrition research and training during FY 1999 - 2001, with funding of $19 million (142 projects), $30 million (123 projects), and $38 million (129 projects) respectively.

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 FY 1999, NIH spent $5.3 million on 69 training grants in nutrition. Corresponding expenditures for training in FY 2000 were $6.1 million (79 grants), and $8.1 million (81 grants) in FY 2001. 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 $1.3 million for 63 fellowships in FY 1999, $1.2 million (56 fellowships) in FY 2000, and $1.3 million (66 fellowships) in FY 2001.

Table 4. Actual Obligations, NIH Biomedical Nutrition Research and Training, by HNRIM Classification Category, FY 1999-2001 (in thousands of dollars)

Nutrition Research Classification		FY 1999			FY 2000			FY 2001		
Code	Area	No. of Grants & Contracts	Actual Obligations	Pct. of Total	No. of Grants & Contracts	Actual Obligations	Pct. of Total	No. of Grants & Contracts	Actual Obligations	Pct. of Total
1	Maternal Nutrition	123	33,859	5	137	38,426	6	157	36,761	5
2	Infant and Child Nutrition	247	56,102	8	252	61,869	9	296	69,858	9
3	Adolescent Nutrition	73	17,993	3	90	23,099	3	97	25,014	3
4	Adult Nutrition	140	58,736	8	171	62,515	9	176	71,525	6
5	Nutrition of the Elderly	207	71,115	10	210	68,547	10	188	85,128	6
6	Cardiovascular Disease and Nutrition	566	167,982	24	612	185,255	27	589	213,703	18
7	Cancer and Nutrition	908	159,985	23	818	214,124	31	792	234,127	25
8	Other Diseases and Nutrition	629	157,378	23	638	164,633	24	643	195,469	20
9	Trauma (Burns) and Nutrition	31	2,516	<1	29	2,980	<1	25	2,859	<1
10	Infection, Immunology, and Nutrition	180	37,607	5	197	37,456	5	181	38,955	6
11	Obesity, Anorexia, and Appetite Control	469	118,744	17	550	149,042	21	600	179,712	19
12	Genetics and Nutrition	356	63,534	9	360	75,904	11	374	92,562	12
13	Nutrition and Function	227	59,401	9	204	62,396	9	225	81,513	7
14	Nutrient-Nutrient/Drug/Toxicant Interactions	240	40,813	6	224	39,981	6	199	38,868	6
15	Other Conditions and Nutrition	139	21,672	3	172	32,640	5	180	44,718	6
16	Research on Nutritional Status	115	32,559	5	214	54,221	8	198	54,675	6
17	Carbohydrates	231	44,075	6	253	54,321	8	267	57,398	8
18	Lipids (Fats and Oils)	523	149,042	21	526	161,485	23	534	182,329	17
19	Alcohols	103	16,083	2	89	11,328	2	67	11,370	2
20	Proteins and Amino Acids	214	36,055	5	216	41,678	6	182	39,618	6
21	Vitamins	451	114,645	16	447	136,029	20	427	151,850	13
22	Minerals and Trace Elements	359	65,625	9	356	71,070	10	325	73,971	10
23	Water and Electrolytes	87	12,557	2	95	18,482	3	97	18,030	3
24	Fiber	26	12,411	2	21	12,222	2	12	10,867	<1
25	Other Nutrients in Food	56	10,738	2	52	10,126	1	65	12,120	2
26	Food Composition	24	3,270	<1	19	3,405	<1	20	6,614	<1
27	Bioavailability of Nutrients	27	4,435	1	28	6,698	1	18	4,655	<1
28	Effects of Technology on Foods/Diets	10	1,514	<1	5	2,869	<1	7	2,376	<1
29	Other Research in Food Science	18	1,696	<1	15	5,244	1	10	2,251	<1
30	Food Consumption Surveys, R&D	11	173	<1	4	1,199	<1	9	3,362	<1
31	Dietary Practices, Food Consumption & Determinants	118	24,036	3	122	34,730	5	179	60,080	6
32	Methods for Educating and Informing the Public	60	12,205	2	40	12,811	2	33	11,745	1
33	Other Research in Nutrition Education	4	600	<1	5	1,625	<1	5	1,545	<1
34	Government Policy and Socioeconomic Factors	1	152	<1	1	8	<1	12	4,980	0
35	Parenteral, Enteral, & Elemental Nutrition	40	7,356	1	53	11,289	2	47	9,801	1
36	Dietary Supplements: Nutrient Ingredients[#]	291	75,257	10	259	78,860	8	213	67,168	7
37	Dietary Supplements: Botanical and Other Non-nutrient Ingr[#]	119	36,117	4	128	50,631	4	165	48,490	5
51	Prevention of Disease	594	170,067	24	568	195,804	28	555	212,721	17
52	International Research	34	5,570	1	38	9,201	1	51	9,763	2
53	Epidemiological Research	252	39,351	6	220	49,225	7	201	52,197	6
54	Education for Professionals	56	6,805	1	76	11,453	2	97	13,035	3
55	Education for the Public	66	10,996	2	56	15,964	2	55	13,457	2
56	Clinical Trials	205	88,392	13	199	103,515	15	211	132,680	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 $553,519 in FY 1999; $694,909 in FY 2000; and $789,269 in FY 2001.

\# Dietary Supplement coding under review; numbers of grants and projects to be revised.

Table 5. Actual Obligations, NIH Biomedical Nutrition Research and Training, by Category of Support, FY 1999-2001 (in thousands of dollars)

		FY 1999				FY 2000				FY 2001			
		Breakdown		Total		Breakdown		Total		Breakdown		Total	
Funding Mechanism	Item	Number	Cost	Number	Cost	Number	Cost	Number	Cost	Number	Cost	Number	Cost
Extramural													
Research Grants	Regular	2,030	294,929			2,061	367,042			2,071	410,665		
	Clinical Trials	137	43,369			135	56,634			142	75,507		
	Total			2,167	338,298			2,196	423,676			2,213	486,172
Program Projects	Regular	106	57,151			130	69,679			117	68,257		
	Clinical Trials	4	4,451			5	9,587			4	10,631		
	Total			110	61,602			135	79,266			121	78,888
Contracts	Regular	59	13,696			80	27,482			78	34,348		
	Clinical Trials	46	34,632			41	29,259			41	35,552		
	Total			105	48,328			121	56,741			119	69,900
Centers	Regular	134	35,182			138	44,895			148	46,167		
	Clinical Trials	5	3,146			7	4,187			8	5,969		
	Total			139	38,328			145	49,082			156	52,136
Training	Training Grants	69	5,346			79	6,055			81	8,116		
	Fellowships	63	1,317			56	1,211			66	1,305		
	Total			132	6,663			135	7,266			147	9,921
Research Resources Support				94	29,257			99	30,875			102	31,731
Career Development Awards				139	9,399			174	13,380			191	17,072
Reimbursement Agreements				12	2,266			19	3,691			18	4,557
Facilities Renovation/Repair								3	1,204			1	500
Subtotal, Extramural				2,898	534,141			3,024	665,181			3,067	750,877
Intramural													
Projects				142	19,379			123	29,728			129	38,392
Training				0				0				0	
Subtotal, Intramural				142	19,379			123	29,728			129	38,392

Total NIH Biomedical Nutrition Research & Training	3,040	553,519	3,147	694,909	3,196	789,269