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***Survey of the Public Health Nutrition
Workforce: 1999-2000***



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Survey of the Public Health Nutrition Workforce

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Executive Summary

The Association of State and Territorial Public Health Nutrition Directors (ASTPHND), with support from a cooperative agreement with the U.S. Department of Agriculture (USDA), conducted a census of the professional and paraprofessional public health nutrition workforce in the states and territories. ASTPHND has conducted periodic profiles of the public health nutrition workforce since 1985. Members of ASTPHND in their respective states and territories conducted the census reported in this paper during 1999-2000. Prior to this, ASTPHND's last survey was conducted in 1994.

The goals of the workforce census were:

- To collaborate with USDA to identify trends in the public health (PH) and community nutrition workforce.
- To determine the capacity of the public health and community nutrition workforce in accomplishing program goals and meeting priority needs.
- To assist USDA and state public health agencies in planning and evaluating their recruitment and retention efforts.
- To identify training needs of public health nutrition personnel working in the Special Supplemental Nutrition Program for Women, Infants and Children (WIC) in relation to their job responsibilities, credentials, education, and longevity.¹
- To measure qualifications of WIC nutrition staff in all states and territories.

The study was designed as a census of persons who work as nutrition professionals or nutrition paraprofessionals in a public health nutrition program such as WIC or in other public health programs or services under the purview of the state health agency. It is important to note that there is considerable variation between states with regard to the programs administered by their state health agencies. For example, state health agencies may or may not have oversight responsibility for Medicaid, the regulation of health facilities, and/or the Child and Adult Care Food Program (CACFP). As a result, some state nutrition directors included nutrition personnel working within these programs in their survey because in their states these personnel are classified as public health nutrition positions. In states where these programs are not administered by the state health agency, nutritionists working within the programs were not surveyed because they were not considered a part of the public health workforce. Although this variation has implications for the conclusions and generalizations that can be made concerning the public health nutrition workforce, ASTPHND has encountered this variability in all of its previous workforce surveys.

ASTPHND designed a 30-item fixed response instrument that required 10-20 minutes to complete. The final questionnaire included questions about the type and location of practice, job classification, source of funding, annual salary, training, education, certification or credentials,

¹ Administered by USDA Food and Nutrition Service, the WIC Program provides nutritious foods, nutrition education, and health care referrals to meet the special nutrition needs of low-income pregnant, postpartum, and breastfeeding women and their infants and children (up to age 5) who are at nutritional risk. For information, visit www.fns.usda.gov/wic/

perceived training needs, participation in professional organizations, and personal characteristics (gender, race and ethnicity, primary and secondary languages). Ease of administration and burden of response, as well as applicability and comparability across states and time, were primary criteria for selection of items. Starting with the instrument used in ASTPHND's 1994 census, the questionnaire was revised, reviewed by stakeholder organizations, pretested and fielded in October 1999. State nutrition directors completed the collection and processing of data by September 2000.

Data were collected on 10,904 positions of which 595 were vacant at the time of data collection. Each state submitted data files to a central location for analysis. The overall estimated response rate for the filled positions, based on transmittal forms supplied by the state directors, was 88 percent (10,309/11,718). The reported state-specific response rates ranged from 45.9 percent (Washington) and 53.4 percent (New Mexico) to 100 percent (Arkansas, Guam, Iowa, Maine, Nevada, Oregon, Puerto Rico, South Dakota, Tennessee, Utah). The most significant difference in state participation compared to the 1994 survey was the participation of California in 1999. With a reported 2,640 public health nutrition professionals and paraprofessionals, California employs nearly 24 percent of the entire workforce surveyed, considerably more than New York (667), Florida (504), or Texas (486).

Highlights

These highlights and other findings are described in greater detail in the section on study findings.

- **The majority of public health nutrition workers are government employees.**

Nearly 68 percent of public health nutrition workers are employees of state or local government health agencies. WIC workers are more likely to be employed in local health agencies (49.3 percent) than in other types of agencies, while the non-WIC workers are most frequently employed by state health agencies (36.6 percent) and local health agencies (34.5 percent). More than one-fourth of the workforce (28.4 percent) is employed by the private sector in not-for-profit organizations. Seventy-five percent of the WIC workers reported their *location of work* to be local health agencies, community health centers or other government field offices. There is no indication that privatization from public agencies to private nonprofits and for-profits or the use of contract workers increased between 1994 and 2000.

- **WIC is the primary funding source for the public health nutrition workforce.**

Ninety percent of the respondents (9,853/10,904) are employed in WIC programs. This represents 81 percent of the total 9,951.5 full-time equivalents (FTEs), and this has not changed significantly since the 1994 census, when 81.7 percent of the FTEs were funded by WIC.² In addition to WIC, other USDA programs such as the Food Stamps Program and the CACFP account for an additional 129 FTEs. State and local funds account for 4.2 percent and 2.6 percent of FTE funding,

² Data on both full-time equivalents and positions were collected and used in data analysis. Respondents were asked whether they worked full- or part-time, and if part-time, to indicate the percent of time. This information was used to calculate full-time equivalents. For example, a full-time position equals one full-time equivalent. Two half-time positions equal one full-time equivalent. The total number of positions, therefore, is greater than the number of full-time equivalents. Each respondent represents one position, but not necessarily one full-time equivalent.

respectively. The U.S. Department of Health and Human Services is the source of funding for another 4.7 percent of FTEs.

- **More than two-thirds (69.2 percent) of the public health nutrition positions are classified as professional, and 30.7 percent are classified as paraprofessional/other.**

Overall, the WIC nutrition workforce includes a higher proportion of paraprofessional positions than does the non-WIC nutrition workforce. Among the WIC nutrition workforce, 67.2 percent indicated they held professional positions, 30.7 percent held paraprofessional positions, and 1.9 percent were breastfeeding peer counselors or other classifications. Among the non-WIC respondents, 87.6 percent were classified in professional positions, but there were very few paraprofessionals — only 4.9 percent.

- **Public health nutrition workers constitute a very experienced workforce.**

More than two-thirds of the non-WIC nutrition workforce indicated 10 or more years of experience in the field of nutrition. Nearly half (47.3 percent) of the WIC nutrition workforce has been practicing nutrition for a similar length of time. Less than 4 percent of the entire workforce had been employed in the nutrition profession for less than one year at the time of data collection. Although their overall tenure in nutrition is less, the WIC workforce and the non-WIC workforce have a comparable amount of long-term experience in *public health* nutrition with 34 percent and 38 percent, respectively, having 10 or more years of work experience.

- **The proportion of registered dietitians (RDs) and registered dietetic technicians (DTRs) in the public health nutrition workforce did not increase between 1994 and 1999.**

In ASTPHND's 1994 survey of the workforce, RDs made up 42.1 percent of the workforce and DTRs 2.4 percent. In 2000, 41 percent of the public health nutrition workforce reported being an RD, and 2.3 percent reported being a DTR. Among the WIC nutrition workforce, 37.6 percent are RDs, and 2.5 percent are DTRs. The proportion of the workforce with a nutrition-related bachelor's degree is higher than the proportion of RDs in the workforce. More than half of the public health nutrition workforce have at least a bachelor's degree in nutrition or dietetics, with the proportion being somewhat higher among non-WIC workers compared to WIC workers (69.5 percent and 53.7 percent, respectively).

- **The public health nutrition workforce is diverse but seemingly less so than WIC participants.**

More than 95 percent of the workers are female. The racial/ethnic identity of WIC workers is more diverse than the non-WIC workforce but less diverse than the WIC participant population. Nineteen percent of the workforce reported being Latino, 11 percent African American, and 8 percent Asian, American Indian, Alaskan Native, Hawaiian, and other Pacific Islanders. Two-thirds of the workforce indicated race as white. Fourteen percent of respondents did not respond to the question — a nonresponse that is considerably higher than expected — making comparisons across time and with other populations difficult. Very few (0.5 percent) indicated multiple categories of race.

- **Eighty-three percent of the nutrition workforce report English as their primary language.**

Many other languages are also spoken. Nearly 30 percent (29.2 percent) speak Spanish as either their primary or secondary language. Thirty-eight percent speak more than one language.

Background

This is a report on the census of the public health (PH) workforce conducted by the Association of State and Territorial Public Health Nutrition Directors (ASTPHND) with partial support from the Food and Nutrition Service, United States Department of Agriculture (FNS, USDA). ASTPHND is a 501(c)(3) professional membership organization founded in 1952 to provide national and state leadership for achieving optimal health through optimal nutrition for the U.S. population. The Association works to strengthen policy, programs and services related to food, nutrition and health through communication, education, and research. The Association's membership is composed of the nutrition director or designee appointed by the chief health official of each U.S. state, territory, possession, and the District of Columbia. A director is defined as the nutrition professional functionally responsible for the direction of the nutrition program of the state health agency. In addition to the directors, the Association's membership includes additional members employed by the state health agency and charged with administrative and/or consultative responsibilities for some aspect of the agency's nutrition program(s). ASTPHND is affiliated with the Association of State and Territorial Health Officials and its family of related state director organizations.³

The USDA, FNS administers the Special Supplemental Nutrition Program for Women, Infants and Children (WIC), which was created by Congress in 1972 to provide nutritious food, nutrition education, and health care referrals to meet the special nutritional needs of low-income pregnant, postpartum, and breastfeeding women, and their infants and children (up to age five) who are at nutritional risk. The program seeks to meet the special nutritional needs of these individuals and to prevent health and developmental problems associated with poor nutrition during pregnancy and early childhood.

State public health nutrition directors provide leadership in the assessment and development of the public health nutrition workforce in their respective states and territories. They are responsible for coordination of publicly supported nutrition programs, services and policies across funding streams. They serve as an interface with local, state and federal nutrition programs, including WIC. State nutrition directors use descriptive information about the public health nutrition workforce in their respective states and territories to support recruitment and retention efforts, design training programs, and advise on licensure and certification policy. In many state health agencies, the state nutrition director also functions as the state WIC director. In other state health agencies, the state nutrition directors provide expert assistance to WIC officials in implementation of the program.

In part, the state nutrition directors are responsible for ensuring a trained workforce to carry out state public health nutrition programs and policies. To assist in carrying out this responsibility, ASTPHND has conducted periodic surveys and censuses to describe the training, qualifications and practice areas of the public health nutrition workforce. From 1985 through 1994, ASTPHND, working through its membership of state public health nutrition directors, completed five biennial census-profiles of the state public health nutrition workforce. Reports described the workforce in terms of place and length of employment, source of support and compensation, formal education,

³ For information on other ASTPHND activities, visit www.astphnd.org

certification, training received and needed, and type of position. Information on race, ethnicity and language was first gathered in the census of 1994. These descriptive data were aggregated across the responding states and territories to provide a national profile of the public health nutrition workforce. ASTPHND received support from the U.S. Department of Health and Human Services, Health Resources and Services Administration, Maternal and Child Health Bureau (USDHHS/HRSA/MCHB) to assist with the costs of conducting the profiles in 1991 and 1994. Before that, ASTPHND worked collaboratively with the University of North Carolina at Chapel Hill School of Public Health to collect and analyze the data.

Because 85 percent of the 1994 workforce was WIC-supported, the ASTPHND leadership approached the USDA-FNS seeking cooperation and support for the most recent survey. USDA-FNS and ASTPHND entered into a cooperative agreement on September 30, 1998, which resulted in the study reported here. The 1999-2000 study is the first to be conducted under the auspices of the USDA-FNS. Although data collection began in 1999 and concluded in 2000, throughout this report, the year 2000 is used to refer to the time period of the study.

USDA's Objectives

In its support of this project, USDA-FNS sought to meet several objectives and needs. Officials wished to monitor trends in the education and credentialing, work experience, areas of practice, and the training needs of the public health nutrition workforce at the state and local government levels. A profile describing the public health nutrition workforce was expected to supplement other assessments and assist the FNS in determining the extent to which the current and future workforces have the qualifications to help carry out the mission of the WIC Program.

A very specific objective of the study, therefore, was based upon objective 3.3 of the USDA strategic plan for 1997-2002 — *improved nutritional qualifications of state and local WIC staff*, with the performance measure being to increase the percent of registered dietitians (RD) or RD-eligible persons in WIC programs from 48 to 50 and the percent of registered dietetic technicians (DTR) from 2 to 4.⁴

Nutrition Objectives and Healthy People 2010

“Healthy People 2010” is the prevention agenda for the United States. It is a statement of national health objectives designed to identify the most significant preventable threats to health and to establish national goals to reduce these threats. Of the more than 400 health objectives delineated in “Healthy People 2010,”⁵ there are 18 in Focus Area 19 – Nutrition and Overweight, and numerous nutrition-related objectives in other Focus Areas. Public health nutrition professionals and paraprofessionals have multiple roles in helping the nation achieve these objectives. Registered dietitians and other practitioners may affect health outcomes through nutrition screening, assessment, and primary and secondary prevention. Public health

⁴ According to ASTPHND's 1994 survey, 44.3 percent of the WIC nutrition workforce was either RD or RD-eligible. USDA-FNS has subsequently acknowledged that the baseline percentage for RDs and RD-eligibles in this particular objective (48 percent) was in error and should have been the percentage identified in ASTPHND's 1994 survey.

⁵ For information, visit www.healthypeople.gov

nutritionists, working with policymakers and program planners at the national, state, and community levels, must provide leadership in fostering healthy diets and improving physical activity patterns among people in the United States at schools, work sites, institutional food services, and at home.

Although not explicitly addressed in “Healthy People 2010,” the nutrition-related objectives cannot be accomplished without a trained public health nutrition workforce with the knowledge, skills, and resources to plan and implement effective programs and services, and to develop the appropriate policies to affect change across population segments. Of particular concern is the extent to which nutritionists are being prepared to promote the prevention of obesity and nutrition-related chronic diseases. Public health nutritionists also have a role in the elimination of racial, ethnic, gender, age and income disparities affecting health status.

Also receiving attention in “Healthy People 2010” is the need to strengthen the public health infrastructure. The 1997 report, “The Public Health Workforce: An Agenda for the 21st Century,” identifies five areas to be strengthened: national leadership, state and local leadership, workforce composition, curriculum development, and distance learning. The report also points out that data systems are needed to track the extent to which the workforce has the knowledge, skills, and abilities to carry out its functions. In addition to expertise in their disciplines and specialties, public health workers, including nutritionists, must be able to carry out the essential public health services as they apply to their specific functions. The public health nutrition workforce must be able to use information technology for networking, communication, and locating current information. The workforce is expected to be culturally and linguistically competent. Workers need to be technically competent in areas such as biostatistics, environmental and occupational health, the social and behavioral aspects of health and disease, and the practice of prevention.

Toward these ends, the U.S. Department of Health and Human Services Health Resources and Services Administration (HRSA) and Centers for Disease Control and Prevention (CDC), in partnership with national public health associations, are undertaking efforts to improve training and continuing and distance education of the public health workforce, as well as to establish credentialing and systems performance standards. For example, the National Public Health Performance Standards Program is an effort to develop performance standards for state and local health systems and local boards of health.⁶ In conjunction with these activities, an effort is also under way to make recommendations on the enumeration of the public health workforce and to identify approaches to an enumeration. “Enumerating the Public Health Workforce,” prepared for HRSA by the Public Health Society and the Center for Health Leadership and Practice (unpublished, June 1, 2001), became available to ASTPHND as this report was being written.⁷ The enumeration report discusses the need for and the difficulties in enumerating the public health workforce. It delineates four approaches to enumeration. The ASTPHND census contains some elements of each of the four:

⁶ For information, visit the National Association of City and County Health Organizations and Centers for Disease Control and Prevention sites at www.naccho.org or www.phppo.cdc.gov/takesurvey/WebBasedToolInstructions.asp#

⁷ For information about the enumeration of the public health workforce initiative, visit www.nursing.hs.columbia.edu/dept/nursing/institute-centers/chphsr For information about the health professional workforce by discipline and for state profiles, visit <http://bhpr.hrsa.gov/healthworkforce/profiles/default.htm>

- ◆ Work setting/employing entity – The ASTPHND census focuses on WIC programs and government health agencies as employing/funding entities. Information was collected on both employing entity and work setting or location.
- ◆ Job title – The ASTPHND census was intended to include persons/positions with the term nutrition or nutritionist in the job title, although it was not entirely restricted to those positions.
- ◆ Function – The ASTPHND census focused on persons/positions who performed the work of professional and paraprofessional public health nutritionists.
- ◆ Occupation and professional training – The ASTPHND census collected information on the professional training and certification of each member of the public health nutrition workforce. However, it was not restricted to registered dietitians or licensed nutritionists.

The enumeration report also delineated core data that would be useful for any enumeration. Although it was not an intended goal of the ASTPHND census, in retrospect it appears that most of the recommended minimum data set has been collected for this report. ASTPHND is pleased to have made a contribution in this regard to the important task of enumerating the public health workforce. Data elements collected for this report are compared with recommended elements in Table 1.

Table 1

Core Data Elements Recommended in “Enumerating the Public Health Workforce” Compared to Data Collected in the ASTPHND Survey

Recommendations from “Enumerating the Public Health Workforce”	Data Elements in ASTPHND’s Survey
Total Number of staff	Yes, by state, agency, job class and other variables
FTEs	Yes, by funding source
Occupation class	Yes, 9-category scheme
Job function	Yes, 10 categories of practice, percent time in direct service, type of client population, budget responsibilities, FTEs supervised or line responsibility
Location	Yes, state, type of agency of employment, type of work-setting
Age	No
Education level	Yes, degrees completed, public health degrees completed, degrees working toward, completion of 5 core public health courses
Credentials	Yes, 12 certifications relevant to nutrition, steps toward RD or DTR
Experience	Yes, years in nutrition, public health nutrition, WIC programs
Salary range	Yes, but high nonresponse, by job classification
Ethnicity	Yes, Latino
Race	Yes, OMB ⁸ approved categories
Gender	Yes
Language	Yes, primary and any secondary, sufficient fluency to do job

⁸ The Federal Office of Management and Budget at www.whitehouse.gov/omb/fedreg/directive_15.html

Goals

Within this framework, the goals of ASTPHND's workforce study were:

- To collaborate with USDA to identify trends in the public health and community nutrition workforce.
- To determine the capacity of the public health and community nutrition workforce in accomplishing program goals and meeting priority needs.
- To assist USDA and state public health agencies in planning and evaluating their recruitment and retention efforts.
- To identify training needs of WIC personnel in relation to their job responsibility, credentials, education, and longevity.
- To measure qualifications of WIC nutrition staff in all states and territories.

Study Methods

The study was designed as a census of persons who worked as nutrition professionals or nutrition paraprofessionals in a public health nutrition program such as WIC or in other public health programs or services under the purview of the state health agencies and Indian Tribal Organizations. Full- and part-time employees as well as contract positions were included. Persons who worked in a support capacity or in another profession in a public health nutrition program, such as nurses who functioned as certifying officials in WIC clinics, were not included.

States vary with regard to the programs administered by the state health agency, a feature that had many advantages, but diminished central control of data collection and contributed to variation in inclusion, response rates, and data quality across states.

A 30-item fixed response instrument that required 10-20 minutes to complete was designed, using the experience with the 1994 ASTPHND workforce study, as well as the expertise of the ASTPHND Data and Epidemiology Committee and reviewers representing various national organizations. (See Appendix A for a list of the ASTPHND committee members.) Ease of administration and response burden, as well as applicability and comparability across states and time, were primary criteria for inclusion/exclusion of items. An abbreviated version consisting of nine items was constructed to collect information on vacant positions. A protocol and tracking form was developed to collect information from state nutrition directors to use in calculating state specific and overall response rates.

The survey was built upon state-centralized data collection, as well as state-level editing and data entry. Hard-copy packets of survey administration materials were mailed to 55 state and territorial nutrition directors/designees on September 5, 1999, and electronic copies were e-mailed the following week.⁹ These directors were then responsible for distributing the uniform questionnaire to nutrition workers within their respective states and territories. The package consisted of:

- Five-page instructions for conducting the survey (Appendix B).
- Two forms (*Transmittal to State* form and *Transmittal to ASTPHND* form) to assist with record keeping and tracking response rates (Appendix B).
- The questionnaire for copying and distribution (Appendix C).
- A vacant-position questionnaire for copying and distribution (Appendix C).

In October 1999, hard-copy packets of survey administration materials were mailed to the 33 Indian Tribal Organizations (ITOs) that administer WIC Programs. The packet included survey instructions, questionnaires, vacant-position questionnaires, and transmittal forms. Because the survey was to be administered to WIC personnel working in the ITOs, training sessions were not deemed necessary, however, the project consultant was available for technical assistance by telephone.¹⁰ Questionnaires from the ITOs were returned to a central location for data entry.

The state nutrition directors were also responsible for data entry, so instructions for data entry and

⁹ In Idaho and American Samoa there were no designees, so packets were mailed to WIC directors.

¹⁰ The project consultant was Mary McCall, co-author of this report, Washington, D.C.

EpiInfo programs for data entry and editing were distributed the following month by diskette or the Internet.¹¹ Upon request, technical assistance was provided via telephone by the project consultant throughout the data collection and entry period.

The surveys were administered between November 1999 and June 2000, however, one state did not submit its data until September 22, 2000. Although the state nutrition directors had the option of distributing the questionnaire by mail, fax or e-mail, or a combined approach, most chose to survey the workforce by mail. State nutrition directors sent data files by Internet or disk to the project consultant who conducted various edit checks and worked with them or their representatives to resolve problems and inconsistencies.

Forty-nine states participated.¹² Guam, District of Columbia, the Virgin Islands and Puerto Rico also participated. Twenty of the 33 Indian Tribal Organizations responded, and of those, the worker response rate was approximately 50 percent. Vacant positions were not included in computations of response rates.

As indicated in Table 2, the overall estimated response rate, based on transmittal forms supplied by the state directors, was 88 percent (10,309/11,718). The reported state-specific response rates ranged from 45.8 to 100 percent. Although a process for estimation of the state-specific and overall response rates was provided, initial submissions suggested that not all state survey administrators had maintained the required records. The most significant improvement in participation over the 1994 survey was the participation of the state of California. With a reported 2,640 public health nutrition professionals and paraprofessionals, California employs nearly 24 percent of the entire workforce surveyed, considerably more than any other state – a factor that was taken into account in describing changes in the workforce since 1994.

EpiInfo was also used for data analysis. Data analysis is univariate or bivariate and descriptive, relying on percentages and, for several variables, measures of central tendency. It is suggested that the reader refer to the questionnaire in Appendix C and consider the phrasing of questions and the response categories when interpreting findings. For some workforce characteristics, including employing agency and location, findings include the vacant positions. Other characteristics, including academic preparation, training and certification, only apply to the position incumbents (i.e., “filled” positions). Findings are presented for the PH nutrition workforce in WIC (WIC workforce) and compared to the PH nutrition workforce not involved with the WIC program (i.e., the non-WIC workforce).

Because item nonresponse was generally high, and very high for several variables including salary and race, the nonresponses have been retained in the denominators and the percentages of nonrespondents are shown in the tables. In addition to variation in nonresponse across questionnaire items, there is considerable difference in item nonresponse by job category, with response rates being higher at the upper levels of the job classification categories.

A more detailed description of the study design can be found in Appendix D.

¹¹ For information on EpiInfo visit www.cdc.gov

¹² Idaho was the exception.

Table 2
Response Rates Reported by States

State	Responses/ Total Workforce	Response Rate	State	Responses/ Total Workforce	Response Rate
Alabama	77/78	98.7%	Montana	34/46	73.9%
American Samoa	None		Nebraska	88/99	88.9%
Alaska	31/35 ¹³	88.6%	Nevada	71/71	100.0%
Arizona	289/350	82.6%	New Hampshire	40/60	66.7%
Arkansas	55/55	100.0%	New Jersey	103/104	99.0%
California	2513/2640	95.2%	New Mexico	94/176	53.4%
Colorado	235/306	76.8%	New York	638/667	95.7%
Connecticut	90/132	68.2%	North Carolina	365/401	91.0%
Delaware	23/27	85.2%	North Dakota	91/92	98.9%
District of Columbia	38/39	97.4%	Ohio	387/455	85.1%
Florida	414/504	82.1%	Oklahoma	82/99	82.8%
Georgia	195/214	91.1%	Oregon	198/198	100.0%
Guam	23/23	100.0%	Pennsylvania	342/394 ¹⁴	86.8%
Hawaii	43/47	91.5%	Puerto Rico	94/94	100.0%
Idaho	None		Rhode Island	36/56	64.3%
Illinois	323/326	99.1%	South Carolina	161/172	93.6%
Indiana	192/201	95.5%	South Dakota	33/33	100.0%
Iowa	112/112	100.0%	Tennessee	175/175	100.0%
Kansas	91/110	82.7%	Texas	421/486	86.6%
Kentucky	100/117	85.5%	Utah	64/64	100.0%
Louisiana	128/142	90.1%	Virgin Islands	16/17	94.1%
Maine	70/70	100.0%	Vermont	18/18	100.0%
Maryland	159/180	88.3%	Virginia	206/221	93.2%
Massachusetts	329/377	87.3%	Washington	60/131	45.8%
Michigan	130/179	72.6%	West Virginia	82/87	94.3%
Minnesota	254/317 ¹⁵	>80.0%	Wisconsin	189/199	95.0%
Mississippi	69/105	65.7%	Wyoming	21/28	75.0%
Missouri	164/284	57.7%	ITOs (20/33) ¹⁶	53/105	50.5%
			Total	10309/11718	88.0%

¹³ The designee estimated that there were 35 licensed nutritionists in WIC.

¹⁴ Three local agencies did not respond. The number of workers in those agencies was not reported so they are not reflected in the denominator.

¹⁵ The designee was not able to report on the number of workers to whom the questionnaire was distributed, but believed that more than 80 percent had responded; therefore, 317 was estimated as the denominator.

¹⁶ Only 20 of the 33 ITOs participated. Of those 20 responding, the questionnaire was distributed to 105 workers. Fifty-three completed the questionnaire.

Study Findings

WIC's Presence in the Public Health Nutrition Workforce

More than 90 percent of the respondents indicated they worked in WIC at the time of the survey (Table 3). In the 1994 ASTPHND workforce survey, 85.4 percent reported WIC as an area of practice. Because California did not participate in the 1994 survey and because California's data represent 24 percent of the 2000 workforce, analyses were performed to determine the impact of California's data on the percentage of the workforce working in WIC in 2000. It was determined that without California's data, the percentage of the total public health nutrition workforce working in WIC in 2000 was 89.4.¹⁷

Working in WIC*	9853	90.4%
Not Working in WIC	1026	9.4%
No Response	25	0.2%
Total **	10904	100%

*Includes non-WIC funded persons and positions.

**Includes information on vacant and part time positions.

Agency of Employment and Primary Work Location of the Public Health Nutrition Workforce

Nearly 70 percent (67.8 percent) of public health nutrition workers were employed by state or local government health agencies, and nearly half (47.9 percent) at the local level (Table 4). Non-WIC workers were slightly more likely to be employed by state health agencies (36.6 percent) than local agencies (34.5 percent) while the WIC component of the workforce more typically worked for local health agencies (49.3 percent). The private sector—primarily nonprofit organizations—accounted for the employment of 29.1 percent of the total workforce. WIC workers, compared to their non-WIC counterparts, were somewhat more likely to be working for nonprofit organizations (29.5 vs. 18.5 percent). Few public health nutrition workers were employed by for-profit organizations.

Work location may differ from place of employment as shown in Table 5. One-third (33.5 percent) of the WIC respondents indicated that their primary work location was a central office of either the state health agency, a subunit of the state health agency, or a local health agency. Only 3.8 percent of the WIC nutrition workforce actually worked in the central office of the state health agency. One-fourth (25.5 percent) of the WIC respondents worked in a health center or clinic run by a community, rural, or migrant agency; and one-fifth (20.5 percent) worked in a field office or clinic of a government health agency. Only 18.5 percent of the non-WIC positions had work locations in the central office of the state health agency. More than one-half (54.1 percent) of the non-WIC nutrition positions had a primary work location in the central office of either the state health agency, a sub-unit of the state health agency, or a local health agency.

Table 4

¹⁷ The California workforce reported consisted of 2,448 WIC workers and 169 non-WIC workers.

Agency of Employment (Question 1)*						
Type of Agency	WIC		Non-WIC		Total**	
State Health Agency	1794	18.2%	376	36.6%	2172	19.9%
Local Health Agency	4859	49.3%	354	34.5%	5225	47.9%
Indian Tribal Organization	125	1.3%	28	2.7%	153	1.4%
Nonprofit	2909	29.5%	190	18.5%	3101	28.4%
For-Profit	55	0.6%	17	1.7%	72	0.7%
Other	88	0.9%	59	5.8%	148	1.4%
No Response	23	0.2%	2	0.2%	33	0.3%
Total	9853	100.0%	1026	100.0%	10904	100.0%

*Includes information on vacant positions.

**The totals are greater than WIC and non-WIC combined due to nonresponse to Question 7.

Table 5
Primary Work Location (Question 2)*

Location	WIC		Non-WIC		Total**	
State Health Agency (SHA) Central Office	378	3.8%	190	18.5%	569	5.2%
Sub-SHA Central Office	238	2.4%	85	8.3%	324	3.0%
Local Health Agency Central Office	2694	27.3%	280	27.3%	2978	27.3%
Community Health Center	2508	25.5%	96	9.4%	2604	23.9%
Field Office / Clinic of Govt. Agency	2024	20.5%	119	11.6%	2149	19.7%
HMO*** or Managed Care Setting	43	0.4%	2	0.2%	45	0.4%
Hospital	456	4.6%	112	10.9%	570	5.2%
IHS, ITO****, or Tribal Health Center	131	1.3%	25	2.4%	156	1.4%
Other Private Entity	1045	10.6%	40	3.9%	1086	10.0%
Other	305	3.1%	73	7.1%	380	3.5%
No Response	31	0.3%	4	0.4%	43	0.4%
Total**	9853	100%	1026	100%	10904	100%

*Includes information on vacant positions.

**The total is greater than WIC and non-WIC combined due to nonresponse to Question 7.

*** Health Maintenance Organization

****Indian Health Service, Indian Tribal Organization

Job Classification of the Public Health Nutrition Workforce

Respondents were asked to classify their jobs using the position titles and responsibilities delineated in “Personnel in Public Health Nutrition for the 1990s” (Table 6). A description of each job classification was included in the questionnaire. This classification system includes both professional job classifications (public health nutrition director, assistant public health nutrition director, public health nutrition supervisor, public health nutrition consultant, public health nutritionist, clinical nutritionist, and nutritionist) and paraprofessional job classifications (nutrition technician and nutrition assistant or aide). As described in Appendix D (Study Design – Completion of Data Analysis), the category of “breastfeeding counselor” was not included in the questionnaire as a fixed-response choice, but was added as a result of recoding the responses,

which were written in the “other” category. Thus the number of responses may under-represent the actual number of workers in this category.

Table 6
Titles and Descriptions of Public Health Nutrition Job Classifications From “Personnel in Public Nutrition for the 1990s”

Title of Job Classification	Description
Public Health Nutrition Director	The highest-level nutrition position in a state, large city, county or voluntary public health agency. Major functions of this position are policy-making, planning/evaluation, fiscal control, management and supervision. The position is usually the head of a nutrition program unit, where the director is responsible for conducting a needs assessment, developing a comprehensive plan and budget for the nutrition services of the agency and has line authority over staff.
Assistant Public Health Nutrition Director	The second highest administrative and policy-making public health nutrition position in a state, large city, county or voluntary public health agency. The assistant director may participate in several delegated functions or be assigned primary responsibility for managing the nutrition component of one or more major program areas. The person in this position serves as Acting Director in the director's absence.
Public Health Nutrition Supervisor	Supervises the work of an assigned number of other nutritionists, nutrition technicians, and nutrition assistants that deliver nutrition services and nutritional care in the public health agency. Supervision includes training, delegating, directing, coordinating, evaluating and reporting the work of subordinates.
Public Health Nutrition Consultant	Includes both generalized and specialized nutrition consultants who provide expert technical assistance, professional guidance, and in-service education in program development or case management. Consultation may be given to the administrator, other nutritionists or other health professionals. Consultants include those who work out of a central headquarters office or in the health agency's regional or district offices.
Public Health Nutritionist	A nutrition professional with academic training in public health who is employed by the state or local public health agency to assess the community's nutrition needs and to plan, direct and evaluate community nutrition intervention programs that meet these needs. Interventions promote health and prevent disease among the population at large.
Clinical Nutritionist	A professional with expertise in the complex nutritional management of medically high risk individuals requiring physician-prescribed dietary and nutrition regimens including enteral and parenteral nutrition support. In public health agencies, clinical nutritionists work as case managers and/or care coordinators and nutrition counselors. They also may work as educators in programs where more in-depth expertise in therapeutic nutrition is required, including high-risk pregnancy, neonatal and pediatric clinics; children's special services; AIDS; and home health and home hospice services.
Nutritionist	A nutrition professional employed in a public health agency primarily to provide nutrition education to the public and to coordinate and provide direct nutritional care to agency clients in health and disease throughout the life span.
Nutrition Technician	A paraprofessional who works under the close supervision of a nutritionist to provide routine technical support services in public health agency clinics. This work includes normal nutrition education, screening using prescribed protocols, record keeping, and outreach.
Nutrition Assistant or Nutrition Aide	An auxiliary nutrition worker from the indigenous community who is trained on-the-job to work under the close supervision of nutrition professionals to provide routine nutrition education, including interpretation for clients who do not speak English. Assistants and aides also carry out assigned tasks in client outreach and screening.

Overall, the WIC workforce includes a higher proportion of paraprofessional positions than does

the non-WIC workforce. Among the WIC nutrition workforce, 67.2 percent indicated they held professional positions, 30.7 percent held paraprofessional positions, and 1.9 percent were breastfeeding peer counselors or other classifications. The *nutritionist* classification — which is typically an entry-level professional position — was the most frequently reported classification, with 33.7 percent of all WIC respondents selecting it (Table 7).

Among the non-WIC respondents, 87.6 percent indicated they were classified in professional positions. Very few non-WIC paraprofessional classifications were reported — only 4.9 percent. *Clinical nutritionist* was the most frequently reported classification, with 24.8 percent of all non-WIC respondents selecting it (Table 7).

Table 7
Job Classifications (Question 4)*

Classification	WIC		Non-WIC		Total**	
PH Nutrition Director	400	4.1%	43	4.2%	443	4.1%
Asst PH Nutrition Director	118	1.2%	22	2.1%	140	1.3%
PH Nutrition Supervisor	1011	10.3%	59	5.8%	1070	9.8%
PH Nutrition Consultant	366	3.7%	181	17.6%	547	5.0%
PH Nutritionist	918	9.3%	193	18.8%	1111	10.2%
Clinical Nutritionist	487	4.9%	254	24.8%	743	6.8%
Nutritionist	3323	33.7%	151	14.7%	3476	31.9%
Nutrition Technician	1295	13.1%	17	1.7%	1316	12.1%
Nutrition Assistant	1734	17.6%	33	3.2%	1769	16.2%
BF Counselor	37	0.4%	0	0%	41	0.4%
Other	146	1.5%	69	6.7%	218	2.0%
No Response	18	0.2%	4	0.4%	30	0.3%
Total	9853	100%	1026	100%	10904	100%

*Includes information on vacant positions.

**The total is greater than WIC and non-WIC combined due to nonresponse to Question 7.

Years of Practice in Nutrition/Dietetics, Public Health Nutrition, and WIC

The public health nutrition workforce represents many years of experience in nutrition, public health nutrition, and the WIC program. Approximately one-third (30.1 percent) of the WIC nutrition workforce has more than 10 years of experience working in WIC (Table 8). A slightly higher proportion — 33.7 percent — has worked in public health nutrition for a similar period. Nearly half (47.3 percent) have worked in nutrition for more than 10 years.

More than one-third (38.2 percent) of the WIC nutrition workforce has worked in WIC for less than five years (Table 10). It is interesting to note that 3,417 of the WIC respondents (36.6 percent) indicated they had worked in public health nutrition (including WIC) for less than five years, yet more (3,564 or 38.2 percent) indicated they had worked in WIC for less than five years.

Among respondents that do not work in WIC, about two-thirds (67.7 percent) have more than 10

years of experience in nutrition, while only 38.4 percent have more than 10 years of experience in public health nutrition (Table 8). A large proportion of the non-WIC nutrition workforce (35.1 percent) has less than five years of experience in the field of public health nutrition, but only 17 percent have less than five years of experience in the field of nutrition/dietetics including public health nutrition. This might indicate that nutrition personnel do not enter the field of public health early in their careers.

Because the job classification compositions of the WIC and non-WIC workforce are very different, the years of practice of WIC paraprofessionals (nutrition assistant, nutrition technician, breastfeeding counselor and other) were compared with WIC professionals (Table 9). The results indicate that among the WIC workforce, persons classified as nutrition professionals tend to have more years of experience in both general nutrition and public health nutrition than do paraprofessionals and “others.” About 35 percent of the WIC professional workers have less than five years of experience in public health nutrition, compared to nearly 40 percent of WIC paraprofessionals; 24 percent of WIC professionals and more than 35 percent of WIC paraprofessionals have less than five years of experience in general nutrition. Likewise, the upper categories of years of practice also have higher proportions of WIC professionals compared to WIC paraprofessionals. For example, 55.4 percent of professionals have more than 10 years of experience in nutrition compared to 31.2 percent of paraprofessionals. Also, more WIC professionals have more than 10 years of experience in public health nutrition compared to WIC paraprofessionals.

When examining years of practice in WIC, differences between WIC professionals and WIC paraprofessionals are somewhat less pronounced. Table 10 shows that 32.5 percent of professional WIC workers have been working in WIC for 10 years or more compared to 25.2 percent of their paraprofessional colleagues. A similar proportion of WIC professionals and WIC paraprofessionals have less than five years of WIC experience, 37.9 percent and 39 percent, respectively.

Table 8
Years of Practice in Nutrition and Public Health Nutrition (Questions 5 and 6) – A Comparison of WIC and Non-WIC Positions

Years	WIC				Non-WIC			
	Nutrition		PHN		Nutrition		PHN	
<1	339	3.6%	512	5.5%	36	3.8%	98	10.3%
1-4	2275	24.4%	2905	31.1%	126	13.2%	237	24.8%
5-9	2226	23.9%	2675	28.7%	145	15.2%	243	25.4%
10-19	2944	31.6%	2565	27.5%	352	36.9%	269	28.2%
≥20	1469	15.7%	580	6.2%	294	30.8%	97	10.2%
No response	77	0.8%	93	1.0%	2	0.2%	11	1.2%
Total	9330	100%	9330	100%	955	100%	955	100%

Table 9

Years of Practice in Nutrition and Public Health Nutrition (Questions 5 and 6) – A Comparison of WIC Professionals and WIC Paraprofessionals

Years	WIC Professionals				WIC Paraprofessionals			
	Nutrition		PHN		Nutrition		PHN	
<1	185	3.0%	340	5.5%	154	4.9%	172	5.5%
1-4	1299	21.0%	1840	29.7%	975	31.3%	1064	34.2%
5-9	1270	20.5%	1700	27.4%	950	30.5%	969	31.1%
10-19	2160	34.8%	1867	30.1%	777	25.0%	691	22.2%
≥20	1277	20.6%	437	7.0%	192	6.2%	143	4.6%
No Response	8	0.1%	15	0.2%	66	2.1%	75	2.4%
Total	6199	100.0%	6199	100.0%	3114	100.0%	3114	100.0%

Table 10

Years of WIC Experience (Question 7) – A Comparison of WIC Professionals and WIC Paraprofessionals*

Years	Professionals		Paraprofessionals**		Total	
<1	390	6.3%	183	5.9%	573	6.1%
1-4	1961	31.6%	1027	33.0%	2991	32.1%
5-9	1684	27.2%	912	29.3%	2600	27.9%
10-19	1699	27.4%	650	20.9%	2355	25.2%
≥20	316	5.1%	135	4.3%	451	4.8%
No Response	149	2.4%	207	6.6%	360	3.9%
Total	6199	100.0%	3114	100.0%	9330	100.0%

*Filled positions currently working in WIC.

** Includes the following job categories (Question 4): nutritionist technician, nutrition aide, breastfeeding counselor, and others.

Personnel Management and Budget Responsibilities of the Workforce

“Personnel in Public Health Nutrition for the 1990s” identifies three professional job classifications with management and budgetary responsibilities: public health nutrition director, assistant public health nutrition director, and public health nutrition supervisor. The degree to which the public health nutrition workforce resembles this classification system is quite high.¹⁸

Ninety-three percent of the public health nutrition directors, 79 percent of assistant public health nutrition directors, and 95 percent of the public health nutrition supervisors reported some supervisory responsibilities including both nutrition and non-nutrition positions (Table 11). Ninety percent of the public health nutrition directors, 74 percent of the assistant public health nutrition directors, and 88 percent of the public health nutrition supervisors supervised one or more *nutrition* positions (Table 12).

Only 20 percent of the other four professional job classifications — public health nutrition consultant, public health nutritionist, clinical nutritionist, and nutritionist — reported supervisory

¹⁸ See Table 6 for descriptions of the position titles included in the questionnaire.

responsibilities (Table 11). And only 12 percent of these four classifications reported supervising one or more *nutrition* positions (Table 12).

Of the 437 respondents who classified themselves as public health nutrition directors, two-thirds (65.7 percent) indicated they had responsibility over their agency's entire nutrition budget, while one-fourth (26.3 percent) had responsibility only for a specific budget (Table 13). Respondents in other classifications with budget responsibilities typically were responsible only for specific budgets (e.g., 40.1 percent of the assistant public health nutrition directors were responsible for specific budgets).¹⁹

¹⁹ It should be noted that if the only public health nutrition service offered by an agency was WIC, then a respondent who was responsible for the WIC budget might have indicated responsibility for the entire agency's nutrition budget.

Table 11

Total FTEs (including nutrition and non-nutrition positions) Supervised by Professional Job Classifications (Question 8)

Job Classification	Number of FTEs Supervised					NR*	Total
	None	1-4	5-9	10-19	≥20		
PHN Director	16 3.7%	77 17.6%	121 27.7%	108 24.7%	100 22.9%	15 3.4%	437 100%
Asst. PHN Director	21 15.3%	31 22.6%	33 24.1%	21 15.3%	23 16.8%	8 5.8%	137 100%
PHN Supervisor	40 3.9%	346 33.6%	343 33.3%	209 20.3%	75 7.3%	16 1.6%	1029 100%
PHN Consultant	414 80.2%	44 8.5%	8 1.6%	2 0.4%	8 1.6%	40 7.8%	516 100%
PH Nutritionist	735 72.9%	145 14.4%	51 5.1%	19 1.9%	1 0.1%	57 5.7%	1008 100%
Clinical Nutritionist	551 81.8%	60 8.9%	24 3.6%	0 0.0%	4 0.6%	35 5.2%	674 100%
Nutritionist	2354 72.7%	472 14.6%	179 5.5%	49 1.5%	13 0.4%	170 5.3%	3237 100%

*Nonresponse to Question 8 may also indicate no FTEs supervised.

Table 12

Nutrition FTEs Supervised by Professional Job Classifications (Question 9)

Job Classification	Number of FTEs Supervised					NR*	Total
	None	1-4	5-9	10-19	≥20		
PHN Director	15 3.4%	176 40.3%	113 25.9%	54 12.4%	50 11.4%	29 6.6%	437 100%
Asst. PHN Director	10 7.3%	41 29.9%	35 25.5%	15 10.9%	11 8.0%	25 18.2%	137 100%
PHN Supervisor	44 4.3%	510 49.6%	266 25.9%	106 10.3%	28 2.7%	75 7.3%	1029 100%
PHN Consultant	86 16.7%	31 6.0%	6 1.2%	1 0.2%	4 0.8%	388 75.2%	516 100%
PH Nutritionist	218 21.6%	106 10.5%	19 1.9%	8 0.8%	0 0.0%	657 65.2%	1008 100%
Clinical Nutritionist	103 15.3%	50 7.4%	8 1.2%	1 0.1%	1 0.1%	511 75.8%	674 100%
Nutritionist	579 17.9%	344 10.6%	72 2.2%	7 0.2%	0 0.0%	2235 69.0%	3237 100%

*Nonresponse to Question 8 may also indicate no FTEs supervised.

Table 13
Budget Responsibility by Job Classification (Question 10)

Job Classification	Over Entire Agency's Nutrition Budget	Over Specific Budget	No Budget Responsibility	No Response	Total
PHN Director	287 65.7%	115 26.3%	32 7.3%	3 0.7%	437
Asst. PHN Director	15 10.9%	55 40.1%	66 48.2%	1 0.7%	137
PHN Supervisor	100 9.7%	243 23.6%	675 65.6%	11 1.1%	1029
PHN Consultant	4 0.8%	91 17.6%	411 79.7%	10 1.9%	516
PH Nutritionist	19 1.9%	104 10.3%	866 85.9%	19 1.9%	1008
Clinical Nutritionist	6 0.9%	37 5.5%	624 92.6%	7 1.0%	674
Nutritionist	40 1.2%	173 5.3%	2988 92.3%	36 1.1%	3237
Nutrition Technician	6 0.5%	16 1.3%	1224 96.5%	22 1.7%	1268

Major Areas of Practice

Previous workforce surveys conducted by ASTPHND did not collect data on the major areas of public health practice as defined by the core public health functions — assessment, assurance, and population-based services, including policy development.²⁰ But because public health systems in many states have moved away from the provision of direct services over the last five to 10 years and are now focusing more on population-based services, including policy development and epidemiologic assessment, the collection of this information is important in profiling the workforce's capacity to provide public health services other than direct client services (i.e., the core public health function of assurance).

More than three-fourths (78.7 percent) of the public health nutrition workforce indicated their primary area of practice as assurance, primarily direct client services; 9.3 percent indicated management or administration; 5.4 percent indicated assessment; and 2.4 percent indicated population-based interventions, including community organization, advocacy, and policy development (Table 14). Because WIC is perhaps the largest public health nutrition program that continues to provide direct client services on a national basis, and because 90.4 percent of the public health nutrition workforce is working in WIC, it is not unexpected to see such a large proportion of the public health nutrition workforce with *assurance* as a primary area of practice.

Both public health nutrition directors and assistant directors most frequently describe their primary area of practice as management and administration, 69 and 62 percent respectively. All other job classifications most frequently selected assurance (Table 14).

²⁰ For information on the core functions, and the more current essential public health services, visit <http://www.apha.org/ppp/science/10ES.htm#phpurpose>.

Table 14
 Primary Area of Public Health Practice According to Category of Core Public Health Functions —
 Number of Respondents in Filled Positions (Question 17)

Job Classification	Assessment		Assurance		Population-Based Interventions		Management and Administration		Other		No Response		Total*	
PHN Director	26	5.9%	86	19.7%	8	1.8%	302	69.1%	2	0.5%	13	3.0%	437	100%
Asst. PHN Director	9	0.7%	35	25.5%	3	2.2%	85	62.0%	0	0.0%	5	3.6%	137	100%
PHN Supervisor	64	6.2%	568	55.2%	14	1.4%	358	34.8%	7	0.7%	18	1.7%	1029	100%
PHN Consultant	89	17.2%	268	51.9%	75	14.5%	51	9.9%	25	4.8%	8	1.6%	516	100%
PH Nutritionist	114	11.3%	767	76.1%	51	5.1%	35	3.5%	26	2.6%	15	1.5%	1008	100%
Clinical Nutritionist	24	3.6%	616	91.4%	3	0.4%	7	1.0%	10	1.5%	14	2.1%	674	100%
Nutritionist	124	3.8%	2963	91.5%	45	1.4%	47	1.5%	10	0.3%	48	1.5%	3237	100%
Nutrition Technician	37	2.9%	1143	90.1%	18	1.4%	9	0.7%	5	0.4%	56	4.4%	1268	100%
Nutrition Assistant	53	3.1%	1487	86.4%	22	1.3%	22	1.3%	23	1.3%	115	6.7%	1722	100%
BF Counselor	0	0.0%	36	87.8%	0	0.0%	0	0.0%	1	2.4%	4	9.8%	41	100%
Other	17	8.1%	117	55.5%	6	2.8%	35	16.6%	12	5.7%	24	11.4%	211	100%
Total*	557	5.4%	8086	78.7%	245	2.4%	951	9.3%	121	1.2%	320	3.1%	10280	100%

*Totals do not include nonresponders for Question 4 regarding job classification

Table 15
 Estimated Time Spent in Direct Services Per Month for Filled Positions (Question 11)

	None	<25%	25-49%	50-74%	75-99%	100%	No Response	Total*
PHN Director	142 32.5%	157 35.9%	40 9.2%	40 9.2%	35 8.0%	1 0.2%	22 5.0%	437
Asst. PHN Director	55 40.1%	37 27.0%	8 5.8%	15 10.9%	12 8.8%	2 1.5%	8 5.8%	137
PHN Supervisor	80 7.8%	230 22.4%	130 12.6%	195 19.0%	272 26.4%	75 7.3%	47 4.6%	1029
PHN Consultant	262 50.8%	91 17.6%	18 3.5%	26 5.0%	49 9.5%	19 3.7%	51 9.9%	516
PH Nutritionist	72 7.1%	74 7.3%	45 4.5%	105 10.4%	479 47.5%	179 17.8%	54 5.4%	1008
Clinical Nutritionist	1 0.1%	20 3.0%	22 3.3%	80 11.9%	420 62.3%	113 16.8%	18 2.7%	674
Nutritionist	18 0.6%	77 2.4%	101 3.1%	364 11.2%	1758 54.3%	801 24.7%	118 3.6%	3237
Nutrition Technician	8 0.6%	34 2.7%	40 3.2%	114 9.0%	564 44.5%	441 34.8%	67 5.3%	1268
Nutrition Assistant	21 1.2%	51 3.0%	74 4.3%	105 6.1%	649 37.7%	693 40.2%	129 7.5%	1722
BF Counselor	1 2.4%	6 14.6%	0 0.0%	5 12.2%	13 31.7%	9 22.0%	7 17.1%	41
Other	29 13.7%	55 26.1%	10 4.7%	39 18.5%	33 15.6%	20 9.5%	25 11.8%	211
Total*	689 6.7%	832 8.1%	488 4.7%	1088 10.6%	4284 41.7%	2353 22.9%	546 5.3%	10280

*Does not include nonresponders to Question 2 regarding job classification.

Direct client services include such activities as assessment of a client's nutritional status, individual counseling, group education, and developing individual care plans. Among the WIC workforce, 89.8 percent spend time providing direct client services, while 70.9 percent of the non-WIC nutrition workforce spend some time providing direct services (Table 16). Overall, 75.1 percent of the workforce spends more than half of their work time in direct services (Table 16). Public health nutrition consultants appear to be less involved in direct services than persons in other position categories: More than half the consultants do not spend any time in direct services (Table 15).

It is interesting to note that more than 60 percent of the respondents who categorized themselves as public health nutrition directors indicated they spend some time each month in direct client services (Table 15). While "Personnel in Public Health Nutrition" describes the public health nutrition director's position as one of management and administration, in reality, nutrition directors must often assume the dual responsibilities of direct-service provider and manager/administrator. Nutrition directors of local health agencies are also called upon to back up direct-care staff, especially in the WIC program, when they have the qualifications of certifying officials (i.e., competent professional authorities).

The comparison of the direct-service activity of WIC and non-WIC workers (Table 17) indicates that paraprofessionals are more involved in direct services. Some 84.9 percent of paraprofessionals and 74.9 percent of persons in professional job categories spend 50 percent or more of their work time in direct services, including 37.2 percent of paraprofessionals and 18 percent of professionals who spend all of their time in direct services. While there is variation by job category in the provision of direct services, overall, the entire public health nutrition workforce is heavily involved in direct client services. Nevertheless, the majority of workers, including 56.6 percent of paraprofessionals, are devoting some time to indirect services.

Not surprisingly, the efforts of the WIC workforce are concentrated on one category of clients, in contrast to non-WIC workers who report working with a greater variety of client populations. As presented in Table 18, most WIC workers whose primary area of practice is direct service categorize their client population as "general women, infants and children" (86.9 percent). The non-WIC workforce is somewhat less involved in direct services; however, for those workers who report their primary area of practice is direct service, only 14.5 percent categorize their client population as "general women, infants and children." The most frequently selected client population category served by non-WIC workers was "children with special health care needs" (CSHCN) (28.2 percent). One-third served primarily adult non-maternal populations, which accounted for only about 3 percent of WIC workers' primary client groups.

Table 16

Percent of Time Spent in Direct Services (Question 11)*

Time	WIC	Non-WIC	Total**
100%	2285 24.5%	78 8.2%	2363 23.0%
75-99%	4032 43.2%	253 26.5%	4285 41.7%
50-74%	971 10.4%	117 12.3%	1088 10.6%
25-49%	426 4.6%	62 6.5%	488 4.7%
<25%	665 7.1%	167 17.5%	832 8.1%
None	484 5.2%	209 21.9%	693 6.7%
No Response	467 5.0%	69 7.2%	536 5.2%
Total	9330 100%	955 100%	10285 100%

*Unit of analysis is “worker’s reported time” and includes part time workers. A part time worker who reported spending 100% time in direct services and a full time worker who reported spending 100% time in direct services are both included in the category “100%.”

**Total does not include nonresponders to Question 7.

Table 17

Percent of Time in Direct Services by WIC Professionals and Paraprofessionals (Question 11)*

Time	Professional	Paraprofessional
100%	1119 18.1%	1158 37.2%
75-99%	2784 44.9%	1245 40.0%
50-74%	730 11.8%	241 7.7%
25-49%	314 5.1%	112 3.6%
<25%	544 8.8%	121 3.9%
None	439 7.1%	43 1.4%
No Response	269 4.3%	194 6.2%
Total	6199 100.0%	3114 100.0%

*Unit of analysis is “worker’s reported time” and includes part time workers. A part time worker who reported spending 100% time in direct services and a full time worker who reported spending 100% time in direct services are both included in the category “100%.”

Table 18
Client Population Seen by Workforce (Filled Positions) Whose Primary Area of Practice is Direct Service
(Question 18)

Category	WIC		Non-WIC		Total	
General/Comprehensive nutrition	149	2.0%	58	13.0%	207	2.7%
General women, infants and children	6354	86.9%	53	11.9%	6407	82.6%
General women's nutrition and health	187	2.6%	65	14.5%	252	3.2%
General infant nutrition	40	0.5%	4	0.9%	44	0.6%
General child health or pediatric	110	1.5%	14	3.1%	124	1.6%
School and/or adolescent health	11	0.2%	16	3.6%	27	0.3%
CSHCN ²¹ , developmental disabilities, chronic illnesses, high-risk pediatrics	179	2.4%	126	28.2%	305	3.9%
Breastfeeding	139	1.9%	2	0.4%	141	1.8%
Adult health promotion, chronic disease prevention, or healthy aging	14	0.2%	54	12.1%	68	0.9%
Seniors, geriatrics, adult disabilities, or adult chronic disease control	20	0.3%	51	11.4%	71	0.9%
No Response	108	1.5%	4	0.9%	112	1.4%
Total	7311	100%	447	100%	7758	100%

Employment Status

Budgeted employees accounted for more than 95 percent of the workforce, and there has been little increase in the use of contracted workers since 1994. Among WIC nutrition workers, 96.1 percent were in budgeted positions compared to the non-WIC nutrition workers at 89.6 percent (Table 19). Slightly more than 80 percent of the WIC workers were in full-time positions, and about 72 percent of the non-WIC workers were in full-time positions (Table 20).²² Of the contracted workers, the primary method of payment (91.8 percent) was an hourly rate (Table 21). Employment status in 2000 was very similar to what was seen in ASTPHND's 1994 workforce survey, when 94 percent of the public health nutrition workers were in budgeted positions and 78 percent were full-time workers.

Table 19
Employment Status of Filled Positions (Question 12)

	WIC		Non-WIC		Total Workforce*	
Budgeted Position	8970	96.1%	856	89.6%	9826	95.5%
On Contract	292	3.1%	85	8.9%	377	3.7%
No Response	68	0.7%	14	1.5%	82	0.8%
	9330	100%	955	100%	10285	100%

* Does not include nonrespondents to Question 7 (working in a WIC program).

²¹ Children with Special Health Care Needs

²² Organizations may differ in regard to the number of hours defined as full-time. The questionnaire instructed respondents: "Full-time is the number of hours per week defined by your personnel system."

Table 20

Proportion of Workforce in Full-Time and Part-Time Positions (Question 13)*

Position	WIC		Non-WIC		Total Workforce	
100%	8032	81.5%	741	72.2%	8773	80.6%
Part-time:						
80-99%	364	3.7%	50	4.9%	414	3.8%
60-79%	496	5.0%	78	7.6%	574	5.3%
40-59%	600	6.1%	78	7.6%	678	6.2%
20-39%	213	2.2%	34	3.3%	247	2.3%
< 20%	100	1.0%	27	2.6%	127	1.2%
No Response	48	0.5%	18	1.8%	66	0.6%
Total**	9853	100%	1026	100%	10879	100%

*Includes information on vacant positions. Does not include nonrespondents to Question 7.

Table 21

Method of Payment for Contract Workers in Filled Positions (Question 14)

	Filled Positions	
Hourly rate	346	91.8%
Daily rate	8	2.1%
Per service or product	19	5.0%
Retainer	1	0.3%
No response	3	0.8%
Total	377	100.0%

Salaries

Survey responses to questions on salary were analyzed by comparing median annual salaries across job categories and over time. No attempts have been made to compare salaries according to other relevant variables such as presence of unions, city size, labor supply or region. As a measure of central tendency, the median is less sensitive to extreme values than is the arithmetic mean; therefore, it was selected to describe “average” salaries of the workforce.

Respondents were asked to provide the salary *range* for their position and were given two spaces to record their response — minimum or first-step salary and maximum or highest-step salary (Question 15). They were instructed to record their current salary in the “minimum space” if their employer did not have or disclose a salary range. The analyses presented in Table 22 and 23 are based on those responses that provided a salary range. The median range shown in the respective tables reflects the calculation of the median minimum salary and the median maximum salary for each category.

Responses that provided only the minimum have not been included in this analysis. Consequently, there is considerable missing data or no responses on the salary variable. In addition, the job categories of “other” and breastfeeding counselor are not included — the former because responses to this and other questions indicated it was a very heterogeneous

category and the latter because of the small number of observations. Part-time positions, as well as the few contracted positions (nonemployees), are not included. Salaries for vacant positions, when provided, are included.

Public health nutrition directors and public health nutrition consultants had the highest median annual salary ranges (Table 22). While one might expect salaries to be highest for administrative or management classifications (public health nutrition directors, assistant public health nutrition directors, and public health nutrition supervisors), other classifications, especially public health nutrition consultants, have salaries higher than many management positions because of the technical nature of their jobs. Public health nutrition consultant positions are typically located in the central office of a state or local government health agency, and they may specialize in a particular area of nutrition (e.g., children with special health care needs, communications, or diabetes). They are also responsible for developing, implementing, and evaluating programs at either the state or community level. The specialization of their jobs, and the additional skills required for program development and evaluation generally command higher salaries.

The lowest paid of the seven professional classifications is nutritionist, which typically is an entry-level position that has little or no management or administrative responsibilities, and in many state health agencies does not require credentialing as an RD. The categories of public health nutritionist and clinical nutritionist have very similar median salary ranges.

Because the public health nutrition workforce of California accounts for almost 25 percent of the 2000 census but was not included in 1994, additional analyses were made to determine the effect of California's data on the increase in median salary ranges. As indicated in Table 23, the inclusion of California's data did have an impact on the median salaries for the nation. Without California's data, the median minimum of the salary range (entry level) for professionals was \$1442 lower and the median maximum of the salary range was \$384 lower. The median salary range of the clinical nutritionist again exceeded that of the public health nutritionist. For paraprofessionals, the median minimum of the salary range was \$1,379 lower without California's data. There was no difference in the nutrition technician's median maximum of the salary range, but the nutrition assistant's median maximum was \$387 lower.

To determine whether or not the PH nutrition workforce's salaries had kept up with inflation, the 1994 salary ranges were adjusted for inflation (Table 24) and compared to the 2000 salaries that excluded California's data (Table 23). After weighting the data, the median annual minimum of the 2000 salary range for professionals (\$28,453) was \$198 lower than the adjusted 1994 minimum (\$28,651), and the median maximum was \$469 higher (\$43,476 and \$43,007, respectively). For paraprofessionals, the median annual minimum of the 2000 salary range (\$18,718) was \$271 higher than the adjusted 1994 minimum (\$18,447), and the maximum was \$1859 higher (\$27,544 and \$25,685, respectively). There was considerable variation among the job classifications.

Table 22

1999-2000 Median Annual Salary Ranges for Workers who Reported their Salaries as a Range (Question 15)

Classification	Observations*	Median (\$)
PH Nutrition Director	292 (443)	35264 - 54260
Asst PH Nutrition Director	99 (140)	34992 - 53435
PH Nutrition Supervisor	621 (1070)	33021 - 48287
PH Nutrition Consultant	353 (547)	35100 - 49914
PH Nutritionist	638 (1111)	29858 - 43496
Clinical Nutritionist	359 (743)	29661 - 43968
Nutritionist	1531 (3476)	26352 - 39000
Nutrition Technician	755 (1316)	20736 - 29163
Nutrition Assistant	898 (1769)	18804 - 25251

*Observations are the number of respondents to Question 15. Numbers in parenthesis are total respondents, including information on vacant positions.

Table 23

1999-2000 Median Annual Salary Ranges for Workers who Reported their Salaries as a Range — Excluding California's Data (Question 15)

Classification	Observations*	Median (\$)
PH Nutrition Director	239 (323)	34451 - 53435
Asst PH Nutrition Director	81 (109)	33196 - 53435
PH Nutrition Supervisor	482 (750)	30829 - 48308
PH Nutrition Consultant	291 (360)	33862 - 49668
PH Nutritionist	483 (682)	26645 - 42404
Clinical Nutritionist	307 (427)	28111 - 43968
Nutritionist	1384 (2339)	25881 - 38454
Nutrition Technician	523 (739)	19718 - 29163
Nutrition Assistant	316 (656)	17064 - 24864

*Observations are the number of respondents to Question 15. Numbers in parenthesis are total respondents, including information on vacant positions.

Table 24
 1994 - Median Annual Salary Ranges for Workers who Reported Salaries as a Range, Adjusted for 2000 Inflation* ²³

Classification	Median (\$)
PH Nutrition Director	34742 – 50221
Asst PH Nutrition Director	32450 – 48725
PH Nutrition Supervisor	30927 – 47900
PH Nutrition Consultant	35414 – 50764
PH Nutritionist	28319 – 43903
Clinical Nutritionist	27611 – 41781
Nutritionist	25233 – 37464
Nutrition Technician	20447 – 27820
Nutrition Assistant	16591 – 23704

* Includes information on vacant positions.

Sources of Funding for the Public Health Nutrition Workforce

Tables 25 and 25 present a comparison of funding sources for all full-time equivalents (FTEs) between 1994 and 2000. To calculate FTEs, all full-time and part-time positions were combined according to funding source. It should be noted that there was a nonresponse rate of 4.1 percent on funding source (Question 16) despite the fact that both instructions and training encouraged all supervisors who administered the survey to make sure their staff had correct information about their source(s) of funding. Many paraprofessionals and also professionals at the local level are not involved in the budget process and are therefore unaware of the funding source for their positions. Because of this, they may not realize the funding for their positions comes from a federal program even though their paychecks are cut by a local agency.

USDA continued to be the primary funding source of the public health nutrition workforce in 2000, funding 82.3 percent of the FTEs (Table 25). WIC continues to fund 81 percent of the FTEs (Table 26). According to information provided by USDA, Food Stamp Nutrition Education funding was increased substantially from \$5 million in 1994 to \$99 million in 2000; since data on the number of FTEs funded by the Food Stamp Program were not collected in the 1994 survey, there is no way to determine how this may have affected the number of FTEs attributed to USDA funding.

The percent of FTEs funded with state money decreased slightly between 1994 and 2000, as did the proportion of FTEs funded through the U.S. Department of Health and Human Services. Of particular significance was the decrease in both numbers and percentage of FTEs funded through the MCH Block Grant (Title V). In 1994, there were approximately 226 FTEs funded by Title V

²³ These figures were inflated using the State and Local Price Deflator (S&LP). This index is published by the Department of Commerce, Bureau of Economic Analysis in the National Income and Product Accounts as a component of the Gross Domestic Product. FNS uses the S&LP to inflate the national administrative grant per person (AGP). The AGP is used in the WIC funding formula to determine the amount of funds allocated for food benefits and nutrition services and administration. Between 1994 and 2000, the S&LP increased 18%.

(3.5 percent of the total FTEs). In 2000, only 185.85 FTEs were funded by Title V (1.9 percent of the total FTEs). This decrease occurred despite the fact that total FTEs increased by 3,487 from 1994 to 2000. ASTPHND members in many states report that Title V funding is no longer being used to support public health nutrition positions.

Although the number of FTEs funded by the CDC Preventive Health and Health Services Block Grant (PHHSBG) remained essentially the same—60.60 in 1994 and 61.34 in 2000, this represented a proportional decrease from 0.9 percent in 1994 to 0.6 percent in 2000. The PHHSBG has historically funded chronic-disease prevention and control programs in state health agencies; however, its contribution to public health nutrition personnel involved in prevention activities did not increase between 1994 and 2000.

Table 25
Full-time Equivalents Per Funding Source — A Comparison of 1994 and 1999-2000*
(Question 16)

	1999-2000		1994-2000	
	FTEs	Percentage	FTEs	Percentage
USDA	8189.22	82.3%	5345.46	82.7%
DHHS	470.73	4.7%	423.49	6.6%
State	420.16	4.2%	331.54	5.1%
Local	256.87	2.6%	143.42	2.2%
Other	186.27	1.9%	211.33	3.3%
DOE	19.67	0.2%	9.20	0.1%
Not specified	408.58	4.1%	0.00	0.0%
Total	9951.5	100.0%	6464.44	100%

** Includes information on vacant positions. Idaho did not participate in 2000 survey. California did not participate in 1994 survey. Although the large number of respondents in 1999-2000 from California may have affected comparability between the two surveys, California's responses were included in the comparison in order to provide the most complete information about sources of funding.

Table 26
Full-time Equivalents Per Funding Source — A Comparison of 1994 and 1999-2000* (Question 16)

FTEs 1999-2000		Funding Source	FTEs 1994	
		State		
326.28	3.3%	Non-specified state funds	238.38	3.7%
90.85	0.9%	State funds legislatively earmarked for nutrition	93.16	1.4%
3.03	<0.1%	Tobacco settlement monies		
		Local		
256.87	2.6%	Local funds (city/county general revenue)	143.42	2.2%
		USDA		
8060.14	81.0%	WIC	5284.52	81.7%
43.25	0.4%	Food Stamps		
47.32	0.5%	Child Nutrition (CACFP or NET)		
38.51	0.4%	Other USDA	60.94	0.9%
		DHHS		
185.85	1.9%	MCH Block Grant (Title V)	226.07	3.5%
61.34	0.6%	Preventive Health & Health Services Block Grant	60.60	0.9%
41.72	0.4%	Indian Health Services		
40.44	0.4%	Medicaid — Non EPSDT (Title XIX)	45.81	0.7%
17.78	0.2%	EPSDT Medicaid (Title XIX)	11.80	0.2%
18.96	0.2%	CDC Diabetes Control	14.23	0.2%
18.21	0.2%	Older Americans Act (Title III)	7.82	0.1%
14.37	0.1%	Family Planning (Titles X and XX)	9.59	0.1%
11.65	0.1%	Ryan White HIV/AIDS		
4.30	<0.1%	National Institute of Health	4.55	0.1%
56.11	0.6%	Other DHHS Funding	43.02	0.7%
		DOE		
8.12	0.1%	Early Childhood Intervention (IDEA)	9.20	0.1%
11.55	0.1%	Other DOE		
		Other Funding Sources		
76.69	0.8%	Fees, patient charges, or third party reimbursement	18.34	0.3%
31.11	0.3%	Foundations or corporate grants		
78.47	0.8%	Other	192.99	3.0%
408.58	4.1%	Did not specify funding source	0.0	0.0%
9951.50	100%	Total FTEs	6464.44	100%

** Includes information on vacant positions. Idaho did not participate in 2000 survey. California did not participate in 1994 survey. Although the large number of respondents in 1999-2000 from California may have affected comparability between the two surveys, California's responses were included in the comparison in order to provide the most complete information about sources of funding.

Academic Preparation, Credentials, Training, and Training Needs

Academic Preparation — Issues relating to the preparation of the public health workforce as a whole, and of the WIC workforce in particular, are of interest to federal and state officials. Questionnaire respondents were asked to indicate from a list of academic levels and concentrations whether they had earned a certain degree and/or were working on a specific type of degree. Multiple responses were possible; that is, the question referred to all degrees earned and/or working toward. The analysis shown in Table 27 assumes that a “no” response indicates no degree. Percentages are based on the total number of respondents for filled positions — 9,330 for WIC and 955 for non-WIC.

More than half of the public health nutrition workers indicated they have at least bachelor’s degrees in nutrition or dietetics. Among the WIC workforce, 53.7 percent reported having a degree in nutrition or dietetics, and among the non-WIC workers it was 69.5 percent (Table 27). The WIC workforce has a higher percent of bachelor’s degrees in public health or community nutrition than does the non-WIC workforce (2.3 percent and 1.8 percent respectively). However, a higher percentage of the non-WIC workforce reported having advanced degrees, with 28 percent having a master’s degree in nutrition or dietetics and 14 percent having a master’s degree in public health or community nutrition, compared to 12 percent and 4 percent of the WIC respondents.

Most WIC professionals (77.9 percent) have completed at least the bachelor’s degree in nutrition or dietetics (Table 28) and nearly all—96.6 percent (Table 29) have at least a bachelor’s degree. In addition, 17.3 percent of WIC professional workers have a master’s degree in nutrition or dietetics and 6.6 percent report a master’s degree in public health or community nutrition (Table 28). Comparable degrees are uncommon among the paraprofessional categories of nutritionist technician, nutrition aide and breastfeeding counselor (Table 28).

Only a very small percentage of public health nutrition workers indicated they are actively pursuing bachelor’s degrees in nutrition/dietetics or public health/community nutrition (Table 27). Responses suggest the preparation of the workforce in the area of nutrition and dietetics is not being enhanced by academic work toward a degree undertaken during their employment.

A number of strategies are being considered for maintaining and upgrading the skills of the public health nutrition workforce. The feasibility of strategies such as distance learning, self-study and tuition assistance for graduate work is limited by the number of workers who have the basic academic qualifications to take advantage of these opportunities. Examination of the *highest* degree obtained (Table 29) suggests that certification and upward mobility will be difficult for the paraprofessional WIC workforce because 69.1 percent of these workers do not have a college degree, including the associate degree. Among the professional workers, the 66 percent whose highest degree is at the bachelor’s level could reasonably be expected to have the background for additional specialized training in public health nutrition.

Table 27
Academic Preparation of the PH Nutrition Workforce (Question 19)*

Degree	WIC		Non-WIC	
	Earned	Working On	Earned	Working On
Associate				
Nutrition / dietetics	581 6.2%	84 0.9%	68 7.1%	3 0.3%
Other	885 9.5%	151 1.6%	68 7.1%	4 0.4%
Bachelor's				
Nutrition / dietetics	5009 53.7%	51 0.5%	664 69.5%	4 0.4%
PH nutrition / community nutrition	213 2.3%	13 0.1%	17 1.8%	1 0.1%
Home economics / family consumer science	764 8.2%	5 0.1%	94 9.8%	0 0.0%
Health education	107 1.1%	23 0.2%	18 1.9%	3 0.3%
Other	876 9.4%	125 1.3%	135 14.1%	12 1.3%
Master's				
Nutrition / dietetics	1089 11.7%	237 2.5%	267 28.0%	27 2.8%
PH nutrition / community nutrition	415 4.4%	100 1.1%	133 13.9%	5 0.5%
Home economics / family consumer science	106 1.1%	17 0.2%	24 2.5%	6 0.6%
PH — other concentration	125 1.3%	83 0.9%	36 3.8%	16 1.7%
Health education	90 1.0%	29 0.3%	22 2.3%	1 0.1%
Other	224 2.4%	124 1.3%	58 6.1%	18 1.9%
Doctoral				
Nutrition / dietetics	19 0.2%	11 0.1%	12 1.3%	2 0.2%
PH nutrition / community nutrition	6 0.1%	5 0.1%	2 0.2%	2 0.2%
Home economics / family consumer science	2<0.1%	0 0.0%	0 0.0%	1 0.1%
PH — other concentration	7 0.1%	4<0.1%	1 0.1%	2 0.2%
Health education	5 0.1%	6 0.1%	0 0.0%	0 0.0%
Other	42 0.5%	32 0.3%	8 0.8%	6 0.6%
Total Respondents	9330		955	

*Individual respondents may have marked multiple responses (i.e., all degrees they had earned and/or were working toward).

Table 28

Academic Preparation of WIC Paraprofessionals and Professionals (Question 19)*

Degree	WIC			
	Professionals		Paraprofessionals**	
Associate				
Nutrition / dietetics	355	5.7%	221	7.4%
Other	529	8.5%	322	10.8%
Bachelor's				
Nutrition / dietetics	4830	77.9%	150	5.0%
PH nutrition / community nutrition	195	3.1%	12	0.4%
Home econ. / family consumer science	702	11.3%	60	2.0%
Health education	69	1.1%	33	1.1%
Other	641	10.3%	203	6.8%
Master's				
Nutrition / dietetics	1070	17.3%	10	0.3%
PH nutrition / community nutrition	407	6.6%	1	<0.1%
Home econ. / family consumer science	103	1.7%	3	0.1%
PH — other concentration	121	2.0%	3	0.1%
Health education	85	1.4%	5	0.2%
Other	197	3.2%	21	0.7%
Doctorate				
Nutrition / dietetics	18	0.3%	0	0.0%
PH nutrition / community nutrition	5	0.1%	0	0.0%
Home econ. / family consumer science	2	<0.1%	0	0.0%
PH — other concentration	5	0.1%	2	0.1%
Health education	3	<0.1%	2	0.1%
Other	32	0.5%	9	0.3%
Total Respondents	6199		2973	

*Individual respondents may have marked multiple responses (i.e., all degrees they had earned and/or were working toward).

**Nutrition technicians, nutrition aides and breastfeeding counselors; “others” and nonresponders to job classification are excluded.

Table 29
Highest Academic Degree Reported by WIC Workers (Question 19)*

Degree	Professionals		Paraprofessionals**	
Associate	114	1.8%	464	15.6%
Bachelor's	4089	66.0%	404	13.6%
Master's	1838	29.6%	39	1.3%
Doctorate	61	1.0%	11	0.4%
None or No Response	97	1.6%	2055	69.1%
Total Respondents	6199	100%	2973	100%

*Individual respondents may have marked multiple responses (i.e., all degrees they had earned and/or were working toward).

**Nutrition technician, nutrition aide and breastfeeding counselor.

Core Public Health Course Work — The lack of training in public health among the public health workforce is an issue of concern across the public health professions, and public health nutrition is not an exception. Less than 10 percent of this workforce reports having a public health-related degree, with the prevalence of a public health degree being greater among non-WIC workers than among WIC workers. In both groups, however, significant proportions of workers have completed some course work relevant to the field of public health.

To determine the extent to which workers had some exposure to public health academic work, survey respondents who had *not* completed a degree in public health were asked if they had course work in one or more of the core courses — environmental health, epidemiology, health services administration, social and behavioral sciences and/or statistics. Eighty-one percent of the non-WIC workers did not report having a PH-related degree (770/955), and 92 percent of the WIC workers did not report having a PH-related degree (8,608/9,330). However, some have completed at least one of the five core public health courses as indicated in Table 30.

Completion of the core public health course work also varies across WIC professional and paraprofessional classifications as presented in Table 30. Completion rates are higher among professionals than paraprofessionals. These analyses suggest that in all cases the courses most unique to public health — epidemiology and environmental health — were most infrequently completed in comparison to a behavioral or social science course, which is included in most degree programs, and statistics, which is common in a number of fields.

Table 30

Core Public Health Course Work Among Personnel Without a Public Health Degree (Question 20)

Course	Non-WIC		WIC					
			Total*		Professionals		Paraprofessionals**	
Environmental Health	78	10.1%	560	6.5%	474	8.6%	86	2.8%
Epidemiology Health	68	8.8%	421	4.9%	374	6.8%	47	1.5%
Administration Behavioral Sciences	66	8.6%	461	5.4%	393	7.1%	66	2.1%
Statistics	324	42.1%	2418	28.1%	1989	36.1%	424	13.8%
Total in Category	319	41.4%	2069	24.0%	1850	33.6%	215	7.0%
	770		8608		5509		3082	

*Total includes nonrespondents to Question 4 (job classification).

** Includes nutrition technicians, nutrition aides, breastfeeding counselor, and others

Credentials of Workforce — A little more than 40 percent of the workforce surveyed said they were RDs. Among WIC respondents, 37.6 percent indicated they were RDs (Table 31), and another 1 percent indicated they were RD-eligible, meaning they had completed all required steps to become a registered dietitian and had received a letter from the Commission on Dietetic Registration verifying their eligibility to take a qualifying examination (Table 33). Also among WIC respondents, 2.5 percent indicated they were DTRs (Table 31) and only 0.1 percent were DTR-eligible (Table 34). Two-thirds (66.5 percent) of those WIC workers with DTR credentialing were classified in paraprofessional rather than professional positions (Table 32). Twenty-seven percent of the entire workforce reported being state licensed or certified dietitians.

Increasing the proportion of RDs and DTRs within the WIC program is consistent with USDA's strategic plan for 1997-2002 *to improve the nutrition qualifications of state and local WIC staff*. In ASTPHND's 1994 survey, 42.1 percent of the total public health nutrition workforce reported they had RD credentialing and another 6.3 percent indicated they were RD-eligible. The 1994 survey also showed that 38.4 percent of the WIC workers were RDs and another 5.9 percent were RD-eligible. Again, analyses were completed to determine the impact of the California workforce on the national data related to RDs and DTRs. Looking at 2000 data without California, 38.9 percent of the WIC nutrition workforce indicated they were RDs and 3.2 percent were DTRs.

In general, it must be concluded that neither the proportion of the public health nutrition workforce nor the WIC workforce with the basic RD credential has increased over this time period, nor are there significant numbers of WIC workers who are RD-eligible. The lower proportion of RD-eligible and DTR-eligible respondents in 2000 may be the result of a change in the questions used to measure eligibility. In 1994, respondents were asked if they were RD-eligible, and RD-eligible was defined.²⁴ In 2000, respondents were asked to indicate which of

²⁴ Definition from 1994 survey — "Completed the course work prescribed to meet the Minimum Academic Requirements of the American Dietetic Association (ADA) and completed a preprofessional practice program

several steps toward eligibility had been completed. The percentages in Tables 33 and 34 represent consecutive steps toward receipt of a letter from the Commission on Dietetic Registration stating eligibility to take the qualifying exam.

Between 1994 and 2000, minimal observable progress has been made to increase the percentage of RDs, RD-eligibles, and DTRs working in WIC. Objective 3.3 of the USDA strategic plan for 1997-2002 calls for *improved nutritional qualifications of state and local WIC staff*, with the performance measure being to increase the percentage of RDs or RD-eligible persons in WIC programs from 48 to 50 and the percentage of DTRs from 2 to 4.²⁵ Nevertheless, the *number* of RDs in WIC programs increased from 2514 in 1994 to 3509 in 2000, which includes the 835 in California. And the number of DTRs increased from 158 in 1994 to 232 in 2000, including 20 from California. These increases correspond to increases in funding and participation in the WIC program between 1994 and 2000.

Results of the 1994 study indicated that 19.4 percent of the entire workforce and 21.5 percent of the WIC workforce consisted of paraprofessionals, compared to 30.7 percent and 32.6 percent respectively in 2000. This increase is most likely the result of a combination of factors. As previously mentioned, there is always variability from state to state in the population covered by a survey of the public health nutrition workforce and, in 2000, states may have made a greater effort to ensure the inclusion of paraprofessionals and breastfeeding peer counselors. The participation of California in 2000 may have affected the distribution as well. Informal verbal reports suggest that many state WIC programs have turned to paraprofessionals because of tight administrative funding and because of difficulties recruiting nutrition professionals. It is important to remember however, that paraprofessionals are not simply substitutes for less academically qualified, better-compensated workers. In many areas of the nation, paraprofessionals enhance the cultural and linguistic competency of the workforce, and their effectiveness as breastfeeding peer counselors is well documented.²⁶ Consequently, setting goals on credentials for specific types of workers rather than for the entire workforce may be more realistic.

A breakdown of the credentials reported by WIC professionals and WIC paraprofessionals is presented in Table 32. More than half (56.0 percent) of WIC professional workers report being an RD, and more than a third (37.5 percent) are licensed/certified in their respective states; however, 23.6 % did not report having a specific certification or credential. Many have more than one recognized credential. However, nearly one-quarter (23.6 percent) of WIC professional report no certification or credentials. Nationally recognized credentials are extremely rare among the responding paraprofessionals, although 11.5 percent report other certification in

(dietetic internship, coordinated program, or an AP4 program) accredited/approved by the ADA.”

²⁵ According to ASTPHND’s 1994 survey, 44.3 percent of the WIC nutrition workforce was either RD or RD-eligible. USDA-FNS has subsequently acknowledged that the baseline percentage for RDs and RD-eligibles in this particular objective (48 percent) was in error and should have been the percentage identified in ASTPHND’s 1994 survey.

²⁶ Schafer E, Vogel MK, Viegas S, Hausafus C. Volunteer peer counselors increase breastfeeding duration among rural, low-income women. *Birth* 1998 June;25(2):101-6. Arlotti JP, Cottrell BH, Lee SH, Curtain JJ. Breastfeeding among low-income women with and without peer support. *J Community Health Nurs.* 1998; 15(3):163-78.

lactation or breastfeeding.

Progress has been made over the last five years within the WIC community to increase the capacity of the workforce in the area of breastfeeding (Table 31). In 2000, 160 (1.7 percent) of WIC respondents indicated they were International Board Certified Lactation Consultants (IBCLC) compared to 56 (0.9 percent) in 1994.²⁷ About 80 percent of the workers with this credential are classified as professionals rather than paraprofessionals (Table 32).

Table 31
Certifications and Credentials of Filled Positions (Question 21)

Certifications and Credentials	WIC	Non-WIC	Total*
Registered Dietitian	3509 37.6%	736 77.1%	4247 41.2%
Licensed or Certified Dietitian	2349 25.2%	434 45.4%	2783 27.0%
Dietetic Technician Registered	232 2.5%	10 1.0%	242 2.3%
Certified Diabetes Educator	65 0.7%	46 4.8%	111 1.1%
International Board Certified Lactation Consultant	160 1.7%	11 1.2%	171 1.7%
Other Certification in Breastfeeding or Lactation	1302 14.0%	41 4.3%	1343 13.0%
CDR Certification as Specialist in Pediatric Nutrition	15 0.2%	13 1.4%	28 0.3%
Certified Health Education Specialist	47 0.5%	10 1.0%	57 0.6%
Registered Nurse	189 2.0%	40 4.2%	229 2.2%
Licensed Practical Nurse	72 0.8%	2 0.2%	74 0.7%
State Certified Teacher	184 2.0%	30 3.1%	214 2.1%
Certified in Family & Consumer Sciences (AAFCS)	55 0.6%	13 1.4%	68 0.7%
Other	566 6.1%	65 6.8%	631 6.1%
Total	9330 100%	955 100%	10309 100%

*Respondents may have reported multiple certifications and credentials, or no certifications or credentials. The total is greater than the number of WIC respondents and non-WIC respondents combined due to inclusion of nonresponders to Question 7.

²⁷ The participation of California in the 1999-2000 survey may have contributed to the increase.

Table 32

Certifications and Credentials of the WIC Nutrition Workforce (Question 21)

Certifications and Credentials*	WIC Professionals		WIC Paraprofessionals**	
Registered Dietitian	3473	56.0%	30	1.0%
Licensed or Certified Dietitian	2325	37.5%	24	0.8%
Dietetic Technician Registered	77	1.2%	153	4.9%
Certified Diabetes Educator	57	0.9%	8	0.3%
International Board Certified Lactation Consultant	129	2.1%	31	1.0%
Other Certification in Breastfeeding or Lactation	941	15.2%	358	11.5%
CDR Certification as Specialist in Pediatric Nutrition	15	0.2%	0	0.0%
Certified Health Education Specialist	25	0.4%	22	.7%
Registered Nurse	128	2.1%	61	2.0%
Licensed Practical Nurse	24	0.4%	48	1.5%
State Certified Teacher	147	2.4%	37	1.2%
Certified in Family and Consumer Sciences (AAFCS)	52	0.8%	3	0.1%
Other	249	4.0%	317	10.2%
None Reported	1464	23.6%	2183	70.1%
Total on which percentages are calculated	6199		3114	

*Includes multiple responses.

** Includes job categories of nutrition technician, nutrition assistant, breastfeeding counselor and others; nonresponders to job category are excluded.

Table 33

Steps Taken to Become Registered Dietitians by Non-RDs (Question 22)

Steps to RD	WIC		Non-WIC	
Completed a bachelor's degree	2483	42.7%	100	45.7%
Completed didactic program approved by CAADE ²⁸	673	11.6%	23	10.5%
Completed a CAADE supervised practice program	118	2.0%	8	3.7%
Have CDR letter of eligibility to take exam	94	1.6%	5	2.3%
No steps toward RD	2453	42.1%	83	37.9%
Total	5821	100%	219	100%

²⁸ Commission on Accreditation-Approval for Dietetic Education

Table 34

Steps Taken to Become DTRs by Non-DTRs and Non-RDs (Question 23)

Steps to DTR	WIC		Non-WIC	
Completed an associate degree	668	11.9%	36	17.0%
Completed didactic program approved by CAADE	143	2.6%	1	0.5%
Completed a CAADE-approved DT program	15	0.3%	0	0.0
Completed CAADE supervised practice program	13	0.2%	0	0.0
Have CDR letter of eligibility to take exam	9	0.2%	0	0.0
No steps toward DTR	4751	84.9%	175	82.5%
Total	5599 ²⁹	100%	212	100%

Attendance at MCHB-Sponsored Courses – The Maternal Child Health Bureau (MCHB) at the U.S. Department of Health and Human Services has been sponsoring nutrition courses for the professional public health workforce for more than 50 years. Courses during the last 20 years have focused on nutrition for children with special health care needs including developmental disabilities. The current workforce continues to assign a high ranking to this area as a training need (Table 38). Although only 9.2 percent of the survey respondents indicated they had attended one or more of the MCHB-sponsored courses since January 1995, persons who complete the training often serve as trainers (either formal or informal) so that the information they obtain from the courses is disseminated among other workers. The MCHB-sponsored training is not limited to public health professionals or to nutritionists and dietitians, so the numbers presented in Tables 34-36 do not represent the total number of health professionals that completed the MCHB-sponsored training.

Comparing the distribution of the training participants or attendees across type of employing agency (Table 35) with the distribution of the entire workforce (Table 4), it appears that state health agency employees are much more likely to participate in MCHB training than are employees of local health agencies and nonprofit organizations. This is consistent with the role of state agencies in providing training and information to their grantees and other agencies within their respective states, as well as the variation in the distribution of job classifications by agency types.

Table 36 shows the rate of attendance by job classification.³⁰ Not surprisingly, employees classified as public health nutrition consultants and clinical nutritionists were most likely (24.6 percent and 21.4 percent, respectively) to have participated in the training. Major duties of both PHN consultants and clinical nutritionists typically include training and technical assistance for other health care professionals about current nutrition care for CSHCN, as well as care coordination for their families. In addition, clinical nutritionists often provide counseling for the families of CSHCN. Only 8 percent of the workers categorized as nutritionist, and less than 1 percent of paraprofessionals (nutrition technicians and nutrition assistants), received the

²⁹ Ten WIC workers and three non-WIC workers have both the RD and the DTR; they are reflected in the column total in Table 26.

³⁰ No adjustments have been made for length of employment.

federally sponsored training. Twenty-three percent (216/948) of the respondents who participated indicated attendance at *more* than one of the nine courses. Table 37 shows the number of respondents who have attended each of the nine MCHB-sponsored courses since 1995.

Table 35
Agency of Employment of Participants in MCHB-Sponsored Nutrition Courses (Question 24)

Type of Agency *	Number and Percent of Attendees
SHA (19.9%)	332 35.0%
LHA (47.9%)	368 38.8%
ITO (1.4%)	28 3.0%
Nonprofit Agency (28.4%)	206 21.7%
For-Profit Agency (0.7%)	6 0.6%
Other (1.4%)	8 0.8%
Total	948 100%

*Numbers in parentheses represent percent of total respondents, including vacant positions.

Table 36
Proportion of Each Job Classification that Attended the MCHB-sponsored Nutrition Courses (Question 24)

Job Classification	Number and Percent Attended
PHN Directors (n=437)	75 17.2%
Asst. PHN Director (n=137)	23 16.8%
PHN Supervisor (n=1029)	159 15.5%
PHN Consultant (n=516)	127 24.6%
PH Nutritionist (n=1008)	119 11.8%
Clinical Nutritionist (n=674)	144 21.4%
Nutritionist (n=3237)	262 8.1%
Nutrition Technician (n=1268)	18 1.4%
Nutrition Assistant (n=1722)	10 0.6%
Other (n=218)	11 0.5%
Total participants	948

Table 37

Number of Respondents Indicating Attendance at Each of the MCHB-Sponsored Courses
(Total = 1164 includes duplicate attendees) (Question 24)

198	Intensive Course in Maternal Nutrition, University of Minnesota
182	Intensive Course in Nutrition for Infants, Children and Adolescents, University of Alabama at Birmingham
431	Intensive Course in Pediatric Nutrition, University of Iowa
73	Neonatal Nutrition Training, Medical University of South Carolina
10	Neonatal Nutrition and Leadership Education in Pediatric Nutrition, James Whitcomb Hospital for Children, Indianapolis, Indiana
96	Nutrition Concerns of the Child with Special Health Care Needs, Cincinnati Center for Developmental Disorders, Cincinnati, Ohio
66	Nutrition for Children with Special Health Care Needs: Nutrition Makes a Difference Center for Child Development and Developmental Disorders, Los Angeles, CA
74	Nutrition for Children with Special Health Care Needs: Nutrition Makes a Difference, Sparks Center for Developmental and Learning Disorders, Birmingham, AL
34	Professional Training Course in Nutrition and Developmental Disabilities, Boling Center for Developmental Disabilities, Memphis TN

Training Needs – The results of Question 25, which asked respondents to indicate areas in which they need training for their current work by checking up to three of 35 topics listed, should be interpreted with caution. Approximately 15 percent of the data were missing or unusable; questionnaires with more than three topics marked were not included in the analysis.

Respondents were also asked to indicate their need for advanced training or basic training by marking an “A” for advanced or a “B” for basic next to a topic, but not to mark more than three topics altogether. Respondents were much more likely to identify their training needs as advanced rather than basic. In Table 38, which compares the 10 most frequently selected training needs of the WIC and non-WIC, professional and paraprofessional components of the workforce, advanced and basic responses were collapsed and all three of each respondent’s choices were counted. The table also includes the responses of those workers who selected less than three areas. The numbers in Table 38 indicate the number of choices made and the proportion of the total respondents choosing a specific topic.³¹ The paraprofessional non-WIC workers category is not shown due to the small number of respondents in that group.

As indicated in Table 38, the top five *perceived* training needs of the entire workforce were nutrition for CSHCN; breastfeeding; infant and preschool nutrition; prenatal nutrition; and nutrition counseling, behavior change, and client education. These are quite similar to the training needs identified by the workforce in 1994. Considering the 10 highest-ranked needs, only one — information technology — is not within the general category of “client and population groups” (i.e., not directly related to the provision of direct client services). The WIC and the non-WIC workers differ in the rank ordering of their training needs. Only four topics ranked among the top 10 of both groups: nutrition for CSHCN, nutrition counseling, supplementary dietary therapies, and information technology. Like their WIC counterparts, non-

³¹ For information on the frequency with which all 37 topics were selected, see Appendix E for an expanded version of Table 37.

WIC workers most frequently selected nutrition for CSHCN, but the topics of adult health promotion and senior/geriatric nutrition were also among their top 10 choices.

The rank order of training needs also differs for WIC paraprofessionals and WIC professionals. Nutrition for CSHCN, selected by 35 percent of the respondents, was the highest training priority for professionals. Among paraprofessionals, breastfeeding was identified as the highest priority for training. Comparing the top 10 training needs identified by WIC professionals with the top 10 training needs of WIC paraprofessionals, eight of the top 10 were the same for both groups.

A comparison of the responses of non-WIC professionals and WIC professionals, two groups that are similar in education, certification and years of practice, found that workers in both categories selected nutrition for CSHCN more frequently than any other topic. The 10 highest-ranked needs of non-WIC professionals included six that were also among the top 10 for WIC professionals: CSHCN, high-risk clients, eating disorders, nutrition counseling and education, alternative therapies, and information technology. Four of the six were also priorities of the WIC paraprofessionals. Thus it appears there are many similarities across different segments of the public health nutrition workforce in the general topics in which training is desired.

Despite these similarities, the training needs also reflect the varying roles of this workforce within the scope of public health practice. The training needs of WIC respondents in general and paraprofessionals in particular are directly related to the provision of direct client services that comes under the category of “public health assurance.” This is consistent with the finding that 90 percent of the WIC workforce is involved in the delivery of direct client services (Table 15). Only one of the WIC paraprofessionals’ 10 top training needs, information technology, was in the category of public health assessment. Similarly, among the 10 highest-ranking needs of WIC professionals, two were not related to direct client services — information technology, and leadership and team building. Although topics related to direct client services also predominate in the choices of professional non-WIC workers, four topics related to public health assessment ranked among their top 10 needs: surveillance, proposal and grant writing, program planning and evaluation, and information technology.

There is less variation in the training needs of WIC professionals than non-WIC professionals: The most frequently selected need for both WIC and non-WIC professionals (nutrition for CSHCN) was the choice of 35 percent of WIC professionals but only 16 percent of non-WIC professionals. And the difference in the proportion of respondents selecting the first and the 10th ranked need was 35 percent and 9 percent among WIC professionals and 16 percent and 8 percent among non-WIC professionals.

Perceived training needs changed very little since 1994. The top four topics marked by WIC workers in 2000 were the same as the top four topics identified in 1994: nutrition for CSHCN, infant and child nutrition, prenatal nutrition, and breastfeeding — even though the choice of 35 topics in 2000 was much more extensive than the 16 choices offered in 1994.³²

³² In 1994, respondents were not asked to differentiate between advanced and basic needs.

Table 38. Perceived Training Needs – Top 10 Choices Identified by the Numbers of Parentheses (Question 25)												
Topic	Total Workforce		WIC Nutrition Workforce						Non-WIC Nutrition Workforce			
			All		Professional		Paraprofessional		All		Professionals	
Nutrition for CSHCN*	(1)	29% 2976	(1)	30% 2829	(1)	35% 2184	(4)	21% 644	(1)	15% 147	1	16% 135
Breastfeeding	(2)	26% 2636	(2)	28% 2586	(2)	25% 1551	(1)	33% 1033				
Infant and preschool nutrition	(3)	22% 2303	(3)	24% 2231	(3)	21% 1303	(2)	30% 926				
Prenatal nutrition	(4)	17% 1752	(4)	18% 1699	(4)	16% 987	(3)	22% 683				
Nutrition counseling, behavior change, client education	(5)	16% 1676	(5)	17% 1551	(5)	16% 987	(5)	18% 562	(3)	13% 123	(3)	13% 110
High-risk clients, including HIV and addiction	(6)	12% 1234	(6)	12% 1161	(6)	14% 867	(8)	9% 294			(10)	8% 71
Childhood nutrition	(7)	9% 952	(7)	10% 894			(6)	16% 497				
Eating disorders	(7)	9% 952	(8)	9% 870	(9)	9% 554	(7)	10% 315			(8)	9% 73
Supplemental and alternative dietary therapies	(9)	9% 928	(9)	9% 795	(7)	11% 687			(2)	14% 131	(2)	15% 128
Use of current IT, including computers	(10)	9% 898	(10)	8% 792	(8)	10% 629	(10)	5% 163	(5)	11% 106	(5)	12% 101
Adult health promotion, chronic disease, healthy aging									(4)	12% 111	(4)	12% 102
Senior, geriatric nutrition									(9)	8% 78		
Communication with low literacy populations							(9)	6% 200				
Data management, surveillance, monitoring systems									(8)	9% 88	(7)	10% 83
Fund raising, proposals, and grant writing									(7)	10% 98	(6)	11% 91
Program planning and evaluation									(10)	8% 77	(9)	9% 72

Table 38. Perceived Training Needs – Top 10 Choices Identified by the Numbers of Parentheses (Question 25)												
Topic	Total Workforce		WIC Nutrition Workforce						Non-WIC Nutrition Workforce			
			All		Professional		Paraprofessional		All		Professionals	
Leadership and team building					(10)	9%						
		15%		15%		12%		22%		15%		13%
No response or missing		1591		1432		724		700		139		112
Total respondents (does not equal choices)		10309		9330		6199		3114		955		836

*Children with Special Health Care Needs

Affiliation with Professional Organizations

Participation in professional organizations is an indicator that the workforce is linked to groups that will afford them opportunities for professional growth and development. Among public health nutrition workers in professional job classifications, there is considerable participation in national organizations. Participation is much greater in the American Dietetic Association (ADA) than in any other organization. As depicted in Table 39, 69.8 percent of the non-WIC workforce reported membership in ADA, and approximately one-third (36.8 percent) of the WIC respondents indicated they were ADA members. The workforce also had significant numbers of members in the American Public Health Association, the International Lactation Consultant Association, and the Society for Nutrition Educators.

An analysis of the participation of WIC paraprofessional and WIC professional workers (Table 40) confirms that persons in professional job classifications have a much higher level of membership in national professional organizations than do workers in paraprofessional job classification. More than half (53.2 percent) of professional workers report membership in ADA, and 11.1 percent are members of the National Association of WIC Directors (NAWD).³³ Otherwise, membership in any one organization is less than five percent of the respondents. Paraprofessional workers rarely report participation in one of the national organizations listed, although for those who do, the most frequent participation is in ADA (4.2 percent). Insofar as the organizations listed are primarily oriented toward professionals rather than paraprofessionals, there is less opportunity for paraprofessionals to join organizations. Registered dietetic technicians (DTRs) can become members of ADA, but less than 2.5 percent of the workforce are DTRs.

Given WIC's educational mission, and the numbers of respondents who indicate the need for training in nutrition counseling, behavior change and client education, increased participation in national organizations that sponsor and support training opportunities should be encouraged.

³³ NAWD is now known as the National WIC Association (NWA).

Table 39
Membership in Professional Organizations for WIC and Non-WIC Workers (Question 26)*

Organization	WIC		Non-WIC	
American Association of Diabetes Educators	127	1.4%	63	6.6%
American Association of Family and Consumer Sciences	88	0.9%	18	1.9%
American Dietetic Association	3437	36.8%	667	69.8%
American Public Health Association	274	2.9%	71	7.4%
American Public Human Services Association	2	<0.1%	0	0.0%
American School Food Service Association	20	0.2%	20	2.1%
ASTPHND	55	0.6%	42	4.4%
International Lactation Consultant Association	212	2.3%	13	1.4%
National Association of WIC Directors	715	7.7%	5	0.5%
National Association. Of Child And Adult Care Food Program Professionals	5	0.1%	17	1.8%
Society for Nutrition Education	165	1.8%	54	5.7%
Society of Public Health Educators	18	0.2%	16	1.7%
Other national professional associations	402	4.3%	98	10.3%
Total Respondents	9330		955	

*Numbers include multiple responses per respondent.

Table 40
 Membership in Professional Organizations (Question 26) for WIC Professionals and Paraprofessionals*

Organization	WIC Professionals		WIC Paraprofessionals**	
	Count	Percentage	Count	Percentage
American Association of Diabetes Educators	122	2.0%	5	0.2%
American Association of Family and Consumer Sciences	83	1.3%	5	0.2%
American Dietetic Association	3300	53.2%	131	4.2%
American Public Health Association	264	4.3%	10	0.3%
American Public Human Services Association	1	<0.1%	1	<0.1%
American School Food Service Association	18	0.3%	2	0.1%
ASTPHND	55	0.9%	0	0%
International Lactation Consultant Association	177	2.9%	35	1.1%
National Association of WIC Directors	689	11.1%	24	0.8%
National Association of Child and Adult Care Food Program Professionals	5	0.1%	0	0.0%
Society for Nutrition Education	154	2.5%	9	0.3%
Society of Public Health Educators	10	0.2%	8	0.3%
Other national professional associations	337	5.4%	65	2.1%
Total Respondents	6199		3144	

*Numbers include multiple organizations per respondent.

**Includes nutrition technician, nutrition assistant, breastfeeding counselor, and other.

Geographical Distribution of the WIC Workforce Respondents

Table 41 shows the distribution of the WIC workforce respondents across the states and territories in comparison to the distribution of WIC participants/clients. California had the largest proportion of both the WIC workforce respondents (24.8 percent) and WIC participants (17.1 percent).³⁴ Six (6.3) percent of the total workforce worked in New York, which accounted for 6.5 percent of WIC participants in FY 2000. Another large state, Texas, provided services to 10.3 percent of WIC participants and accounted for only 4.5 percent of the workforce.

³⁴ The distribution of the WIC workforce and WIC participants are not directly comparable because of the different workforce response rates across the states.

Table 41
Distribution of WIC Workforce Respondents* and WIC Participants by State

State	WIC Workforce		WIC Participants	State	WIC Workforce		WIC Participants
	N	Percent	Percent		N	Percent	Percent
Alabama	76	0.8	1.4	Montana	32	0.3	0.3
Alaska	32	0.3	0.3	Nebraska	54	0.5	0.5
American Samoa	NR			Nevada	74	0.8	0.5
Arizona	287	2.9	1.7	New Hampshire	27	0.3	0.3
Arkansas	50	0.5	1.2	New Jersey	90	0.9	1.8
California	2,488	24.8	17.1	New Mexico	101	1.0	0.8
Colorado	223	2.3	1.0	New York	616	6.3	6.5
Connecticut	56	0.6	0.7	North Carolina	327	3.3	2.7
Delaware	17	0.2	0.2	North Dakota	82	0.8	0.2
District of Columbia	29	0.3	0.2	Ohio	356	3.6	3.4
Florida	405	4.1	4.2	Oklahoma	80	0.8	1.3
Georgia	202	2.1	3.0	Oregon	193	2.0	1.2
Guam	24	0.2	0.1	Pennsylvania	350	3.6	3.2
Hawaii	36	0.4	0.5	Puerto Rico	94	1.0	3.0
Idaho	NR			Rhode Island	30	0.3	0.3
Illinois	310	3.1	3.4	South Carolina	139	1.4	1.5
Indiana	192	1.9	1.7	South Dakota	23	0.2	0.3
Iowa	117	1.2	0.9	Tennessee	178	1.8	2.1
Kansas	85	0.9	0.7	Texas	439	4.5	10.3
Kentucky	86	0.9	1.6	Utah	61	0.6	0.8
Louisiana	132	1.3	1.8	Vermont	18	0.2	0.2
Maine	65	0.7	0.3	Virgin Islands	16	0.2	0.1
Maryland	161	1.6	1.3	Virginia	227	2.3	1.8
Massachusetts	308	3.1	1.6	Washington	45	0.5	2.0
Michigan	112	1.1	3.0	West Virginia	89	0.9	0.7
Minnesota	198	2.0	1.3	Wisconsin	182	1.8	1.4
Mississippi	72	0.7	1.3	Wyoming	20	0.2	0.2
Missouri	131	1.3	1.7	Indian Tribal Orgs.	56	0.6	0.6
				Total	9,853		7,145,416

*Refers to respondents, including vacant positions, which is not necessarily the total number of WIC workers. Responses rates varied across states as described in Table 2.

Diversity

The elimination of ethnic, racial, and class disparities is one of the two overarching goals for “Healthy People 2010.” The development of a culturally-competent health services workforce is one strategy toward the accomplishment of that goal.³⁵ Another objective (1-8) is to increase representation of ethnic and racial minorities in the health professions. Toward those ends, the question on training needs included the topics of “communicating with low-literacy populations” and “cultural competency.”

Analysis revealed that these two topics were selected rather infrequently, considering the extent to which they are discussed in the public health literature. As shown in Table 37, neither topic was among the 10 most frequently perceived training needs out of the possible 35 areas. Among the entire workforce, 615 respondents (6 percent) selected communicating with low-literacy populations as one of up to three possible training needs, and 504 (3.9 percent) selected cultural competency. However, a comparison of the choices of WIC paraprofessionals and professionals indicates that communication with low-literacy populations ranked as the ninth most frequently selected training need among paraprofessionals.

In 1994, 10.9 percent of respondents selected cultural competency as one of their training needs, ranking it 12th in a list of 17 fixed-choice training needs. Communicating with low-literacy populations was not included in the list from which respondents were able to select in 1994. Why the workforce assigned a relatively low priority to cultural competency and communication with low-literacy populations cannot be determined. Possible reasons might be – perceived competency, lack of awareness, and/or greater needs in other areas.

The workforce census also collected information on the ethnicity, race and gender of public health nutrition workers, as well as their primary and secondary languages. These data can be compared in several ways. Tables 42-45 show the characteristics of the workforce, by WIC and non-WIC. The lack of diversity is most evident in gender.³⁶ Over 95 percent of the responding workers were female (Table 42), and in this regard they are very much like the WIC client population.

Ethnicity and racial diversity is generally greater among WIC workers than among the non-WIC workforce, as shown in Tables 43-45:

- 20.8 percent Latino/Hispanic compared to 5.8 percent
- 11.5 percent African American compared to 7.4 percent
- 6.6 percent Asian compared to 5 percent

The high nonresponse to the question on racial identification (Table 44) is difficult to interpret. Nonresponse was not randomly distributed. It was considerably higher among WIC respondents (15.2 percent) than among non-WIC workers (4.4 percent) as well as in comparison to the nonresponse of 7.8 percent in 1994. Almost two-thirds (63 percent) of the nonrespondents to

³⁵ For information on standards for cultural competency and increasing minority recruitment and retention in the health professions, visit www.omhrc.gov

³⁶ According to 1998 Bureau of Labor Statistics information, 84 percent of U.S. dietitians and nutritionists are female: <ftp://158.72.84.9/ftp/bhpr/workforceprofiles/DC.pdf>

race were from the state of California (933/1,482) — or, stated another way, 37.1 percent of California respondents did not respond to this item.³⁷

In Table 45, racial categories include respondents who indicated they were one race only, as well as respondents who indicated they were two or more races.

Table 42

Gender of the Workforce (Question 27)

Gender	WIC		Non-WIC	
Male	305	3.3%	33	3.5%
Female	8877	95.1%	907	95.0%
No Response	148	1.6%	15	1.6%
Total	9330	100%	955	100%

Table 43

Ethnicity of the Workforce (Question 28)

Ethnicity	WIC		Non-WIC	
Latino / Hispanic	1944	20.8%	55	5.8%
Not Latino / Hispanic	4576	49.0%	629	65.9%
No Response	2810	30.1%	271	28.4%
Total	9330	100%	955	100%

Table 44

Racial Background of the Workforce (Question 29)

Race*	WIC		Non-WIC	
One race reported:				
American Indian or Alaska Native	79	0.8%	7	0.7%
Asian	602	6.5%	48	5.0%
Black or African American	1055	11.3%	69	7.2%
Native Hawaiian or Other Pacific Islander	29	0.3%	4	0.4%
White	6095	65.3%	779	81.6%
Two or more races reported	48	0.5%	6	0.6%
No Response	1422	15.2%	42	4.4%
Total	9330	100%	955	100%

*See questionnaire, Question 29, in Appendix C.

³⁷ While it was beyond the scope of this study to examine fully this issue, it is of interest to note that California residents had a much higher (19.4%) response of “some other race” to the 2000 U.S. Census than did the total population (6.6%). U.S. Census Bureau, Census 2000, Table DP 1. Profile of General Demographic Characteristics. See <http://www.census.gov/> The “some other race” was not a response choice in the ASTPHND workforce survey.

Table 45
Racial Background of the Workforce (Question 29)

Race alone or in combination with one or more other races*	WIC		Non-WIC	
	Count	Percentage	Count	Percentage
American Indian or Alaska Native	108	1.2%	12	1.2%
Asian	619	6.6%	48	5.0%
Black or African American	1069	11.4%	71	7.4%
Native Hawaiian or Other Pacific Islander	32	0.3%	4	0.4%
White	6131	65.4%	784	81.6%
No Response	1422	15.2%	42	4.4%
Total Respondents **	9381	100.0%	961	100.0%

* Respondents may select more than one race.

**The categories in this table are not mutually exclusive. Respondents selecting two or more racial categories are included in each of the categories selected, so column totals are greater than the total number of respondents.

Table 46 shows the racial and ethnic composition of the U.S. population, the public health nutrition workforce, the WIC nutrition workforce, and WIC participants. Different treatments of nonresponse and variation in fixed response categories limit the comparisons that can be made.³⁸ Although a higher proportion of the U.S. population reporting one race categorizes itself “white” than does the public health nutrition workforce, (75.4 percent and 66.7 percent, respectively), there is not a corresponding higher proportion of reported minority races among the workforce respondents. Relatively few of the workforce respondents (0.5 percent) selected two or more races compared to 2.4 percent in the total population in the U.S. 2000 Census.

The ethnicity and racial composition of the WIC workforce has yet to reflect the characteristics of the WIC participants themselves. For example, African Americans are underrepresented in the WIC workforce (11.3 percent) *both* in comparison to their representation in the general population (12.3 percent) and among WIC participants (22.9 percent), while Latinos, who constitute 20.8 percent of the WIC workforce, make up 32.3 percent of WIC participants but less than 13 percent of the U.S. population (Table 46). This difference is particularly deserving of further analysis in that a compilation of information on the representation of minorities in the health professions indicated that 18.2 percent of dietitians were Black and 4.3 percent were Hispanic.³⁹

Table 46

³⁸ For example, the National Survey of WIC Participants considered Hispanic (Latino), non-Hispanic whites and non-Hispanic Blacks as mutually exclusive classifications. The U.S. Census and the 2000 ASTPHND survey collected data on ethnicity (Hispanic/Latino) and race in two separate questions.

³⁹ <ftp://158.72.84.9/ftp/bhpr/workforceprofiles/DC.pdf>

Diversity of the U.S. Population, PH Nutrition Workforce, and WIC Participants				
Race	U.S. Population 2000 ⁴⁰	PH Nutrition Workforce 2000	WIC Workforce 2000	WIC Participants 2001 ⁴¹
One race reported	97.6%	85.1%	84.2%	
American Indian/Alaskan Native	0.9%	0.8%	0.8%	1.5%
Asian	3.6%	6.3%	6.5%	3.2%** 22.9%
Black or African American	12.3%	10.9%	11.3%	Non-Hispanic
Hawaiian/Pacific Islander	0.1%	0.3%	0.3%	Not reported
White	75.4%	66.7%	65.3%	39.2% Non-Hispanic
Other race	5.5%	***	***	
Two or more races	2.4%	0.5%	0.5%	Not collected for this time period
No response race	Not shown	14.4%	15.2%	0.8%
Ethnicity				
Latino/Hispanic	12.5%	19.4%	20.8%	32.3%

*Non-Hispanic/Latino

**Includes Pacific Islanders

***Question did not include “other race” response choice.

Like cultural competency, linguistic competency is important for the achievement of 2010 objectives. Eighty-three percent of the nutrition workforce reported English as the primary language. English predominates somewhat more in the non-WIC workforce (91 percent) than among WIC workers (83 percent). Nearly 30 (27.6) percent report Spanish as either the primary or secondary language, including 28.9 percent of the WIC workers. More than one-third (36 percent) speaks more than one language. Although many languages are spoken, with the exception of Spanish, Tagalog, (1.6 percent), and African-based languages (1.3 percent), and French (1.3 percent), no other languages were reported as primary or secondary by more than 1 percent of the national workforce (Table 47).

In 1994, 80 percent of all respondents and 82 percent of WIC respondents said their primary language was English. More than 15 percent (15.7 percent) said they spoke Spanish as either their primary or secondary language. The increase since 1994 in the numbers of Spanish-speaking workers appears to be primarily due to the inclusion of the California workforce in 2000. In states other than California, 18.6 percent of the respondents reported speaking Spanish as their primary or secondary language.

One of several efforts under way to improve the diversity of the public health nutrition workforce is a project of the American Public Health Association, Food and Nutrition Section targeting undergraduate nutrition programs. Marketing materials are being developed to teach these

⁴⁰ U.S. Census Bureau, Census 2000, Table DP 1. Profile of General Demographic Characteristics. See <http://www.census.gov/>

⁴¹ National Survey of WIC Participants, Abt Associates, Inc., USDA, FNS, Report No. WIC-01-NSWP, October 2001 <http://www/fns.usda.gov/oane>

undergraduates about opportunities in public health.⁴²

Table 47
Primary and Secondary Languages Reported by WIC and Non-WIC Respondents

Language	WIC				Non-WIC				Total			
	Primary		Secondary		Primary		Secondary		Primary		Secondary	
African Languages	106	1.1%	21	0.2%	11	1.2%	2	0.2%	117	1.1%	23	0.2%
Cambodian or Khmer	22	0.2%	53	0.6%	0	0.0%	9	0.9%	22	0.2%	62	0.6%
Chinese	61	0.7%	44	0.5%	6	0.6%	2	0.2%	67	0.6%	46	0.4%
Eastern European Languages	4	<0.1%	13	0.1%	0	0.0%	1	0.1%	4	<0.1%	14	0.1%
English	7704	82.6%	1127	12.1%	870	91.1%	38	4.0%	8578	83.2%	1165	11.3%
French	17	0.2%	99	1.1%	4	0.4%	13	1.4%	21	0.2%	112	1.1%
Haitian or Creole	9	0.1%	15	0.2%	2	0.2%	0	0.0%	11	0.1%	15	0.1%
Hmong	40	0.4%	6	0.1%	0	0.0%	0	0.0%	40	0.4%	6	0.1%
Korean	4	<0.1%	2	<0.1%	0	0.0%	0	0.0%	4	<0.1%	2	<0.1%
Laotian	9	0.1%	10	0.1%	0	0.0%	0	0.0%	9	0.1%	10	0.1%
Native American Languages	7	0.1%	6	0.1%	0	0.0%	1	0.1%	7	0.1%	7	0.1%
Portuguese	11	0.1%	21	0.2%	1	0.1%	3	0.3%	12	0.1%	24	0.2%
Russian	9	0.1%	9	0.1%	0	0.0%	1	0.1%	9	0.1%	10	0.1%
Sign	1	<0.1%	34	0.4%	0	0.0%	3	0.3%	1	<0.1%	37	0.4%
Spanish	881	9.4%	1820	19.5%	27	2.8%	116	12.1%	908	8.8%	1940	18.8%
Tagalog	119	1.3%	54	0.6%	9	0.9%	5	0.5%	128	1.2%	59	0.6%
Thai	9	0.1%	6	0.1%	0	0.0%	0	0.0%	9	0.1%	6	0.1%
Vietnamese	38	0.4%	10	0.1%	0	0.0%	0	0.0%	42	0.4%	10	0.1%
Other	69	0.7%	113	1.2%	5	0.5%	14	1.5%	74	0.7%	127	1.2%
No Response or None	210	2.3%	5867	62.9%	20	2.1%	747	78.2%	246	2.4%	6634	64.4%
Total	9330		9330		955		955		10309		10309	

⁴² Food and Nutrition Section exposes students to public health careers, The Nation's Health, vol. XXXII, February 2002. For more information, contact Annie B. Carr <abc1@cdc.gov>

Conclusions

Since 1994, the public health nutrition workforce has increased in full-time equivalents as well as number of positions. The USDA, primarily through the WIC Program, is increasingly the main support for the public health nutrition workforce. USDA was the funding source for 82.3 percent of the total full-time equivalents constituting the workforce, with WIC providing the funds for 81 percent. Other federal funding as well as state support appears to have declined proportionately since 1994. Ninety percent of the public health nutrition workers spend some or all of their time working in the WIC Program, and the great majority of WIC nutrition staff is located at the community level, where direct client services are provided. Two-thirds of the WIC nutrition workers are in professional job classifications and about one-third are classified as paraprofessionals, an increase in the proportion of paraprofessionals from 19.4 percent in 1994. Efforts to increase the overall academic qualifications of the WIC workforce have yet to be realized.

Direct client services include such activities as assessment of a client's nutritional status, individual counseling, group education, and developing individual care plans. Overall, 75.3 percent of the entire workforce spends more than half of their work time in direct services. Although WIC paraprofessionals (84.9 percent) are considerably more involved in direct services than are professional workers, 74.9 percent of persons in professional job categories spend 50 percent or more of their work time in direct services. One-third (37.2 percent) of paraprofessionals and 18 percent of professionals spend *all* of their time in direct services. While there is variation by job classification, overall, the entire public health nutrition workforce is heavily involved in direct client services. Nevertheless, the majority of workers, including 56.8 percent of paraprofessionals, are devoting some time to public health functions other than direct client care. It should be of considerable concern to public health officials that the public health nutrition workforce has become increasingly dependent upon a single source of support (USDA WIC) and is primarily focused upon direct client services during a period when the achievement of national health objectives require population-based environmental approaches.⁴³

Public health nutrition workers constitute a very experienced workforce. Among those in WIC, 47.3 percent have worked in the nutrition profession for more than 10 years, including 30.1 percent with at least an equivalent period in the WIC program. At the other end of the spectrum, 38.2 percent of the WIC nutrition workforce have worked in the program for less than five years and 28.0 percent have less than five years of experience in the field of nutrition. Compared to paraprofessionals, WIC professionals tend to have somewhat more years of experience in WIC as well as in public health nutrition and in the field of nutrition. Non-WIC workers report even longer tenures in comparison to their WIC counterparts: 67.7 percent have worked in nutrition for more than 10 years, and 38.4 percent in public health nutrition for a similar period. Data on age of the workforce were not collected, but the proportion of respondents that have been working in the field for 20 years and longer suggests that the eventual replacement of workers as they retire is an issue requiring consideration by public health officials.

⁴³ See Guidelines for Comprehensive Programs to Promote Healthy Eating and Physical Activity: A publication of the Nutrition and Physical Activity Work Group, Susanne Gregory, Editor, 2002, www.astphnd.org accessed July 17, 2002.

To the extent that data were reported, median salary ranges for all public health nutrition job classifications appear to have increased from 1994 to the period during which this survey was conducted in late 1999 and early 2000. However, it is unclear whether the increases have kept up with inflation.

Overall, the academic preparation of the public health nutrition workforce appears to be commensurate with registration and licensure requirements, as well as general job classifications and expectations for professional and paraprofessional work in the field of nutrition. However, the workforce as a whole has very limited formal training in public health, including public health nutrition. Half of the WIC nutrition workforce has a bachelor's degree in nutrition or dietetics and 11.7 percent have a master's degree in the same. Two-thirds (37.6 percent) of the respondents in the 2000 survey indicated they are RDs. Only 1.6 percent of those who are not registered are RD-eligible. The proportion of RDs among the WIC nutrition workforce has not increased since 1994, when it was 38.4 percent, nor has the proportion of DTRs within the WIC workforce increased. Non-WIC workers, who in comparison to the WIC workforce are more likely to be classified as professionals rather than paraprofessionals, have a higher proportion of persons who are RDs (77.1 percent) and have advanced training.

Excluding the state of California for purposes of comparability, the *number* of WIC workers responding that they are RDs increased from 2514 in 1994 to 2674 in 2000 (approximately 6.0 percent), a period of time during which funding and numbers of recipients also increased. The proportion of the WIC workforce with RDs in comparison to workers without this certification appears to have remained constant, a period of time during which funding and numbers of recipients also increased. The proportion of the WIC workforce with RDs in comparison to workers without this certification appears to have remained constant.

Information reported on academic training, both completed and in-process, the steps taken toward certification, and completion of core public health courses suggests that upgrading and enhancement of the skills and qualifications of this workforce cannot be expected to occur automatically as a result of trends that are under way. Only a small proportion of currently employed paraprofessional workers can be described as having the academic background necessary for mobility into positions classified as professional.

Likewise, only a very small percentage of public health nutrition workers indicated they are actively pursuing bachelor's degrees in nutrition/dietetics or public health/community nutrition. Responses suggest the preparation of the workforce in the area of nutrition and dietetics is not being enhanced by academic work toward a degree undertaken during their employment.

Strategies to enhance the skills of the workforce are limited by the number of workers who have the basic academic qualifications to take advantage of distance learning, self-study and continuing education. Examination of the *highest* degree obtained by these workers suggests that certification and upward mobility will be difficult for the paraprofessional WIC workforce; 69.1 percent of these workers do not have a college degree, including the associate degree. Among the professional workers, the 66 percent whose highest degree is at the bachelor's level could reasonably be expected to have the background for additional specialized training in public

health nutrition.

The lack of training in public health and/or public health nutrition among the workforce is of concern. Less than 10 percent of all workforce respondents report having a public health-related degree. Although significant proportions of those workers who do not have a public health-related degree have completed one or more of the five core public health courses, only a relatively small proportion reported course work in epidemiology (5 percent) or environmental health sciences (7 percent).

When asked to identify their training needs, respondents' choices clustered in the general area of client and population groups, which would tend to enhance their skills in direct client services rather than in skill areas focusing upon assessment, environmental change and policy development. WIC workers continue to request training on the nutritional concerns of infants, children, and pregnant women, as well as on the subject of breastfeeding. As in 1994, the topic of nutrition for children with special health care needs remains one of the top perceived training needs.

The dedication of high proportions of time of WIC and non-WIC workers, paraprofessionals and professionals to the provision of direct client services and the concentration of perceived training needs around client and population issues raises questions about the extent to which the public health nutrition workforce will be able to contribute to the critical environmental and population-based approaches to the improvement of the nation's health.

Overall, the WIC nutrition workforce is somewhat more diverse than the overall U.S. population, but the racial and ethnic composition of the workforce does not reflect the racial or ethnic characteristics of the WIC participants themselves, nor is it clear that the workforce has become more diverse. Nearly 30 percent of the nutrition workforce speak Spanish as either their primary or secondary language, and 36 percent speak more than one language.

Limitations of the Study

Although ASTPHND as an organization and its members as individuals had considerable experience in survey data collection, many things were learned and/or reinforced throughout the data collection and analysis. Many of the study limitations are inherent in the design and were discussed or implied in the section on study design. Any approach has its own unique strengths and weaknesses; modifications of this design would have introduced other limitations.

Because of the decentralized data collection, the study did not incorporate quality-control features that are typically used in large-scale surveys. For example, the study did not resurvey a sample of respondents or include a process for assuring that questionnaires were actually distributed and completed as intended.

Data entry at the state level affected data quality. Although the instructions suggested that standard duplicate data entry (for which EpiInfo does provide) be used, this was not emphasized, primarily because ASTPHND believed it would be too burdensome. Calls for assistance indicated that persons assigned to complete data entry were not always well prepared. The EpiInfo data-entry program is not conducive to viewing data-entry errors.

While the overall response rate was excellent, item nonresponse posed limitations. ASTPHND is unable to determine whether the item responses could have been improved by modifying instructions and/or response categories. More extensive pretesting possibly would have been helpful. Pretesting was not sufficient to gauge variations in interpretations of items due to differences in the structure of public health programs. The three pretest states may not have provided a sufficient range of experience. Responses appeared not to capture the varying interpretations of questions later encountered in survey administration.

Variation across states in interpretation of study directions concerning inclusion of various categories of workers, in addition to differences in state program structure and response rates, was discussed in the section on study design. The lack of comparability across states limits comparisons and affects the validity of generalizations concerning the public health nutrition workforce.

Although a process for estimation of the state-specific and overall response rates was provided, initial submissions suggested that not all state survey administrators had maintained the required records.

Data collection took much longer than planned by ASTPHND or by individual states. This is perhaps a reflection of the decreasing resources in state health agencies, which increases the burden of work for each individual public health worker. Also, the burden of response was probably underestimated. Lack of adherence to the study schedule affected the analysis and the provision of state-specific profiles to the state directors. Additional resources to provide more assistance to states will need to be considered in future surveys, along with methods to streamline data entry, including online surveys.

Given the time and effort of the state and local nutritionists to complete the survey, the study would have benefited from more resources for data analysis. Procedures for estimation of missing values and multivariate analysis may have been appropriate to address certain analysis objectives.

Appendix A

ASTPHND Data and Epidemiology Committee

Barbara Keir, Chair, Texas
Nancy Berger, Connecticut
Joyce Dougherty, Washington
Denise Ferris, West Virginia
Carole Garner, Arkansas
Linda Peterson, Wisconsin
Ruth Shrock, Ohio
Annie Siu-Norman, Missouri

Appendix B

Instructions for Data Collection

1999 PUBLIC HEALTH NUTRITION WORKFORCE SURVEY

INSTRUCTIONS FOR ASTPHND DESIGNEES

In this file/packet you will find the instructions and forms to conduct the 1999 Public Health Nutrition Workforce Survey in your state. These instructions are being sent to you by regular mail as well as by e-mail. The survey questionnaire is not being sent electronically: It is in the mailed packet. Otherwise, the contents are the same.

As you know from numerous preceding communiqués and discussions at the annual conference in June in Indianapolis, ASTPHND has received support from the USDA to conduct a census of the public health nutrition workforce. Many of you have experience administering the biennial workforce surveys during the period 1989-1994. As in past years, the survey is designed for administration, editing and data entry to be conducted at the state level. The questionnaire is a fixed response format that can easily be completed in 15 minutes by most respondents. Data analysis and report preparation will be completed by ASTPHND.

Step 1—Review enclosed survey administration materials and participate in orientation conference call.

We are scheduling a choice of conference call times during the period September 21—29 to orient you to conducting the survey in your state. Next week we will e-mail you the schedule and directions for calling in. If you cannot participate in one of scheduled calls, we will arrange another time. During the conference call, these instructions will be reviewed and your questions answered. It is important that you or the person carrying out the survey in your behalf participate in the call and that there is consistent management throughout the survey process. In the event that someone is “acting designee” for any period during the next few months, please arrange for that person to have access to your e-mail, or leave instructions with your secretary for forwarding e-mail messages to that person. We ask that you do this so that we can establish a consistent mechanism of communication with your state.

Please review these materials, as well as the August 9 e-mail update from ASTPHND, in preparation for the conference call. If you have immediate questions, contact Mary McCall at cubammc@aol.com.

The complete survey instruction packet contains:

1. Instructions for conducting the survey.
2. 2 forms (Transmittal to State Form and Transmittal to ASTPHND Form) to assist with record keeping and tracking response rates.
3. The questionnaire for you to copy and distribute in your state. (in mailed packet only)
4. A “vacant position” questionnaire for you to copy and distribute.
5. Instructions for data entry using EpiInfo (to be sent next month)
6. A disk with the EpiInfo data entry and editing programs. (to be sent next month)

Step 2—Decide which program/nutrition workers to survey.

This is a census of the public health nutrition workforce in your state. All persons who work as nutrition professionals or nutrition paraprofessionals in public health nutrition programs, such as WIC, OR in other public health programs or services under the purview of the state health agency, should complete the questionnaire—the 1999 PUBLIC HEALTH NUTRITION WORKFORCE SURVEY. This would include, for example, for-profit, non-profit and local health agencies that carry out public health nutrition activities under a contractual or grantee relationship with the state. These individuals may work as a contractor or employee, full or part time. Persons who work in a support capacity or in another profession (for example, an accountant, nurse, or physician) in a public health nutrition program are **NOT** to be included. For example, the survey should not be administered to nurses who function as certifying officials in WIC clinics – even if they are the primary person providing counseling and education to WIC participants.

Persons who are nutritionists or dietitians by education or training, but who are in non-nutrition related positions are **NOT** to be included. Likewise, nutritionists who work in clinical or academic programs or institutions are not included.

ASTPHND is mailing questionnaires directly to WIC Programs operated by Indian Tribal Organizations. However, if there are other public health nutrition professionals or paraprofessional working with Indian Health Service programs in your state, please include them in your survey.

The scope of public health nutrition services varies considerably from state to state, making it impossible to explicitly define or list each position that should be included in your state. Each ASTPHND designee will need to decide based upon her/his knowledge of programs and position classification schemes. To resolve issues on inclusion, including which tribal organizations have been surveyed, contact Barbara Keir (Barbara.Keir@TDH.State.TX.US)

Step 3—Communicate in advance with public health nutrition programs and prospective respondents about the upcoming survey.

Advance notification of and request for participation in a survey is known to boost response rates. Use whatever communication mechanisms you have—newsletters, staff meetings, broadcast fax, list serves, web sites, e-mail and bulletins—to inform people of the upcoming survey and when it will be distributed. This will help program managers to incorporate it into their schedules and will increase cooperation. When you publicize the survey, you can include a few sentences about its purpose and how it will be used. Afterwards, you can thank them for their participation and give them information on the responses and summary findings.

WAIT UNTIL AFTER YOU HAVE COMPLETED THE ORIENTATION CONFERENCE CALL TO COMPLETE THE REMAINING STEPS.

Step 4—Prepare cover letter and distribute questionnaire, vacant position questionnaire and other materials.

Use colored paper to make as many copies of the questionnaire as needed for your state. A color

will get the respondent's attention and makes the questionnaires easier to track. Before making copies, fill in the blank space on page 1 about who to contact for help. Because we were required to obtain clearance from the Office of Management and Budget, as indicated by the OMB number on its first page, the questionnaire cannot be modified. That is, you cannot attach additional questions to the body of the survey itself.

It's OK to use two-sided copies.

Each state ASTPHND representative should attach a cover page or letter to the questionnaire. The cover page or letter should contain at least the following information:

1. To whom the questionnaire should be distributed (which agencies, programs, and categories of personnel), using terminology with which persons in the state are familiar. After you have reviewed each of the questions and fixed responses, you may need to "translate" some of the terms and concepts into language that workers in your state are familiar with. For example, the functional names for different categories of nutrition workers (see the attachment on the last page of these instructions) may be different from the job titles and/or personnel classifications used in your programs. In addition to the instructions on the first page of the questionnaire, you may need to explain who should, and should not, participate in the survey.

2. Suggestions for how the survey should be distributed and completed, including how to obtain a high response rate. For example, if it can be distributed, completed and collected at a staff meeting or at the conclusion of a training event or conference, or if you yourself can administer it during a site visit, the response rate will be higher and less follow up time will be required for the coordinator. Staff should be given work time to complete it. You can also tell respondents that you will give them a summary of survey findings or do a presentation after the final report has been prepared.

Also, clarify responsibility for follow up on nonresponses. A MINIMUM of two contacts is to be made with each nonresponder. You can establish your own protocol for follow up.

3. Deadline for completion (allow enough time for distribution but not so much time that it gets put aside). Your deadline will depend upon your schedule, the mechanism for distribution, your resources and the size of your workforce. You should allow enough time for state-level data editing and entry. We are asking that you submit the completed data file to Barbara Keir by January 10, 2000.

4. How and where to submit completed questionnaires (batched, regular mail, fax or whatever works best in your situation), and directions for completion of the Transmittal to State Form. (See below.)

5. Who to contact (and how) to answer any questions respondents may have, particularly about sources of funding for positions. You can write the contact information in on page 1 of the questionnaire before it is copied.

6. Instructions for dealing with vacant positions (see vacant position form). A program manager will need to complete this form for each public health nutrition position that is currently vacant.

7. Instructions for obtaining more copies.

8. Instructions for dealing with unique situations in your state (federal/state WIC funds split, enhanced Medicaid). It will made data editing much easier if you take a few minutes to instruct respondents on how to answer certain items. You should also provide guidance with the items (question #16) on sources of funding because local staff often may not know the origin of funds.

Step 5—Maintain records of number of questionnaires distributed and collected.

In past workforce surveys some state nutrition directors have directly distributed the questionnaire to individual public health nutrition workers in the state. This will work well in smaller states, and/or if you can allocate administrative resources to the effort, if there is an accurate mailing list, or if the questionnaire can be distributed at training events, conferences or during site visits. Many of you will rely on staff in local agencies to distribute and collect the questionnaires. Most states will use a combination of direct distribution and distribution via local agencies.

Make a list of the persons, agencies, programs and/or offices to which you are distributing questionnaires. The list should include the contact person, date of distribution, number of questionnaires sent, and space for comments and notes. You can use the list to record dates and results of follow-up contacts and final results.

If you distribute multiple copies of the questionnaire for someone else to distribute and collect, attach a copy of the *Transmittal to State Form* to each bundle of questionnaires. You can make copies of the transmittal form, using a color different from the color of the questionnaire. Before making copies, fill in your name, address and contact information at the bottom of the form. For each group of questionnaires that you send out, fill out the information at the top of the form at to where you are sending the questionnaires. For best results, you will need to communicate personally regarding the importance of completing this form. When the completed questionnaires are sent back to your office, the completed *Transmittal to State Form* must be attached. Otherwise, you will have no way of knowing how complete the participation has been.

The *Transmittal to State Form* requires accounting for all questionnaires distributed: how many distributed in the program, how many returned from ineligible, how many completed and returned, how many refusals, how many vacant positions.

Whatever method you use to administer the survey, it is important to maintain accurate records for follow up and calculation of response rates. The *Transmittal to ASTPHND Form* will help you with record keeping. When you submit the state questionnaire data file, include this completed form. ASTPHND will use the information to calculate and compare response rates.

We realize the transmittal forms constitute additional steps not required and reported in previous surveys, however, standard survey procedures require accounting for responses and refusals.

Step 6—Protect Confidentiality and Privacy of Responses throughout the Survey Process

Participation in the survey is voluntary—employees and contractors are requested to participate. They are requested to give their names. They are given work time to participate. In this survey, respondents are asked to record their name and contact information on page 1 of the questionnaire. The reason for this is to allow you to go back to the respondent to obtain any missing information and/or to clarify incomplete or inconsistent information. Names are also obtained to facilitate follow up reminders to nonresponders.

Although the questions are not of a highly sensitive nature, OMB considers that some items request some “fairly confidential personnel information”. Therefore, you and your office, as well as any persons who are involved in the distribution and collection of questionnaires in your behalf, including secretaries and data entry clerks, need to implement protocols for handling confidential personnel records. You also need to assure that no personnel actions or intervention could result from information obtained through participation.

The instructions for data entry and preparation of the survey data file (to be sent later) will specify that the respondent’s name and contact information are NOT to be entered into the data file. The editing and data entry instructions will delineate steps for separating the contact information from the responses and storing them separately, as well as how long to keep the hard copies.

All completed questionnaires, both before and after submission to you, should be maintained in a locked area.

End of General Instructions—Forms Follow

Transmittal to ASTPHND Form—1999 Public Health Nutrition Workforce Survey

Please complete this form and include it when you send the state data file disk (or for those states that have arranged for ASTPHND to complete data entry, put the form on top of the questionnaires) to ASTPHND.

State _____

Name of State Nutrition Director/Designee _____

Phone/Fax/E-mail _____

Date of submission to ASTPHND _____

In order to calculate the response rate for this national census, we need to know the number of public health nutrition workers in your state that responded to the survey and also the number that did not respond. *Please note that many states use a combination of direct distribution to individuals and distribution to agencies. If this is the case in your state, you will need to supply numbers for both # 1 and 2 below.*

1. Did you give or send the questionnaire *directly* to any public health nutrition personnel in your state?

___ no

___ yes If yes: *Write the numbers in the spaces below.*

A. How many workers did you send/give it to? _____

B. How many workers completed and returned the questionnaire? _____

C. How many workers received the questionnaire and returned it because they did not meet the criteria? (question 4, #11) _____

D. How many workers **did not** complete and return the questionnaire? _____

The sum of the numbers in lines B through D should equal the number in line A.

E. How many forms were filled out for vacant positions? _____

2. Did you give or send the questionnaires to any agencies or organizations and ask them to distribute questionnaires to all their public health nutrition personnel?

___ no

___ yes If yes: *Use the Transmittal to State Forms submitted to you by organizations in your state to compile this information. Write the numbers in the spaces below.*

How many organizations/agencies did you send/give questionnaires to? _____

A. In total, how many workers received the questionnaire? _____

B. In total, how many workers completed and returned the questionnaire? _____

C. In total, how many questionnaires were returned for ineligibility? (question 4, #11) _____

D. In total, how many workers did not complete and return the questionnaire? _____

The sum of the numbers in lines B through D should equal the number in line A.

E. In total, how many forms were filled out for vacant positions? _____

**TRANSMITTAL TO STATE FORM
1999 PUBLIC HEALTH NUTRITION WORKFORCE SURVEY**

Complete and return this form when you return questionnaires.

Name _____ Phone _____
Organization _____ Date _____

In case there are questions during the data entry process, who should be contacted?

- A. How many public health nutrition workers did you send/give the questionnaire to?
Write the number here. _____
- B. (Of the number distributed) How many workers filled out and returned the questionnaire?
Write the number here. _____
- C. (Of the number distributed) How many workers received the questionnaire and returned it because they were ineligible, that is, they did not work in public health nutrition? (question 4, #11)
Write the number here. _____
- D. (Of the number distributed) How many workers **did not** fill out and return the questionnaire?
Write the number here. _____

The sum of lines B through D should equal the number in line A.

- E. How many “vacant position forms” are included in your submission?
Write the number here. _____

Return this form and the completed questionnaire to:

(To be completed by state nutrition director)

Appendix C

1999 PUBLIC HEALTH NUTRITION WORKFORCE SURVEY

WHY? The Association of State and Territorial Public Health Nutrition Directors with support from the United States Department of Agriculture is conducting a survey of public health nutrition personnel, including WIC staff, in all US states and territories. The purpose of the survey is to have current information on work responsibilities, areas of practice, training, and compensation and to use the information to support recruitment and retention. Several similar surveys have been conducted during the period 1989 through 1994. According to the Paperwork Reduction Act of 1995, no persons are required to respond to a collection unless it displays a valid OMB control number. The valid OMB control number for this information collection is O584-0497. The time required to complete this questionnaire is estimated to be 15-20 minutes for individual respondents and 20 hours for each state nutrition director to review procedures, compile lists of employees, distribute and collect questionnaires, edit and enter data, and maintain records.

WHO SHOULD COMPLETE THE SURVEY? – Every person classified or functioning as a nutritionist or paraprofessional in a public health program, which includes WIC, should answer each question as completely as possible. Please complete the questionnaire if you work in a nutrition position, even if your job currently encompasses additional responsibilities.

Persons who are nutritionists or dietitians by education or training, but who are in non-nutrition related positions should not complete the questionnaire. If you work in a support capacity or in another specialty (e.g. accountant, computer specialist, nurse, physician or receptionist), do not complete the questionnaire. Because the questions are being asked of nearly 8,000 nutrition personnel throughout the US and territories, the job titles, names of programs and examples may be somewhat different from your own work experience. Nevertheless, choose the answer that is closest to your own situation.

HELP? If you have questions about this survey or how to answer specific questions, contact your supervisor or _____. Use the definitions and job descriptions on the last page to answer question # 4.

USE OF INFORMATION? Please complete the individual contact information on this page and submit it with the completed questionnaire. The purpose for the contact information is to help the state nutrition director to edit and input the data. She/he may need to contact you to follow up on any incomplete items or to clarify some answers. Your name and contact information will **NOT** be entered into the database. Your responses are to be used for assessment purposes only. Your responses will not be maintained in personnel files, rather they will be used confidentially in our national efforts to improve recruitment and retention of nutrition workers.

Name _____ Phone _____ Fax _____ E-mail _____
Name and Address of Program _____

The Association of State and Territorial Public Health Nutrition Directors thanks you for your participation.

1999 PUBLIC HEALTH NUTRITION WORKFORCE SURVEY
Current Public Health Nutrition Practice

1. Check the type of agency where you are **employed** (or contracted). **Check only one.**
 1 State government health agency
 2 Local government (city, county) health agency
 3 Indian Health Services, tribal agency or tribal health center
 4 Non-profit organization
 5 For-profit organization
 6 Other, describe _____

2. Check the **primary location** where you work. **Check only one.**
 1 Central office of state government health agency
 2 Central office of district or regional (sub-state) government health agency
 3 Central office of local (county, city or multi-county) government health agency
 4 Community/rural/migrant health center or clinic
 5 Field office or clinic of a government health agency
 6 HMO or other managed care setting
 7 Hospital
 8 Indian Health Services, tribal agency or tribal health center
 9 Other private/independent entity/office
 10 Other, describe _____

3. Write in the blank your current position or job classification title. _____.

4. **Read** the Attachment on the **last page** for a description of job classifications. Check the job classification below that is **most similar** to your position. **Check only one.**
 1 Public health nutrition director
 2 Assistant public health nutrition director
 3 Public health nutrition supervisor
 4 Public health nutrition consultant
 5 Public health nutritionist
 6 Clinical nutritionist
 7 Nutritionist
 8 Nutritionist technician
 9 Nutrition assistant/aide
 10 Other, describe _____
 11 No **public health nutrition responsibilities** Stop here. Return the questionnaire.

5. How many years, including part time employment, have you practiced/been employed in the field of dietetics and/or nutrition? Write in the total number of years, rounding to the nearest year. If less than six months, write "0". _____ **Years**

6. Of the total number of years recorded in #5 above, for how many years have you practiced public health nutrition, including WIC? _____ **Years.**

7. Are you currently working in a WIC program?
 ___ Yes: How many years have you been working in the WIC program? ___ Years
 ___ No
8. How many full time equivalent employees (FTE), positions, and/or consultants do you currently supervise or have line authority for? Include any positions that are currently vacant. Write in the number converted to full time equivalents. Round to a whole number. If you do **not** have supervisory responsibilities, enter "0" and **go to question 10.** ___ FTEs
9. Of the number reported in #8 above, how many FTE **nutrition positions** do you currently supervise or have line authority for? Write in the number here. If you do **not** have supervisory responsibility for nutrition positions, enter "0". ___ FTEs
10. How much fiscal and budgetary responsibility and control do you have in your current position? **Check only one.**
 ___ 1 None
 ___ 2 Responsible for a specific budget
 ___ 3 Responsible for entire agency nutrition program budget
11. In a typical month, what percent of your time do you spend in direct client services, such as nutritional assessments, individual counseling, group education, or developing care plans? (Do not include working with health professionals or other organizations.)
 Write in the number. ___ Percent
12. Are you currently employed by your agency or contracted to your agency?
 ___ 1 Employed ___ 2 Contracted
13. Is this full or part time? (Full time is the number of hours per week defined by your personnel system.)
 ___ Full time--100%
 ___ Part time: write in the current percent time ___%
14. If you are a contract worker or consultant (instead of an employee), how are you paid?
 ___ 1 hourly rate ___ 2 Daily rate ___ 3 for specific services or products
 ___ 4 Retainer **Skip to # 16.**
15. If you are a **full time employee**, please record the ANNUAL salary range for your job classification as established by your agency's personnel system. Round to nearest dollar. If your employer does not have or disclose an established salary range for your position, record your current annual salary in the **minimum space below.**
- | | | |
|-------------------------|----------|----------|
| Minimum or first step | \$ _____ | per year |
| Maximum or highest step | \$ _____ | per year |
- If you are a **part time employee**, record your current annual salary in the space below.
- | | | |
|---------|----------|----------|
| Current | \$ _____ | per year |
|---------|----------|----------|

16. Check **all** sources of funding for your position and write in the percent of your time from each funding source. **If you are not sure about sources of funds for your position, ask your program manager or the contact listed on the cover page.** Your answers should add up to the total percent time reported in question #13. For example, if you are employed full time and have more than one funding source, your response should add up to 100%. If you are employed part time, your responses should add up to the percent time you specified in #13.

1st Example: You work half time (50%). You are funded by WIC. Check "WIC" and write in "50%".

2nd Example: You work halftime. You are funded half by WIC and half by the Maternal and Child Health Block Grant. In question #13, indicate you work 50% time. Then check both WIC and MCH Block Grant and write in 25% for each.

3rd Example: You work full time. Your position is paid for by a grant from a local foundation. Write "100%" in Foundation or corporate grants.

State Government Funding

- _____ % Non-specified State funds
- _____ % State funds legislatively earmarked for nutrition
- _____ % Tobacco settlement monies

Federal Government Funding--Department of Agriculture (USDA)

- _____ % WIC
- _____ % Food Stamps
- _____ % Child Nutrition (Child and Adult Care Food Program and/or NET)
- _____ % Other USDA, e.g., Commodity Supplemental Food Program

Federal Government Funding--Department of Health and Human Services

- _____ % CDC diabetes control
- _____ % Family Planning (Title X and Title XX)
- _____ % Indian Health Services
- _____ % Maternal and Child Health Block Grant (Title V)
- _____ % Medicaid non EPSDT (Title XIX)
- _____ % Medicaid EPSDT
- _____ % Older Americans Act (Title III)
- _____ % National Institutes of Health
- _____ % Preventive Health and Health Services Block Grant
- _____ % Ryan White HIV/AIDS
- _____ % Other, describe _____

Federal Government Funding-Education

- _____ % Early Childhood Intervention, Individuals with Disabilities Education Act (IDEA)(PL105-17)
- _____ % other, describe _____

Local Government Funding

- _____ % Local funds (city/county general revenue)

Other revenue, funding sources

- _____ % Fees, patient charges, or third party reimbursement
- _____ % Foundation or corporate grants
- _____ % Other, describe _____

17. Put “1” in the area of **public health nutrition practice** listed below in which you spend the **majority** of your time. If you have **2 major areas of practice**, place a “1” next to the primary area and a “2” next to the secondary area. If you have 3 **areas** of practice, place a “1” next to the 1st, a “2” next to the 2nd, and a “3” next to the 3rd area. **Do not mark more than 3.**

Assessment

- ___ 1 Data management, nutrition surveillance, or research
- ___ 2 Community assessments, program planning, or evaluation

Assurance

- ___ 3 Health facilities regulation
- ___ 4 Environmental health and/or food safety
- ___ 5 Program monitoring and/or quality assurance
- ___ 6 **Direct Client Services (Answer #18 below)**

Population-based Interventions

- ___ 7 Community organization, advocacy, or policy development
- ___ 8 Communication, mass media, or social marketing
- ___ 9 Emergency food, hunger, food security, Commodity Supplemental Foods Program **Management and administration**
- ___ 10 General management and administration

Other

- ___ 11 Please specify _____

18. If you selected **Direct Client Services** as a major area of your practice, which category below best describes the **majority** of your client work? Place a “1” by that category. If the majority of your client caseload is mixed, put a “1” by those you see the most, a “2” for second and “3” for third. Do not mark more than 3.

- ___ 1 General/comprehensive nutrition
- ___ 2 General women, infants and children
- ___ 3 General women’s nutrition and health
- ___ 4 General infant nutrition
- ___ 5 General child health or pediatric nutrition
- ___ 6 School and/or adolescent health
- ___ 7 Children with special health care needs, developmental disabilities, chronic illnesses, or high-risk infants and children
- ___ 8 Breastfeeding
- ___ 9 Adult health promotion, chronic disease prevention, or healthy aging
- ___ 10 Seniors, geriatrics, adult disabilities, or adult chronic disease control

Education and Training

19. Please check **ALL** degrees, and related majors and concentrations you have earned. Also check any degree(s), and related majors and concentrations you are currently working toward.

Type of Degree/Concentration	✓ Earned	✓ Working Toward
Associate Degree		
Nutrition/dietetics		
Other		
Bachelor's degree		
Nutrition/dietetics		
Public health nutrition/community nutrition		
Home economics/family consumer science/human ecology		
Health education		
Other		
Master's degree		
Nutrition/dietetics		
Public health nutrition/community nutrition		
Home economics/family consumer science/human ecology		
Public health, concentration _____		
Health education		
Other		
Doctoral degree		
Nutrition/dietetics		
Public health nutrition/community nutrition		
Home economics/family consumer science/human ecology		
Public health, concentration _____		
Health education		
Other		

20. If you do **NOT** have a degree in public health, public health nutrition or community nutrition, which of these five courses have you completed? Check **all** that you completed.

- Environmental health sciences
- Epidemiology
- Health services administration
- Social and behavioral sciences
- Statistics

20. Please check **all** certifications that apply to you.

- Registered dietitian (RD) with Commission on Dietetic Registration (CDR)
- Licensed or certified dietitian in your state
- Dietetic technician registered (DTR) with CDR
- Certified diabetes educator (CDE) with American Association of Diabetics Education
- International board certified lactation consultant (IBCLC)
- Other certification in lactation or breastfeeding
- Board certification as a specialist in pediatric nutrition (CSP) with CDR
- Certified health education specialist (CHES) **(continued next page)**

- Registered nurse (RN)
- Licensed practical nurse (LPN)
- State certified teacher
- Certified in Family & Consumer Sciences (CFCS), with American Association for Family & Consumer Sciences
- Other, please specify: _____

21. If you are **NOT a RD**, have you taken any of the following steps to become a registered dietitian? (Check **all** that apply.)

- Yes No Completed at least a baccalaureate degree
- Yes No Completed a didactic program approved by Commission on Accreditation-Approval for Dietetic Education (CAADE)
- Yes No Completed a supervised practice program accredited by CAADE
- Yes No Received a letter from CDR verifying eligibility to take exam

22. If you are **NOT a RD OR DTR**, have you taken any of the following steps to become a dietetic technician? (Check **all** that apply.)

- Yes No Completed at least an associate degree
- Yes No Completed a didactic program approved by CAADE
- Yes No Completed a dietetic Technician Program approved by CAADE
- Yes No Completed a Dietetic Technician Program supervised practice program accredited by CAADE
- Yes No Received a letter from CDR verifying eligibility to take exam

23. Which of these courses have you completed? Check all completed **after January 1995**.

- Intensive Course in Maternal Nutrition* – University of Minnesota
- Intensive Course in Nutrition for Infants, Children and Adolescents* – University of Alabama, Birmingham, Alabama
- Intensive Course in Pediatric Nutrition* – University of Iowa, Iowa City
- Neonatal Nutrition Training* – Medical University of South Carolina, Charleston, South Carolina or at the Indiana University School of Medicine, Indianapolis, Indiana
- Neonatal Nutrition and Leadership Education in Pediatric Nutrition* – James Whitcomb Hospital for Children, Indianapolis, Indiana
- Nutrition Concerns of the Child with Special Health Care Needs* – Cincinnati Center for Developmental Disorders, Cincinnati, Ohio
- Nutrition for Children with Special Health Care Needs: Nutrition Makes a Difference* – Center for Child Development and Developmental Disorder, Los Angeles, California
- Nutrition for Children with Special Health Care Needs: Nutrition Makes a Difference*– Sparks Center for Developmental and Learning Disorders, Birmingham, Alabama
- Professional Training course in Nutrition and Developmental Disabilities* – Boling Center for Developmental Disabilities, Memphis, Tennessee
- Others, describe _____

24. Mark **up to 3 areas** in which you need training for your current work. Use a “**B**” if you need **basic training**. Use an “**A**” if you have had training and now need **advanced** or specialized training. Mark no more than 3 in total.

Client and Population Groups

- ___ 1 Infant and pre-school age nutrition
- ___ 2 Childhood nutrition
- ___ 3 Adolescent nutrition
- ___ 4 Nutrition for children with special needs, developmental disabilities or high risk
- ___ 5 Prenatal nutrition
- ___ 6 Breastfeeding
- ___ 7 Women’s health
- ___ 8 Adult health promotion, chronic disease control, or healthy aging
- ___ 9 Seniors, geriatric nutrition
- ___ 10 High risk clients, including HIV positive, addictions
- ___ 11 Assessment of nutritional status
- ___ 12 Case management/care coordination
- ___ 13 Communicating with low literacy populations
- ___ 14 Cultural competency
- ___ 15 Eating disorders
- ___ 16 Nutrition counseling, behavioral change, client education
- ___ 17 Supplemental and alternative dietary therapies

Assessment Skills

- ___ 18 Applied research, data collection and analysis
- ___ 19 Community assessments
- ___ 20 Data management, surveillance and monitoring systems (including biostatistics/epidemiology)
- ___ 21 Fund raising, proposals and grantwriting
- ___ 22 Program planning and evaluation
- ___ 23 Use of current information technology, including computers

Population-based Interventions

- ___ 24 Advocacy and policy development
- ___ 25 Building coalitions and working in partnerships
- ___ 26 Communications, mass media, distance learning
- ___ 27 Environmental health and/or food safety
- ___ 28 Environmental and policy changes to support nutrition
- ___ 29 Hunger and food security
- ___ 30 Practice guidelines: development and use
- ___ 31 Social marketing

Management

- ___ 32 Cost effectiveness/benefit analysis
- ___ 33 Financial management
- ___ 34 General management
- ___ 35 Leadership and team building
- 36 **Other**, please be as specific as possible _____

25. Do you belong to any of the following professional organizations? Check all that apply.
- 1 American Association of Diabetes Educators
 - 2 American Association of Family and Consumer Sciences
 - 3 American Dietetic Association
 - 4 American Public Health Association
 - 5 American Public Human Services Association
 - 6 American School Food Service Association
 - 7 Association of State and Territorial Public Health Nutrition Directors
 - 8 International Lactation Consultant Association
 - 9 National Association of WIC Directors
 - 10 National Association of Child and Adult Care Food Program Professionals
 - 11 Society for Nutrition Education
 - 12 Society of Public Health Educators
 - 13 Other national professional organization _____

Personal

26. Gender: Female Male
27. Ethnicity: Hispanic or Latino **not** Hispanic or Latino
28. Race: Select one or more.
- 1 American Indian or Alaska Native
 - 2 Asian
 - 3 Black or African American
 - 4 Native Hawaiian or Other Pacific Islander
 - 5 White
30. From the list below **mark a “1” for your primary language.** In addition to your primary language, are you sufficiently fluent to use any other language(s) in your work in nutrition? **Check that secondary language or languages with a “2”.**
- 1 African language, specify which _____
 - 2 Cambodian/Khmer
 - 3 Chinese, specify dialect _____
 - 4 An Eastern European language, specify which _____
 - 5 English
 - 6 French
 - 7 Haitian/Creole
 - 8 Hmong
 - 9 Korean
 - 10 Laotian
 - 11 Native American or American Indian language, specify which _____
 - 12 Portuguese
 - 13 Russian
 - 14 Sign language
 - 15 Spanish
 - 16 Tagalog—Filipino language
 - 17 Thai
 - 18 Vietnamese
 - 19 Other, specify _____; _____;

Thanks for your participation in this survey.

FORM FOR EACH VACANT PUBLIC HEALTH NUTRITION POSITION

If your agency currently has one or more vacancies for a professional or paraprofessional public health nutritionist, please take a few minutes to provide information on each vacant public health nutrition position. Consider a position currently vacant even if an offer has been made or if an individual has been hired but that person has not yet started work. Fill out a form for each vacant position.

Name of person completing this form _____ **Phone** _____

Fax _____ **E-mail** _____

Name and Address of Program _____

Date completed _____

1. Check the type of agency with the vacant position(s).
 1 State government health agency
 2 Local government (city, county) health agency
 3 Indian Health Services, tribal agency or tribal health center
 4 Non-profit organization
 5 For-profit organization
 6 Other, describe _____

2. Check the **primary location** of the vacant position. **Check only one.**
 1 Central office of state government health agency
 2 Central office of district or regional (sub-state) government health agency
 3 Central office of local (county, city or multi-county) government health agency
 4 Community/rural/migrant health center or clinic
 5 Field office or clinic of a government health agency
 6 HMO or other managed care setting
 7 Hospital
 8 Indian Health Services, tribal agency or tribal health center
 9 Other private/independent entity/office
 10 Other, describe _____

4. **Read** the Attachment on the **last page** for a description of job classifications. Check the job classification below that best describes the vacant position.
 1 Public health nutrition director
 2 Assistant public health nutrition director
 3 Public health nutrition supervisor
 4 Public health nutrition consultant
 5 Public health nutritionist
 6 Clinical nutritionist
 7 Nutritionist
 8 Nutritionist technician
 9 Nutrition assistant/aide
 10 Other, describe _____
 11 **No public health nutrition responsibilities** Stop here. Return the questionnaire.

7. Is the vacancy in the WIC program?
 Yes
 No

13. Is the vacant position full or part time? (Full time is the number of hours per week defined by your personnel system.)
 ___ Full time--100%
 ___ Part time: write in the current percent time ___%

15. If the vacant position is **full time**, please record the **ANNUAL** salary range for the job classification as established by the agency's personnel system. Round to nearest dollar. If the employer does not have or disclose an established salary range for the position, write in "not disclosed".
 Minimum or first step \$ _____ per year
 Maximum or highest step \$ _____ per year

16. Check **all** sources of funding for the vacant position and write in the percent of time from each funding source. **If you are not sure about sources of funds for the position, ask your program manager or the contact listed on the cover page.** The answer should add up to the total percent time reported in question #13. For example, if the position is full time and has more than one funding source, your response should add up to 100%. If the position is part time, the responses should add up to the percent time you specified in #13.
1st Example: The position is half time (50%). It is funded by WIC. Check "WIC" and write in "50%".
2nd Example: The position is halftime. It is funded half by WIC and half by the Maternal and Child Health Block Grant. In question #NN, indicate part time 50%. Then check both WIC and MCH Block Grant and write in 25% for each.
3rd Example: The position is full time. The position is paid for by a grant from a local foundation. Write "100%" in Foundation or corporate grants.

State Government Funding

- ___ % Non-specified State funds
- ___ % State funds legislatively earmarked for nutrition
- ___ % Tobacco settlement monies

Federal Government Funding--Department of Agriculture (USDA)

- ___ % WIC
- ___ % Food Stamps
- ___ % Child Nutrition (Child and Adult Care Food Program and/or NET)
- ___ % Other USDA, e.g., Commodity Supplemental Food Program

Federal Government Funding--Department of Health and Human Services

- ___ % CDC diabetes control
- ___ % Family Planning (Title X and Title XX)
- ___ % Indian Health Services
- ___ % Maternal and Child Health Block Grant (Title V)
- ___ % Medicaid non EPSDT (Title XIX)
- ___ % Medicaid EPSDT
- ___ % Older Americans Act (Title III)
- ___ % National Institutes of Health
- ___ % Preventive Health and Health Services Block Grant
- ___ % Ryan White HIV/AIDS
- ___ % Other, describe _____

Federal Government Funding--Education

- ___ % Early Childhood Intervention, Individuals with Disabilities Education Act (IDEA)(PL105-17)
- ___ % other, describe _____

Local Government Funding

- ___ % Local funds (city/county general revenue)

Other revenue, funding sources

- ___ % Fees, patient charges, or third party reimbursement
- ___ % Foundation or corporate grants
- ___ % Other, describe _____

17. Put “1” in the area of **public health nutrition practice** listed below in which the person in the position will spend the **majority** of her/his time. If the person in the position will have **2 major areas of practice**, place a “1” next to the primary area and a “2” next to the secondary area. If the person will have 3 **areas** of practice, place a “1” next to the 1st, a “2” next to the 2nd, and a “3” next to the 3rd area. **Do not mark more than 3.**

Assessment

- 1 Data management, nutrition surveillance, or research
 2 Community assessments, program planning, or evaluation

Assurance

- 3 Health facilities regulation
 4 Environmental health and/or food safety
 5 Program monitoring and/or quality assurance
 6 **Direct Client Services** (Answer #18 below)

Population-based Interventions

- 7 Community organization, advocacy, or policy development
 8 Communication, mass media, or social marketing
 9 Emergency food, hunger, food security, Commodity Supplemental Foods Program **Management**

and administration

- 10 General management and administration

Other

- 11 Please specify _____

18. If **Direct Client Services** is a major area of practice, which category below best describes the **majority** of client work? Place a “1” by that category. If the majority of the client caseload is mixed, put a “1” by those the person in the position will see the most, a “2” for second and “3” for third. Do not mark more than 3 in total.

- 1 General/comprehensive nutrition
 2 General women, infants and children
 3 General women’s nutrition and health
 4 General infant nutrition
 5 General child health or pediatric nutrition
 6 School and/or adolescent health
 7 Children with special health care needs, developmental disabilities, chronic illnesses, or high-risk infants and children
 8 Breastfeeding
 9 Adult health promotion, chronic disease prevention, or healthy aging
 10 Seniors, geriatrics, adult disabilities, or adult chronic disease control

**ATTACHMENT--Position Titles for Public Health Nutrition Personnel—use in responding to question 4
(From: Personnel in Public Nutrition)**

Nutrition Assistant/Aide is an auxiliary nutrition worker from the indigenous community who is trained on-the-job to work under the close supervision of nutrition professionals to provide routine nutrition education, including interpretation for clients who do not speak English. Assistants and aides also carry out assigned tasks in client outreach and screening.

Nutrition Technician is a paraprofessional who works under the close supervision of a nutritionist to provide routine technical support services in public health agency clinics. This work includes normal nutrition education; screening using prescribed protocols, record keeping, and outreach.

Nutritionist is a nutrition professional employed in a public health agency primarily to provide nutrition education to the public, and to coordinate and provide direct nutritional care to agency clients in health and disease throughout the life span.

Clinical Nutritionist is a professional with expertise in the complex nutritional management of medically high risk individuals requiring physician prescribed dietary and nutrition regimens including enteral and parenteral nutrition support. In public health agencies, clinical nutritionists work as case managers and/or care coordinators, and nutrition counselors. They also may work as educators in programs where more in-depth expertise in therapeutic nutrition is required, including high-risk pregnancy, neonatal and pediatric clinics; children's special services; AIDS; and home health and home hospice services

Public Health Nutritionist is a nutrition professional with academic training in public health who is employed by the state or local public health agency to assess the community's nutrition needs, and to plan, direct and evaluate community nutrition intervention programs that meet these needs. Interventions promote health and prevent disease among the population at large.

Public Health Nutrition Consultant includes both generalized and specialized nutrition consultants who provide expert technical assistance, professional guidance, and in-service education in program development or case management. Consultation may be given to the administrator, other nutritionists or other health professionals. Consultants include those who work: out of a central headquarters office or in the health agency's regional or district offices.

Public Health Nutrition Supervisor supervises the work of an assigned number of other nutritionists, nutrition technicians, and nutrition assistants that deliver nutrition services and nutritional care in the public health agency. Supervision includes training, delegating, directing, coordinating, evaluating and reporting the work of subordinates.

Assistant Public Health Nutrition Director is the second highest **administrative** and policy making public health nutrition position in a state, large city, county or voluntary public health agency. The assistant director may participate in several delegated functions or be assigned primary responsibility for managing the nutrition component of one or more major program areas. The person in this position serves as Acting Director in the director's absence.

Public Health Director-Nutrition is the highest-level nutrition position in a state, large city, county or voluntary public health agency. Major functions of this position are policy making, planning/evaluation, fiscal control, management and supervision. The position is usually the head of a nutrition program unit, where the director is responsible for conducting a needs assessment, developing a comprehensive plan and budget for the nutrition services of the agency and has line authority over staff.

Appendix D

Study Design

As in past years, the survey of the state public health nutrition workforce was built upon state-centralized data collection, as well as state-level editing and data entry using an EpiInfo program. A uniform questionnaire was designed and used across states. Data files were sent to a central location for analysis and reporting.

These design features have important implications for comparability of findings across states and time. State and territorial public health nutrition directors were responsible for distributing the uniform questionnaire to nutrition workers within their respective states and territories. They identified the sub-state and local programs that employed and/or contracted public health nutritionists, set up a system for distributing and collecting questionnaires, and gained the cooperation of local and regional program administrators, who in turn were expected to distribute the questionnaire within their own programs. This data-collection system allowed the state directors flexibility in scheduling and making the best use of available resources. Moreover, it decentralized decision making about inclusion of appropriate programs and workers to the state level, where decisions were made in the context of the overall structure of the state's nutrition program and public health system. This design aspect shifted a considerable share of the cost of the survey to the state level. However, diminished central control of data collection contributed to variation in response rates and data quality across states. Additional advantages and disadvantages of this approach are discussed in other sections of this report. In the following pages, the population surveyed, the questionnaire, data-collection process, participation and response, data processing and analysis are described.

The Population — Public Health Nutrition Workers

ASTPHND expended considerable effort in defining the population to be surveyed — public health nutrition professionals and paraprofessionals — to ensure uniformity in inclusion and still allow flexibility for state variation in program structure. The study was designed as a census of persons who work as nutrition professionals or nutrition paraprofessionals in a public health nutrition program such as WIC or in other public health programs or services under the purview of the state health agency (SHA).

It is important to note, however, that there is considerable variation among states with regard to the programs administered by the state health agency. For example, some state health agencies may have administrative responsibilities for Medicaid, regulation of health facilities, or the Child and Adult Care Food Program (CACFP), while others do not. As a result, some state nutrition directors surveyed the nutrition-related positions in these programs because in their states the positions are classified as public health nutritionists. In other states, the nutrition personnel from these programs were not included in the survey because they are not considered to be a part of the public health nutrition workforce. Also, a few states included USDA-supported extension service nutritionists who worked in conjunction with public health nutrition education programs, but most states did not. In another state, only registered dietitians were surveyed.

One way to view this is that some state nutrition directors cast a wider net than did others as they determined which programs and workers to survey, in part because of the way public health

nutrition efforts are administered in their respective state health agencies. There may have been variation in interpretation of and adherence to instructions as well. This variation in the administration of the survey is not unique to the 2000 survey. ASTPHND has recognized the variability between states in all of its previous workforce surveys.

Full- and part-time employees as well as contract positions were included in this census. ASTPHND instructed that persons who work in a support capacity or in another profession — for example, an accountant, nurse, health educator or physician in a public health nutrition program — not be surveyed. Instructions specified that the survey should *not* be administered to nurses who function as certifying officials in WIC clinics — even if they were the primary person providing counseling and education to WIC participants. The extent to which these instructions were carried out by local programs may have varied. For example, for the questionnaire on job classification, the category “other” was checked by a number of respondents who described their job as nurse, WIC administrator, accounting clerk and lab technician. Such variation in interpretation of instructions probably affected results, making it more difficult to draw definitive conclusions about differences in size of the workforce or to make other comparisons across states.

Advance instructions, however, could not anticipate the nuances encountered in the organization of state health agency nutrition programs and services. During the data-collection phase, state nutrition directors raised questions about the inclusion or exclusion of specific personnel and programs. The answers were disseminated by e-mail to the state nutrition directors in each state and territory in order to obtain as much consistency as possible across states in the administration of the survey. For example, states were told to include nutritionists and dietitians who were specifically required to perform nutrition work in their professional capacity as a “health facilities surveyor” under the auspices of the state health agency. However, if a “health facilities surveyor” happened to be a registered dietitian or have a degree in nutrition but was not hired to perform nutrition work, that person was not to be included. Similar questions were raised regarding nutritionists who provided services under the Medicaid and/or Title V children with special needs programs and the Commodity Supplemental Foods Program.

The Questionnaire

ASTPHND designed a 30-item fixed response instrument that required 10-20 minutes to complete. The final questionnaire included items on type and location of practice, job classification, source of funding and salary, training, education, certification or credentials, perceived training needs, participation in professional organizations, and personal characteristics (gender, race and ethnicity, primary and secondary languages). Ease of administration and response burden, as well as applicability and comparability across states and time, were primary criteria for inclusion/exclusion of items. Starting with the instrument used in ASTPHND’s 1994 study, several steps were taken to revise and update the questionnaire items for the 2000 census.

The ASTPHND grantee administrator, who chairs the ASTPHND Data and Epidemiology Committee and also serves as the state nutrition director for the state of Texas, applied her experiences in directing the 1994 survey to make improvements in the current effort, taking into account the application of results in that state. A consultant obtained by ASTPHND to direct the

2000 survey reviewed prior ASTPHND studies, ongoing U.S. DHHS Public Health Services (PHS) surveillance systems and recent surveys, and studies of WIC participants and program characteristics to reduce duplication of effort and ensure comparability of response categories to the extent possible.

Responses to the 1994 survey had previously been examined to identify items for which nonresponse was high and for which interpretation had been difficult. The experiences of the state nutrition directors in administering the 1994 survey had been collected and compiled at the conclusion of data collection, and their comments were reexamined during the design phase of the current study. The ASTPHND Data and Epidemiology and the Executive Committees reviewed the questionnaire in view of recent changes in the practice of public health nutrition — in particular, the shift from direct services to core functions — and funding streams. They also considered potential uses of the findings.

During the design phase, the ASTPHND Data and Epidemiology Committee and the project consultant convened a series of five conference calls to discuss and review the workforce questionnaire to ensure that it included all data items to meet the project objectives, and that response categories were applicable across states. In addition to the eight-member committee, the questionnaire was reviewed by and comments were received from representatives of USDA-FNS staff, National Association of WIC Directors (NAWD), U.S. DHHS/HRSA/MCHB staff, American Public Health Association (APHA) Food and Nutrition Section, and faculty of graduate public health nutrition programs. USDA-FNS staff identified several additional needs based upon program objectives of improving the professional qualifications of state and local WIC staff. Subsequently, items were added to describe the steps respondents had taken that would qualify them to sit for the examination to become either a registered dietitian (RD) or a registered dietetic technician (DTR) with the Commission on Dietetic Registration, if the respondent did not as yet have those credentials.

After 12 revisions, a 10-page questionnaire was prepared for pretesting. The draft survey questionnaire was pretested in April 1999 with nine respondents, three in each of three states — Connecticut, Missouri and Wisconsin. The sites and respondents were identified and selected by the ASTPHND Data and Epidemiology Committee to obtain a range of job classifications and educational levels, from paraprofessionals with little formal training to master's level nutritionists. Responses and comments were analyzed by the project consultant and discussed with the Data and Epidemiology Committee in a subsequent conference call, as well as with the government project officer (GPO). Respondents made a few suggestions about formatting fixed responses; otherwise, it was found that the questionnaire could be administered and responded to in a short period of time. Results also indicated that, to the extent possible to determine with a sample of nine people — the maximum number allowed prior to Office of the Management and Budget (OMB) clearance — the questions and fixed responses categories were applicable across states, in different types of public health nutrition programs, and to nutrition workers of varying levels of training and experience.

Once the questionnaire was finalized, an abbreviated version consisting of nine items was constructed to collect information on vacant positions. Supervisors for each public health nutrition position that was currently vacant were asked to complete the vacant position

questionnaire. A protocol and tracking form was developed to collect information from state nutrition directors to use in calculating state specific and overall response rates.

Clearance from the Office of Management and Budget

As part of the agreement with USDA, ASTPHND was required to adhere to the Paperwork Reduction Act of 1980, Public Law 96-511, OMB Circular A-40, revised, which prohibits federal agencies from conducting or sponsoring the collection of information on identical items, from 10 or more persons without prior approval from OMB. In accordance with the Paperwork Reduction Act of 1995, the FNS published a notice in the Federal Register February 18, 1999 (volume 64, number 32, page 8054) announcing the intent to request an OMB review of the Survey of State Public Health Nutrition Workforce data collection activities. The notice provided a 60-day period for public comments.

Two comments were received, both from state WIC offices. Both stated that the study would benefit the WIC program, but they commented that the reporting burden on state and local WIC agencies had not been taken into account. In addition, one responder suggested other approaches to data collection and made recommendations to the USDA on the future use of the information. The responses were discussed with the FNS project officer prior to fielding the survey.

The project consultant submitted the draft OMB clearance application to USDA May 10, 1999. During the next few weeks, the consultant worked with the GPO to respond to questions raised during the internal USDA review and made necessary revisions. USDA submitted the application to OMB June 23, 1999. Final OMB approval was obtained August 25 after a few minor changes to ensure protections of privacy and confidentiality were made.

Preparation of the ASTPHND Membership to Conduct the Study

The involvement of and input from the state nutrition directors was sought throughout the project with the recognition that their participation was key to the successful completion of the study. An estimated 66 to 75 percent of the current directors had been involved in the 1994 and earlier surveys and were generally aware of how to collect the data. The ASTPHND leadership had kept the membership informed throughout the USDA application and award process. Volunteers for the Data and Epidemiology Committee were sought. Procedures and a tentative schedule for the survey were presented for discussion at the ASTPHND annual conference in June 1999. Frequent e-mails informed directors who were not participants in the Data and Epidemiology Committee or the Executive Committee of the status of plans for the survey.

As members of a relatively small organization, the directors have long-term and strong relationships across states, and peer pressure and support was an important factor in obtaining participation. At the June 1999 meeting, all attendees agreed to participate, including California, the only state that was not able to participate in 1994. However, not all states and territories had a designated nutrition director, making it necessary for the ASTPHND president to identify someone in the Nevada and Pennsylvania WIC programs to take responsibility for conducting the survey. ASTPHND was eventually able to obtain participation from all states with the exception of Idaho. Guam, District of Columbia, the Virgin Islands and Puerto Rico also

participated. Contact could not be established with public health nutrition staff in American Samoa. Although American Samoa is a WIC State agency, it does not participate in ASTPHND.

Indian Tribal Organizations

Indian and Native American WIC programs, also known as Indian Tribal Organization (ITO) WIC programs, function as State agencies for the Indian Nations, administering WIC programs primarily on tribal lands. State health agencies vary in the extent to which they coordinate and communicate with ITOs within their states. In the 1994 study, state directors had been expected to identify and survey ITO programs located within their states; however, the response was low. The Data and Epidemiology Committee members therefore decided to attempt to improve responses by mailing questionnaires directly to the WIC programs operated by the ITOs.

In 1999, ASTPHND obtained a listing of current state WIC programs from USDA-FNS (list updated May 21, 1999). In August, the grant administrator faxed letters to 31 Indian tribal organizations that administer WIC programs advising them of the upcoming survey, asking for their cooperation and requesting notification of address changes. Nonresponses were followed up with telephone calls and the mailing list was corrected and updated for the mailing of questionnaires. In October 1999, the project consultant mailed packets consisting of survey instructions, the questionnaire, the vacant-position questionnaire and transmittal form to 33 ITOs¹ that administer WIC programs. At least three telephone calls were made to nonresponding organizations in November and December. Twenty of the 33 ITOs eventually responded, and of those, the worker response rate was approximately 50 percent.

Schedule and Process of Data Collection

Immediately upon receipt of the OMB approval, the ASTPHND members were informed by e-mail that survey packets were to be mailed so that the survey could begin after Labor Day 1999. Hard-copy packets of survey administration materials were mailed to 55 state and territorial nutrition directors/designees on September 5, 1999.² The package consisted of:

- Five-page instructions for conducting the survey.
- Two forms (*Transmittal to State* form and *Transmittal to ASTPHND* form) to assist with record keeping and tracking response rates.
- The questionnaire for copying and distribution.
- A vacant-position questionnaire for copying and distribution.

On September 10, 1999, e-mail versions of the instructions and forms were sent as a follow-up mailing. The directors were told to expect instructions for data entry and a program for EpiInfo data entry and editing to arrive by mail the following month. The instructions called for data files to be submitted to ASTPHND no later than January 11, 2000, giving the state directors up to four months to administer the survey and complete data entry. The ASTPHND leadership believed this gave each state director the necessary flexibility to coordinate the survey with other priorities and workloads.

¹The 33 includes the 31 to which a fax was sent in August plus 2 additional ITOs identified during the period September-October.

² In Idaho and American Samoa there were no designees, so packets were mailed to WIC directors.

The transmittal forms were designed to assist directors with accurate record keeping on the distribution of questionnaires and the number of respondents, refusals and vacant positions. ASTPHND used the information submitted on these forms to calculate state-specific and U.S. response rates.

The survey instructions called for each state nutrition director to attach a cover letter to the standard questionnaire, informing persons when and where to return it and whom to contact for assistance. Preparation of the cover letter allowed each state director to add instructions and/or explanations for any special or unique circumstances in that state. This feature was of particular importance because of the great variation across states in funding, staffing and operation of public health nutrition programs. The need for a uniform questionnaire eliminated the option of tailoring questions or response categories to specific state or local situations; however, the cover-letter instructions provided an opportunity to interpret items in the context of local or state structure. Funding source, for instance, was one area in which the state nutrition directors needed to make a concerted effort to clarify fixed-choice responses. Another was job classification: State directors were cautioned that the functional names for different categories of nutrition workers may be different from the job titles and/or personnel classifications used in their programs.³ They were encouraged to carefully and repeatedly explain who should, and should not, participate in the survey.

Although the state nutrition directors had the option of distributing the questionnaire by mail, fax or e-mail, or a combined approach, most workers were surveyed by paper, distributed to them at their worksite by their program managers.

Training in Conducting the Survey

The survey instructions asked the directors to participate in a two-hour training conference call before they began distribution of the questionnaire in their states. The purpose of the training call, led by the grant administrator and the project consultant, was to review the instructions and forms to ensure uniform interpretation and use, and to anticipate and resolve in advance any problems that were likely to occur. The schedule was distributed via e-mail on September 14, 1999. Each director or designee was asked to participate in one call. Calls were completed as scheduled on September 21, 23, 27 and 28. Since only 29 of the 53 states and territories that eventually participated in the survey completed a training call in September, three “makeup calls” were held in October. Nonparticipants in the first round of calls were contacted several times by telephone to enlist their participation, and the importance of the training call was emphasized.

Eventually, 89 percent of the state nutrition directors, or a person from their staff, completed the training call. Several of those who were unable to participate contacted the project administrator or consultant and indicated that they had reviewed the instructions and, due to their involvement with previous surveys, were comfortable in proceeding without the training. The telephonic training dealt primarily with how to identify public health nutritionists, procedures for distribution and collection, maintaining records on responses, and completion of the

³See Table 7 for a list of job classifications and their descriptions.

questionnaire. Since the editing and data entry instructions and program had yet to be distributed, they were not reviewed.

Participation and Response Rate

Frequent communication was used to maintain high visibility for the survey during the data collection phase. The grant administrator continued to report on the status of the survey to the ASTPHND Executive Committee during monthly conference calls. The ASTPHND president sent a letter to the NAWD president describing the purpose of and schedule for conducting the survey. NAWD was requested to inform WIC programs and ask for their cooperation. The grant administrator distributed information on the survey to WIC directors via NAWD's weekly bulletin. The grant administrator and the project consultant disseminated e-mail bulletins to all state nutrition directors to keep them abreast of issues arising with the survey during the period of data collection. The bulletins were disseminated on a monthly basis, or more frequently if necessary.

In addition to the efforts described above to enlist the cooperation of the state nutrition directors, additional avenues were used to enhance the response rate. State directors were urged to use newsletters, staff meetings, broadcast fax, Internet mailing lists, Web sites, e-mail and fax bulletins to inform public health nutrition workers of the upcoming survey, the distribution schedule and, later, the progress made. They were asked to personalize the appeal by giving a few examples of how the information may be useful in the respective states. It was suggested that setting aside time during staff meetings and conferences for the completion of questionnaires was an effective way of ensuring responses. ASTPHND also anticipated giving the state nutrition directors feedback on survey findings. Such feedback is typically given to organizations when they assist with surveys and is considered to be an important factor in ensuring participation in future surveys.⁴

As of the January 11, 2000, due date, approximately 25 percent of the states had completed data collection; fewer had actually submitted data. The last state submitted its workforce data on September 22, 2000.

Table 2 on page 13 depicts the state-specific response rates. Although a process for estimation of the state-specific and overall response rates was provided, initial submissions suggested that not all state survey administrators had maintained the required records. The overall estimated response rate, based on transmittal forms supplied by the state directors, was 88 percent (10,309/11,718). The reported state-specific response rates ranged from 45.8 percent (Washington) and 53.4 percent (New Mexico) to 100 percent (Arkansas, Guam, Iowa, Maine, Nevada, Oregon, Puerto Rico, South Dakota, Tennessee, Utah). In 2000, the most significant improvement in participation over the 1994 survey was the participation of the state of California. With a reported 2,640 public health nutrition professionals and paraprofessionals, California employs nearly 24 percent of the entire workforce surveyed, considerably more than New York (667), Florida (504), or Texas (486). Vacant positions were not included in computations of response rates.

⁴Due to delays in completing data collection and analysis, feedback was not provided in a timely manner.

Data Entry

In addition to their role in data collection, the state nutrition directors were also responsible for data entry. ASTPHND used EpiInfo, software developed by the U.S. Centers for Disease Control and Prevention (CDC) and used at many state and territorial health agencies, for editing; processing; computing measures of central tendency; dispersion and percentages; and creating tables.⁵ As with the 1994 survey, EpiInfo was used to write a program for data entry and editing, which was distributed to each state nutrition director by diskette or via the Internet. ASTPHND expected that edits near the source of data collection would enhance the accuracy and completeness of the information. Instructions called for directors to be particularly attentive to accuracy of job classification, location of employment, work site and funding source.

In November 1999, the EpiInfo data entry and editing program, which was written by the project consultant, was tested in two states, Texas and North Dakota. Using feedback from the test sites, the program was revised to address problems, and the accompanying instructions were rewritten according to comments from the two participating state nutrition directors. The 16-page data entry and editing instructions were mailed to the states November 28, 1999.⁶ To ensure that all state agencies received the materials, they were e-mailed the following week. The EpiInfo data entry and editing program were e-mailed later that week.

Recognizing that some state nutrition directors did not have the capability or resources to complete data entry, on September 2, 1999, ASTPHND polled the state nutrition directors to identify those states that could not complete data entry for their state survey responses. Five states responded that they did not have sufficient resources to do their own data entry. ASTPHND made arrangements for the five states and the ITOs to mail their completed, edited questionnaires to the grant administrator who contracted with an individual to complete the data entry. Later, two additional state directors proved to be unable to complete data entry and the grant administrator arranged for it to be done through the contractor. This arrangement reduced the number of persons involved in actual data entry and may have improved the quality of the data files from the respective states.

The data entry program was structured so as to require entry on a number of fields considered to be essential to the analysis objectives — work in a WIC program, work site, level of responsibility, job classification, RD and DTR. Blanks or missing data were accepted in other fields. Although the data entry and edit files worked as intended in the two-state pretest, in a number of states the required entry was overridden. This may have happened in several ways: EpiInfo is structured so that two separate files — a “.rec” file and a “.chk” file interact to restrict or edit entries, for example, the .chk file can be constructed so as to designate certain fields as required and/or to integrate skip patterns. But if the .chk file is not loaded, data can be entered into the .rec file without the operation of field requirements and ranges. Another possibility is that persons entering data were able to override the required fields. Although EpiInfo is used by state agencies, nutrition staff do not necessarily have training or skills in its use. The extent of technical support within the state agencies also varied. Consequently, the use of the software and the entire data entry process was not without problems.

⁵ For information on EpiInfo, visit www.cdc.gov

⁶ This was a delay from original expectations of distribution in mid-October.

Throughout the period of data collection and data entry, the project consultant and the project administrator provided technical assistance by responding to telephone and e-mail queries. Many of the queries suggested that responsibilities had been delegated to persons without the provision of much information or instruction. In fact, some calls came from employees who had been given questionnaires to distribute but who had not been given the instructions. For those state agencies that did not already have or use EpiInfo, installation was sometimes difficult given the multitude of operating systems. A lack of basic computer skills on the part of state agency nutrition staff and the lack of technical support for their offices were also evident in some states. Problems also occurred when data entry was delegated to employees, interns or temporary staff who had not been sufficiently oriented. In a few cases, data entry was assigned to persons who were not given the instructions. The project consultant provided assistance upon request by telephone and/or e-mail. The EpiInfo technical support personnel provided assistance by e-mail and telephone to the consultant as well as to several states. The provision of assistance was dependent upon the initiative of the person responsible for data entry. In retrospect, more timely and intensive assistance would have improved the quality of the survey data.

Completion of Data Analysis

State data files were sent by Internet or disk to the grant administrator at the Texas Department of Health, where they were copied and forwarded to the project consultant. As each file was received, the consultant compared the number of records in the file with the information on the transmittal form, including the number of vacant positions for which information was submitted, and examined the file for duplicate record identification numbers. She immediately communicated with the state director or contact person to resolve inconsistencies. Thirty-seven of the state files required resolution of initial inconsistencies. The project consultant edited records for internal consistencies, including *years of work experience in nutrition; public health nutrition and WIC; persons supervised; minimum, maximum and part-time salaries;* and inappropriate fields for *vacant positions*. Outliers of *salary, years of experience,* and *FTEs supervised* were examined and discussed with the project administrator and/or the state director for clarification and resolution. The consultant maintained a grid to track e-mail and telephonic queries and responses with state directors on editing issues.

A number of respondents selected more than three training needs (Question 25), contrary to instruction. In those cases in which this was not resolved prior to state-level data entry and the state file contained more than three selections for a respondent, it was not possible to determine which of the selections were the three priorities. To include the excess responses in the analysis would have created a bias favoring those respondents who did not follow instructions and selected more than three areas. Therefore, those respondents who selected more than three were excluded from the analysis. As a result, findings are qualified by a high nonresponse for this item.

After the more obvious problems were addressed, the consultant prepared a state-specific frequency count of 13 variables, including the required fields. The frequency file was e-mailed to the state director within a maximum of two weeks for review and to flag any questionable

findings. Only three states made corrections. Many did not respond, in which case the assumption was made that no corrections were necessary.

All questionnaire items were fixed response; however, a number of items allowed for the choice of “other” and a “write-in” explanation. ASTPHND expected that these responses would be examined during the state-level editing, and to the extent possible coded to a fixed category. For example, if for Question 1, the respondent checked the type of agency worked in as “other,” and wrote in “homeless shelter,” the state director could, with knowledge about the work setting, reclassify the response (e.g., nonprofit organization, local government agency). The data entry instructions described these options. However, in examining the submitted data files, the consultant found that a number of the questionnaire items had a large proportion of “other” responses. Although some of these could have been recoded across the existing categories, the grant administrator and the consultant agreed to retain them as submitted. There was one exception to this decision: during telephone training calls, it became evident that Question 4 on job classification should have included a choice for, or instructions on, classification of breastfeeding peer counselors and lactation counselors. Records were searched for *other*, *breastfeeding* and assigned a specific code (11). This job classification is presented in the analysis, however, an unknown number of “breastfeeding counselors” may not have responded in a way that permitted the assigning of the specific code.

After the state file had been cleaned and a frequency report of required fields had been sent to each state nutrition director for review, the state files were merged for analysis, resulting in a file of 10,904 records that represents information on more than 10,000 public health nutrition workers.

The ASTPHND Data and Epidemiology Committee met via conference call November 30, 2000, to delineate priorities for the analysis of survey data. Five members participated. Several problems and inconsistencies were discussed. It was noted that a significant number of records contained inconsistencies, with regard to source of funding information and full-/part-time work responses.

Following the conference call, the project consultant prepared and circulated an analysis plan to committee members. No comments were received. Upon request, the plan was submitted to the USDA project officer, who approved it. After consultation with the grant administrator, the consultant undertook additional editing, using information on the full- and part-time, income and total full-time equivalents fields to eliminate internal inconsistencies. Following a presentation of preliminary findings at the annual ASTPHND conference in June 2001, committee members made several additional recommendations, and they reviewed and commented on the draft report prior to its initial submission to USDA.

The analysis is univariate or bivariate and descriptive, relying on percentages and, for several variables, measures of central tendency. The analysis plan forms the basis for this final report. It is suggested that the reader refer to the questionnaire and consider the phrasing of questions and the response categories when interpreting findings. For some workforce characteristics, including employing agency and location, findings include the vacant positions. Five-and-one-half percent (595) of the responses apply to vacant positions. Other characteristics, including academic

preparation, training and certification, only apply to the position incumbents (i.e., “filled” positions). Findings are presented for the WIC workforce and compared to the workforce not involved with the WIC program (i.e., the non-WIC workforce).

Some characteristics are examined both with and without the California responses. As described in this section of the report, data on the California public health nutrition workforce were not collected in 1994. In 2000, California workers constituted nearly 24 percent of the total respondents. Therefore, in describing changes in the workforce from 1994 to 2000, it was necessary to take into account the effect of the inclusion of California. In the case of Idaho, data were collected on the workforce in 1994 but not in 2000. However, with only 94 public health nutrition workers responding in 1994, Idaho constituted only 1.2 percent of the total workforce and had very little effect on the overall findings. For this reason, comparisons of the two time periods were made without regard to the inclusion of Idaho data in only one of the surveys.

Because item nonresponse was generally high, and very high for several variables including salary, the nonresponses have been retained in the denominators and the percentages of nonrespondents are shown in the tables. In addition to variation in nonresponse across questionnaire items, there is considerable difference in item nonresponse by job category, with response rates being higher at the upper levels of the job classification categories.

Appendix E

Table 38 Expanded – Perceived Training Needs – Number of Times Each Topic was Marked with the Top 10 Choices Identified by the Numbers in Parentheses (Question 25)

Topic	Total Workforce	WIC Nutrition Workforce			Non-WIC Nutrition Workforce	
		All Workers	Professional	Paraprofessionals	All Workers	Professional
Client and Population Groups						
1. Infant & preschool nutrition	(3) 2303	(3) 2231	(3) 1303	(2) 926	70	54
2. Childhood nutrition	(7) 952	(7) 894	397	(6) 497	58	41
3. Adolescent nutrition	345	296	139	157	49	38
4. Nutrition for CSHCN	(1) 2976	(1) 2829	(1) 2184	(4) 644	(1) 147	(1) 135
5. Prenatal nutrition	(4) 1752	(4) 1699	(4) 1014	(3) 683	51	41
6. Breastfeeding	(2) 2636	(2) 2586	(2) 1551	(1) 1033	48	42
7. Women’s health	373	330	173	157	43	36
8. Adult health promotion, chronic disease, healthy aging	370	259	198	61	(4) 111	(4) 102
9. Seniors, geriatric nutrition	192	114	100	14	(9) 78	58
10. High-risk clients, including HIV & addiction	(6) 1234	(6) 1161	(6) 867	(8) 294	73	(10) 71
11. Assessment of nutrition status	434	371	233	138	63	54
12. Case management / care coordination	206	186	128	56	20	19
13. Communication with low literacy populations	615	556	354	(9) 200	57	52
14. Cultural competency	504	458	309	149	46	39
15. Eating disorders	(7) 952	(8) 870	(9) 554	(7) 315	82	(8) 73
16. Nutrition counseling, behavior change, client education	(5) 1676	(5) 1551	(5) 987	(5) 562	(3) 123	(3) 110
17. Supplemental & alternative dietary therapies	(9) 928	795	(7) 687	108	(2) 131	(2) 128

Assessment Skills									
18. Applied research, data collection & analysis	304	237	202	33	67	64			
19. Community assessments	258	204	183	21	54	50			
20. Data management, surveillance, monitoring systems	360	272	253	17	(8) 88	(7) 83			
21. Fund raising, proposals, and grant writing	664	566	503	63	(7) 98	(6) 91			
22. Program planning & evaluations	323	246	228	18	(10) 77	(9) 72			
23. Use of current IT, including computers	(10) 898	(9) 792	(8) 629	(10) 163	(5) 106	(5) 101			
Population-Based Interventions									
24. Advocacy and policy development	175	121	117	4	54	50			
25. Building coalitions & working in partnerships	285	215	194	21	70	64			
26. Communications, mass media, distance learning	171	125	110	13	46	43			
27. Environmental health and/or food safety	116	96	64	32	20	13			
28. Environment and policy change to support nutrition	194	141	125	16	53	51			
29. Hunger and food security	109	91	68	22	18	17			
30. Practice guidelines: development and use	69	53	50	3	16	15			
31. Social marketing	225	154	136	16	71	65			
Management									
32. Cost Effectiveness / benefit analysis	255	202	187	13	53	50			
33. Financial management	228	192	176	14	36	31			
34. General management	252	235	213	22	17	14			
35. Leadership and team building	680	(10) 635	(10) 541	94	45	39			
Other	41	30	25	5	11	10			
No response /missing	15.4% 1591	15.3% 1432	11.7% 724	22.5% 700	14.6% 139	13.4% 112			
Total Respondents (does not equal choices)*	10309	9330	6199	3114	955	836			

*The total workforce includes nonresponses to Question 7. The total WIC workforce includes nonresponses to Question 4.