FIFTEENTH
PROGRESS
REPORT

THE HUMAN NUTRITION RESEARCH AND INFORMATION MANAGEMENT SYSTEM

Fiscal Year 1996

Prepared by the
Interagency Committee on
Human Nutrition Research

U.S. Department of Health and Human Services

Public Health Service

National Institutes of Health

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EXECUTIVE SUMMARY

This report describes FY 1996 activities of the Human Nutrition Research and Information Management (HNRIM) system, a Federal government-wide, online database created for the purpose of fiscal accounting, management, and control of cross-agency human nutrition research activities. The database was developed under a plan for a human nutrition management system, pursuant to Section 1427 of the National Agricultural Research, Extension, and Teaching Policy Act of 1977 (P.L. 95-113), as amended by Section 1425 of the National Agricultural Research, Extension, and Teaching Policy Act Amendments of 1981 (P.L. 97-98), and repealed by Section 1413 of the Food Security Act of 1985 (P.L. 99-198). The plan initially developed under this section, which continues to operate under the auspices of the Interagency Committee on Human Nutrition Research, calls for submission of annual reports on the HNRIM system. This is the fifteenth annual report submitted under the plan.

The HNRIM system resides on the National Institutes of Health (NIH) mainframe computer and is updated yearly by the HNRIM System Coordinator, a staff member in the NIH Division of Nutrition Research Coordination, National Institute of Diabetes and Digestive and Kidney Diseases. Fully operational since FY 1985, the HNRIM system encompasses data from six Cabinet-level agencies and two independent agencies on approximately 4,000 Federally supported human nutrition research projects, including narrative descriptions for most projects. The information can be retrieved through an interactive, online inquiry system.

Entry of FY 1996 data into the HNRIM system was completed as of July 1998. The most frequently queried research categories during FY 1996 were (in order of frequency): Sponsoring Group (i.e., Division, Institute), Sponsoring Agency, Narrative Content, and Sponsoring Department. The database was queried a total of 215 times during FY 1996.

Tables of expenditures by agency and support mechanism are presented, as are tabulations of the number of research projects by HNRIM nutrition research classification code and agency. FY 1996 Federal nutrition research and training dollars totaled $550 million, representing an increase of 1.9 percent over the $540 million expended in FY 1995. In FY 1996, 81 percent of these funds were expended by the Department of Health and Human Services, and 14 percent by the U.S. Department of Agriculture. The remaining agencies each had smaller programs that contributed 3 percent or less of total Federal nutrition research and training dollars.

Of the $550 million total FY 1996 Federal expenditure in support of nutrition research and training, $466 million supported extramural research, and $84 million supported intramural research. Also included in this total were expenditures of $5 million for research manpower development, $5 million for extramural training, and $18 million for research on public information and education.

The HNRIM database has been available to the public in computer-readable form on a fee basis since September 1986, through the National Technical Information Service of the Department of Commerce. In addition, the database was made publicly available in October, 1990, through the Dialog Information Retrieval Service, as a subset of the Department of Agriculture's Current Research Information System (CRIS) database. A public access interface to the HNRIM system via the World Wide Web is under development.

INTRODUCTION

On July 23, 1982, the Secretaries of Agriculture and of Health and Human Services transmitted to Congress the "Plan for a Human Nutrition Research and Information Management (HNRIM) System." This plan was prepared pursuant to Section 1427 of the National Agricultural Research, Extension, and Teaching Policy Act of 1977 (7 U.S.C. 3177), as amended by Section 1425 of the National Agricultural Research, Extension, and Teaching Policy Act Amendments of 1981 (Title XIV of P.L. 97-98). That Section provides as follows:

Human Nutrition Research and Information Management System

> Section 1427. The Secretary [of Agriculture] and the Secretary of Health and Human Services shall formulate and submit to Congress, within one hundred and eighty days after the date of enactment of this section, a plan for a human nutrition research management system. This system shall be based on online data support capability allowing for fiscal accounting, management, and control of cross-agency human nutrition research activities. The plan shall provide for management activities of all agencies managing funds for human nutrition research activities under existing authorities and contain recommendations for any additional authorities necessary to achieve a human nutrition research management system.

Section 1427 of the National Agricultural Research Extension and Teaching Policy Act was repealed by Section 1413 of the Food Security Act of 1985 (P.L. 99-198). The plan initially developed under this section, which continues to operate under the auspices of the Interagency Committee on Human Nutrition Research, calls for submission of annual reports on the HNRIM system. This report describes HNRIM system activities from October 1995 through September 1996 (FY 1996).

CURRENT STATUS OF THE HNRIM SYSTEM

The HNRIM system has been fully operational since FY 1985. It includes data on nutrition research and training expenditures from six Cabinet-level agencies [Department of Health and Human Services (DHHS), U.S. Department of Agriculture (USDA), Department of Veterans Affairs (DVA), Agency for International Development (AID), Department of Defense (DOD), and Department of Commerce (DOC)]; it also includes data from the National Aeronautics and Space Administration (NASA) and National Science Foundation (NSF), when they sponsor nutrition research. The information provided for each project includes name, institution, and address of the principal investigator; title of the research project; sponsoring Federal agency; project number assigned by the agency; total fiscal year expenditures of the project; proportion of the project that is nutrition related; estimated nutrition expenditures; and nutrition classification code(s). In addition, abstracts are included for each project when made available by the sponsoring agency. The information can be retrieved through an interactive query system.

The database operates under the auspices of the Interagency Committee on Human Nutrition Research (ICHNR). It resides on the National Institutes of Health (NIH) mainframe computer, and is updated yearly by the reporting agencies through the HNRIM System Coordinator, a staff member in the NIH Division of Nutrition Research Coordination (DNRC), National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK). Projects are selected for inclusion in the HNRIM system by the sponsoring agency, based upon a common definition of human nutrition research (appendix A) agreed upon by the ICHNR. Projects are assigned nutrition classification codes (appendix B) compatible with the ICHNR definition of human nutrition research.

The most recent annual submissions by each agency comprise the online HNRIM database, with submissions from prior years preserved on computer tape for easy accessibility. At this writing, the online HNRIM database contains FY 1996 data; data for prior fiscal years are preserved on tape. Entry of FY 1996 data into the HNRIM system was completed as of July 1998 for all participating agencies.

Appendix C shows numbers of FY 1996 projects in the online HNRIM database in each nutrition research classification category. Table C-1 reports this information by participating DHHS agency, while Table C-2 reports the data by participating Federal agency. With respect to number of projects, the four leading categories for all participating agencies in FY 1996 were (in order of frequency): "Cancer and Nutrition," "Lipids (Fats and Oils)," "Cardiovascular Disease and Nutrition," and "Other Diseases and Nutrition."

The HNRIM database was queried 215 times during FY 1996. The most frequently queried data items were: Sponsoring Group and Agency, Narrative Content, and Sponsoring Department. A complete analysis of the categories queried is presented in appendix D. Virtually all queries were performed by the System Coordinator, either as part of the process of updating the database, in support of reports and publications within the DNRC, or in response to requests for searches by NIH personnel, other Federal agencies, higher administrative levels within DHHS, and the public. HNRIM system data were utilized in such publications as the *Report of the NIH Program in Biomedical and Behavioral Nutrition Research and Training; Nutrition Research at the NIH*; and the *Report on USDA Human Nutrition Research and Education Activities*.

FEDERAL EXPENDITURES FOR NUTRITION RESEARCH AND TRAINING, FY 1996

Table I presents FY 1996 Federal nutrition research and training expenditures by agency. In FY 1996 a total of $550 million provided support for 4,741 projects. The DHHS expended $446 million, or 81 percent of total funds, and funded 57 percent of all projects. Within DHHS, NIH accounted for expenditures of $439 million, or 80 percent of Federal expenditures and 98 percent of DHHS expenditures in nutrition research and training. The USDA expended $76 million, representing 14 percent of total funds and 25 percent of total projects. The remaining agencies each had smaller programs that contributed 3 percent or less of total Federal nutrition research and training dollars.

Federal expenditures for nutrition research and training over the past ten years are summarized in Table II; more detailed data for fiscal years 1995-1987 have also been included for informational purposes, and are shown in Tables III-XI, respectively. DHHS and USDA, the two largest contributors of Federal dollars for nutrition research and training, show an increase of 2.5 percent and a decrease of 9.4 percent, respectively, for FY 1996 over FY 1995. Total Federal nutrition research and training expenditures increased 1.7 percent during the same time period.

In "real dollar" terms[1] (i.e., when dollars are adjusted for projected inflationary price increases of approximately 2.6 percent in the biomedical research and development sector), DHHS nutrition research and training dollars decreased 0.1 percent; USDA nutrition research and training dollars decreased 11.7 percent; and total Federal nutrition research and training expenditures decreased 0.8 percent, for FY 1996 over FY 1995.

Table XII presents FY 1996 nutrition expenditures in five categories of activities: extramural research, research manpower development, extramural training, intramural research, and intramural training, as well as research on public information and education. Funding for extramural research -- i.e., research in undergraduate and graduate schools of nutrition, in basic science departments of universities, in schools of medicine, dentistry and public health, in other schools for health professionals, and in research facilities

[1] Based on NIH Biomedical Research and Development Price Index, Fiscal Years 1987-96. Source: Office of Program Planning and Evaluation and the Division of Research Grants, NIH.

throughout the United States and in foreign countries -- represented by far the largest category, at $466 million. (The bulk of this category was provided by NIH, which, consistent with congressional guidance, obligates the majority of its research support to extramural research.) Funding for intramural research in government laboratories amounted to $84 million. Research manpower development funds and extramural training funds totaled $5 million each. Funds for research on public information and education totaled $18 million. (Values in the latter category, which overlaps all others shown in the table, are shown in parentheses because they are not added into the "total" column.). The DHHS was the lead in all categories of support for nutrition research and training except intramural research, in which USDA was the lead.

Table XIII indicates the distribution of Federal human nutrition research and training expenditures by support mechanism for FY 1996. Grants (investigator-initiated research) amounted to $338 million, up 4.6 percent over the preceding fiscal year. Intramural research and training totaled $84 million, down 8.2 percent from FY 1995. Research contracts accounted for expenditures of $58 million, and cooperative agreements totaled $60 million, figures which represent a decrease of 9.7 percent, and an increase of 20 percent, respectively, over the preceding fiscal year. Formula grants and interagency agreements accounted for $9 million and $1 million, respectively, of Federal nutrition research and training expenditures.

PUBLIC AVAILABILITY OF THE HNRIM DATABASE

Computer-readable copies of the HNRIM database are available for sale to the general public through the National Technical Information Service (NTIS) of the Department of Commerce. Consistent with Federal policy established for the Federal Research in Progress (FRIP) System and for the USDA Current Research Information System (CRIS), expenditure figures on individual projects are not made publicly available. Currently, data for fiscal years 1982-94 are available through NTIS.

In July 1987, the ICHNR approved a joint proposal by USDA staff and the HNRIM System Coordinator that the HNRIM database be made available to the public through Dialog Information Retrieval Service, as a part of USDA's CRIS database. The process of converting HNRIM system data to a format compatible with that of the CRIS database was completed, and FY 1988 HNRIM system data were made available to the public through Dialog, in October 1990. The database will continue to reside online in the NIH mainframe computer (from which fiscal data will be available) and to be available for purchase through NTIS. A public access interface to the HNRIM system via the World Wide Web is under development.

Table I

FY 1996 EXPENDITURES AND NUMBER OF PROJECTS IN HUMAN NUTRITION RESEARCH, MANPOWER DEVELOPMENT, TRAINING, AND EDUCATION BY FEDERAL AGENCIES

	Expenditures (dollars in thousands)	Percent of Total Expenditures	Number of Projects	Percent of Total Projects
Department of Health and Human Services:				
National Institutes of Health	438,813	80	2,665	56
Food and Drug Administration	2,713	< 1	14	< 1
Centers for Disease Control	4,096	1	4	< 1
Health Resources and Services Administration	378	< 1	3	< 1
Total DHHS	445,999	81	2,686	57
Agency for International Development	5,372	1	13	< 1
National Science Foundation	43	< 1	4	< 1
Department of Veterans Affairs*	14,299	3	803	17
Department of Commerce	502	< 1	1	< 1
Department of Defense	5,749	1	8	< 1
National Aeronautics and Space Administration	1,496	< 1	20	< 1
U.S. Department of Agriculture	76,319	14	1,206	25
Total Federal Expenditures**	549,779	100	4,741	100

* Estimates

** Totals may be imprecise due to rounding

Table II

Obligations for Nutrition Research and Training by Agency, Fiscal Years 1987-1996

(Thousands of Dollars)

Agency	1987	1988	1989[a]	1990	1991	1992	1993[b]	1994	1995	1996
DHHS:										
NIH	260,611	276,195	286,975	292,359	310,810	343,788	373,251	400,701	428,687	438,813
FDA	6,799	10,470	10,063	7,397	10,527	10,958	7,661	2,054	1,464	2,713
ADAMHA	7,685	7,545	9,603	11,876	18,875	15,019	--	--	--	--
CDC	561	537	5,216	5,084	6,006	6,074	5,579	5,633	4,713	4,096
NCHS	3,885	4,227	--	--	--	--	--	--	--	--
HRSA	1,147	1,625	1,114	959	1,717	1,858	1,025	579	344	378
Total DHHS	280,687	300,599	312,971	317,675	347,935	377,698	387,515	408,966	435,208	445,999
USDA	67,601	70,029	65,433	62,467	63,756	70,563	67,435	73,912	84,217	76,319
AID	4,364	6,037	6,492	4,147	4,617	4,157	3,958	3,922	6,104	5,372
NSF	--	--	--	--	79	19	29	29	41	43
DVA	2,021	2,816	3,104	2,379	2,139	2,366	4,379	4,076	9,962	14,299
DOC	946	1,078	989	1,016	937	1,199	981	576	502	502
DOD	533	4,091	421	488	849	3,631	3,176	2,869	3,545	5,749
NASA	--	37	--	--	428	679	681	687	855	1,496
Total Federal Expenditures	356,152	384,687	389,410	388,172	420,739	460,311	468,153	495,038	540,436	549,779

[a] In FY89, CDC includes NCHS

[b] In FY93, NIH includes ADAMHA

Table III

FY 1995 EXPENDITURES AND NUMBER OF PROJECTS IN HUMAN NUTRITION RESEARCH, MANPOWER DEVELOPMENT, TRAINING, AND EDUCATION BY FEDERAL AGENCIES

	Expenditures ($ in thousands)	Percent of Total Expenditures	Number of Projects	Percent of Total Projects
Department of Health and Human Services:				
National Institutes of Health	428,687	79	2,620	60
Food and Drug Administration	1,464	< 1	15	< 1
Centers for Disease Control	4,713	< 1	3	< 1
Health Resources and Services Administration	344	< 1	2	< 1
Total DHHS	435,208	81	2,640	60
Agency for International Development	6,104	1	14	< 1
National Science Foundation	41	< 1	8	< 1
Department of Veterans Affairs	9,962 *	2	558	13
Department of Commerce	502	< 1	1	< 1
Department of Defense	3,545	< 1	6	< 1
National Aeronautics and Space Administration	855	< 1	8	< 1
U.S. Department of Agriculture	84,217	16	1,137	26
Total Federal Expenditures**	540,436	100	4,372	100

* Estimate

** Totals may be imprecise due to rounding

Table IV

FY 1994 EXPENDITURES AND NUMBER OF PROJECTS IN HUMAN NUTRITION RESEARCH, MANPOWER DEVELOPMENT, TRAINING, AND EDUCATION BY FEDERAL AGENCIES

	Expenditures ($ in thousands)	Percent of Total Expenditures	Number of Projects	Percent of Total Projects
Department of Health and Human Services:				
National Institutes of Health	400,701	81	2584	57
Food and Drug Administration	2,054	< 1	23	< 1
Centers for Disease Control and Prevention	5,633	1	4	< 1
Health Resources and Services Administration	579	< 1	4	< 1
Total DHHS	408,966	83	2,615	58
U.S. Department of Agriculture	73,912	15	1,231	27
Agency for International Development	3,922	< 1	19	< 1
National Science Foundation	29	< 1	8	< 1
Department of Veterans Affairs	4,076 *	< 1	616	14
Department of Commerce	576	< 1	1	< 1
Department of Defense	2,869	< 1	6	< 1
National Aeronautics and Space Administration	687	< 1	7	< 1
Total Federal Expenditures**	495,038	100	4,503	100

* Estimate

** Totals may be imprecise due to rounding

Table V

FY 1993 EXPENDITURES AND NUMBER OF PROJECTS IN HUMAN NUTRITION RESEARCH, MANPOWER DEVELOPMENT, TRAINING, AND EDUCATION BY FEDERAL AGENCIES

	Expenditures ($ in thousands)	Percent of Total Expenditures	Number of Projects	Percent of Total Projects
Department of Health and Human Services:				
National Institutes of Health	373,251	80	2,586	59
Food and Drug Administration	7,661	2	29	< 1
Centers for Disease Control	5,579	1	4	< 1
Health Resources and Services Administration	1,025	< 1	5	< 1
Total DHHS[+]	387,515	83	2,624	60
U.S. Department of Agriculture	67,435	14	1,111	25
Agency for International Development	3,958	< 1	24	< 1
National Science Foundation	29	< 1	7	< 1
Department of Veterans Affairs	4,379 [*]	< 1	608	14
Department of Commerce	981	< 1	1	< 1
Department of Defense	3,176	< 1	6	< 1
National Aeronautics and Space Administration	681	< 1	7	< 1
Total Federal Expenditures[**]	468,153	100	4388	100

[+] The three research institutes of ADAMHA were transferred to NIH in FY 1993

[*] Estimate

[**] Totals may be imprecise due to rounding

Table VI

FY 1992 EXPENDITURES AND NUMBER OF PROJECTS IN HUMAN NUTRITION RESEARCH, MANPOWER DEVELOPMENT, TRAINING, AND EDUCATION BY FEDERAL AGENCIES

	Expenditures ($ in thousands)	Percent of Total Expenditures	Number of Projects	Percent of Total Projects
Department of Health and Human Services:				
National Institutes of Health	343,788	75	2,419	58
Food and Drug Administration	10,958	2	32	< 1
Alcohol, Drug Abuse and Mental Health Administration	15,019	3	139	3
Centers for Disease Control	6,074	1	5	< 1
Health Resources and Services Administration	1,858	< 1	10	< 1
Total DHHS	377,698	82	2,605	63
U.S. Department of Agriculture	70,563	15	1,206	29
Agency for International Development	4,157	< 1	18	< 1
National Science Foundation	19	< 1	5	< 1
Department of Veterans Affairs	2,366 *	< 1	312	7
Department of Commerce	1,199	< 1	2	< 1
Department of Defense	3,631	< 1	6	< 1
National Aeronautics and Space Administration	679	< 1	10	< 1
Total Federal Expenditures**	460,311	100	4,164	100

* Estimate

** Totals may be imprecise due to rounding

Table VII

FY 1991 EXPENDITURES AND NUMBER OF PROJECTS IN HUMAN NUTRITION RESEARCH, MANPOWER DEVELOPMENT, TRAINING, AND EDUCATION BY FEDERAL AGENCIES

	Expenditures ($ in thousands)	Percent of Total Expenditures	Number of Projects	Percent of Total Projects
Department of Health and Human Services:				
National Institutes of Health	310,810	74	2,433	58
Food and Drug Administration	10,527	2	27	<1
Alcohol, Drug Abuse and Mental Health Administration	18,875	4	172	4
Centers for Disease Control	6,006	1	5	<1
Health Resources and Services Administration	1,717	<1	10	<1
Total DHHS	347,935	83	2,647	63
U.S. Department of Agriculture	63,756	15	1,235	29
Agency for International Development	4,617	1	20	<1
National Science Foundation	79	<1	7	<1
Department of Veterans Affairs	2,139 *	<1	285	7
Department of Commerce	937	<1	1	<1
Department of Defense	849	<1	5	<1
National Aeronautics and Space Administration	428	<1	3	<1
Total Federal Expenditures**	420,739	100	4,200	100

* Estimate

** Totals may be imprecise due to rounding

Table VIII

FY 1990 EXPENDITURES AND NUMBER OF PROJECTS IN HUMAN NUTRITION RESEARCH, MANPOWER DEVELOPMENT, TRAINING, AND EDUCATION BY FEDERAL AGENCIES

	Expenditures ($ in thousands)	Percent of Total Expenditures	Number of Projects	Percent of Total Projects
Department of Health and Human Services:				
National Institutes of Health	292,359	75	2,367	63
Food and Drug Administration	7,397	2	25	<1
Alcohol, Drug Abuse and Mental Health Administration	11,876	3	116	3
Centers for Disease Control	5,084	1	4	<1
Health Resources and Services Administration	959	<1	11	<1
Total DHHS	317,675	82	2,523	67
U.S. Department of Agriculture	62,467	16	911	24
Agency for International Development	4,147	1	18	<1
Department of Veterans Affairs	2,379 *	1	293	8
Department of Commerce	1,016	<1	2	<1
Department of Defense	488	<1	5	<1
Total Federal Expenditures**	388,172	100	3,752	100

* Estimate

** Totals may be imprecise due to rounding

Table IX

FY 1989 EXPENDITURES AND NUMBER OF PROJECTS IN HUMAN NUTRITION RESEARCH, MANPOWER DEVELOPMENT, TRAINING, AND EDUCATION BY FEDERAL AGENCIES

	Expenditures ($ in thousands)	Percent of Total Expenditures	Number of Projects	Percent of Total Projects
Department of Health and Human Services:				
National Institutes of Health	286,975	74	2,417	64
Food and Drug Administration	10,063	3	29	1
Alcohol, Drug Abuse and Mental Health Administration	9,603	2	99	3
Centers for Disease Control	5,216 +	1	4	<1
Health Resources and Services Administration	1,114	<1	11	<1
Total DHHS	312,971	80	2,560	68
U.S. Department of Agriculture	65,433	17	936	25
Agency for International Development	6,492	2	22	<1
Department of Veterans Affairs	3,104 *	1	239	6
Department of Commerce	989	<1	3	<1
Department of Defense	421	<1	3	<1
Total Federal Expenditures**	389,410	100	3,763	100

+ Includes NCHS
* Estimate
** Totals may be imprecise due to rounding

Table X

FY 1988 EXPENDITURES AND NUMBER OF PROJECTS IN HUMAN NUTRITION RESEARCH, MANPOWER DEVELOPMENT, TRAINING, AND EDUCATION BY FEDERAL AGENCIES

	Expenditures ($ in thousands)	Percent of Total Expenditures	Number of Projects	Percent of Total Projects
Department of Health and Human Services:				
National Institutes of Health	276,195	72	2,461	65
Alcohol, Drug Abuse and Mental Health Administration	7,545	2	76	2
Food and Drug Administration	10,470	3	31	1
National Center for Health Statistics	4,227	1	3	<1
Health Resources and Services Administration	1,625	<1	13	<1
Centers for Disease Control	537	<1	1	<1
Total DHHS	300,599	78	2,585	68
U.S. Department of Agriculture	70,029	18	940	25
Agency for International Development	6,037	2	18	<1
Department of Veterans Affairs	2,816 *	1	239	6
Department of Commerce	1,078	<1	4	<1
Department of Defense	4,091	1	3	<1
National Aeronautics and Space Administration	37	<1	1	<1
Total Federal Expenditures**	384,687	100	3,790	100

* Estimate

** Totals may be imprecise due to rounding

Table XI

FY 1987 EXPENDITURES AND NUMBER OF PROJECTS IN HUMAN NUTRITION RESEARCH, MANPOWER DEVELOPMENT, TRAINING, AND EDUCATION BY FEDERAL AGENCIES

	Expenditures ($ in thousands)	Percent of Total Expenditures	Number of Projects	Percent of Total Projects
Department of Health and Human Services:				
National Institutes of Health	260,610	73	2,437	65
Alcohol, Drug Abuse and Mental Health Administration	7,685	2	107	3
Food and Drug Administration	6,799	2	31	<1
National Center for Health Statistics	3,885	1	3	<1
Health Resources and Services Administration	1,147	<1	10	<1
Centers for Disease Control	561	<1	1	<1
Total DHHS	280,687	79	2,589	69
U.S. Department of Agriculture	67,601	19	964	26
Agency for International Development	4,364	1	14	<1
Veterans Administration	2,021 *	<1	162	4
Department of Commerce	946	<1	5	<1
Department of Defense	533	<1	4	<1
Total Federal Expenditures**	356,152	100	3,738	100

* Estimate

** Totals may be imprecise due to rounding

Table XII

FY 1996 EXPENDITURES BY FEDERAL AGENCIES IN HUMAN NUTRITION RESEARCH, MANPOWER DEVELOPMENT, TRAINING, AND EDUCATION, BY AREA OF SUPPORT

(dollars in thousands)

	Extramural			Intramural			
Agency	Research	Research Manpower Development	Training	Research	Training*	Research on Public Information and Education+	Total
AID	5,372						5,372
DOC				502			502
DOD	4,205			1,544			5,749
DHHS:							
CDC				4,096			4,096
FDA	218			2,495			2,713
HRSA	378						378
NIH	407,522	4,623	5,109	21,558	0	(17,675)	438,812
Total DHHS	408,118	4,623	5,109	28,149	0	(17,675)	445,999
DVA				14,299**			14,299
NASA	972			524			1,496
NSF	43						43
USDA	37,718			38,601			76,319
TOTAL	456,428	4,623	5,109	83,619	0	(17,675)	549,779

+ The dollar amounts in this category are included within the funding mechanisms and the total amount

* A zero entry indicates projects conducted without funding allocated in FY 1996

** Estimate

Table XIII

FY 1996 HUMAN NUTRITION RESEARCH AND TRAINING EXPENDITURES OF FEDERAL AGENCIES BY SUPPORT MECHANISM

(dollars in thousands)

	Extramural						
Agency	Grants	Contracts	Interagency Agreements	Formula Grants	Cooperative Agreements	Intramural	Total
AID	2,068	1,061			2,242		5,371
DOC						502	502
DOD	4,205					1,544	5,749
DHHS:							
CDC						4,096	4,096
FDA	218					2,495	2,713
HRSA	378						378
NIH	325,909	43,474	1,147		46,725	21,558	438,813
Total DHHS	326,505	43,474	1,147		46,725	28,149	446,000
DVA						14,299**	14,299*
NASA	972					524	1,496
NSF	43						43
USDA	4,366	13,326		9,254	10,772	38,601	76,319
TOTAL	338,159	57,861	1,147	9,254	59,739	83,619	549,779

* Estimate

** Totals may be imprecise due to rounding

Appendix A

INTERAGENCY COMMITTEE ON HUMAN NUTRITION RESEARCH

DEFINITION OF HUMAN NUTRITION RESEARCH

Human nutrition research is the pursuit of new knowledge to improve the understanding of nutrition as it relates to human health and disease and, as here defined, encompasses studies in five major areas: biomedical and behavioral sciences, food sciences, nutrition monitoring and surveillance, nutrition education, and impact on nutrition of intervention programs and socioeconomic factors.

I. RESEARCH IN THE BIOMEDICAL AND BEHAVIORAL SCIENCES

Studies in the biomedical and behavioral sciences aspect of human nutrition research address factors that impact on or are affected by food or nutrient intake and those affecting utilization of food or nutrients by the intact organism (animal model or human being), and the metabolic and behavioral mechanisms involved. Studies found here include:

- Investigations of nutrient variables at the cellular and subcellular level.
- Dietary and nutrition studies relating to the health status of humans, such as the maintenance of health and the treatment of disease. Such studies might take the form of clinical trials, epidemiological studies, or metabolic studies.
- Studies designed to explain the metabolic role or function of nutrients in humans and in animal or other biological models relevant to human nutrition.
- Studies concerned with genetic-nutrient-environmental interactions in humans, where a nutrient is an experimental variable.
- Studies of the interaction of diets and nutrients with toxic materials, man-made or naturally occurring, including drugs and carcinogenic agents.

II. RESEARCH IN FOOD SCIENCES

Under the food sciences aspect of human nutrition research fall studies primarily concerned with the nutritional quality, content, or composition of foods, or with the bioavailability of nutrients in foods. Research activities related to the food sciences that are included in human nutrition research are:

- Studies on the nutritional characteristics of foods and diets for human use as influenced by various factors. Some factors are varietal and species differences, harvest and post-harvest technology, food processing, transportation, and retail food practices -- when such studies are designed specifically to increase knowledge of human nutrition.
- Studies on cost-effective methods that will improve the speed, accuracy and reliability with which food components of nutritional importance are analyzed.

III. RESEARCH ON NUTRITION MONITORING AND SURVEILLANCE OF POPULATIONS

This aspect of human nutrition research covers epidemiological and methodological studies that provide data on food consumption, dietary practices, nutritional status, and general health status as it may relate to nutrition. Some examples of such studies include:

- Epidemiological surveys of food consumption patterns and dietary practices.
- Methodological studies of food consumption survey techniques.
- Studies of trends in dietary habits and food consumption as they affect health or nutritional status.
- Studies that seek to relate dietary history, biochemical determinants, anthropometry data, clinical examination results, etc.

IV. RESEARCH IN NUTRITION EDUCATION

Nutrition education research employs methods from psychology, sociology, anthropology, communications, education, economics, consumer research, and social marketing. Its intent is to determine the most effective means of conveying information about the health impact of various dietary practices and advances in human nutrition science to the general public and to health professionals. Such studies include but are not limited to:

- Studies of factors that facilitate or impede information transfer and of those that mediate the translation of knowledge into behavioral change, as these factors relate to knowledge of good nutrition. These factors might include the public's comprehension of, interest in or concern for, and use of nutrition and diet/health relationship information.
- Studies that identify, develop, test and evaluate effective and efficient strategies for delivering nutrition information to various target groups under varying nutrition education objectives.
- Studies to identify those factors (technological, educational, sociocultural, motivational, etc.) that cause change in dietary habits and food consumption behavior, and the development of theories, models and methods to study such factors.
- Surveillance studies of the marketplace to identify industry efforts to convey nutrition information to the public.

V. RESEARCH ON THE EFFECTS OF SOCIOECONOMIC FACTORS AND INTERVENTION PROGRAMS AND POLICIES ON FOOD CONSUMPTION AND HUMAN NUTRITION

Interventions, government policies, scientific advances, and other socioeconomic phenomena can and do influence food consumption and nutritional status. Thus, studies of the changes and trends relevant to nutritional health that occur as a consequence are appropriately included in human nutrition research.

Appendix B

HNRIM CLASSIFICATION SYSTEM

Projects included in the HNRIM system are selected and coded for submission by the sponsoring agency, based upon the classification system following. This classification system has its origins in the definition of human nutrition research developed by the NIH Nutrition Coordinating Committee (NCC) in 1977. The Joint Subcommittee on Human Nutrition Research, operating out of the Office of Science and Technology Policy in the Executive Office of the President, expanded the NIH definition to include the human nutrition research activities supported by participating Federal agencies, and developed a system of 34 data classification categories for human nutrition research. In FY 1985, Code 35, "Parenteral, Enteral, and Elemental Nutrition," was added under Section I, subsection B by the ICHNR, which now oversees operation of the database.

I. Research in the Biomedical and Behavioral Sciences

A. Research on Normal Nutritional Requirements Throughout the Life Cycle

The following five categories are included because of the importance to health promotion of establishing normal nutritional requirements throughout the life cycle, and the differing needs of individuals at various stages of the life cycle.

Research activities relevant to normal nutrition at specific stages of the human life cycle should be assigned to classifications 1-5.

1. **Maternal Nutrition**

2. **Infant and Child Nutrition (0-12 years)**
   (includes the low birth weight infant)

3. **Adolescent Nutrition (13-18 years)**

4. **Adult Nutrition (19-65 years)**

5. **Nutrition of the Elderly (65+ years)**

B. Diseases and Conditions

Research on the role of nutrition in the prevention, amelioration, and treatment of diseases and conditions should be assigned to categories 6-16. Because of the importance of appropriate nutritional support of the patient in the treatment of disease, the category of "parenteral, enteral and elemental nutrition" has been added in this subsection as code 35.

6. **Cardiovascular Disease and Nutrition**

7. **Cancer and Nutrition**

8. **Other Diseases and Nutrition**
   (e.g., osteoporosis, diabetes, etc.)

9. **Trauma (Including Burns) and Nutrition**

10. Infection--Immunology and Nutrition

11. Obesity, Anorexia, and Appetite Control

12. Genetics and Nutrition

13. Nutrition and Function
(Includes mental, psychomotor, and work performance; environmental stress)

* **14. Nutrient Interactions**
(Includes nutrient-nutrient interactions, nutrient-drug interactions, nutrient-toxicant interactions, and nutrient toxicity)

15. Other Conditions and Nutrition

* **16. Nutritional Status**
(Includes research on methods for the determination of nutritional status and surveillance: dietary history and food consumption, biochemical determinants, anthropometry, and clinical examination)

35. Parenteral, Enteral, and Elemental Nutrition

C. Nutrient Metabolism and Metabolic Mechanisms at the Cellular and Subcellular Levels

Categories 17-25, 14, and 27 classify research by nutrient variables; these categories should be used to indicate the nutrient variables in research classified elsewhere; and classify biochemical, subcellular, cellular, and animal research, such as studies of nutrient mechanisms and metabolism not related to specific diseases, conditions, or stages of the life cycle.

17. Carbohydrates

18. Lipids (Fats and Oils)
(Includes essential fatty acids, lipo- and apoproteins)

19. Alcohols
(Includes ethanol, sorbitols, and other alcohols used as components in synthetic and semisynthetic foods)

20. Proteins and Amino Acids
(Includes essential as well as nonessential amino acids such as taurine and carnitine)

21. Vitamins
(Includes vitamin A, C, B_6, B_{12}, D, E, K, thiamin, riboflavin, niacin, folacin, biotin, and pantothenic acid)

22. Minerals and Essential Trace Elements
(Includes calcium, phosphorus, magnesium, iron, zinc, iodine, copper, manganese, fluoride, chromium, selenium, and molybdenum)

23. Water and Electrolytes
(Includes sodium, potassium, and chloride)

* Codes marked by an asterisk are applicable to more than one class.

24. Fiber

25. Other Nutrients in Food
(Such as cobalt, nickel, vanadium, silicon, tin, arsenic, cadmium, choline, lecithin and various growth factors)

* **14. Nutrient Interactions**
(Includes nutrient-nutrient interactions, nutrient-drug interactions, nutrient-toxicant interactions, and nutrient toxicity)

* **27. Bioavailability of Nutrients**
(Includes methods for the determination of bioavailability of nutrients)

II. Research in Food Sciences

Categories 26-29 should be used for research in the nutritional aspects of food sciences.

26. Food Composition
(Includes nutritional quality, nutrient content, and research on methods of analysis for nutrients and fiber)

* **27. Bioavailability of Nutrients**
(Includes methods for the determination of bioavailability of nutrients)

28. Effects of Technology on Acceptability and Nutritional Characteristics of Foods and Diets
(Includes the beneficial and adverse effects of varietal and species differences, harvest and post-harvest technology, retail food practices, food processing, handling, preservation, and home cooking)

29. Other Research in Food Sciences

III. Research on Nutrition Monitoring and Surveillance of Populations

30. Food Consumption Surveys
(Includes research on methods for determination of food consumption and its trends, and research utilizing data derived from such surveys)

31. Studies of Dietary Practices, Food Consumption Patterns, and Their Determinants

* **16. Nutritional Status**
(Includes research on methods for the determination of nutritional status and surveillance: dietary history and food consumption, biochemical determinants, anthropometry, and clinical examination)

IV. Research in Nutrition Education

Categories 32-33 encompass research in nutrition education.

32. Studies on Methods for Informing and Educating the Public About Nutrition, Health, and Dietary Practices and for Countering Nutrition Misinformation
(Includes studies on methods for informing and educating professionals in these areas)

33. Other Research in Nutrition Education

* Codes marked by an asterisk are applicable to more than one class.

V. Research on the Effects of Government Policy and Socioeconomic Factors on Food Consumption and Human Nutrition

34. Effects of Government Policy and Socioeconomic Factors on Food Consumption and Human Nutrition

VI. NIH Special Interest Areas

Not all reporting agencies use the following classification codes.

51. Prevention of Disease

52. International Research

53. Epidemiological Research

54. Education for Professionals

55. Education for the Public

56. Clinical Trials

* Codes marked by an asterisk are applicable to more than one class.

Appendix C

Table C-1. DISTRIBUTION* OF HUMAN NUTRITION RESEARCH AND TRAINING PROJECTS, BY HNRIM CLASSIFICATION CODE, FY 1996, BY PARTICIPATING DEPARTMENT OF HEALTH AND HUMAN SERVICES AGENCY

	DHHS Agency (Number of Projects)				
HNRIM System Classification Code	TOTAL	CDC	FDA	HRSA	NIH
01-Maternal Nutrition	140	1			139
02-Infant & Child Nutrition	218	2	2	3	211
03-Adolescent Nutrition	76	2			74
04-Adult Nutrition	129	2			127
05-Nutrition of the Elderly	193	1			192
06-Cardiovascular Disease & Nutrition	523	2			521
07-Cancer & Nutrition	686	2			684
08-Other Diseases & Nutrition	583	3			580
09-Trauma and Nutrition	36				36
10-Infection--Immunology & Nutrition	158				158
11-Obesity, Anorexia & Appetite Control	407	2	2		403
12-Genetics and Nutrition	294				294
13-Nutrition and Function	201			1	200
14-Nutrient Interactions	238		6		232
15-Other Conditions & Nutrition	238	1		1	236
16-Nutritional Status R&D	174	3	1		170
17-Carbohydrates	248				248
18-Lipids (Fats & Oils)	480		1		479
19-Alcohols	95				95
20-Proteins & Amino Acids	226				226
21-Vitamins	359				359
22-Minerals & Essential Trace Elements	348	1	6		341
23-Water & Electrolytes	85				85
24-Fiber	45		6		39
25-Other Nutrients in Food	30				30
26-Food Composition R&D	24		1		23
27-Bioavailability of Nutrients	31		6		25
28-Effects of Technology on Foods and Diets	16		8		8
29-Other Research in Food Sciences	13		6		7
30-Food Consumption Survey R&D	16	1	2		13
31-Dietary Practices, Food Consumption & Determinants	121	2	6	2	111
32-Studies of Methods for Informing & Educating the Public	53		2	2	49
33-Other Research in Nutrition Education	11		4		7
34-Effects of Government Policy & Socioeconomic Factors	7		4		3
35-Parenteral, Enteral, and Elemental Nutrition	45				45
51-Prevention of Disease	505	2			503
52-International Nutrition Research	32				32
53-Epidemiological Nutrition Research	233	2			231
54-Nutrition Education for Professionals	48				48
55-Nutrition Education for the Public	53				53
56-Clinical Trials of Nutrients/Nutrition	159				159

* A project may be assigned to more than one of the classification codes; the sum of the number of projects by agency is not intended to equal the total number of projects.

Appendix C

Table C-2. DISTRIBUTION* OF HUMAN NUTRITION RESEARCH AND TRAINING PROJECTS, BY HNRIM CLASSIFICATION CODE, FY 1996, BY PARTICIPATING FEDERAL AGENCY

	Federal Agency (Number of Projects)								
HNRIM System Classification Code	TOTAL	AID	DHHS	DOC	DOD	USDA	DVA	NASA	NSF
01-Maternal Nutrition	173	2	140			30	1		
02-Infant & Child Nutrition	277	4	218		1	52	2		
03-Adolescent Nutrition	99		76		1	22			
04-Adult Nutrition	236		129		8	97	1	1	
05-Nutrition of the Elderly	272		193			61	18		
06-Cardiovascular Disease & Nutrition	721		523	1		120	76	1	
07-Cancer & Nutrition	936		686	1		71	178		
08-Other Diseases & Nutrition	667	1	583	1		29	46	7	
09-Trauma and Nutrition	38		36			2			
10-Infection--Immunology & Nutrition	222	3	158		1	41	19		
11-Obesity, Anorexia & Appetite Control	556		407			70	79		
12-Genetics and Nutrition	346		294			43	9		
13-Nutrition and Function	355		201		4	133	8	9	
14-Nutrient Interactions	315		238			73	3		1
15-Other Conditions & Nutrition	302		238			38	19	7	
16-Nutritional Status R&D	224	2	174		1	36	6	4	1
17-Carbohydrates	337		248		2	80	5	2	
18-Lipids (Fats & Oils)	895		480	1	1	279	134		
19-Alcohols	105		95			7	3		
20-Proteins & Amino Acids	529		226			118	183	2	
21-Vitamins	613	7	359			135	110	2	
22-Minerals & Essential Trace Elements	617	4	348		1	169	87	8	
23-Water & Electrolytes	88		85			1		2	
24-Fiber	104		45			56	3		
25-Other Nutrients in Food	127		30			97			
26-Food Composition R&D	138	1	24	1	2	109	1		
27-Bioavailability of Nutrients	110	1	31			77		1	
28-Effects of Technology on Foods and Diets	244	2	16			226			
29-Other Research in Food Sciences	328	2	13			309	4		
30-Food Consumption Survey R&D	91		16		4	71			
31-Dietary Practices, Food Consumption & Determinants	350	3	121		5	168	50		3
32-Studies of Methods for Informing & Educating the Public	75	2	53		3	17			
33-Other Research in Nutrition Education	52		11			39	2		
34-Effects of Government Policy & Socioeconomic Factors	88	2	7			78	1		
35-Parenteral, Enteral, and Elemental Nutrition	58		45			4	9		
51-Prevention of Disease	506		505				1		
52-International Nutrition Research	45	13	32						
53-Epidemiological Nutrition Research	235		233				2		
54-Nutrition Education for Professionals	48		48						
55-Nutrition Education for the Public	56		53				3		
56-Clinical Trials of Nutrients/Nutrition	180		159				21		

*A project may be assigned to more than one of the classification codes; the sum of the number of projects by agency is not intended to equal the total number of projects.

Appendix D

FREQUENCY OF USE OF HNRIM DATA ITEMS FOR INFORMATION RETRIEVAL

The 215 queries of the HNRIM system via the NIH mainframe computer, between October 1, 1995, and September 30, 1996 (FY 1996) show the following frequency of use of the HNRIM data fields:

Data Fields	Number of Times Used
Nutrition Classification Code	34
Sponsoring Department	42
Sponsoring Agency	49
Sponsoring Group	57
Fiscal Year	18
Project Activity Code (e.g., R01)	39
Project ID number	5
Narrative Content	47
Project Title	5
City/State	9
Other	15

TABLE OF ACRONYMS

ADAMHA	Alcohol, Drug Abuse, and Mental Health Administration
AID	Agency for International Development
CDC	Centers for Disease Control and Prevention
CRIS	Current Research Information Service
DHHS	Department of Health and Human Services
DNRC	Division of Nutrition Research Coordination
DOC	Department of Commerce
DOD	Department of Defense
DVA	Department of Veterans Affairs
FDA	Food and Drug Administration
FRIP	Federal Research in Progress
FY	Fiscal Year
HNRIM	Human Nutrition Research and Information Management
HRSA	Health Resources and Services Administration
ICHNR	Interagency Committee for Human Nutrition Research
NASA	National Aeronautics and Space Administration
NIH	National Institutes of Health
NSF	National Science Foundation
NTIS	National Technical Information Service
USDA	U.S. Department of Agriculture