OBSERVATIONS AND EXPERIENCES WITH THE NUTRITION CONSULTANT OF THE NORTH CAROLINA SPECIAL PROJECT FOR COMPREHENSIVE MATERNAL AND INFANT HEALTH CARE

A Thesis

Presented To

the Graduate Council of

The University of Tennessee

In Partial Fulfillment

of the Requirements for the Degree

Master of Science

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by

Walter Paul Saraniecki

August 1973

To the Graduate Council:

I am submitting herewith a thesis written by Walter Paul Saraniecki entitled "Observations and Experiences with the Nutrition Consultant of the North Carolina Special Project for Comprehensive Maternal and Infant Health Care." I recommend that it be accepted for nine quarter hours of credit in partial fulfillment of the requirements for the degree of Master of Science, with a major in Nutrition and a minor in Public Health Education.

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ACKNOWLEDGEMENTS

The student wishes to express sincere appreciation to Mrs. Carolyn Sparks, Nutrition Consultant of the North Carolina Special Project for Maternal and Infant Health Care for planning and providing a variety of meaningful experiences. Appreciation is also extended to the staff of Wayne, Warren, Halifax, and Johnston County Health Departments for providing the opportunities for observation and participation in activities within their agencies.

The student extends his gratitude for the guidance and assistance given by his major professor, Dr. Daniel W. Hubbard, Department of Nutrition, The University of Tennessee. The student also extends appreciation to Dr. Mary Rose Gram, Head, Department of Nutrition, Dr. Robert Kirk, Head, Department of Health and Safety, Dr. O. Aiken Mays, Health Director, Wayne County Health Department, and Dr. Joseph Edozian, Head, Nutrition Department, the University of North Carolina, Chapel Hill, for their consultation.

An appreciation for financial assistance is extended to the Maternal and Child Health Service, Department of Health Education and Welfare, Washington, D.C., which made this graduate work possible. To his parents, Mr. and Mrs. Walter Saraniecki, the student will be eternally grateful for their continuous encouragement and support throughout this period

academic endeavor. And to Diane Leach the student extends his sincere gratitude for her cooperation and inspiration.

W. P. S.

ABSTRACT

This thesis describes and analyzes the author's training with the Nutrition Consultant of the North Carolina Special Project for Comprehensive Maternal and Infant Health Care. As a supplementary experience to the academic training in public health nutrition, the purpose of the field practice was to aid in strengthening the student nutritionist's philosophy and understanding of public health. Data for this thesis were obtained from a variety of personal conferences, observations, participation, related literature and an original research project.

An original research project was undertaken to determine whether nutrition services as delivered by a team of home economists and homemakers under the direction of a nutritionist make a measurable positive effect in the health of children as determined by their growth and development. An analysis of health department records of two similar counties in eastern North Carolina showed that pediatric patients of the health department with a nutrition staff had significantly higher mean weights and less anemia than the pediatric patients of the health department without a nutrition staff. Therefore, the nutrition staff had a measurable positive effect on the health indices of infants.

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CHAPTER I

INTRODUCTION

This thesis is a description and critical analysis of seven weeks of field training with the Nutrition Consultant of Area I and Area II Special North Carolina State Project for Comprehensive Maternal and Infant Health Care. Field training is part of the graduate program of public health nutrition at The University of Tennessee. This agency was chosen because of its rural setting, its competent nutrition program, its cooperation with the Nutrition Section of the North Carolina State Board of Health, and its ability to guide and supervise a student in professional activities.

The ultimate objective of this experience was to aid in strengthening the student nutritionist's philosophy and understanding of public health. This was accomplished by reinforcing the student's knowledge of and developing his skills in: (1) the practice of public health in both clinical and home care settings, (2) the functions of the profession of public health, (3) the administrative organization of public health nutrition, and (4) the practice of public health nutrition in both clinical and home care situations.

The program objectives were: (1) to examine the organization and administration of the nutrition section of a rural official public health agency; (2) to understand the relation-

ship of the Nutrition Section to the local and state health programs; (3) to apply previously acquired knowledge and to develop skills within existing programs of the agency; (4) to become competent in the technique of program planning and evaluation of public health nutrition projects; (5) to become proficient in the use of tools and techniques for nutrition education; (6) to become adept in personnel management; (7) to assist in the nutrition program evaluation of the project on the mothers and infants receiving services; and (8) to critically evaluate the student's professional knowledge and skills.

To accomplish these objectives, a program of varied experiences was planned by the Project Nutritionist with the assistance of the Regional Nutritionist, Chief State Nutritionist, and local health officials. This program consisted of observing the functions of public health professionals, performing functions of a public health nutritionist, participating in professional meetings, and evaluating programs through original research.

The following is a summary of the physical, economic, educational and demographic characteristics of the area, the contributions of the Nutrition Section of the State Board of Health to other state agencies, the student's professional development and the student's original research project. The student hopes the reader will gain some insight into the nutrition programs of the area and the usefulness of the field training program as a teaching tool.

CHAPTER II

EASTERN NORTH CAROLINA

The physical, economic, educational, demographic, and nutritional conditions of North Carolina, Halifax and Warren Counties (Area I) and Wayne County (Area II) are discussed to provide an understanding of those characteristics and needs of the population served, which have an influence on the health and nutrition services provided.

Physical Characteristics

North Carolina, the "Tar Heel State", is located in the South Atlantic Region of the United States. It is bordered on the north by Virginia, on the east and southeast by the Atlantic Ocean, on the south by South Carolina and Georgia, and on the west and northwest by Tennessee. The state has three distinct topographical regions: The Coastal Plain in the eastern half, the Piedmont Area occupying one-third of the state in the central section, and the remaining ten percent in the Appalachian Mountain Region in the west (1).

Halifax County, part of Area I, is located in the northwest section of the Coastal Region, 80 miles north of Wayne County. It is bordered by Northampton County on the north and northeast, Bertie County on the southeast, Edgecome and Nash Counties on the south and Warren County on the west. Halifax has a total land area of 737.4 square miles which

consists of 88.3 percent of land, 6.3 percent of water and 5.4 percent of wetlands (bogs, marsh or swamp). In 1966, approximately 607 square miles were in farmland, and 33.1 square miles were used for recreation areas. The population density of Halifax County in 1967 was 82.4 people per square mile. It is part of Congressional District No. 2 (2).

Warren County, part of Area I, is located in the northeastern section of the Piedmont Area. It is bordered by Halifax County on the east, Franklin County on the south, Vance County on the west, and Virginia on the north. In 1967 the county had a population density of 42.7 people per square mile. Warren County has a total land area of 437.9 square miles of which 95.6 percent is land, 4.3 percent is water, and 0.1 percent is wetlands. In 1966, 335 square miles were in farmland and 2.1 square miles were used for recreation. It is part of Congressional District No. 2 (2).

Wayne County, Area II, is located in the central western section of the Coastal Plain Region. It is bordered by Greene and Lenoir Counties on the east, Duplin County on the south, Sampson County on the southeast, Johnston County on the west, and Wilson County on the north. It has a total land area of 557.0 square miles of which 84.6 percent is land, 14.6 percent is water, and 0.8 percent is wetland. Recreation areas comprise approximately 11.3 square miles. In 1966, 490 square miles were in farmland. The population density of Wayne County was 164.9 people per square mile in 1967. It is part of Congressional District No. 3 (2).

A map of North Carolina showing the location of these counties is shown in figure 1.

Economic Characteristics

About two-fifth's of the United States tobacco crop, chiefly bright-leaf flue-cured tobacco used in the manufacture of cigarettes and pipe tobacco, is produced in North Carolina. Woods and forests cover more than one-half of the area of North Carolina. On these rich forest resources are based the state's paper, furniture, and pulp product industries.

North Carolina is a leading manufacturing state; the state ranks near the top in number and value of new industrial plants. It is No. 1 in the manufacture of textiles, tobacco, and household furniture. North Carolina is also a leading producer of food products, chemicals, lumber, electrical machinery, pulp, and paper (1).

Compared to the United States as a whole, North Carolina has a high percentage of families below the poverty level ($3,197 for a farm family of four with a male head or $3,745 non-farm) (3). Warren County, the poorest of the three counties, has 34.3 percent of its families below the poverty level and nearly 43 percent of its families with an income less than 125 percent of the poverty level. As expected, the median family income is also lower for North Carolina and the three counties than the United States average. Warren County has only half of the median family income of the United States, $4,997 and $9,590 respectively (see table 1).

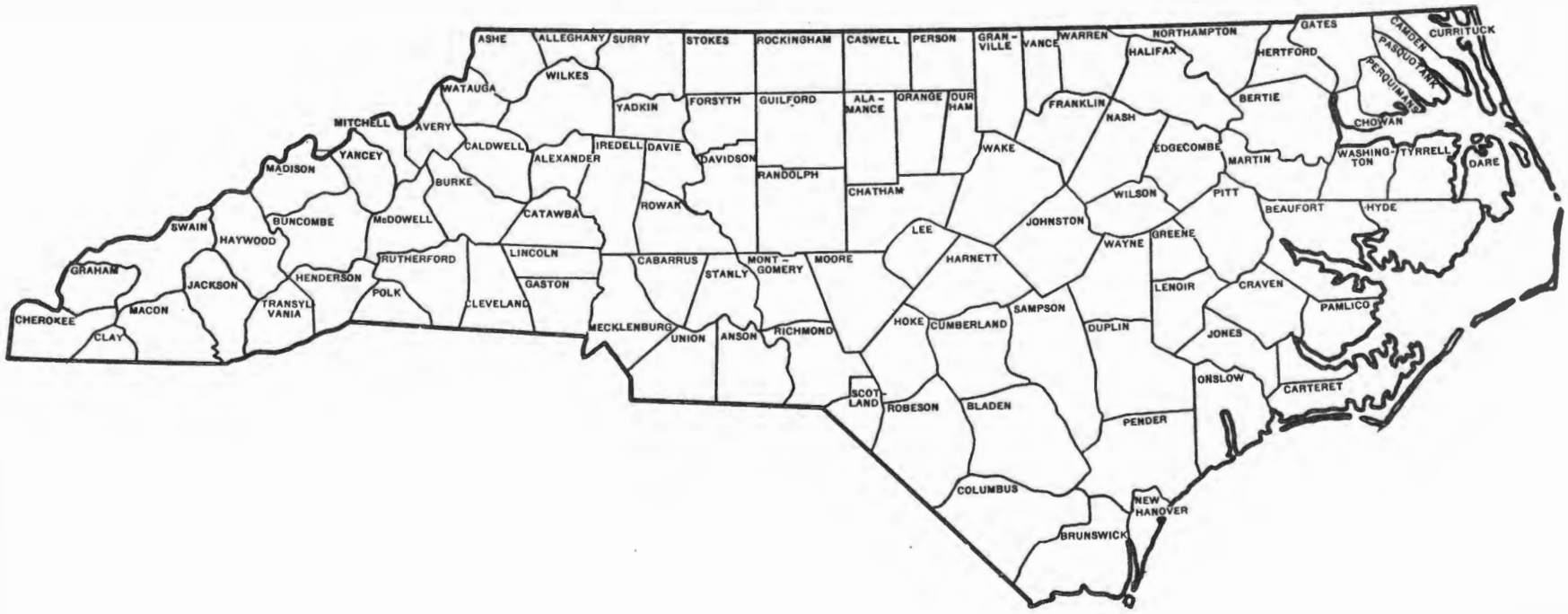


Figure 1. Map of North Carolina Counties

TABLE 1

Comparison of the United States, North Carolina, Halifax, Warren, and Wayne Counties of median family income, percent of families below, less than 75 percent, and less than 125 percent of the poverty level[1]

	Family median income ($)	Percent of families below poverty level	Percent of families less than 75 percent poverty level	Percent of families less than 125 percent poverty level
United States[2]	9,590	10.7	7.0	15.0
North Carolina[3]	7,774	16.3	11.0	22.3
Halifax[3] Area I	6,354	29.9	22.3	37.8
Warren[3] Area I	4,997	34.3	25.9	42.7
Wayne[3] Area II	5,799	22.8	15.8	30.8

[1]The poverty level for a farm family of four with a male head is $3,197, non-farm is $3,745. For a detailed explanation of the poverty definition, see Bureau of the Census 1968 Revision in the Poverty statistic, 1959 to 1968. Current Population Reports Series P-23, No. 28. United States Government Printing Office, Washington, D.C.

[2]Bureau of Census 1971 Census Population 1970 General Social and Economic Characteristics United States Summary. Final Report PC(1)-C1, United States Government Printing Office, Washington, D.C.

[3]Bureau of Census 1971 Census Population 1970 General Social and Economic Characteristics of North Carolina. Final Report PC(1)-C35, United States Government Printing Office, Washington, D.C.

Educational Characteristics

A larger percentage of the family income goes to support public instruction in North Carolina than in the United States as a whole. However, as previously shown, the median family income is lower than the United States, which places expenditures on public education per pupil below the national average. The median years of school completed is also lower than the national average.

United States	12.1
North Carolina	10.6

As of 1971, there were a total of 76 colleges and universities in North Carolina. In 1970, there were institutions of higher learning in 45 of the 100 counties, and extensions of schools of higher learning in all but 14 counties.

Demographic Characteristics

A summary of selected social and population data of 1970 is presented in table 2. The population of North Carolina increased from 1960-1970 by 11.5 percent and the population of Wayne County increased 4.0 percent. However, the population of Halifax County decreased 8.6 percent and Warren County population also decreased 19.6 percent during this same period (4).

The non-white population of the United States was 12.5 percent in 1970 (5). North Carolina has nearly twice the percentage of non-whites as the United States, 23.2 percent. The three counties with which the student is concerned have an even higher percentage of non-whites: Halifax has 49.5

TABLE 2

Selected demographic data of the United States, North Carolina and Halifax, Warren, and Wayne Counties.

	Total population 1960	Total population 1970	Percent change population 1960-1970	Percent white	Percent non-white	Percent under one year	Percent Blacks under one year	Percent women 15-19	Percent black women 15-19	Percent rural
United States[1]	179,325,671	203,211,926	+13.3	87.5	12.5	1.7	0.3	4.6	0.6	26.5
North Carolina[2]	4,556,155	5,082,059	+11.5	76.8	23.2	N.A.	N.A.	5.0	1.4	55.0
Halifax County[2]	58,956	53,884	- 8.6	50.5	49.5	1.8	1.0	5.3	3.1	63.3
Warren County[2]	19,652	15,810	-19.6	37.5	62.5	1.3	0.9	11.7	3.8	100.0
Wayne County[2]	82,059	85,408	+ 4.0	66.5	33.5	1.8	0.6	9.9	2.0	53.3

[1]Bureau of Census 1971 General Population Characteristics of the United States 1970 Census Population. United States Government Printing Office, Washington, D.C.

[2]Bureau of Census 1971 General Population Characteristics of North Carolina 1970 Census Population. United States Government Printing Office, Washington, D.C.

percent, Warren has 62.5 percent, and Wayne has 33.5 percent. It should be remembered that the two northern counties, Halifax and Warren, are about half non-white or more (4).

The infant population of the United States, North Carolina, Halifax, Warren, and Wayne Counties is nearly the same, ranging from 1.3-1.8 percent. However, due to the increased total of non-white population, the three counties under study have two to three times the percentage of non-white infants as the United States.

The percentage of 15-19 year old females in these three counties is also higher than the United States figure. The most significant difference is again in the Black population of this age group. These women represented part of the high risk group which is a target priority of the Maternal and Infant Care Project.

North Carolina has nearly 50 percent more of its population living in rural areas than does the United States. The same is true of Wayne and Halifax Counties. For all practical purposes, Warren County is all rural.

A summary of selected vital statistics for 1970 is presented in table 3. North Carolina has higher birth rates as well as neonatal, postnatal and infant death rates than the United States. The overall death rate (excluding fetal) for North Carolina was below the United States rate. Data on premature births, illegitimate births, perinatal death rates, and the fetal death ratio for the United States are not published to date.

TABLE 3

Comparison of birth, infant, and death statistics for 1970 of the United States, North Carolina, Halifax, Warren, and Wayne Counties

	United States[1]	North Carolina[2]	Counties		
			Halifax[2]	Warren[2]	Wayne[2]
Birth Rate	17.8	19.4	18.7	14.0	20.9
Rank[a]			39	97	13
Premature Birth Rate	[b]	9.2	10.0	13.6	8.9
Rank[a]			33	3	60
Illegitimate Birth Rate	[b]	12.6	26.1	21.7	14.2
Rank[a]			8	14	47
Perinatal Death Rate	[b]	33.8	44.6	65.8	41.3
Rank[a]			14	2	27
Fetal Death Ratio	[b]	16.2	21.3	30.7	17.6
Rank[a]			28	5	45
Neonatal Death Rate	14.9	17.9	23.8	36.2	24.1
Rank[a]			22	4	20
Postnatal Death Rate	4.9	6.3	9.1	9.4	4.6
Rank[a]			26	24	68
Infant Death Rate	19.8	24.1	32.7	45.2	28.6
Rank[a]			20	4	35
Deaths (excluding fetal)	9.4	8.8	10.4	12.7	8.7
Rank[a]			34	4	75

[a]The rank for a selected event for a given county is the position in which the rate appears when the comparable rates from 100 counties are ordered from high to low value.

[b]Not available.

[1]Compiled from National Center for Health Statistics 1973 Monthly Vital Statistic Reports, Provisional Statistics. Health Services and Mental Health Administration, Rockville, Maryland.

[2]Koomen, Jacob, and W. B. Jones 1971 Vital Statistics 1970. North Carolina State Board of Health, Raleigh.

Halifax County ranks in the top quartile of North Carolina Counties for infant, neonatal, and perinatal deaths and for illegitimate births. The county also ranks among the top 50 North Carolina counties for highest birth rates and premature birth rates. Its illegitimate birth rate is twice that of North Carolina's. Overall death rates, postnatal death rates, and the fetal death ratio are also among the top 50 counties.

Warren County, although having a lower birth rate, has a higher death rate than North Carolina for all categories shown in table 3. The area ranks in the top five counties in the state for the highest death rates in six categories and ranks in the top quartile for all death categories. It should be recognized and appreciated that this rural area is geographically a marked distance from the urban districts surrounding the three medical centers in North Carolina.

Wayne County mortality statistics are not as bleak as those of the other two counties. However, among the three counties, Wayne has the highest birth rate at 20.9 and ranks 13th in the state. This is above both the North Carolina and the United States rates. The only death rate within the top quartile of North Carolina counties is the neonatal death rate of 24.1.

Nutritional Characteristics

In February, 1970, the North Carolina State Board of Health conducted a statewide nutritional survey (6). The survey was designed to provide information from a representative sample of the household population of North Carolina.

The survey revealed that 27 percent of the households were consuming inadequate diets (met less than one-half of the North Carolina Nutrition Survey standards for one or more nutrients). See table 4. Even more significant was the fact that 43 percent of North Carolina's children were consuming inadequate diets. Dietary inadequacy occurred with greatest frequency among households from eastern North Carolina (39 percent). This is consistant with other data from the survey which correlated higher dietary inadequacy with non-whites, large families, preschoolers and low income, all of which is prevalent in eastern North Carolina.

Nutrients most often found deficient in the diets of North Carolinians are vitamin A, ascorbic acid, and calcium. Iron-deficient diets were found in 7 percent of the households and 28 percent of the preschool children. Clinical manifestations of iron deficiency anemia, as demonstrated by hematocrit readings, were present in 5 percent of the preschool children.

Of the households eligible for food assistance programs, only 35 percent were participating. However, the survey data showed only slight nutritional improvement due to participation in these programs. Fifty-four percent of the eligible non-participating households had optimum (met the North Carolina Nutritional Survey standard for five nutrients) or adequate diets (met at least one-half of the standards for five nutrients, but less than the standard for one or more nutrients) as indicated in table 5, compared to the participant rate of 48 percent. However, there were 5 percent

TABLE 4

Comparative daily dietary standards for reference man[a]

Country	Calories (kcal)	Protein (g)	Calcium (mg)	Iron (mg)	Vitamin A (IU)	Thiamine (mg)	Riboflavin (mg)	Niacin (mg)	Vitamin C (mg)
United States[1]	2,800	45	0.8	10	5,000	1.4	1.7	18	60
Ten State Nutrition Survey[2]	2,996	77	0.4	10	3,500	1.2	1.7	20	30
North Carolina Nutrition Survey[3]	2,996	77	0.5	10	2,500	1.2	1.7	20	30

[a]Reference man is between 20 and 30 years, doing moderate work.

[1]National Academy of Sciences 1968 Recommended Dietary Allowances. Seventh Edition, Washington, D.C.

[2]Division of Chronic Disease Programs 1969 Nutrition program - Standards for Evaluation of Nutrient Intake. United States Regional Medical Programs Service, Bethesda, Maryland.

[3]Nutrition Section 1971 North Carolina Nutrition Survey, Part I. North Carolina State Board of Health, Raleigh.

TABLE 5

Standards for evaluation[a] of preschool children's (1-5 years) daily nutrient intake in the North Carolina Nutrition Survey 1970[1]

Age Years	Weight (kg)	Calories per kg	Protein gm per kg	Calcium (mg)	Iron (mg)	Vitamin A (IU)	Vitamin C (mg)
1	11.4	90	1.9	561	15	1430	30
2-3	14.6	86	1.7	561	15	1430	30
4-5	18.5	82	1.5	561	10	1430	30

[a]quality of the diet was rated according to: 1) optimum, met North Carolina Nutrition Survey standard for five nutrients, 2) adequate, met at least half of the North Carolina Nutrition Survey standard for five nutrients, but less than standard for one or more nutrients, 3) inadequate, met less than half of the North Carolina Nutrition Survey standard for one or more nutrients.

[1]Nutrition Section 1971 North Carolina Nutrition Survey, Part I. North Carolina State Board of Health, Raleigh.

more participants with optimum diets. The survey does not show whether the participants were originally needier than the eligible non-participants nor the length of time of participation.

Summary

Halifax, Warren, and Wayne Counties are rural agricultural areas. They are characterized by having a higher percentage of non-whites and a much higher percentage of families below the poverty level than North Carolina and the United States. Health statistics of these counties disclose a higher incidence of birth rate (except Warren County) and higher incidences of childhood deaths by all indices than North Carolina and the United States means.

The North Carolina Nutrition Survey has shown that 27 percent of the households and 43 percent of the preschool children of North Carolina were consuming inadequate diets in 1970. The percentages of families and preschool children consuming inadequate diets were even higher for the eastern part of the state, where the three counties under study are located.

Because of these adverse conditions and the distance of these three counties from the major medical centers of North Carolina, the North Carolina Board of Health decided that these areas were the medically neediest of the state. For these reasons, in June, 1965, the Board, in cooperation with the Maternal and Child Health Services, Department of Health, Education, and Welfare, and the health departments in the area,

designated Halifax and Warren Counties as Area I and Wayne County as Area II of the Special North Carolina State Project for Comprehensive Maternal and Infant Health Care.

CHAPTER III

STATE BOARD OF HEALTH

The North Carolina State Board of Health is located in the Department of Human Resources, whose Secretary is responsible to the Governor. The Board of Health consists of nine members, five appointed by the governor and four by the State Medical Society. The eight divisions of the State Board of Health are Epidemiology, Community Health, Laboratory, Administrative Services, Dental Health, Personal Health, Sanitary Engineering, and State Medical Examiner. The organization of the Board is presented in figure 2.

The Nutrition Section, a part of Community Health, contributes services regularly to two of these divisions: Dental Health and Personal Health. A description of the Nutrition Section and the nature of its contributions to the above mentioned divisions are discussed below.

A. COMMUNITY HEALTH DIVISION

The Community Health Division consists of six sections: Health Mobilization, Local Administration, Nutrition, Physical Therapy, Public Health Education, and Public Health Nursing. The division promotes health programs through local health departments utilizing qualified section consultants. The Nutrition Section does not make regular contributions to any of the other sections in this division. The organization and description of the Nutrition Section follow.

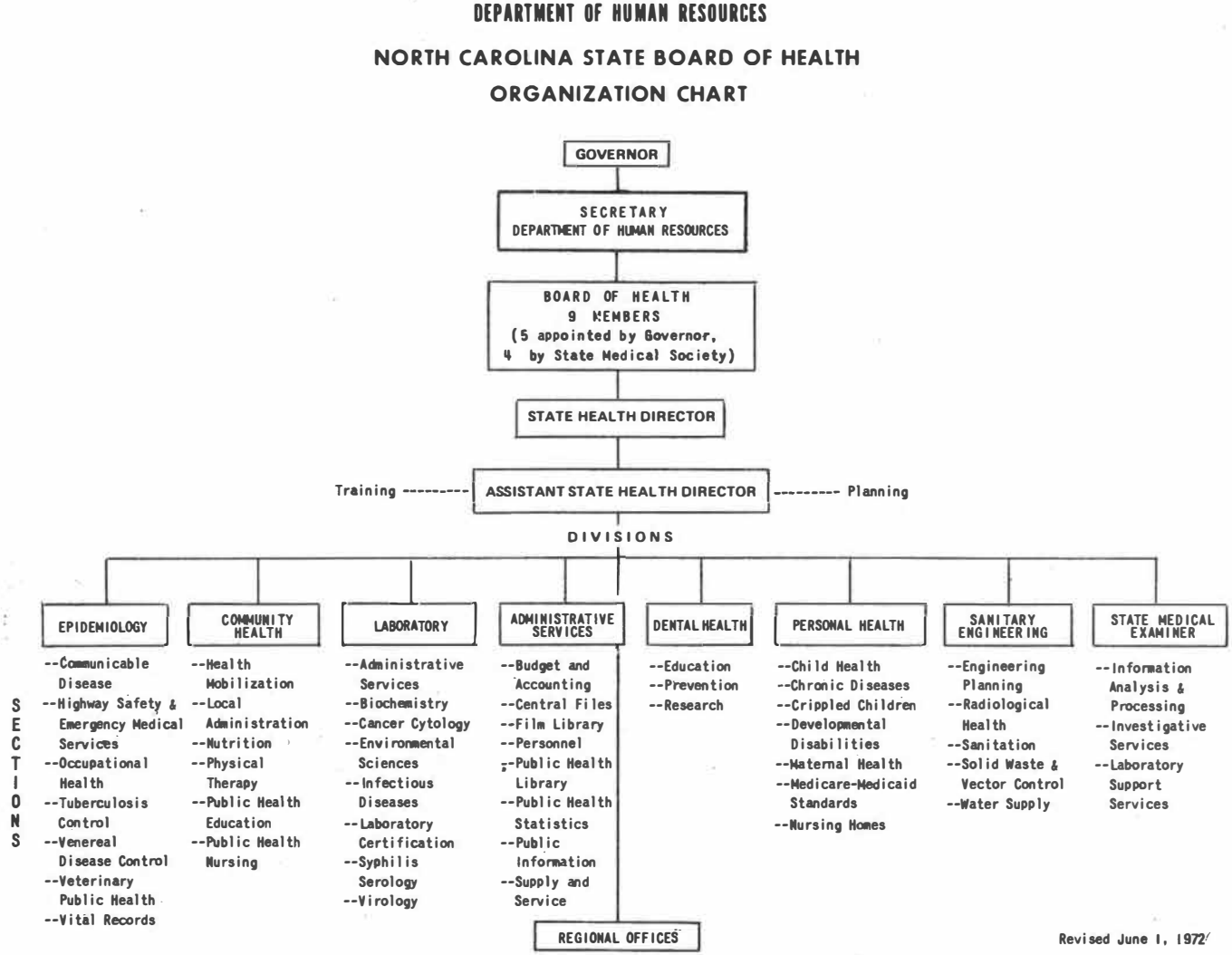


Figure 2. Organization chart of the State Board of Health, North Carolina.

Nutrition Section

The ultimate objective of the Nutrition Section is to promote better health and nutritional status for the citizens of North Carolina. To achieve this goal, the following sub-objectives were established: (1) to demonstrate the importance of nutrition in health and interpret its position in a public health program; (2) to establish an educational program which would develop and maintain good nutritional practices among all the citizens of North Carolina; (3) to coordinate the nutritional efforts within the local health departments, the University of North Carolina, and other official and voluntary agencies engaged in the promotion of better human nutrition and better health; and (4) to establish laboratory facilities which would be able to make detailed studies necessary for the intelligent solution to the nutritional problems existing in North Carolina (7).

There are 15 positions on the staff of the Nutrition Section: 1 chief nutritionist, 1 assistant chief nutritionist, 1 principal dietitian, 3 regional institutional nutritionists, 6 regional nutrition consultants, and 3 nutrition interns or trainees. The organization of the Nutrition Section is presented in figure 3.

The chief nutritionist with the aid of the assistant chief nutritionist and principal dietitian coordinate the state nutrition program. The regional institutional nutritionists work primarily with nursing homes, hospitals, schools, and other food service programs. The regional nutrition

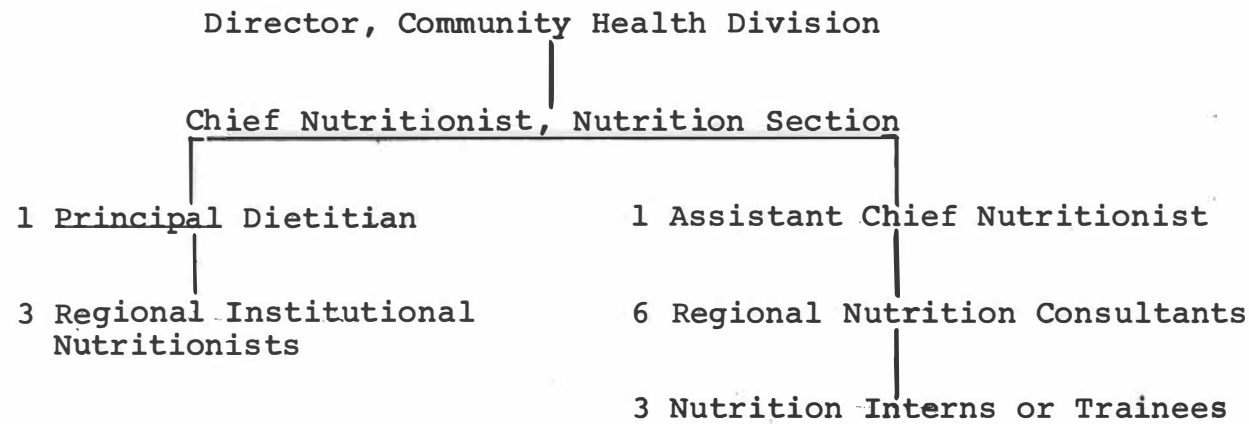


Figure 3. Organization Chart of the Nutrition Section North Carolina State Board of Health.

consultants are graduates of master's degree programs in nutrition with two years public health experience. They are responsible for planning, developing, supervising, implementing, and evaluating nutrition programs in a large geographic area of the state. Nutrition interns are graduates of master's degree programs in nutrition without work experience. The interns work under the direction of the regional nutrition consultants and are responsible for coordinating, integrating, and implementing the nutrition services and programs of the local health departments where they are assigned. Graduates of bachelor of science programs in nutrition can be hired to function as nutrition interns under the title of nutrition trainees. After two years experience the trainee may advance to nutrition intern. Job descriptions of each of these positions are contained in appendix A. Contributions of the nutrition staff to the sections of other State Board of Health divisions are discussed below.

B. DENTAL HEALTH DIVISION

The Nutrition Section's chief contributions to the Education Section of the Dental Health Division are to provide orientation, inservice education, and consultation to dental hygienists. Other contributions include consultation to teachers concerning dental health education and assistance to the division with the development of dental health education materials.

C. PERSONAL HEALTH DIVISION

The Nutrition Section staff provide services to six sections of the Personal Health Division: Child Health, Developmental Disabilities, Family Planning, Maternal Health, Medicare-Medicaid Standards, and Nursing Homes. The nature of these services to each section are discussed below. The organization of the division is presented in figure 4.

Child Health Section

The Nutrition Section staff provide services to the Child Health Section through the Child Health Supervision Clinics, Family Nurse Practitioner Training Program, Maternal and Infant Care Projects, and the School Health Programs.

Child Health Supervision Clinics. Through the Child Health Supervision Clinics, the health of children is supervised in the local health departments by public health nurses, a consulting physician, and where available a nutrition intern or trainee. The program objectives of these clinics are (1) to teach good health practices to parents; (2) to provide the opportunity for parents to ask questions about health care; (3) to administer immunizations; and (4) to help parents seek further medical care. Incorporated in this plan are nutritional services, immunization procedures, diaper and skin care, accident prevention and early detection of any variations from normal in order to advise about further consultative services. The ultimate objective is health supervision of children from infancy through school age. Child

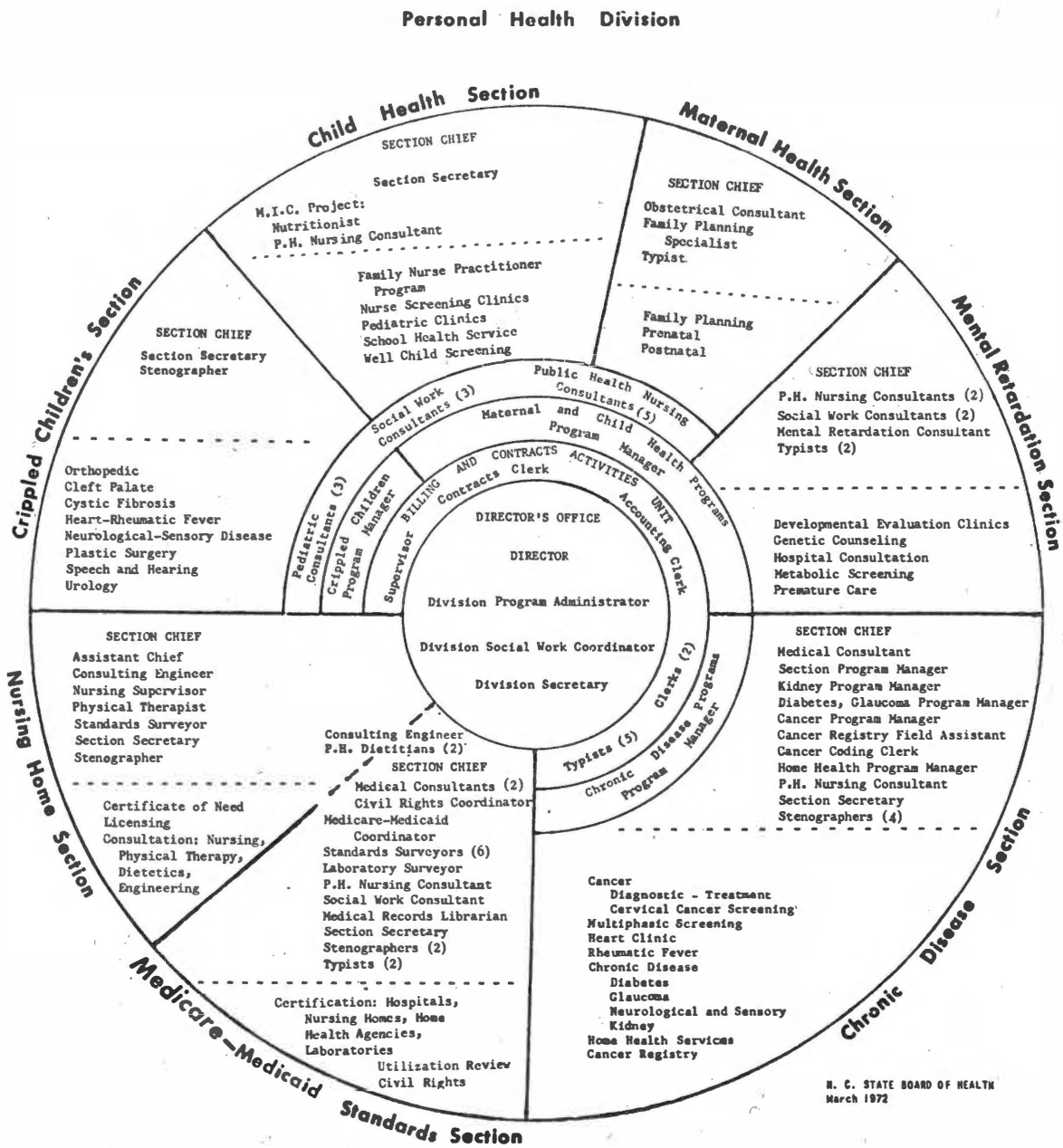


Figure 4. Organization of Personal Health Division, State Board of Health, North Carolina

Health Supervision Clinics are divided into two phases: nurse screening clinic and pediatric screening clinic (8).

The Nutrition Section staff provide for continuing education of local health department nurses in the area of pediatric nutrition. This is performed through printed materials, consultation and inservice training sessions.

The Nutrition Section staff also promote the utilization of commodity foods, supplemental foods, and food stamps for children and families. Through inservice training, nurses are taught the benefits of the above food assistance programs and how to utilize the foods they provide. Where available, nutrition interns or trainees are assigned to local health departments and perform classes for families on how to prepare commodity and supplemental foods.

Family Nurse Practitioner Training Program. The objective of the Family Nurse Practitioner Training Program is to broaden and strengthen nurse effectiveness, both as a health systems coordinator and as a major source of family health care and to extend the role of the nurse so that she will be the synthesizer of a continuous program of family health care (8).

The Nutrition Section staff provide for the continuing education of the nurse practitioners through demonstration and didactic methods for teaching pediatric nutrition during training sessions, continuing education for inservice programs, demonstrations in the clinical settings, and individual conferences for patient evaluation.

Maternal and Infant Care Project. The Maternal and Infant Care Project located in Halifax, Warren, and Wayne Counties provides comprehensive prenatal, natal, postnatal, and planned parenthood services to the pregnant woman and pediatric care for the infant until one year of age. Emphasis is placed on the high risk mothers with conditions that would be hazardous to either their welfare or that of their infants. Eligibility is determined by residence and poverty income.

The Nutrition Section staff provide consultative services to the Maternal and Infant Care Project nutrition consultant. The Nutrition Section extends an invitation to the project nutrition consultant for all nutrition staff inservice programs and staff meetings. A more indepth look at the services of the Maternal and Infant Care Project can be found in later chapters of this thesis.

School Health Service. The School Health Service provides general routine physical examinations, examinations of children suspected of having hearing difficulties, inspection of pupils to detect signs of deviations from normal, and follow-up services in connection with the correction of defects. Minor dental care may be received in the public school or local health department. Other services include treatment, correction and surgery of chronic physical defects (8).

The Nutrition Section staff conduct inservice education for school health nurses. Subjects include signs of good and

poor nutrition, problems of underweight and overweight and problems of pregnant teenagers. They assist nurses in plans for working with teachers and for working with parents and parent groups.

The Nutrition Section staff provide consultation for education projects such as materials and subject matter for classroom work, family life classes, pregnant teenager groups, overweight groups, and parent groups. They also assist in writing innovative programs for school children.

Consultation to school nurses is provided for the nutritional needs of individual children. On request they provide demonstrations in patient assessment and instruction on therapeutic diets, weight problem diets, and diets for pregnancy.

Developmental Disabilities Section

On request, Nutrition Section staff participate in the Developmental Evaluation Clinics of the Developmental Disabilities Section. Eleven out-patient clinics serve North Carolina. These clinics bring together in a variety of settings professional specialists in the fields of medicine, nursing, psychology, social work, physical therapy, nutrition, and in other fields as necessary. Consultation of any kind may be purchased. An interlocking referral system ties all the clinics together and to other health department programs. Agreements for contracts exist with many agencies looking toward coordination of resources and efforts on behalf of patients, families, and communities (8).

Referral, study, evaluation, diagnosis, limited treatment and follow-up coordination services are all available. Training of professionals and complementary personnel is an increasingly important service of those clinics with resources and affiliations with teaching institutions.

On request from the Development Evaluation Clinic staff, the Nutrition Section staff will evaluate the nutritional adequacy of the patient's diet and the techniques used in feeding the patient. Nutrition Section staff members contribute to the evaluation of patients as members of the clinic staff. They instruct patients and their parents in good nutritional practices for the family and ways to adjust family eating to the patient's dietary needs. They also evaluate, select and prepare educational materials to be used with patients. Nutrition Section staff participate in and conduct inservice education programs in nutrition and eating practices for clinic staff and/or other health professionals who work with similar patients.

Family Planning Section

The Family Planning Section is concerned with making comprehensive family planning services available on a continuing basis to all persons throughout the state. Family planning services are interpreted broadly and include all medical, social, and educational services necessary to insure that all persons will have the freedom of choice to determine the spacing of their progeny and the size of their families.

The Family Planning Section does not provide direct services to individuals. The section offers assistance to local providers in the following manner (8):

(1) Through a grant from the Department of Health, Education and Welfare, funds are distributed to implement and augment local family planning programs. Such programs must submit project proposals according to federal and state guidelines.

(2) In conjunction with the Maternal Health Section, medical and nursing consultation is offered to local providers.

(3) Technical assistance is offered to local programs in the areas of implementation, development, and evaluation. A patient information system has been established in this regard.

(4) Training programs are coordinated in an attempt to meet the training needs of all those providing family planning services.

The Nutrition Section staff provide direct nutrition education to planned parenthood patients through local health departments, inservice education to nursing staff for interconceptual nutritional care, and to promote the participation and utilization of food programs for planned parenthood program participants.

Maternal Health Section

The Maternal Health Section is concerned with the promotion and provision of good maternal health. This is, of

necessity, broad in its aspect because the health of a mother, past, present, or potential, necessarily is related to the health of her husband, child, family, and community. Though state policies regarding services and eligibilities may be broad, local autonomy prevails in North Carolina; therefore, specific policies regarding eligibility and methods of service do vary from county to county.

The maternity clinics of the public health departments provide prenatal and postnatal examinations, counseling, and supervision for those mothers unable to secure this service from private physicians. Seeking prenatal supervision early in the cycle is encouraged. Guidance and supervision is continued throughout the maternity cycle as needed. Though labor and delivery services are not provided by the health department clinics, efforts are made to help each patient realize the importance of making arrangements for delivery care and to help her carry these through. Postpartum examinations are available to all women who have delivered within one year and who have not received a post-delivery examination. Counseling and guidance is available regarding family planning in its broadest sense (8).

The Nutrition Section staff assigned to local health programs provide nutrition education services to maternity patients, group education classes for maternity patients and their families, guidance and teaching for maternity patients who have modified dietary treatment plans.

The Nutrition Section staff promote the utilization of supplemental food programs for maternity patients and infants within counties eligible for the program and provide for demonstrations of commodity and supplemental foods for maternity patients.

Medicare-Medicaid Standards Section

The Medicare-Medicaid Standards Section is responsible for certification surveys and resurveys under Federal Medicare (Social Security Act, Title XVIII) and for the North Carolina Medicaid (Social Security Act, Title XIX) programs. Compliance with the provisions of the Civil Rights Act of 1974, Title VI, coordination of licensure agencies, professional organizations and other public and private groups concerned with Medicare, Medicaid and Civil Rights, and state licensure of home health agencies are also the duties of this section. The Medicare-Medicaid Standards Section provides consultation services to the following active or potential providers of service to enable them to meet program requirements: nursing, medical records, medical social work, engineering, dietetics, physician services and utilization review, civil rights compliance, and pharmacy (8).

The consulting dietitian, Nutrition Section, maintains a registry of all members of the North Carolina Dietetic Association who are available for consultation to extended care facilities. They share this information with the consultants of the Medicare-Medicaid Standards Section.

Dietitians of the Nutrition Section work cooperatively with other Medicare-Medicaid consultants to plan, organize, advise, and participate in the development and execution of educational programs and materials for consulting dietitians and food service managers.

Nutrition Section staff advise universities, colleges, and technical institutes concerning curriculums developed for nutrition and food service management training. They advise and assist in setting standards for qualifications of teachers and in the recruitment of qualified teachers.

Nursing Home Section

A nursing home is a facility for chronic or convalescent patients, who may have remedial or other ailments, whose primary need is for nursing care under continuing medical supervision. The programs of the Nursing Home Section serve the people by enforcing the "Rules and Regulations of the Licensing of Nursing Homes", offering consultation to the providers and assisting them in developing inservice education programs.

Plans for new nursing homes are reviewed by the section prior to issuance of a building permit. This is followed by progress inspections during the construction phases. When the building is completed and when the administrator employs the necessary staff and meets other requirements, an operating license is issued.

For those homes which are in operation, consultants make periodic inspections of their services and provide consultation as indicated or requested. For the 124 licensed nursing homes, representing 10,585 beds in 52 counties, inservice training programs are offered and conducted in the fields of: (1) nursing on the professional and non-professional levels; (2) in rehabilitation through physical, occupational, and recreational therapy; (3) in food therapy by providing guidance in implementing physicians orders for regular and modified diets; (4) in administration; and (5) in plant maintenance (8).

The consulting dietitians, Nutrition Section, work cooperatively with other nursing home consultants to plan, organize, advise, and participate in the development and execution of educational programs and materials for consulting dietitians and food service managers.

The consulting dietitian, Nutrition Section, maintains a registry of all members of the North Carolina Dietetic Association who are available for consultation to extended care facilities. They share this information with the consultants of the Nursing Home Section.

CHAPTER IV

PROFESSIONAL DEVELOPMENT

The student was assigned to the Special North Carolina State Project for Comprehensive Maternal and Infant Health Care under the supervision of Mrs. Carolyn Sparks, the Nutrition Consultant, whose office is located at the Wayne County Health Department in Goldsboro.

In addition to the Maternal and Infant Care Project personnel and programs, the student interacted with other State Board of Health sections and programs and other official supportive agencies. In order to evaluate the student's professional growth, a description and evaluation of participation and observations of current programs of these agencies follows.

A. MATERNAL AND INFANT CARE PROJECT

The ultimate objective of the Project is to provide a more complete program of preventive medicine as applied to the prenatal, natal, and postnatal care of the medically indigent population. Emphasis is placed on the high risk patient early in pregnancy to provide for her comprehensive prenatal and postnatal care, diagnostic and specialist consultation services, hospitalization during the prenatal period when necessary, and hospitalization for delivery by a qualified physician. Subobjectives include providing

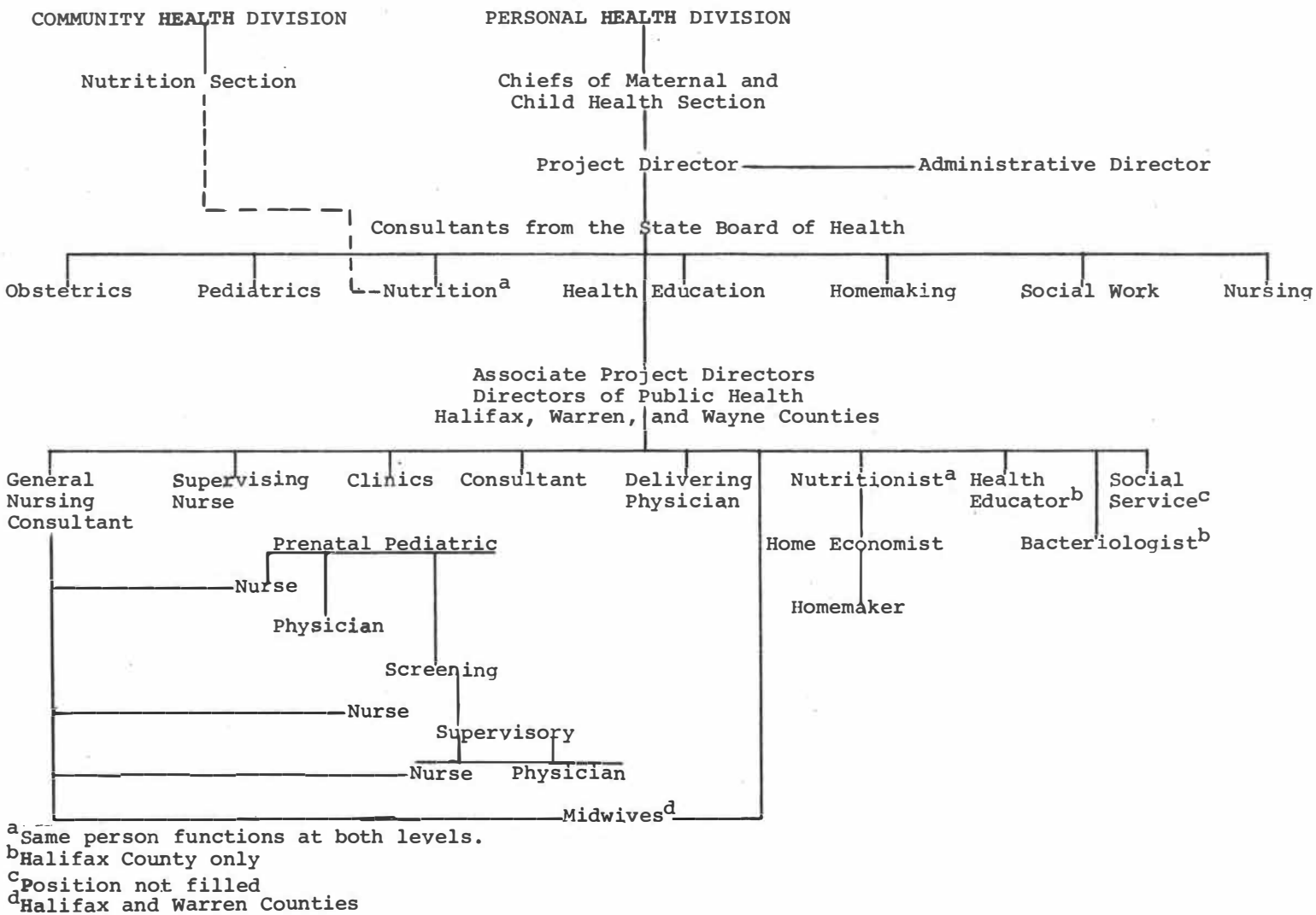
nutrition consultation services, home economists to work directly with the mother and assist her in better utilization of their facilities, homemaker services to insure a continuity of home life during the hospitalization of the mother, social service consultation and health education (9). Figure 5 is a chart of administrative accountability of these personnel.

Emphasis is also placed on providing comprehensive care for all infants of medically indigent mothers born of uncomplicated as well as complicated pregnancies, providing supervised newborn nursery care for normal infants, premature nursery care, specialized medical care for abnormal infants, and referrals to existing agencies supplying such services.

Budget

The Maternal and Infant Care Project is a 90/10 matched funding program (Federal/State). The percentage of monies handled by local health departments for the project is approximately 83/17. This is due to the fact that clinician fees, hospital costs, and nutrition and medical consulting fees are paid directly by the state.

Most local health departments receive 12-13 percent of their budget through the state government (which includes all federal monies). However, the presence of a Maternal and Infant Care Project increases state funds to approximately 30 percent. The remainder of the budget is supported by local taxes. This low percentage of support from outside sources contributes to the local autonomy of health departments.



[a] Same person functions at both levels.
[b] Halifax County only
[c] Position not filled
[d] Halifax and Warren Counties

Figure 5. Organization chart of Maternal and Infant Care Project personnel

Public Health Nursing

The Halifax County Health Department, part of Area I, employs 12 full-time nurses and one nursing supervisor. One nurse is responsible for the tuberculosis program, seven work in the department's general programs, and three nurses work with the Maternal and Infant Care Project. Two licensed practical nurses are also employed, one in general service and one with the Maternal and Infant Care Project.

The Warren County Health Department, part of Area I, employs three full-time and two part-time nurses. The full-time nurses and one part-time nurse work in all programs of the health department; the remaining part-time nurse works in the Maternal and Infant Care Project. It should be reiterated here that Warren County is a poor and sparsely populated rural community.

The Wayne County Health Department, Area II, employs 13 full-time nurses and one nursing supervisor. One nurse is responsible for the tuberculosis program, nine divide their time between field and various clinical duties, one is a full-time clinician, and two nurses work entirely with the Maternal and Infant Care Project (one maternity and one pediatric nurse).

The public health field nurse is responsible for the case finding and arranging the clinics. She assists in the clinic and interprets for the patient the physician's medical instructions. The nurse makes home visits when necessary

to aid in the total care of the patient. She cooperates with other staff personnel such as physicians, nutrition staff, and health educator for a broader aspect of patient care.

Nurse screening clinics are conducted by the public health nurses of local health departments. They provide the above mentioned services, particularly counseling the parents and giving guidance in health care and screening all children for abnormalities. There is not a physician in attendance for these clinics; however, the procedures carried out by the nurses are under the supervision of the physicians who attend the pediatric supervisory clinic. The nurses are trained in child health supervision to do a complete physical examination on each child.

The pediatric clinic is attended by a pediatrician who is interested in the health care of the children of the county. He examines the children referred from the nurse screening clinic and all infants and children attending the clinic for the first time. He advises specialty consultation services and recommends the schedule for the patient to return to the pediatric clinic.

The student observed nurses screening patients in maternity and pediatric clinics in all three counties. The services rendered were similar; however, the physical space of these clinics differed greatly. Space is scarce in all counties, but in Halifax and especially Warren conditions are such that neither the patients nor the staff can feel

comfortable in the surroundings. In these two clinics, patient privacy is a rare commodity.

Nutrition Consultant

The Maternal and Infant Care Project employs one nutrition consultant. She divides her time as necessary between the three counties. It is her responsibility to determine the nature and magnitude of the nutritional needs of expectant mothers participating in the project and to integrate nutritional services with all appropriate services within the project. Specific details include:

1) Supervise and evaluate the work of the homemakers and home economists.

2) Plan with other staff members of the project to develop the nutritional component of the project.

3) Interpret to other members of the project team the contributions nutrition can make in giving total care to the patient.

4) Obtain a diet history from patients or assist the health educator and home economists in obtaining a diet history in order to evaluate the patient's eating habits and to establish desirable dietary goals for the patient.

5) Instruct or assist the nutrition staff in instructing patients individually or in groups.

6) Provide information regarding a therapeutic diet prescribed for the patient.

7) Act as resource person to help the project team keep abreast of nutrition education materials, dietary information, and new research developments.

8) Provide inservice training for the nutrition staff.

The student observed the nutrition consultant perform duties 1, 4, 5, 6, 7, and 8 on several occasions. The student obtained diet histories from patients in both maternity and pediatric clinics in all counties. Three classes for patients of the Maternal and Infant Care Project were performed by the student: one class on container gardening in Warren County and two classes on wild food foraging in Halifax County. Upon request from the nurses of Halifax County, the student also gave wild food foraging inservice training sessions. The student and the project nutrition consultant jointly gave a nutrition lesson to an expectant parents group consisting of local private physicians' patients and organized by the Wayne County Memorial Hospital staff. These classes are more fully discussed later in this chapter.

Home Economist

A project home economist is a graduate of a four-year college of home economics with at least two years previous experience. There are two home economists in Wayne County Health Department and one each in Warren and Halifax Counties Health Departments. Their duties include:

1) To work under the supervision of the nutrition consultant.

2) To endeavor to develop in clients competence in using their human and material resources to achieve a better nutritional status for themselves and their families.

3) To assist the family and mother in household budgeting and working within this budget.

4) To assist families in low-cost meal planning, food purchasing, and preparation.

5) To assist and instruct families in cooperation with other county agencies in gardening and raising food products whenever this is possible.

6) To obtain diet histories from patients.

7) To assist and instruct patients in normal nutrition and modified diets under the supervision of the nutriton consultant.

8) To work in maternity and pediatric clinics and in clients' homes.

9) To supervise and assign the homemaker in her daily activity.

The student observed home economists function in all counties. The duties observed include pediatric and prenatal home visits, cooking, formula preparation, and bath classes, as well as clinic services.

Homemaker

The objective of the homemaker is to preserve family life that is threatened with disruption during hospitalization, incapacitation, and during prenatal and convalescent periods. The homemaker should be a mature woman and recognized in the community she serves as a successful homemaker. Her duties, as any mother's, are too numerous to list; however, they include buying groceries, planning and preparing meals, budgeting, promoting personal hygiene in the family, preparing baby formula and washing clothes (appendix A). By law, a homemaker must have successfully completed elementary school or pass an equivalency test.

Recently, the role of the homemaker has changed towards a teacher of proper health practices rather than as a substitute mother. The homemaker has been shown to be a good interpretor of directions given by health department staff to the patient. Many of these directions need further explanation and continual reinforcement in the home.

Each county has two homemakers. In addition to the above homemaking activities they also assist in maternity and pediatric clinics where they weigh and measure the patients. This allows for the patient to meet the homemaker and to associate her with the health department.

The student made several home visits with homemakers in Warren and Wayne Counties. In these homes, they demonstrated their abilities as instructors of pediatric nutrition and

general health care. The homemakers reinforced the patients with medical, nursing, and nutrition information received at the health department. Another valuable function was to remind the patient of subsequent clinic appointments and investigate appointment delinquencies.

Health Education

The health educator, by demonstration, classes, and conferences, motivates the patients to avail unto themselves such information and knowledge that would aid in stimulating them to seek maternity care early in their pregnancies, to seek medical care for their infants, and to help them improve ~~their~~ social and economic standards or positions. The health educator cooperates with community and civic organizations, schools, and churches in establishing programs of health education and confers and cooperates with other project personnel in maintaining a high standard of care for project patients.

The health educator is also responsible for teaching classes to patients concerning general nutrition and the physiology of birth control, pregnancy, and conception.

The student observed an orientation class by the health educator to a group of expectant mothers. He thoroughly explained the services of the health department available to them in their language. It was an excellent example of how to tactfully talk to the level of the audience.

Classes Taught

Classes, as a learning situation, take away from the personal contact of instruction. However, classes are a better utilization of a nutritionist's time since it allows him to reach more people within the same time period. To help the student develop classroom skills, the project nutrition consultant arranged for five classes to be taught by the student. A description of these classes follows.

Container Gardening Class. The project nutrition consultant asked the student to teach a group of mothers a class that would be stimulating to the mothers and to the home economist and homemakers who normally teach this class and contribute to their nutritional status. The lesson was to take place during part of the monthly community class offered by the Maternal and Infant Care Project through the Warren County Health Department at the community center in Warrington.

The student in consultation with the project nutrition consultant decided upon a class about vegetable gardening in containers. Gardening in containers eliminates plowing and root competition, conserves water, minimizes weeding, and to some extent is mobile. It is also an excellent method to introduce new nutritious foods to families at minimum cost.

Plastic one-gallon containers were obtained from the Goldsboro School Food Service Department and other large discarded containers were gathered from the woods. Tomato

and cabbage plants, and mustard, bibb lettuce, leaf lettuce, and carrot seed was purchased from local suppliers by the Maternal and Infant Care Project funds. Local soil was fertilized with composted manure and sand was added to give the final soil product a lighter texture.

The student explained the basic tenets of gardening for the first part of the class. In the second half, participants filled containers with the soil and planted their gardens. Several containers were planted as a communal garden to be part of a meal at later meetings of the community class. The vitamin content of the foods planted was pointed out to the participants. A copy of the instruction sheet given to the class is included in appendix B.

Gardening is an excellent way to undermine the high cost of food to low income families. Certainly, this one class did not stimulate all the participants to undertake a garden this year. However, it is hoped that the participants of the class will enjoy the vegetables planted and that this will spark further gardening interest in the future.

Wild Food Foraging Class. As part of the Supplemental Foods Program in Halifax County, monthly classes are held by the home economist of the Maternal and Infant Care Project in several locations throughout the county. The purpose of these classes is to teach low income families how to prepare supplemental foods. The project nutrition consultant asked the student to plan one month's classes, perform two of these classes, and train the home economist to repeat this class in other sections of the county.

Wild food foraging was the topic chosen by the student because of the abundance of wild greens in the area, the nutritive value of these greens, the novelty of the subject (and, therefore, stimulating to the audience and the home economist), and its possible combination with supplemental foods. "Wild Greens in North Carolina", available from the North Carolina State Board of Health, was used as a guide by the student (appendix C).

In the course of the class, it was pointed out to the participants that the origin of cultivated crops were wild plants and that there were many wild edible plants right outside their doors that were nutritious and free for the picking. Poke salad was the featured plant of the classes.

Under the direction of the student, the home economist prepared boiled poke salad seasoned with wild onions and fat back topped with scrambled eggs supplied by the Supplemental Foods Program. The opportunity to taste this preparation was made available to all class participants. Other wild foods displayed were lamb's quarters, narrow-leaved dock, shepherd's purse, common cat tail, sorrel, milkweed, and asparagus. The reception to this class was overwhelmingly positive.

The hour of informal lecture by the student was followed by an hour of lively discussion unprecedented in these classes. Undoubtedly, it stimulated all involved. After a short training session with the home economist, she was able to successfully carry on these classes in the rest of the county.

The enthusiasm expressed by class participants to public health nurses on field visits about these classes was such that the nurses requested a wild food foraging inservice training session from the student. Again, the enthusiasm of this class was very positive and rewarding. The home economists monthly narrative report which discusses and evaluates these classes can be examined in appendix D.

Expectant Parents Class. The Wayne Memorial Community Hospital holds quarterly classes for expectant parents. The classes total seven hours and include general prenatal health care, exercises, awareness of hospital procedures, layette preparation, normal nutrition, immunization, and formula preparation.

An hour of normal nutrition is normally taught by the project nutrition consultant. The student took 20 minutes of this schedule to talk on the "Father's Influence on the Dietary Habits of Progeny." The make-up of the class participants was white, middle-class, educated people, which differed greatly from most patients seen at a health department. In the discussion, the student stressed the fact that if the father dislikes a particular food, the child is not likely to be exposed to it in the home. This is not critical, of course, unless the father dislikes many foods. It was pointed out that most of our food likes were based on personal experiences in the home and dislikes were based on prejudice and unfamiliarity with the foods.

The project nutrition consultant demonstrated the relationship of nutrition to health. Her presentation was highlighted by "Food Bingo", a game resembling Bingo designed to help the class place foods in their appropriate "Basic Four" groups.

B. STATE BOARD OF HEALTH

Nutrition Section Staff Meeting

Staff meetings of the Nutrition Section, State Board of Health, are scheduled quarterly. The two-day meetings are divided into two parts: a business meeting and continuing education. The objectives of the business meetings are to 1) develop and inform staff of policy changes and new programs; 2) to discuss field problems and solutions; and 3) to develop close working relationships with other state agencies. Topics for continuing education sessions were chosen by the staff. "Interconceptional Nutrition Care" was the topic for the meeting attended by the student of which one of the speakers was the student's field advisor, the nutrition consultant of the Maternal and Infant Care Project.

The staff meeting was held at the beginning of the student's field experience. This opportunity enabled him to acquaint himself with the staff, the state program and the relationship of the Maternal and Infant Care Project's nutrition consultant to the Nutrition Section.

Other Sections

Personal interviews with the Chiefs of the Physical Therapy, Crippled Children's, Nutrition, and Child Health Sections were arranged by the Chief of the Nutrition Section to further the student's understanding of the Nutrition Section's relationship to them. The lack of adequate advance planning prohibited the student from interviewing all the chiefs of sections mentioned in the previous chapter.

C. SUPPORTIVE AGENCIES

There are many other agencies and programs contributing to the nutritional status of North Carolina residents. Other supportive agencies which were visited by the student are the Commodity Foods Program, Food Stamp Program, Goldsboro School Lunch Food Service, Agriculture Extension Service, Food Science Department of the North Carolina State University, and the North Carolina Governor's Council on Aging.

Commodity Foods

The United States Department of Agriculture Commodity Foods Program of Wilson County was visited by the student. This county was visited because of its relatively large Commodity Foods Program compared to other surrounding counties. Over 5,300 people monthly utilize this program in Wilson County. Eligibility is based on income: for example, persons earning less than $130 per month or a family of four earning less than $240 per month are eligible. Verification

of income is performed through the Department of Social Services or through home visits by clerks of the Commodity Foods Program. Many seasonal workers such as farmers and construction workers use this program. Foods presently being distributed are: canned juice, instant potatoes, whole ground corn meal, enriched flour, enriched rice, shortening, powdered milk, dry beans, frozen butter, peanut butter, canned luncheon meat, rolled oats, grits, canned vegetables, scrambled egg mix, canned milk, corn syrup, canned fowl, enriched macaroni, and dried prunes. The supply of commodities is fairly consistant; however, when a shortage exists at the distribution centers, no substitutions are allowed.

The student observed a well-managed distribution center. Clients were given appointments for the day they were to pick up commodities, thereby completely eliminating waiting in lines. Consideration for the consumer, organization, and cleanliness were prime attributes of the center.

Food Stamp Program

The United States Department of Agriculture Food Stamp Program in Halifax County was visited. It is administered by the Departments of Human Resources and Social Services. The purposes of the program are to assist low income families purchase more food than they could otherwise afford, to better utilize the nation's agricultural abundance, and to benefit retailers and wholesalers and through them to benefit other businesses of the community by increasing the family's purchasing power. Eligibility is determined by net monthly

income and other total assets such as bank accounts, stocks and bonds. Deductions allowed from net monthly income includes rent payments over 30 percent of income, $10 medical expenses, baby sitting, nursing care, college tuitions, replacing essential personal property from damage and vandalism, hospital payments and funeral expenses. Verification of income and deductions is normally handled by an office visit to the Department of Social Services and home visits when necessary.

Clients are normally introduced to the program by referrals from social workers of the Department of Social Services and the United Charities. There are no referral forms or methods for use by other agencies. Nutrition education programs through the Food Stamp Program are nonexistant in Halifax County. Work-eligible people 18-65 years of age are referred to the Employment Security Commission for job placement.

Goldsboro School Food Service

All of Goldsboro's nine city schools visited by the student participate in the United States Department of Agriculture Type "A" school lunch. The Goldsboro School Food Service system utilizes a centralized purchasing center. All foods are prepared in individual schools. The system serves nearly 1,000 breakfasts and over 5,600 lunches per day. In addition, one school furnishes over 450 hot lunches to eight Headstart centers.

The most prevalent factor observed by the student was the preponderance of waste. A quick survey performed by the student revealed 50-75 percent waste of green vegetables. The supervisor expressed concern for this waste and said she had exhausted her capabilities for reducing this waste and requested any suggestions. The student made the following suggestions:

1) Make students aware of the amount of waste. This can be accomplished in cooperation with the principal, food service manager, classroom teachers and students, utilizing the school lunch room as a teaching laboratory. By having one grade empty all the waste milk into measured containers (instead of a garbage can which is presently the practice) one can determine the amount of milk waste. This data should be collected for a week with the students graphing and averaging the data (a mathematics lesson). These students can then report the data to the rest of the grades in the school from which the study was undertaken (a forensic lesson).

2) Explain the meaning of this waste. Have the students that report to the other grades relate the data as to the amount of life the waste can support, tax dollars lost, etc. (ecology and family living lesson).

3) Have the students repeat the data gathering six months later and compare the waste to the initial data (mathematics lesson). Again have students report the findings and implications to fellow students (forensic and ecology lessons).

Milk is the most suitable food stuff for this type of exercise. However, it can easily be adapted to any food stuff served by the school lunch system. Data can be easily separated by classroom grades sinch each grade and its teacher dine together. The food service supervisor gratefully acknowledged this suggestion and planned to implement this exercise in the near future.

Agriculture Extension Expanded Food and Nutrition Program

The Wayne County Agriculture Extension Expanded Food and Nutrition Program employs one home economist and two program aides. The home economist coordinates the program throughout the county. She teaches home economics classes to local civic groups and the 25 extension homemaker clubs, publishes weekly shopping tips in the local newspaper, and supervises the program aides.

The program aides, through home visits, teach the building of food storage cabinets and basic homemaking skills. They also teach classes in freezing and canning and conduct tours of local vegetable gardens. The program aides also counsel youth groups in gardening and cooking and sponsor and supervise camping trips during the summer months. These camp outings, supported by local contributions, include classes in crafts, swimming, nutrition, preventive dentistry, and nature. Over 150 children attend these camp sessions each summer.

Agriculture Extension Farm Opportunities Program

Past experience has shown that people utilizing nutrition services have many other problems beside nutritional problems and many times these problems have a higher priority. One of the most outstanding of these problems is the shortage of money for basic needs. In the rural communities of eastern North Carolina, farming is the primary source of what little income these people possess. The purpose of the North Carolina Agriculture Extension Farm Opportunities Program is to increase farm income through appropriate agriculture and managerial techniques, to increase knowledge and use of public agencies, to increase participation in community activities, to create a positive attitude toward their opportunities and to increase their appreciation and skill in the involvement of family members in setting and working for achievable family goals. Emphasis is placed on the small, low-income farmers, with potential for increasing their economic and social welfare through intensive educational assistance in agricultural techniques and management.

The agriculture technician is the equivalent of a homemaker. He is a respected and successful local farmer without a professional education. His duties are too extensive to list in this writing; however, they are analagous to the duties of a homemaker but are "farmmaker" oriented.

The student spent one day with an agriculture technician visiting farmers. It is interesting to note the attitude of

the clients. They welcomed us as friends and consultants, definitely a much greater acceptance to suggestions and solutions made by the agent than the atmosphere created in homemaker visits. There is no difference in the intimacy of the subjects; farmers are just as personal to farming practices as mothers are to homemaking practices. Perhaps the physical setting, acres of open space, creates less tension and more receptivity. If only nutrition home visits would be useful in the back yard, maybe we could be more effective.

North Carolina State University

The Food Science Department of North Carolina State University, Raleigh, possesses extensive research facilities. An interview and tour with the head of the department revealed previous research cooperation with other official agencies such as the Nutrition Section, State Board of Health, and North Carolina Prison Enterprises. It was made known to the student that the department intends to continue its cooperation with other agencies upon request.

Governor's Council on Aging

The objective of the nutrition program for the elderly of the North Carolina Governor's Council on Aging is to "promote better health and reduce isolation of older Americans by providing hot meals at low cost in local community centers where other social supportive services may be obtained." Presently, the nutrition program employs one nutritionist who is planning this statewide program. Title VII of the

Older Americans Act provides for 90/10 matched Federal funds with State funds. Requirements include: the recipients must be 60 years of age or older (except spouses), programs must cover at least a county and serve a minimum of 100 at one or more sites of at least 11 meals, it must provide a hot meal for 5 continuous days, and these meals must be similar to a Type "A" lunch. Only 10 percent may be home delivered. There are an estimated 200,000 eligible recipients in the state for which only 5,000 can be served due to the restricted amount of funds. The money for this project is expected to be released on July 1, 1973.

Professional Meetings

North Carolina Dietetic Association. The student attended two professional meetings during his field experience. The first was the annual meeting of the North Carolina Dietetic Association, Inc., in Durham, North Carolina. The theme of the meeting was "Action - I Dare You!" The speeches emphasized the practical application of research to patients, administration, and legislation.

Eastern North Carolina Public Health Association. The second meeting attended was the annual meeting of the Eastern North Carolina Public Health Association at Nags Head, North Carolina. The topic for the meeting was venereal disease. Even though the subject matter of this meeting contributed nothing to the knowledge of nutrition to the student, it did emphasize the need for the interaction of public health per-

sonnel to develop sound working relationships. An excellent method is to actively involve oneself in multidisciplinary professional organizations as demonstrated by the project nutrition consultant who was elected vice president of the Association at that meeting.

D. ALTERNATIVE COMMUNITIES

Throughout the United States, young and old people alike are gathering together in many forms of communal life. The different forms of this lifestyle and their reasons for it are beyond the scope of this paper. However, a vast majority of these communities share one thing in common: vegetarianism. The degrees of vegetarianism of these people may vary from veganism to only the desire to consume more vegetables. Two communities of this nature were visited by the student: Soul City and Scuppernong Landing.

Soul City

Soul City, Warren County, North Carolina, is a planned multi-racial community representing an alternative to the overcrowded, problem-ridden urban centers of America. It is supported by a Federal loan guarantee of $14,000,000. Planning is presently being supported by a $1,000,000 Office of Educational Opportunity grant. Present planning expects 44,000 residents, 12,096 homes, and a multitude of manufacturing industries. It boasts of low wages and manpower

training to attract industry, educational and recreational opportunities, environmental protection, social planning, and prepaid comprehensive health care.

Presently, there are a few dozen families, 3,000+ acres, dirt roads and a health center. This health center has already sponsored several health fairs and projects. The student discussed with the health care planner their intentions for their next project: intensive nutrition education. These plans were still in the embryonic state and, therefore, availability of resources was the major topic.

Scuppernong Landing

Scuppernong Landing is a community of people on 36 acres on the Sound of the Outer Banks, near Kill Devil Hills, North Carolina. Presently, there are only four people in the community; however, summer usually brings an influx of several more.

The student spent two days discussing present nutritional practices and how the group was fed when it was larger. These people were not vegetarians but expressed a desire to be and chances are that several of the new residents would already be at some level of vegetarianism. We discussed the need for a proper balance of essential amino acids and combinations of vegetables, milk, and cheeses that can meet these needs. Also discussed were gardening, storing fruits and vegetables, wild food foraging, and the need for vitamin V_{12} supplementation.

Unlike most of the patients nutritionists come in contact with, inhabitants of communities like this possess some degree of higher education. It is not uncommon for members to possess several college degrees. Even though they are highly educated, the nutritionist must overcome strong beliefs in folkways and mores that contribute to an unbalanced diet.

CHAPTER V

RESEARCH PROJECT

Purpose

The research project was designed to determine whether nutrition services as delivered by a team of home economists and homemakers under the direction of a nutritionist make a measurable positive difference in the health of children as determined by their growth and development. To accomplish this, indices of the health status of maternity and pediatric patients of the Maternal and Infant Care Project in Wayne County were compared to those of patients attending clinics in neighboring Johnston County.

Background

Both counties employ nurse practitioners to screen mothers and infants; however, Wayne County employs five practitioners while Johnston County has three. The Wayne County case load for infants (360) and mothers (257) is greater than Johnston County with 217 and 80 respectively. The practitioner to patient ratio is the same for pediatric clinics in both counties; however, Wayne County has a larger ratio for maternity clinic, 51.4 to 26.6

The nutrition staff at Wayne County Health Department consists of two homemakers and two home economists supervised by a nutritionist. Homemakers and home economists assist in the clinics and make home visits to patients. The nutrition consultant oversees the duties of the home economists and homemakers, conducts inservice training sessions for the nutrition and nursing staff, and assists in clinics.

The recommended formula for infants, Similac® with iron, was identical for both counties. Vitamin supplementation for mothers was equivalent.

Method

The records of infants born in Wayne and Johnston Counties, North Carolina, between January 1, 1971, and April 1, 1972, that had attended the pediatric screening clinics in their county health departments were examined. The records of infants who had utilized the clinic services at least twice past two months of age were saved. Of the 87 infant records available from Johnston County, 51 met the sample criteria. In Wayne County, a random sample of 100 was chosen from the 280 records available from which 63 met the sample criteria.

These records were tabulated for birth weight, and at ages three, six, nine, and twelve months (± one month) for height, weight, head circumference, hematocrit (or hemoglobin) and contacts with health department personnel.

The percentile (10) data for the anthropometric measurements was also recorded. The means for infants of each county were compared and tested for significance by the student's t distribution.

The records of the mothers of these infants were tabulated for age, weight change during pregnancy, number of clinic visits, number of previous pregnancies, hematocrit during last trimester and marital status.

Results

Wayne County infants have higher birth weights, consistently higher weights through twelve months, and more infants in the 50th percentile and above for weight than Johnston County infants (table 6). There was no statistical significance to the differences in mean heights and head circumference of these children (table 7). However, Johnston County had consistently more infants in the 50th percentile and above for height (table 8). The difference of 1/2 of an inch at nine months, although highly significant, must be disregarded due to sample bias. Johnston County measured the head circumference of nine-month old infants only if they had a history of poor growth and development. The biological significance of the differences in weight has not been determined.

TABLE 6

Comparison of the mean[a] weight and percentage anemic[b] of infants attending Johnston and Wayne Counties Pediatric Clinics

	Birth	3 Months	6 Months		9 Months		12 Months	
	Weight (lbs.)	Weight (lbs.)	Weight (lbs.)	Percent Anemic	Weight (lbs.)	Percent Anemic	Weight (lbs.)	Percent Anemic
Johnston County	6.87[c] ±0.16	13.06 ± 0.33	16.87 ± 0.39	52	19.29[d] ± 0.51	45	21.73 ± 0.50	38
Cases reporting	51	40	40	31	30	22	34	32
Wayne County	7.26[c] ±0.16	13.48 ± 0.31	17.18 ± 0.30	0	20.30[d] ± 0.35	0	22.32 ± 0.42	6
Cases reporting	63	50	50	20	31	3	53	49

[a]Mean ± standard error of the mean

[b]In Johnston County, infants with hemoglobin levels of less than 11 gm% are classified anemic. In Wayne County, infants with hematocrit readings of less than 33% are classified anemic.

[c]$P<0.05$

[d]$P<0.10$

TABLE 7

Comparison of mean[a] height and head circumference of infants attending Johnston and Wayne Counties Pediatric Clinics

	3 Months		6 Months		9 Months		12 Months	
	Height inches	Head circum-ference inches	Height inches	Head circum-ference inches	Height inches	Head circum-ference inches	Height inches	Head circum-ference inches
Johnston County	23.85 ± 0.26	15.75 ± 0.11	26.34 ± 0.24	16.75 ± 0.13	28.15 ± 0.27	17.00[b] ± 0.44	29.11 ± 0.34	-------
Cases reporting	40	40	36	31	30	4	34	0
Wayne County	23.57 ± 0.19	15.71 ± 0.10	25.98 ± 0.14	16.87 ± 0.08	27.92 ± 0.25	17.49[b] ± 0.10	-------	-------
Cases reporting	50	50	50	50	31	30	0	0

[a]Mean ± standard error of the mean

[b]P>0.001 (Biased)

TABLE 8

A comparison of anthropometric percentile[1] data for infants attending Johnston and Wayne Counties pediatric clinics

	3 Months			6 months			9 Months		12 Months	
	Height	Weight	Head circum-ference	Height	Weight	Head circum-ference	Height	Weight	Height	Weight
Johnston County										
Percent in 50th percentile and above	45	48	54	69	67	53	73	37	57	43
Percent below 50th percentile	55	52	46	31	33	47	27	63	43	57
Cases reporting	40	40	39	36	36	30	30	30	35	35
Wayne County										
Percent in 50th percentile and above	43	65	48	46	71	52	53	73	--	58
Percent below 50th percentile	57	35	52	54	29	48	47	27	--	42
Cases reporting	49	49	48	48	48	46	30	30	--	53

[1]Stuart, H.C. and Meredith, H.V. 1946 Use of Body Measurements in the School Health Program. American Journal of Public Health 36:1365.

There was a considerable difference in the percent of anemic infants (table 6). At six months of age, 52 percent of Johnston County project infants were anemic (below 11 gm% hemoglobin) whereas there were no anemic babies in Wayne County (below hematocrit reading of 33 percent). Again, at 12 months, 38 percent of Johnston County clinic infants were anemic compared to 6 percent in Wayne County.

Wayne County project infants had twice as many contacts with health department personnel as Johnston County infants (table 9). The Wayne County infants had 50 percent more nursing contacts, 50 percent more physician contacts, and were seen 2.25 times by both a home economist and homemaker. The total of these averages are 13.8 visits for Wayne County infants and 6.4 for Johnston County infants.

The average age of the mothers of these infants were the same for both counties, 21 years. However, Wayne County maternity clinics see twice as many teenage mothers (19 years or under) as Johnston County clinics, 70 percent versus 35 percent. Johnston County mothers have had 1.4 times more previous pregnancies than Wayne County mothers. The marital status of mothers in both counties is the same, approximately 47 percent single, 47 percent married, and 6 percent separated (table 10).

Twenty-seven percent of the Johnston County project mothers had no prenatal care. Of that 27 percent, half were teenagers, half were primigravida, and one-third were

TABLE 9

Comparison of the mean health department personnel contacts with infants attending Johnston and Wayne Counties Pediatric Clinics

	Nurse	Homemaker	Home Economist	Physician	Total
Johnston County	4.9	---	---	1.5	6.4
Cases reporting	51	---	---	51	51
Wayne County	7.5	2.2	2.2	1.9	13.8
Cases reporting	63	63	63	63	63

TABLE 10

Mean data on mothers attending Johnston and Wayne Counties maternity clinics

	Mean pregnancy weight gain (lbs)	Hematocrit mg %	Number of clinic contacts	Mean age	Percent teenage mothers	Marital Status	Number of previous pregnancies
Johnston County	---	---	---	21	36	47% single 47% married 6% separated	1.4
Cases reporting				51	51	51	51
Wayne County	22.6	36	9.3	21	70	47% single 47% married 6% separated	1.0
Cases reporting	63	63	63	63	63	63	63

primigravida teenage mothers. Only one Wayne County project mother attended only one clinic; therefore all had some prenatal care. Wayne County mothers attended 9.3 maternity clinics on the average. Wayne County mothers had adequate hematocrit levels in the last trimester of pregnancy, an average of 36 percent. Wayne County mothers differed greatly in prenatal weight gain. The range was from minus 17 pounds to plus 42 pounds. The average weight gain, however, was 22.6 pounds. Yet, only 21 percent gained the recommended 20-25 pounds; 40 percent gained in excess of 25 pounds and 39 percent gained less than 20 pounds.

Data on the number of clinic visits, hematocrit during the last trimester and prenatal weight gain were unavailable from Johnston County due to the destruction of the records at the health department.

Discussion

Wayne County Maternal and Infant Care Project infants are consistantly heavier than Johnston County babies and have an insignificant incidence of anemia. More than 50 percent of the Johnston County infants were below the 50th percentile for weight and have a widespread prevalence of anemia. It is proposed that this difference is due to the increased average number of contacts patients have with the health professions. Of these contacts, the biggest difference is the presence of a nutrition staff and additional

nursing contacts. There was no difference in heights and head circumferences of these infants.

The North Carolina Maternal and Infant Care Project in Wayne County is complying with project priorities: primigravida teenagers. Wayne County mothers are utilizing the project services, thereby eliminating "walk-in deliveries" at the Wayne Memorial Community Hospital. Seventy-nine percent of the Wayne County mothers did not gain the recommended 20-25 pounds during pregnancy. This undesirable statistic should prompt program changes to correct this situation within the Maternal and Infant Care Project.

Heavier babies are not necessarily better developed or healthier. The weight could be due to subcutaneous fat, lean body mass, or skeletal development. There are over 20 possible measures of anthropometric development used to judge the growth of children of which only three were recorded here. Biochemical indices, other than hemoglobin and hematocrit, infections, and illnesses, which have effects on the health of infants, were not included also due to the lack of funds and personnel in the local health departments.

Due to the increased nursing contacts of Wayne County project infants and the slight increase in physician visits, it cannot be conclusively shown that the better weight and anemia records can be totally attributed to the nutrition staff. However, the homemakers' and home economists'

contacts with the patients accounted for 60 percent of the increased health care. Unaccounted for is the influence of a nutrition staff on the nursing and medical staff. Therefore, the nutrition staff contributed significantly to the more favorable health indices of infants in Wayne County.

CHAPTER VI

SUMMARY AND EVALUATION

This thesis is a description and critical analysis of seven weeks of field training with the nutrition consultant of the Special North Carolina State Project for Comprehensive Maternal and Infant Health Care. This project covered three economically depressed rural counties of eastern North Carolina, Halifax, Warren, and Wayne. It had been established that households in the eastern part of the state have a higher incidence of dietary inadequacy.

Through a variety of experiences the field training accomplished its ultimate objective: to aid in strengthening the student nutritionist's philosophy and understanding of public health. These experiences also reinforced the student's knowledge of and developed skills in: 1) the practice of public health in both clinical and home care settings, 2) the function of the profession of public health, 3) the administrative organization of public health nutrition, and 4) the practice of public health nutrition in both clinical and home care situations.

The wide variety of experiences enjoyed by the student did not encompass all or even half of the present programs and possibilities of public health nutrition; however, the experience did satisfy the objectives set by the student. It was excellent training in the organization and administra-

tion of a nutrition section of a rural public health agency and the relationships of this nutrition program to local and state health programs. It was a superb opportunity to apply previously acquired knowledge and to develop skills within existing programs of the agency. Much of this knowledge and skills was demonstrated in the use of tools and techniques for nutrition education. On a limited scale, the student was familiarized with methods of personnel management. Through the research project, the student was able to demonstrate his ability in research methodology and to clarify his conceptions and test his ideas regarding the feasibility of nutrition program evaluation.

The classes taught by the student for the indigent patients (more than 95 percent Black) demonstrated the necessity for the teacher to construct as much common ground with the audience as possible without losing credibility. That is, to become homophilous while remaining a change agent. These conditions stimulate the dynamics of individual motivation necessary for learning.

The grassroots atmosphere of a rural public health agency gave the student valuable training in practical aspects of nutrition education efforts. From this background, the student can now more fully develop supervisory and administrative skills necessary for the efficient functioning of a public health nutrition program. Had the student been assigned to a state agency, he would have become more familiar with the needs of the agency rather than the needs of the people.

These experiences have proven to be the most gratifying and elucidating of the student's graduate career. It was an opportunity to put the classroom erudition to test. Or as Sophocles quite aptly stated over 2,000 years ago: "One must learn by doing the thing, for though you think you know it - you have no certainty until you try" (11).

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APPENDIXES

APPENDIX A

JOB DESCRIPTIONS OF NUTRITION SECTION

Nutritionist IV (Chief, Nutrition Section)

An employee in this class is responsible for administrative work in consultation with the director of the Community Health Division by planning, organizing, directing, and evaluating a statewide program in public health nutrition and in coordinating public health nutrition services with other divisions of the state health department and other related local, state, and federal agencies.

The employee coordinates nutrition activities with all other personnel in the agency and in other governmental and voluntary groups in identifying community health problems and planning cooperatively for expanded programs and services to meet the changing health needs of the population of North Carolina.

He serves as chief advisor to the state health director on all matters pertaining to nutrition and works with the director, Community Health Division, and other division directors in the planning and coordination of the services of the Nutrition Section consultants in state and local health programs.

Activities of this position include administration, supervision, consultation, evaluation, and teaching the nutrition component of health services. Such duties include:

1) Determining the nature and extent of nutrition needs; establishing long-range and short-term program goals, objectives, policies, priorities, and standards; and evaluating nutrition programs.

2) Establishing and maintaining cooperative relationships with civic, educational research, governmental, medical care, and other agencies concerned with food and nutrition in order to strengthen, coordinate and promote public health nutrition activities.

3) Preparing and managing the Section budget; developing and preparing appropriate records and reports on the nutrition component for the state public health agency.

4) Consulting with program directors in the preparation of budgets for the provision of nutrition services within health programs.

5) Developing standards and procedures for nutrition and food service pursuant to state law.

6) Designing, supervising, advising and having responsibility for surveillance studies and surveys of the nutritional and dietary factors that affect health and disease.

7) Interpreting public health nutrition programs and research results.

8) Identifying needs for and preparing requests for the establishment of appropriate positions to carry out program objectives; recruiting and selecting nutrition staff.

9) Assuming responsibility for the setting of standards of qualifications, compensations, and personnel practices for various types of nutrition personnel positions.

10) Developing and promoting adequate standards of operations for nutrition and food service management in institutions by providing for consultation, technical assistance and training programs.

11) Providing administrative direction, supervision, and evaluation for nutrition section staff.

12) Evaluating professional staff through conferences, periodic field visits, review of written reports, and through periodic consultation with Nutritionists III.

13) Planning and providing for supervision of orientation programs for professional personnel; general inservice educational programs in nutrition and related areas for professional and allied health staff; and staff development programs.

14) Consulting with directors of granting agencies for financial assistance to nutrition personnel who wish to acquire advanced training.

15) Representing the nutrition program in agency administrative meetings and conferences.

16) Participating in state and national professional meetings to promote acceptable standards for nutrition programs and personnel.

17) Providing for the planning of the public health field experience for students studying nutrition and dietetics.

18) Planning and participating in teaching programs in the area of graduate and undergraduate students.

19) Supervising the preparation of, and issuing directly or through the agency information offices, information material to the communications media.

20) Initiating and directing the development of nutrition educational materials.

Nutritionist III (Assistant Chief Nutritionist)

An employee in this class (also designated Public Health Nutrition Specialist) serves as assistant to the chief of the Nutrition Section in all matters pertaining to the Section as delegated and in the absence of the chief, with full authority, assumes responsibility for the Section. The employee, in administrative, consultative, supervisory, and training activities:

1) Establishes jointly with the chief of public health nutrition, long-range and short-term goals, objectives, priorities, and standards for the nutrition component in the specialized and overall public health nutrition program.

2) Is responsible for planning, organizing, developing, supervising, and evaluating specialized programs within the statewide public health nutrition program.

3) Is responsible for the administration, direction, and supervision of regional Nutrition Section staff consultants.

4) Identifies needs and develops training programs designed to assist regional consultants to become knowledgeable of new programs to be implemented to broaden and enhance their ability to assume consultative roles in newly developed programs in community health.

5) Is responsible for interpreting section goals and activities to professional health and allied workers.

6) Is responsible for the evaluation of the nutrition component of the specialized program and formulation of policies and standards; supervision and direction of services to meet needs compatible with the specialized program and the overall public health program.

7) Develops standards and procedures for nutrition and food service programs pursuant to state law.

8) Is responsible for the administrative direction and performance evaluation of the nutrition staff.

9) Acts as liaison between the nutrition unit and the specialized program officials; coordinates the specialized nutrition programs with the overall nutrition program of the public health agency.

10) Is responsible for the recruitment of professional staff for the state public health agency and allied health facilities and programs upon request.

11) Plans, prepares, supervises, and conducts inservice educational programs in nutrition for professional and allied health staff.

12) Serves as the nutrition consultant of the specialized programs to professional and allied health staff of public health, other state and related agencies.

13) Participates in planning for and supervises the public health field experience for graduate nutrition students and dietetic interns.

14) Is responsible for the interpretation of public health nutrition programs and research findings.

15) Provides for consultation and services to nutrition and food service management programs in regions where there are vacant positions.

16) Conducts and participates in the development of studies and surveys on the relation of dietary factors and food service management to health and disease.

17) Prepares, reviews, and selects nutrition information materials pertaining to specialized programs for dissemination to various communications media.

18) Establishes and maintains cooperative relations with civic, educational, research, governmental, medical care and other agencies concerned with food and nutrition in order to strengthen, coordinate and promote public health nutrition activities.

19) Participates in activities of state and national professional groups for enhancing professional development and for the promotion of acceptable training programs and standards of practice.

20) Develops, prepares, and revises appropriate records and reports relating to program goals and activities.

Public Health Nutritionist II (Regional Nutrition Consultant)

An employee in this class is responsible for the planning, development, supervision, implementation, and evaluation of nutrition programs in a large geographic area of the state. The employee:

1) Functions as a member of the regional consultative staff to assess, plan, and coordinate activities for the purpose of developing comprehensive health programs.

2) Is responsible for interpreting Section goals and activities and the nutrition aspects of health programs to regional consultants and local communities.

3) Is responsible for participation in the promotion, planning and implementation of educational activities for health personnel.

4) Plans, develops, supervises, implements and evaluates nutrition services in an assigned geographic area as part of the statewide nutrition program.

5) Is responsible for consultation with the appropriate personnel in furthering the development and integration of nutrition activities in community health programs.

6) Evaluates the nutrition services in local community health programs and recommends policies, standards, and programs to implement nutritional needs.

7) Consults with faculty of schools of nursing, home economics, and related professions in the development and implementation of nutrition and/or food service management programs including inservice, continued education and formal curricula.

8) Plans for and provides nutrition and food service management consultation to group care facilities.

9) Interprets public health nutrition programs and research findings to, and maintains cooperative relations with, civic, educational, governmental research and other groups concerned with food and nutrition.

10) Plans, promotes, and supervises nutrition programs for professional and allied health staff within a geographic area.

11) Is responsible for the preparation, review and selection of nutrition informational materials for dissemination to various communication media.

12) Participates in and conducts studies and surveys on the relationship of dietary factors to health and disease.

13) Supervises graduate nutrition students and dietetic interns assigned for experience in community health programs.

14) Maintains appropriate records and reports relating to program goals and objectives, and to nutrition services in the communities.

Public Health Dietitian II (Regional Institutional Nutritionist)

An employee in this class is responsible for the development, implementation and evaluation of institutional nutrition and food service management programs for group care facilities including state hospitals and institutions in a large geographical area of the state. The employee:

1) Functions as a member of the regional consultative staff to assess, plan, evaluate, and coordinate activities for the purpose of developing comprehensive health programs.

2) Is responsible for interpreting section goals and activities and the nutrition and dietary aspects of health programs to regional consultants and local communities.

3) Is responsible for the planning, organization, and execution of education programs for professional dietitians and other qualified consultants working in institutions certified for Medicare-Medicaid.

4) Is responsible for planning, promoting, and providing educational programs for other health personnel.

5) Serves as a specialist for the public health agency on nutrition and food service management in group care facilities.

6) Is responsible for consultation to administrators and staff of group care facilities within the geographic area on nutrition and management aspects of food service.

7) Is responsible for the evaluation of group care facilities for either licensure or certification and for interpretation of these standards to administrators and others. Is responsible for submitting reports to the appropriate agency. Is responsible for planning, developing, and conducting specialized training for Medicare-Medicaid surveyors.

8) Surveys area and secures data to assist in the identification of community health needs and resources. Works with health groups, organizations, and facilities in the development and integration of needed service in their programs.

9) Is responsible for developing, evaluating, revising, selecting, and the use of educational materials, including literature on current developments in nutrition and food service management.

10) Consultant advises local dietary consultants and educational directors in the development and implementation of educational programs including inservice, continued education and the development of formal curricula.

11) Conducts surveys related to nutrition and food service in group care facilities.

12) Establishes and maintains cooperative relations with universities, agencies, and professional organizations concerned with food service management and group care, providing consultation and describing services available from the public health agency.

13) Recruits, orients, trains and evaluates the services of professional dietitians and dietetic assistants for services in group care facilities.

14) Is responsible for consultation to nutrition staff and other professional and allied staff on institutional nutrition and food service management. Reviews blueprints for institutional kitchens for licensure, and/or requests and advises administrators and project directors, etc., regarding the layout and equipment specifications.

15) Supervises graduate nutrition students and dietetic interns assigned for experience in community health programs.

16) Maintains appropriate records and reports relating to program goals and objectives and to dietary services in institutions.

17) Prepares informational materials for dissemination to various communication media.

Public Health Dietitian I (Institutional Nutritionist)

An employee in this class is under the supervision of the Nutritionist III, is responsible for the development, implementation, and evaluation of institutional nutrition and food service management programs for group care facilities including state hospitals and institutions in a geographic area of the state. The employee:

1) Functions as a member of the regional consultative staff to assess, plan, evaluate, and coordinate activities for the purpose of developing comprehensive health programs.

2) Is responsible for interpreting section goals and activities and the nutrition and dietary aspects of health programs to regional consultants and local communities.

3) Is responsible for planning, promoting, and providing educational programs for professional dietitians, and other food service personnel.

4) Serves as a specialist for the public health agency on nutrition and food service management in group care facilities.

5) Conducts surveys to determine existing dietary and food service practices and develops plans.

6) Is responsible for complex consultation to administrators and staff of group care facilities, within the geographic area, on nutrition and management aspects of food service.

7) Is responsible for the evaluation of group care facilities for either licensure or certification and for interpretation of these standards to administrators and others. Is responsible for submitting reports to the appropriate agency. Is responsible for planning, developing, and conducting specialized training for Medicare-Medicaid surveyors.

8) Surveys area and secures data to assist in the identification of community health needs and resources. Works with health groups, organizations, and facilities in the development and integration of needed service in their programs.

9) Is responsible for developing, evaluating, revising, selecting, and the use of educational materials, including literature on current developments in nutrition and food service management. Advises local dietary consultants and educational directors in the development and implementation of educational programs including inservice, continued education, and the development of formal curricula.

10) Conducts surveys related to nutrition and food service in group care facilities.

11) Establishes and maintains cooperative relations with universities, agencies, and professional organizations concerned with food service management and group care, providing consultation and describing services available from the public health agency.

12) Recruits, orients, trains, and evaluates the services of professional dietitians and dietetic assitants for services in group care facilities.

13) Is responsible for consultation to nutrition staff and other professional and allied staff on institutional nutrition and food service management. Reviews blueprints

for institutional kitchens for licensure, and/or requests and advises administrators and project directors, etc., regarding the layout and equipment specifications.

14) Supervises graduate nutrition students and dietetic interns assigned for experience in community health programs.

15) Maintains appropriate records and reports relating to program goals and objectives and to dietary services in institutions.

Nutrition Intern

An employee in this position is under the close supervision of a public health nutritionist II, and is assigned to a limited geographic area of the state. The employee:

1) Is responsible for coordinating and integrating the nutrition programs and services of the local health departments of a limited geographic area with the existing community nutrition programs.

2) Is responsible for teaching and counseling with individual health department patients about normal and therapeutic diets.

3) Is responsible for giving nutrition advice to public health nurses and other health workers in a limited number of local health departments; provides and evaluates nutrition information and services to persons who have specific food and nutrition problems.

4) Develops lesson plans, conducts classes, and demonstrates food selection, preparation, budgeting and other related subjects to individuals, families, and groups.

5) Consults with food service managers in child feeding centers to promote nutrition education programs for children and families.

6) Consults with local primary and secondary school teachers in the development of nutrition education programs.

7) Reviews and recommends revisions in nutrition educational materials and visual aids; selects and uses these materials in conducting inservice educational programs.

8) Prepares informational materials for dissemination to various communication media.

9) Participates in conducting studies and surveys on the relationship of dietary factors to health and disease; obtains required data.

10) Prepares oral and written reports of activities at regular intervals.

Public Health Nutrition Trainee

An employee in the class is under close supervision of the Nutritionist II, receives orientation and training in public health nutrition in order to provide nutrition services as a Nutrition Intern in a limited geographic area of the state. (This is a limited tenure class with employees

expected to complete training successfully in at least one year for appointment as Nutrition Intern. Failure to meet standards will result in termination of employment.) The employee:

1) Learns about public health programs, the organization of the public health agency, and the relationship of nutrition to other program areas, by observing a variety of public health activities and services carried on by nutritionists, physicians, nurses, and other agency staff.

2) As assigned, gives nutrition advice to public health nurses and other health workers. Under supervision, provides and evaluates nutrition information and services to persons who have specific food and nutrition problems.

3) As assigned, develops lesson plans, conducts classes, and demonstrates food selection, preparation, budgeting, and other related subjects to individuals, families, and groups.

4) Reviews and recommends revisions in nutrition educational materials and visual aids; selects and uses these materials in conducting inservice educational programs.

5) As assigned, participates in conducting studies and surveys on the relationship of dietary factors to health and disease; obtains required data.

6) As assigned, assists with consultation with food service managers of child feeding centers to develop nutrition education programs for children and families.

7) Prepares oral and written reports of activities at regular intervals.

APPENDIX B

CONTAINER GARDENING

Many vegetables can be grown in containers which eliminates plowing, hoeing and cultivating. The containers may be rusty leaky buckets, gallon milk containers, bushel baskets, old garbage cans, wash tubs, plastic bags, or anything else laying around. If it does not have holes in the bottom, put some there, the soil needs drainage.

First, place a layer of sand, gravel, or burnt coal on the bottom for drainage. The soil needs to be slightly sandy so it will not pack up. A good mixture is one-third composted manure, one-third dirt, and one-third sand. Pour this mixture on top of the sand. Water well - now you are ready to plant!

If you see bugs on your plants, try dusting them with sifted wood ashes before buying chemical sprays. Choose from these vegetables:

Vegetables	Variety
+*Tomatoes	Small Fry, Tiny Tim
+ Green Peppers	California Wonder
Egg Plant	Morden Midget, Black Beauty
*Lettuce	Bibb, Boston, Grand Rapids, Salad Bowl
*Spinach	Long Standing Bloomsdale

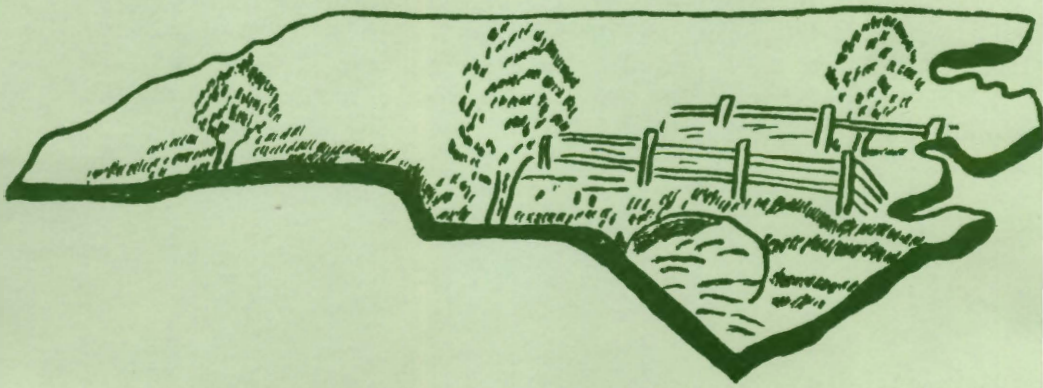
Vegetables	Variety
Radishes	Early Scarlette Globe, Cherry Belle
Onions	Ebenezer, Excell, Early Grano
*Carrots	Tiny Sweet, Danvers Half Long
Beets	Detroit Park Red, Early Wonder
Bush Beans	Green Snap: Tenderpod, Tenderette Butter Lima: Henderson Bush
Cucumbers	Ashby, Poinsette
*Squash, summer	Seneca Prolific
*Cabbage	Round Dutch, Early Jersey Wakefield
+*Mustard	Southern Giant Curled, Tendergreen
+ Strawberries	Everbearing varieties

*Vitamin A rich foods
+Vitamin C rich foods

APPENDIX C

"WILD GREENS OF NORTH CAROLINA"

Wild Greens of North Carolina



Help in identifying plants can be secured from the Department of Botany, University of North Carolina, Chapel Hill, North Carolina. Send an entire plant if possible, and tell whether it is a native plant, and where it grows. Flowers and seeds help in identification. Be sure to include name and address of sender.

DIRECTIONS

Picking: Like cultivated greens, wild greens are best when young and tender. Do not use old dry or bruised leaves, woody stems or seed stems. Use only plants that you know can be eaten, because some plants are poisonous.

Cleaning: Get off every bit of dirt by washing in several waters. Do not soak the greens as they will lose vitamins.

Ways to serve: Fresh, as salad greens, or cooked. Either way, salt, pepper, salad oil, bacon fat, butter, onion, vinegar or hard boiled egg may be used as seasoning. Strong greens may be mixed with milder greens for better flavor.

Cooking: Cook in very little water and cook as quickly as possible - 5 to 10 minutes in most cases is enough. Save the water (or the last water if two or more waters were used) that the greens were cooked in and serve this water with the greens or in soup -- many vitamins and minerals are in this water.



LAMB'S QUARTER
(Chenopodium album)

Common around old buildings, trash dumps and roadsides; summer, early fall. Plants may get five feet tall; they can be cut back and will form more young greens.

MILKWEED
(Asclepias syriaca)

Often found in dry pastures and along fences. Plants may be identified in late summer by the large pods; return next spring and cut the tender shoots. Boil in two or three waters.





CHICKWEED
(Stellaria media)

Very common in idle fields and along roadsides; used as a vegetable in Europe.



DANDELION
(Taraxacum officinale)

Common in fields, lawns and along roadsides; grown as a vegetable in New Jersey. Cook these greens in two waters; the first one will be bitter and can be thrown away.



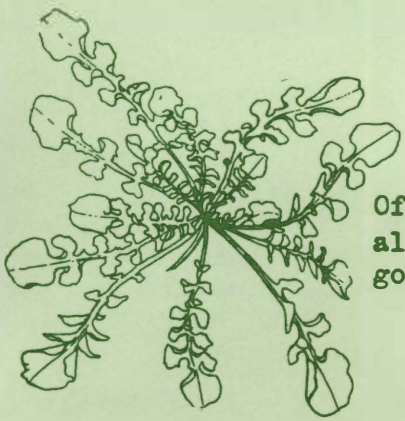
HENBIT
(Lamium amplexicaule)

A common spring plant in idle fields and gardens. The entire young shoot is edible in mixed salad greens or as boiled greens.

POKEWEED
(Phytolacca americana)



Common in pastures, around barns and along roadsides. The young shoots and young leaves may both be eaten; boil in two waters, throw away the first one. The root and old, red stems or leaves of this plan are poison.



WINTER CRESS
(Barbarea verna)

Often found in old fields and along roadsides. Young leaves are good all year except summer.

WATER CRESS
(Radicula palustris)



A plant found along streams and in wet places in spring and summer. The leaves are used as salad and are very rich in vitamins. Be sure to wash the leaves.



(Cardamine pennsylvanica)

Very common in gardens, old fields, and along roads; early spring. A good salad plant, to be eaten fresh.

SORREL
(Rumex acetosella)

Very common, often with a larger and also edible species of Rumex, in old fields and along roadsides; spring and early summer.



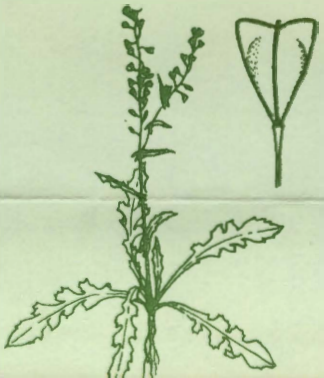


NARROW-LEAVED DOCK
(Rumex crispus)

Common in fields, rubbish heaps, and along roadsides; spring and early summer. Use young leaves under one foot long, cook until tender. Cooking water may turn dark, but greens are very good. Use one or two waters.

SHEPHERD'S-PURSE
(Capsella bursa-pastoris)

Very common in gardens and along roadsides in spring or late winter. Young leaves are tender and may be eaten as salad or cooked greens.



OTHER FOOD PLANTS
OF
NORTH CAROLINA FIELDS AND WOODS

Fruits:

Blackberries - eat fresh or use for jam or jelly
Elderberries - pie, jam, or jelly
Wild grapes - eat fresh, or use for jam or jelly
Crabapples - jelly
Wild strawberries - eat fresh, or use for jam or jelly
Blueberries - eat fresh, pie, jam or jelly
Wild cherries - jelly
River plums - jam, jelly, or eat fresh
Persimmon - eat fresh, or in pie or custard

Nuts:

Black walnut
Hazelnut
Hickorynut

(All are rich in oil or fat, taste good, and will keep for many months)

Flavoring or spice:

Sassafras - dried, cleaned, bark of the roots; dried powdered leaves used in New Orleans gumbo
Chicory - dried, cleaned, roots; flavor coffee
Water cress - fresh leaves, in salads
Mint - fresh or dried leaves; in tea or candy
Wild Ginger - fresh or dried roots; use like ginger
Wild Onion - fresh leaves and fresh or dried bulbs; flavor salad, soup, or meat
Honey Locust - the pulp around the seeds is sweet; eaten raw
Red Bay - dried leaves; flavor soups, gravy, meat.

Prepared by
The District Health Department
Chapel Hill
Available from
North Carolina State Board of Health
Box 2091 - Raleigh, 27602

APPENDIX D

HALIFAX COUNTY HOME ECONOMIST'S NARRATIVE OF SERVICE AREA APRIL 1973

Do you sometimes feel that you are in a rut? Need new ideas? Or would just plain like to see how somebody else functions doing the type of work you are doing?

The answer to all these questions could be yes - as applied to our supplementary food demonstrations. We are well into our fourth year and sometimes it takes quite a bit of searching and experimenting to find the right recipe or the appropriate material to fill our teaching slot. We have many who attend regularly, others who come occasionally, and at most every class we have one or more new ones. So you see, we have to try to plan classes to meet the needs of all without too much repitition. Yet, some repitition each time is almost mandatory.

Recently, we had a welcome relief from class planning when a graduate nutrition student from The University of Tennessee (Walter P. Saraniecki) was in our area for seven weeks of field training. Part of his assignment was to plan the class for the month of May and give one demonstration. He was advised that supplementary food would be used and that the cost of preparation would be kept low.

Imagine my surprise when he announced that he would like to use the idea "Wild Greens of North Carolina". Having seen the reaction of a few when we have made an "out of the ordinary" recipe, I could just see many turned up noses or refusals to taste. I did not let him know I was a bit "leary" of his idea. I wanted him to get a good reception and not be disappointed by our people in Halifax County.

Plans were made, and he conducted the first class - cooking poke salad seasoned with salt pork and wild onions with scrambled eggs alongside. To my amazement, three people in the class had already cooked poke greens this spring because "grandma always told me it was a good spring tonic." The class was very responsive and showed much interest in the other kinds of greens available in this area. Everyone but two tasted (they never taste anything we fix) and some of the older ones came back for seconds.

He pointed out that they were free and very nutritious. Besides you get much good and needed exercise and lots of sunshine while picking from "nature's supermarket." He also suggested they should be picked in early spring while they are very tender and young.

After this first class, I realized I had no need to worry - he had made his point and we were on the way for the month of May. For the remainder of the month, the home-maker and I spent a short time each Thursday collecting poke

salad, wild onions and asparagus. We never knew there was so much poke "right under our noses" until we began looking for it. Awareness then is the first step toward accomplishment. In fact, the other staff smelled our cooking odors and began inquiring about "what's cooking." This led to the request from health department staff that he do a session for them on wild greens.

At the appointed time he prepared poke, buttered asparagus - which grows in abundance around Halifax - and offered fresh cattails for chewing. This session was most enjoyable and informative to everyone present - at least we were made aware "that some of the best things in life are free."

Oftentimes, we wonder whether anything we say goes home with the patient. Sometimes we have our faith renewed by some casual remark.

A few days after the first class, one of the ladies who attended was in the health department for clinic services. She asked me, "Have you cooked any more poke salad?" To which I replied, "Sure, every Friday in cooking class." then she said, "I've cooked it twice and dandelion once. I mixed mine with my other greens to make them go further and my family never suspected a thing. Thought they were so good. I sure am glad I went to that class." Another person told us later she had cooked some and used boiled

eggs with hers. We also found out from some of the older people that they cook at least one "mess of poke or cressy greens every spring."

So never let it be said that people are not resourceful or that all of our teaching is in vain. Some of the "seeds of knowledge" fall on fertile ground and take root - others fall by the wayside. Nevertheless, the "mini-success" stories we hear about help to boost our ego and give us renewed determination.

APPENDIX E

DATA FORM FOR INFANT PATIENTS

#	SHEET # / NAME	DOB	WGT	AGE	HT	WT	HC	HCT	AGE	HT	WT	HC	HCT	AGE	HT	WT	HC	HCT	AGE	HT	WT	HC	HCT	NS	HM	HE	MD	NT
	total p— # REPORTING																											

APPENDIX F

DATA FORM FOR PRENATAL PATIENTS

#	SHEET # / MOTHER	PG WGT GAIN	HCT	CONTACTS	AGE	MARITAL STAT	Complications	PREVIOUS Pg
	Total p—							
	#REPORTING							

VITA

Walter Paul Saraniecki was born to Walter C. and Alvera Saraniecki on July 27, 1950, in Chicago, Illinois. He attended Immaculate Conception and Sacred Heart Military Academy elementary schools and graduated from William Howard Taft High School in 1968. The following September, he entered Southern Illinois University, Carbondale, and in June, 1972, he received a Bachelor of Science in Food and Nutrition Science. In his senior year at Southern Illinois University, Walter worked part-time for the Jackson County Health Department and incorporated the Illinois Public Interest Research Group. In August, 1972, he accepted a Maternal and Child Health Service, Department of Health, Education and Welfare, training grant to begin study towards a Master of Science degree in Public Health Nutrition at the University of Tennessee, Knoxville. He received this degree in August, 1973.