

미국의 Nutrition Monitoring 소개

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미국의 경우 1990년에 제정된 "The National Nutrition Monitoring and Related Research Act of 1990(Pub. L. 101-445)"에 의하여 여러가지 Nutrition Monitoring 관련 사항들이 진행되고 있다. 이 법에서 "Nutrition Monitoring and Related research"는 "the set of activities necessary to provide timely information about the role and status of factors that bear on the contribution that nutrition makes to the health of the people of the United States"라고 정의 되어 있다. 즉 필요한 정보를 적절한 때 공급하도록 법적으로 못 박고 있고, 이에 따라 매 10년마다 전체적인 계획(10-year comprehensive plan)을 세우고, 그 정보는 적절히 공급하도록 하고 있으며, 그 일환의 하나로 미국민의 영양상태에 관한 보고서를 국회에 내도록 하고 있다. 이렇게 미국의 경우 법적으로 보장되어 Nutrition Monitoring이 조직적으로 실시되고 있는데 이것은 다른 나라보다 우월한 체계로 미국 정부에서도 상당한 긍지를 느끼는 것을 여러 보고서에서 볼 수 있다.

우리나라의 경우 미국의 Nutrition Monitoring 체계에 해당되는 것으로 국민영양조사를 꼽을 수 있는데 이 국민영양조사를 좀더 확대 발전 시키기 위해서 미국의 Nutrition Monitoring을 이해하는 것도 우리에게 많은 것을 보여 줄 수 있다고 생각된다. 미국의 Nutrition Monitoring을 이해하기 위하여 관련활동들이 어떻게 변화되었나 살펴보고, 입법부와 정부의 관계, 마지막으로 미국정부에서 시행하는 Nutrition Monitoring 관련 사항을 살펴 보고자 한다.

배 경

미국의 National Nutrition Monitoring System (NNMS)이 발전하게된 배경을 보면 여러가지 사건 들

이 있었던것을 알 수 있다.(Table 1) 물론 미국에서는 영양이 미국민의 건강을 위하여 중요한 정책으로 거론 되어졌었으나, 중요한 계기의 하나로 The 1969 White House Conference를 꼽을수 있을 것이다. 여기에서 영양정책의 중요 부분으로 다음의 4가지로 좁혀 졌다.

- 1) improvements of food, nutrition education and labelling programs;
- 2) strengthening food safety and inspection activities;
- 3) expansion and coordination of nutrition research;
- 4) establishment of a nutrition monitoring and surveillance system.

이 회의에서 특히 미국민의 영양상태가 잘 파악되고 있지 않다는 것이 알려져서 그 이후의 여러가지 노력들이 진행되었다. 상원의 위원회에서 정부에 Nutrition Monitoring을 잘하도록 촉구하고 1977년에는 하원에서 "The Food and Agriculture Act of 1977"에서 NNMS의 계획서를 내도록했다. 1981년에는 DHHS와 USDA에 의해 Joint Implementation Plan for a Comprehensive National Nutrition Monitoring System이 출판되었다. 그 이후에 표에서 볼 수 있는 여러가지 사건을 거쳐 법으로서 제정되었는데, 이법은 1988년에 국회를 한번 통과 했으나 정부에 의해 너무 요구하는 것이 많다고 한번 비토되었다가 다시 상정 통과 되었다. 또 미국의 국민건강증진을 위한 사업인 "Promoting Health/Preventing Disease (1980)"와 "President's Task Force on Food Assistance (1984)", "Surgeon General's Report on Nutrition and Health (1988)" 같은 정부내 기관에서도 NNMS 설립의 필요성을 역설하는 등 여러가지 사건과 압력이 이법을 성립시켰음을 알 수 있다.

Table. 1 Milestones of the national nutrition monitoring system

Year	Milestone
1969	• White house conference on food, nutrition & health
1977	• Food and agriculture act(Pub. L. 95-113) passed
1978	• Proposal for a comprehensive nutritional status monitoring system submitted to congress
1981	• Joint implementation plan for a comprehensive national nutrition monitoring system published
1983	• Joint Nutrition monitoring evaluation committee formed
1984	• National survey data on food consumption : Uses and recommendations published
1986	• First Report to Congress : Nutrition Monitoring in the United States : A progress report from the joint nutrition monitoring evaluation committee published
1987	• Operational plan for the national nutrition monitoring system published
1988	• Interagency committee on nutrition monitoring(ICNM) formed
1989	• The directory of federal nutrition monitoring activities published • Second report to congress : Nutrition Monitoring in the united states : An update Report on Nutrition monitoring published
1990	• National nutrition monitoring and related research act(Pub. L. 101-445) passed
1991	• Interagency board for nutrition monitoring and related research established through incorporation and expansion of the ICNM

Table 2. Government agencies and congressional committees responsible for nutrition education and labeling activities

Education area	House committee	Senate committee	Executive branch
Nutrition education and training(NET)	Appropriations Education and labor	Agriculture, nutrition and forestry Appropriations	Food and nutrition Service, USDA
Dietary guidance for the public(Dietary guidelines)	Appropriations Agriculture Energy and commerce	Agriculture, nutrition and forestry Appropriations Labor and human resources	Human nutrition information service, USDA Office of disease prevention and health promotion, DHHS
Nutrition education resources	Appropriations Agriculture	Appropriations Agriculture, nutrition and forestry	Food and nutrition in- formation center, national agriculture library, USDA
Expanded foods and nutrition education program(EFNEP)	Agriculture Appropriations	Agriculture, nutrition and forestry Appropriations	Extensive service, USDA
Sodium Reduction campaign	Energy and commerce	Labor and human resources	Food and drug Administration, DHHS
Cancer communication program	Appropriations Energy and commerce	Appropriations Labor and human resources	National cancer institute, DHHS
National cholesterol education project	Appropriations Energy and commerce	Appropriations Labor and human resources	National institute of heart, lung, and blood, DHHS
Nutrition labeling	Energy and commerce	Labor and human resources	Food and drug Administration, DHHS
Meat and poultry labeling	Agriculture	Agriculture, nutrition and forestry	Marketing and inspection ser- vice, USDA
Health claims	Energy and commerce	Labor and human resources Commerce, science and trans- portation	Food and drug administration, DHHS Federal trade commission

This chart does not represent and exhaustive list of nutrition education activities conducted by the Federal government

입법부와 정부의 활동

NNMS를 살펴보기 전에 입법부와 정부의 영양정책의 수행에 관한것이 Table 2-5에 있다. 활동은 다음의 활동으로 나눌 수 있다.

1) Nutrition education:

-nutrition education for the public:RDA, Dietary guidelines

-nutrition education in the school setting and for low-income families:

Nutrition Education and Training(NET) Program, Expanded Food and Nutrition Education Program(EFNET)

- nutrition education for individual at risk
- nutritional labelling
- 2) Food Assistance:
- 3) Food safety and quality:
- 4) Nutrition research and monitoring.

The National Nutrition Monitoring System(NNMS)

미국의 NNMS는 복잡하고 서로 연관되어 있는 여러 가지 활동들이 모여서 이루어진 것으로 미국민의 건강에 영향을 미치는 식생활과 영양상태와 여기에 관련된 모든 요인에 대한 정보를 제공하는 것이다. 이 자료들은 다음의 5가지 분야로 구분되어 정리된다.

- 1) nutrition and related health measurements,
- 2) food and nutrient consumption,
- 3) knowledge, attitudes, and behavior assessments,
- 4) food composition and nutrient data bases
- 5) food supply determinations.

이렇게 5가지 분야로 모아진 자료는 인구집단의 식생

활, 영양상태, 건강상태의 평가에 사용된다. 여러가지 활동이 전개 되고 있지만 중요한 것만 Fig. 6~8에 정리되어 있다.

이 5가지 분야가 식품과 건강과의 관계가 Table 1에 있으며, 더 자세한 설명이 Table 2이다.

National Nutrition Monitoring System(NNMS)의 목적과 자료의 이용

전체적인 목표(Goal)는 다음과 같다.

- To provide the scientific foundation for the maintenance and improvement of the nutritional status of the U.S.population and the nutritional quality and healthfulness of the national food supply.

- To collect, analyze, and disseminate timely data on the nutritional and dietary status of the U.S.population, the nutritional quality of the food supply, food consumption patterns, and consumer knowledge and attitudes concerning nutrition.

Table 3. Government agencies and congressional committees Responsible for food assistance activities and Issues*

Food assistance areas	House committee	Senate committee	Executive branch
Food stamp program	Agriculture	Agriculture, nutrition and forestry	Food and nutrition service,
	Appropriations	Appropriation	USDA
National school lunch and breakfast programs	Appropriations	Appropriations	Food and nutrition service,
	Education and labor	Agriculture, nutrition and forestry	USDA
Women, infant & children supplemental food program(WIC)	Appropriations	Appropriations	Food and nutrition service,
	Education and labor	Agriculture, nutrition and forestry	USDA
Other child nutrition programs	Appropriations	Appropriations	Food and nutrition service,
	Education and labor	Agriculture, nutrition and forestry	USDA
Temporary emergency food assistance program(TEFAP)	Agriculture	Agriculture, nutrition and forestry	Food and nutrition service,
	Appropriations	Appropriations	USDA
Elderly feeding program	Appropriations	Appropriations	Administration on aging,
	Education and labor	Labor and human resources	DHHS

Table 4. Government agencies and congressional committees responsible for food safety and quality activities and issues*

Food safety and quality area	House committee	Senate committee	Executive branch
Meat and poultry safety and inspection	Agriculture	Agriculture, nutrition and forestry	Food safety and inspection service, USDA
	Appropriations	Appropriations	
Food safety	Agriculture	Agriculture, nutrition and forestry	Food safety and inspection service, USDA
	Appropriations	Appropriations	
	Energy and commerce	Labor and Human resources	Food and drug administration, DHHS
Food fortification	Appropriations	Appropriations	Office of pesticides, EPA
	Energy and commerce	Labor and Human resources	Food and drug administration,

Table 5. Government agencies and congressional committees responsible for nutrition reserch and monitoring activities and issues*

Research area	House committee	Senate committee	Executive branch
USDA human nutrition	Agriculture Appropriations Science Space and technology	Agriculture, nutrition and forestry Appropriations Governmental affairs	Agriculture research service, USDA
DHHS diet-Related Diseases	Appropriations Energy and commerce Science Space and technology	Appropriations Governmental affairs Labor and human resources	National institutes of health DHHS
Health and nutrition examina- tion survey	Appropriations Energy and commerce Science Space and technology	Appropriations Labor and human resources	National centet for health sta- tistice, DHHS
USDA food consumption sur- veys	Agriculture Appropriations Science Space and technology	Agriculture, nutrition and forestry Appropriations Government affairs	Human nutrition information service, USDA

*This chart does not include nutrition-related research and monitoring activities conducted by the Center for Disease Control, the Food and Drug Administration, Agency for International Development, the Department of Defence, National science foundation, and the Veteran's administration

Table 6. The national nutrition monitoring system

Activity	Principal agency	Frequency
1. Food production surveillance	USDA	Annual
2. Food composition analyses		
Total diet study	FDA	Annual
National nutrent data bank	USDA	Continuous
3. Food consumption surveys		
Nationwide food consumption survey(NCFS)	USDA	Continuous
National health and nutrition examination survey(NHANES)	NCHS	Each decade
4. Retail marketplace surveillance	FDA	Every 2y
5. Clinical nutrition status		
NHANES	NCHS	Each decade
State surveillance program	CDC	Continuous
6. Public interests and practices	FDA	Annual
7. Nutrition information and education systems	USDA / DHHS	Continuous
8. Adverse effects surveillance	FDA	Continuous
9. Special studies		
Vitamin and mineral supplement-use surveys	FDA / NCHS	Periodically
Infant feeding practices surveys	FDA	Ad hoc
10. Methods development	NIH / FDA / USDA / CDC	Continuous

Table 7. Record-based systems providing information related to nutrition

Data system	Periodicity
National vital statistice(NVS)	Continuous
National hospital discharge survey(NHDS)	Continuous
National ambulatory medical care survey(NAMCS)	3y
National nursing home survey(NNHS)	6y

Table 8. Population-based surveys providing information related to nutrition

Data system	Periodicity
National health interview survey(NHIS)	Continuous
National survey of family growth(NSFG)	5y
National health an nutrition examination survey(NHANES)	10y
National vital statistics Followback surveys (NVSFS)	5y
NHANES I epidemiologic followup survey (NHEFS)	Indeterminate

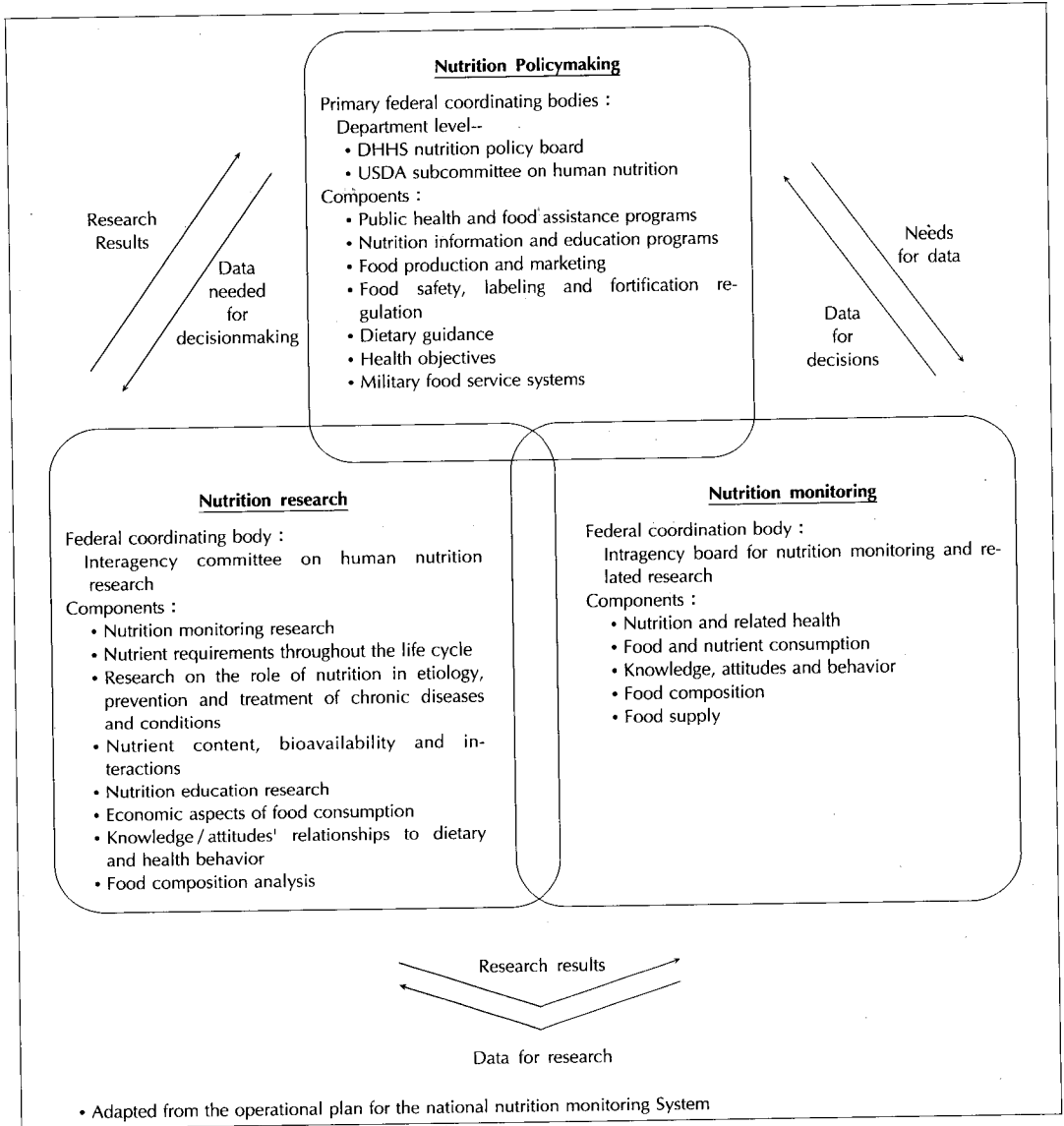


Fig. 1. Relationships among nutrition policymaking, research and monitoring.*

- To identify high-risk groups and geographic areas, as well as nutrition-related problems and trends, in order to facilitate prompt implementation of nutritional intervention activities.

- To establish national baseline data and to develop and improve uniform standards, methods, criteria, policies, and procedures for nutrition monitoring.

- To provide data for evaluating the implications of changes in agricultural policy related to food production, processing, and distribution which may affect the nutritional quality and

healthfulness of the U.S. food supply.

수행목표(Operational Plan)는 다음과 같다.

- Achieve a comprehensive system through coordination among NNMS components:

- Improve information dissemination and exchange:

- Improve the research base for nutrition monitoring.

이 수행목표들은 NNMS의 분야에 의해 전반적인 목표의 수행을 위하여 세부 계획이 세워진다.

NNMS자료는 정책 설정과 연구에 서로 상호 보완적인 역할을 하는데 그 관계가 Fig. 3에 있다.

Table 9. Uses of nutrition monitoring data

-
- I. Public policy
- A. Monitoring and surveillance :
- Identify high-risk groups and geographical areas with nutrition-related problems to facilitate implementation of public health intervention programs and food assistance programs
 - Evaluate changes in agricultural policy which may affect the nutritional quality and healthfulness of the U.S. food supply
 - Assess progress toward achieving the nutrition objectives in healthy people 2000
 - Evaluate the effectiveness of nutritional initiatives of military feeding systems
 - Report health and nutrition data from state-based programs to comply with federal administrative program requirements
 - Monitor food production and marketing
- B. Nutrition-related programs :
- Nutrition education and dietary guidance (Dietary guidelines for Americans)
 - Food assistance programs
 - Nutrition intervention programs
 - Public health programs
- C. Regulatory :
- Food labeling
 - Food fortification
 - Food safety
- II. Scientific research
- Nutrient requirements (Recommended dietary allowances)
 - Diet-health relationships
 - Knowledge and attitudes' relationships to dietary and health behavior
 - Nutrition monitoring research--national and international
 - Food composition analysis
 - Economic aspects of food consumption
 - Nutrition education research
-

Table 9에는 그 자료 들이 어디에 쓰였는가 정리 되어 있으며, Fig. 4는 영양교육을 예로 하여 설명하고 있다.

기 구

NNMS를 수행하는 기구는 Fig. 5와 Fig. 6에 있다. Fig. 5는 1986년에 세워진 Joint Nutrition Monitoring Evaluation Committee 상황이고 현재는 Fig. 6과 같다. 여기에서 볼 수 있는 바와 같이 Interagency Board for Nutrition Monitoring and Related Research (IBNMRR)가 있고 법에서 명시한 National Nutrition Monitoring Advisory Council(NNMAC)이 있어서 과학적이고 기술적인 지도를 받고 있다. 이 기관은 USDA와 DHHS의 Co-Chair 두명과 9명의 투표권이 있는 전문가로 이루어져 있다. 이 전문가는 보건분야, Nutrition Monitoring 연구분야, 식품 생산과 분배분야로 이루어지며, 5명은 대통령이 4명은 국회가 임명한다. IBNMRR은 Working Group이 있으며 그 구성은 Table 10에 있다.

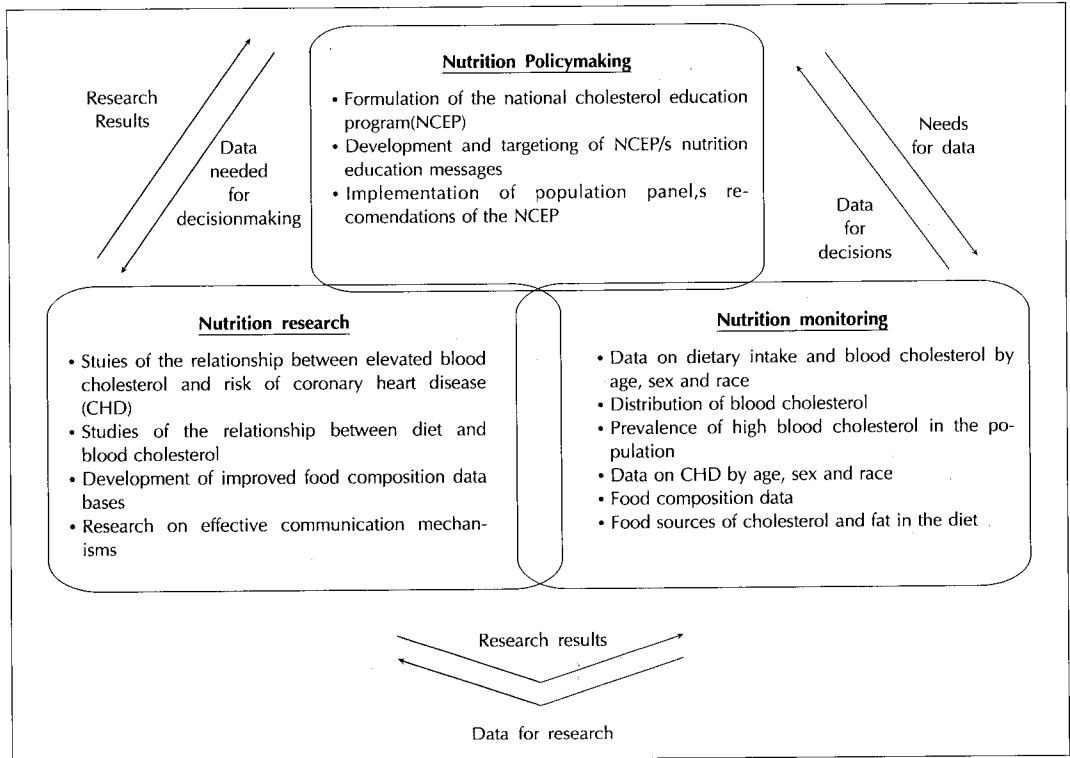


Fig. 2. Illustration of the relationships among nutrition policymaking, research and monitoring with respect to coronary risk factor, biomedical education program.

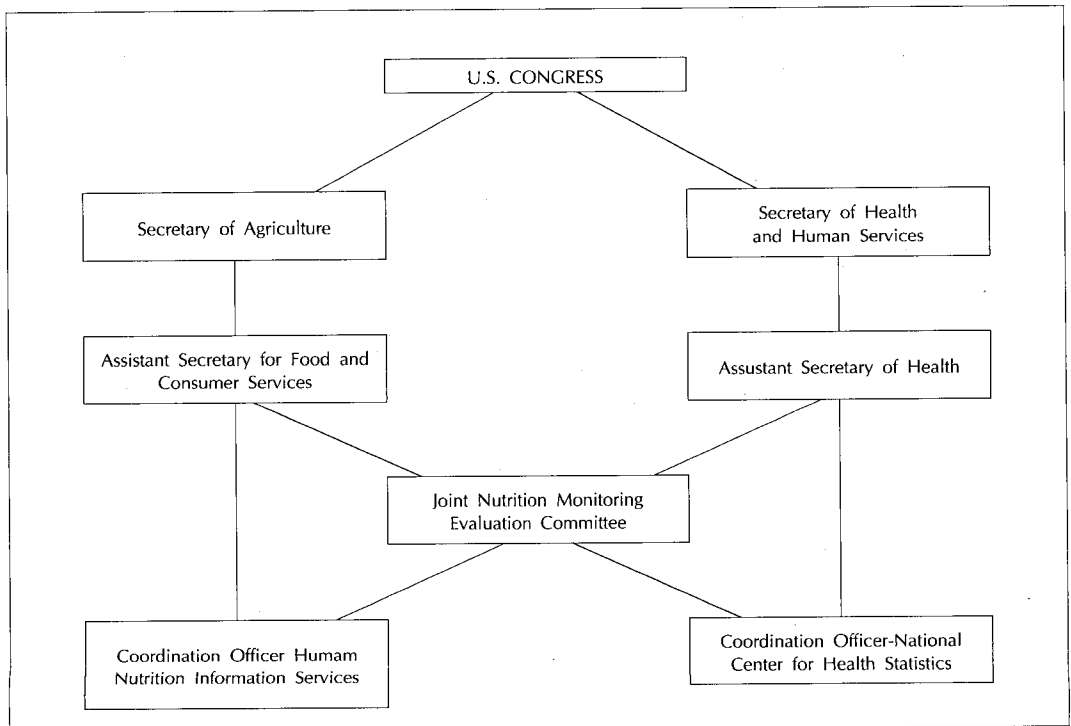


Fig. 3. Relationship of the joint nutrition monitoring evaluation committee to the U.S. department of agriculture and the U.S. department of health and human services.

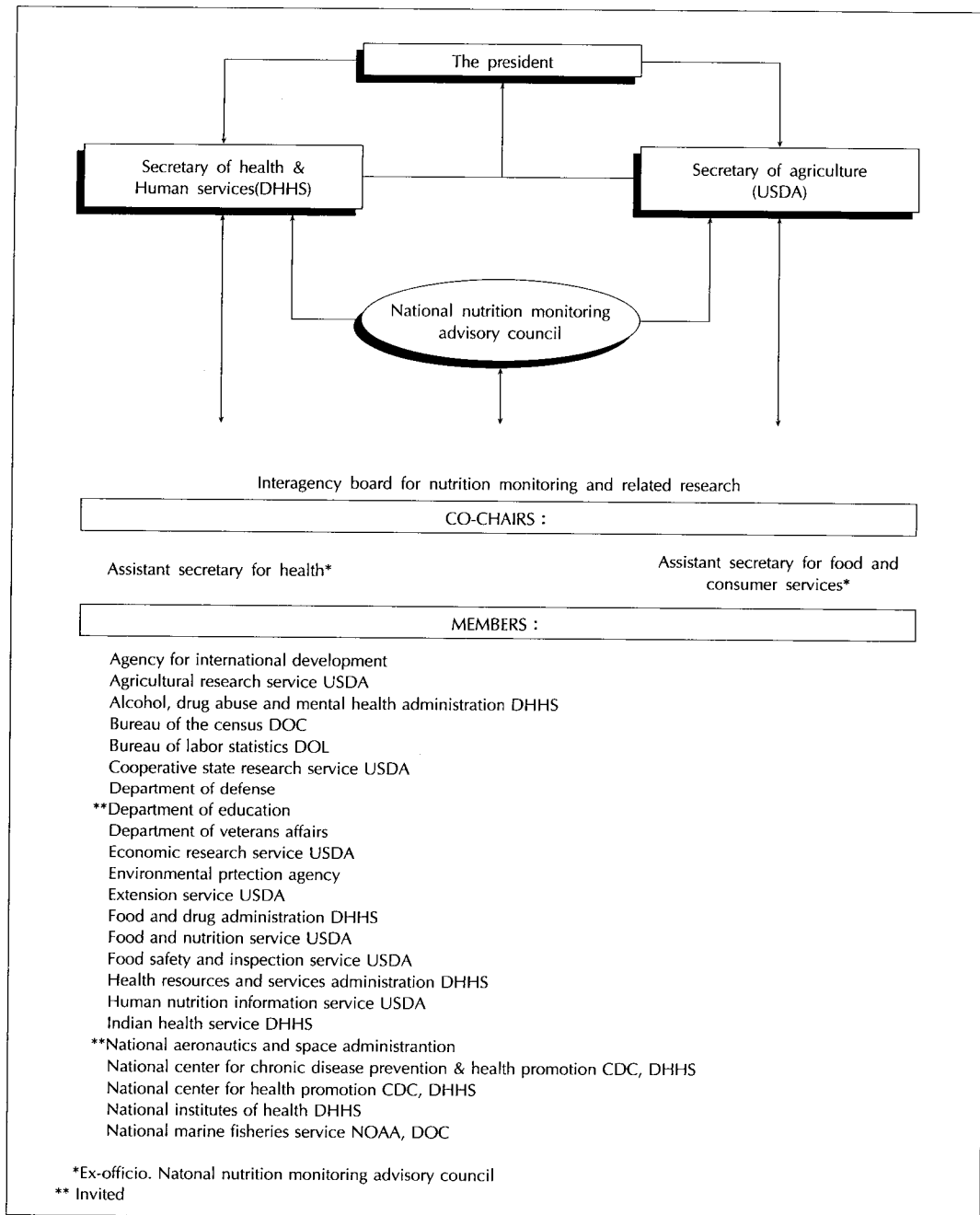


Fig. 4. Structure of federal coordination of the national nutrition monitoring and related research program.

Table 10. Joint DHHS-USDA working group for the development of the comprehensive plan for the national nutrition monitoring and related research program

DHHS member organizations

Administration on aging

Centers for disease control :

 National center for chronic disease prevention and health promotion

 National center for environmental health and injury control

 National center for health statistics*

Food and drug administration

Health resources and services administration

Indian health Services

National institutes of health

Office of disease prevention and health promotion

USDA member organizations

Agricultural research service

Cooperative state research service

Economic Research service

Extension service

Food and nutrition service

Human nutrition information service*

*Co-lead organizations