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To the Graduate Council:

I am submitting herewith a thesis written by Nancy Lee Livers entitled "Field Experiences and Observations with the Nutrition Section of the Louisiana State Department of Health." I recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Science, with a major in Nutrition.

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FIELD EXPERIENCES AND OBSERVATIONS WITH THE NUTRITION SECTION OF THE LOUISIANA STATE DEPARTMENT OF HEALTH

A Thesis

Presented for the

Master of Science

Degree

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Nancy Lee Livers

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ABSTRACT

This thesis is a description and an analysis of the student's field experience with the Nutrition Section of the Louisiana State Department of Health. The purpose of the field experience was to provide the student an opportunity to observe and participate in a state nutrition program.

The objectives of the field experience were accomplished through participation in a variety of nutrition related activities and through interviews and conferences with personnel of the health department. Program evaluation and statistical data manipulation skills were strengthened as the student planned, developed, and wrote a statistical report. The student expanded her professional knowledge by attending various professional meetings and communicating with professionals. Clinical experiences and supervision aided the student in the development of counseling and diet therapy techniques.

Teaching classes, counseling patients, and writing reports helped the student to develop skills needed by a nutritionist. The student learned that continued self-evaluation will assist in strengthening her nutritional knowledge and in furthering her professional development.

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CHAPTER I

INTRODUCTION

The purpose of the field experience was to provide the student an opportunity to observe and participate in a state nutrition program. Four weeks were spent working with the Nutrition Section of the Louisiana Health and Social and Rehabilitation Services Administration, Division of Health Maintenance and Ambulatory Patient Services in New Orleans. The division was traditionally known as the Louisiana State Department of Health, and for the purpose of clarity, will be referred to as such throughout most of this paper. Two regional nutritionists based in Baton Rouge supervised the student in various nutrition activities involving travel west and east of the Mississippi River.

The broad objective of the field experience was to develop a philosophy of public health nutrition. The major objectives of the student were to gain confidence and practical experience for her job as a future nutritionist. The student had limited previous work experience and needed clinical experiences and supervision to develop counseling and diet therapy techniques. Another student objective focused on the need of strengthening program evaluation skills and manipulating statistical data.

Chapter II discusses the historical, social, economical, and cultural characteristics of Louisiana. Vital statistics and the findings of the Ten State Survey pertaining to Louisiana are also included within this chapter. In Chapter III the programs and services offered by the State Department of Health are described with focus on the specific departments visited by the student during Central Office Orientation. A brief history of the health department includes the reorganization that occurred in 1973. Chapter IV focuses on the nutrition programs and services throughout the state to which the student was exposed. Chapter V analyzes the professional development of the student and describes a special written project resulting in the publication of a public health statistical report. This chapter also includes some of the personal attitudes and feelings of the student in relationship to her experiences. Chapter VI summarizes the field experience.

CHAPTER II

LOUISIANA - CHARACTERISTICS OF THE STATE

I. HISTORICAL OVERVIEW

The first inhabitants of Louisiana were Indians who may have come over the continent of America about 3,000 years ago by way of the Bering Strait or across the Pacific Ocean (1). Spanish explorers searching for quick riches were the first white men to discover Louisiana. But the true name of the state can be attributed to the French, Robert Cavelier, sieur de La Salle, organized an expedition in 1682 which sailed from the French possessions in Canada down the Mississippi River (1, 2). He claimed all the land drained by the Mississippi for France in honor of Louis XIV and named it Louisiana (2).

In 1762 a secret treaty transferred Louisiana from France to Spain. The Acadians, who were driven from Nova Scotia by the British, began arriving in Louisiana during this period (1). This Acadian migration was an important addition to Louisiana's population during the Spanish rule (1). Having common bonds of French descent, the Acadians sought refuge in the French settlements of Louisiana.

Napoleon, in 1800, forced Spain into ceding Louisiana to France (2). The United States wanted free access to the Mississippi River for navigation and trade, so Napoleon sold Louisiana to the U. S., who took formal possession in 1803 (2). Nine years later, Louisiana became a state and rapidly increased in population and agricultural development.

Prior to the Civil War, Louisiana seceded from the union and joined the Confederate States of America (2). After the war, Federal-held Louisiana was the first Confederate territory to begin Reconstruction (1). A new constitution was written in 1879, and efforts were made to attract settlers by development of better transportation and disease control.

II. GEOGRAPHY

Louisiana is located in the southern portion of the United States, bordered on the north by Arkansas, on the East by the Mississippi River, on the West by Texas, and to the South by the Gulf of Mexico (2). The land area covering 48,523 square miles is defined as dry land temporarily or partially covered by water composed mostly of swamps and marsh lands including numerous canals, lakes, ponds, and reservoirs. Louisiana is made up of three major land regions: 1) the East Gulf Coastal Plain, 2) the Mississippi Alluvial Plain, and 3) the West Coastal Plain.

Sometimes called the "Bayou State" because of the hundreds of sluggish streams called bayous that wind throughout the marshes and lowlands, Louisiana bayous form the chief drainage system for the lowland areas. Cypress trees covered with Spanish moss grow along the bayous and lakes.

Louisiana ranking 31st in size among the states is popularly known as the "Pelican" or "Creole" state (2). A large part of the state is at or below sea level; New Orleans (at five feet below sea level) being the lowest elevation area. The Driskell Mountain, at 535 feet above sea level, is the point of highest elevation and the average elevation of the state is approximately 100 feet (2).

A semitropical climate is characteristic of most of Louisiana. The climate is determined by the huge land mass to the north, its tropical latitude, and the Gulf of Mexico to the south (1). Summer weather in Louisiana is fairly consistent with afternoon temperatures ranging from 85 degrees F. to 95 degrees F. with sporadic development of thundershowers. Averate winter temperatures range from 40 degrees F. to 65 degrees F. throughout the day depending on the area of the state and freezing temperatures may be recorded during an average year (1).

III. INDUSTRY AND AGRICULTURE

Louisiana has numerous natural resources that aid the growing economy of the state. Agriculture is important, although it has been superceded by manufacturing as the leading industry in the state (2). Louisiana is widely known for the great variety and quality of fresh- and salt-water fish (2). Many fur-bearing animals living in the swamps and woodlands are collected by fur trappers for trade. Louisiana is one of the greatest lumber-producing states in the United States (3).

The many waterways of Louisiana make this state a leader in trade. The city of New Orleans is one of the largest import/export centers in the U. S. (2). In the second half of the 20th century, the ports of Lake Charles, Baton Rouge, and Morgan City have become increasingly important in the foreign trade of the state (2).

Agriculture and mining are two important inputs into the economy of Louisiana. The principal vegetable crops are watermelons and strawberries. Other major crops in the state include: cotton, sugar cane, rice, soybeans, and oranges (3). Some of the principal minerals of the state are sulfur, sand and gravel, petroleum (including gas), and salt (2). Approximately 40 percent of the state's budget comes from severance taxes on oil and gas wells. Usually

ranking second or third of all the states in the value of minerals, Louisiana produces more than 10 percent of the total value of minerals in the nation (2).

IV. GOVERNMENT

For the most part, Louisiana is a one-party Democratic state. The state legal system is based on civil law (laws passed by state government, based on Napoleonic Code) rather than common law (laws based on court decisions) (2). Local government is comprised of three different parts: the parish, the city, and the special district. Most of the parishes are governed by a police jury elected to four year terms. There are 34 senatorial districts in the state from which 39 senators are elected to four year terms; five of the districts elect two senators each because of their size or population. State representatives and the governor are also elected to four year terms; and the governor may serve more than one term.

V. CULTURAL CHARACTERISTICS

The people of Louisiana are a blend of many nationalities and varied ancestory. The descendents of the French settled mainly in the southwestern part of the state, and today are popularly referred to as "Cajun" people. The parish of St. Bernard, which has the largest Spanish influence, was

established during the 35 years that the colony belonged to Spain (2). The most numerous of the modern emigrant groups, the Italians, are located principally in the cities (2). Germans are found in and near New Orleans, Hungarians in the strawberry belt (in the Florida parishes, east of Baton Rouge), and Slovenians in the fishing and citrus-fruit districts (south of New Orleans) (2).

In Louisiana political, economic, and social conflict are all deeply rooted in the state's history (3). Almost exclusively Anglo-Saxon, the north Louisiana Protestant population is often pitted against South Louisiana, with its overwhelmingly French, Catholic majority (3). Other problems have stemmed from conflicts of country versus city, white versus black, and big planters, with their rich bottom lands versus the small, back country dirt farmer (3).

VI. VITAL STATISTICS

Population

In 1972 the population of Louisiana was estimated to be 3,724,342, less than a one percent increase over the 1971 population census (4). Approximately 1,132,700 non-white and 2,591,642 white persons reside in Louisiana according to the 1972 Statistical Report. In spite of relatively high non-white birth rates, the percentage of non-whites in Louisiana's population has been dwindling for many decades (4).

Although non-white mortality rates are high, the major factor responsible for the changed racial distribution in the state is emigration. Louisiana has a predominantly young population, approximately 20 percent of the people are between the ages of 15 and 24. Over 60 percent of the population is under 35 years of age according to the 1972 Statistical Report of the Bureau of Vital Statistics (4).

Natality

Although the Pelican State deceleration factor was moderate, in comparison with that of the United States, Louisiana resident live births followed the national pattern (4). In 1972, resident live births in Louisiana numbered 68,340, a 6.4 percent decrease from 1971. The crude birth rate was 18.3 births per 1,000 population, 7.4 percent under the 1971 rate. Louisiana joined the U. S. birth registration system in 1927, since that time 1933 was the only year for which a rate lower than 18.3 was recorded (4).

Congenital anomalies and immature births are two types of statistical natality categories that are recorded for the state of Louisiana. Congenital anomalies were noted on 450 birth certificates in 1972, true incidence is, however, higher because many of these anomalies are not noted at birth (4). An immature neonate is the classification of a live born infant weighing 2,500 grams (five pounds, eight

ounces) at birth. Immature births were noted in 6,176 cases of the 68,340 resident live births occurring in 1972. This was 9.4 percent of the total number of live births in Louisiana.

Unmarried mothers receive considerably less than average prenatal care (4). Priorities should be placed on education and assisting the unwed mother to recognize and cope with the health needs of herself and her child. The number of resident live illegitimate births occurring in 1972 was 11,879, resulting in a rate of 173.7 illegitimate births per 1,000 live births (4). Both the number of and the rate of illegitimate births were larger in 1972 than the 1971 figures. Approximately 83.8 percent of the illegitimate births were black.

Mortality

Stillbirths. In Louisiana, stillbirth is defined as fetal death occurring after at least 20 weeks of gestation, in which no evidence of life is shown after complete birth (4). A rate of 13.0 stillbirths per 1,000 live births, or 891 resident stillbirths were reported in 1972 (4). Perinatal deaths in Louisiana include all stillbirths, plus all deaths to infants under one week of age (4).

Deaths. The State's rate of death is below the United States rate of 9.4 as it has been since before 1940 (4). Resident deaths (exclusive of stillbirths) totaled 34,292 in 1972, a rate of 9.2 per 1,000 population (4). This is a slight increase in the death rate from 1971. The three leading causes of death based on three year average rates from 1969 to 1971 include diseases of the heart, malignant neoplasms, and cerebrovascular disease (4). These causes account for 65 percent of all deaths.

Infant deaths. During 1972, resident infant deaths totaled 1,432 for a rate of 210 per 1,000 live births (4). White infant deaths totaled 712, comprising 49.7 percent of the total resident infant deaths. Non-white deaths totaled 720, comprising 50.3 percent of the total resident infant deaths. Congenital anomalies were the principal cause of infant death in 1972, claiming 215 infants (4).

Maternal deaths. Maternal deaths are deaths due to complications of pregnancy, childbirth, and puerperium (4). Eighteen resident maternal deaths were recorded in 1971, and 19 in 1972. The resulting maternal death rate was 27.8 percent per 100,000 live births (4). There has been a considerable decrease in maternal deaths beginning in 1970 with a 33.3 percent reduction occurring throughout the state of Louisiana (4).

Communicable diseases. The reporting system for communicable diseases in Louisiana is not as accurate as it could be. Therefore, basic information regarding the statistical trends for the comparison of communicable diseases related to specific age, sex, and race incidence is difficult to determine. As in 1971, syphillis and gonorrhea were the leading causes of morbidity in 1972 (4). Improved reporting has aided the determination of the number of reported cases of gonorrhea, which have increased in the last 10 years. Gonorrhea and syphillis incidences are increasing, but again the limited reporting does not provide an accurate picture. Statistics depict the fact that males have two and a half times as much veneral disease as females, and prevalence seems to be higher in non-white populations (4).

Malnutrition became a reportable disease in June of 1971. As of that date records are being maintained on live cases of malnutrition. The preliminary 1972 Vital Statistics Report indicated an appreciable number of live cases of malnutrition reported in the state of Louisiana. Two categories of reporting such cases are: failure to thrive and severe undernutrition. All cases of live malnutrition are investigated for the availability of an adequate food supply (5).

VII. LOUISIANA NUTRITION SURVEY

Introduction

In 1967, when Congress passed the Partnership for Health Amendments, a survey was requested to determine the incidence of malnutrition in the United States (6). Louisiana was one of the 10 states selected for the initial phase of the national survey. The objective of the Ten State Survey in Louisiana was to "conduct a comprehensive nutritional survey in selected areas of Louisiana to establish national health data and to determine the incidence and location of serious hunger, malnutrition, and resulting health problems in these areas" (6).

People in 19 parishes were surveyed including persons chosen from 2,000 families in enumeration districts with average incomes in the lower quartile of the economic scale by the 1960 census (7). Approximately 50 percent of the survey population were under 16 years of age, 37 percent were 16 to 59 years, and 13 percent were above age 60 (7).

Data Collection

A central location was designated where all members of each family had: 1) physical and dental examinations, 2) a medical history, and 3) anthropometric measurements (7). Blood from each person was analyzed for hemoglobin, hematocrit, total serum protein, serum albumin, serum vitamins A and C,

and serum carotene. The blood of persons with a hemoglobin value under 10 g/100 ml was also examined for serum folic acid, serum vitamin B-12, total serum iron, and iron binding capacity analyses (7). Persons who gave an individual dietary recall, also had a urine analysis for thiamin, riboflavin, creatinine, and iodine. Bone density was determined by wrist x-ray for persons under 17 years of age (7).

A 24 hour dietary recall was recorded for: 1) persons over 60 years of age, 2) girls 10 to 16 years old, 3) boys 12 to 16 years old, 4) children from birth to 36 months, and 5) pregnant or lactating women (6). Even numbered households were also surveyed for household dietary information.

Important Findings

The Ten State Nutrition Survey in 1968-69 demonstrated that malnutrition does exist in Louisiana. Some of the major nutritional problems found in the biochemical and physical examination analyses of 88 of the 97 districts were growth retardation, inadequate intakes of vitamins A and C, fairly widespread anemia, and poor dental health (7). The dietary intakes of infants were low in calories and iron; adolescents had low caloric, iron, and vitamin A intakes (7). Although economic factors were an important consideration in the poor nutrition found, the main problems stemmed from

ignorance of nutrition principles (7). The Ten State Survey was a valuable tool in defining some of the nutrition problem areas and health needs of Louisiana.

CHAPTER III

PROGRAMS AND SERVICES TO MEET HEALTH NEEDS

The organization of the Louisiana Health and Social and Rehabilitation Services Administration, Division of Health Maintenance and Ambulatory Patient Services, will be discussed in this chapter. Various bureaus, divisions, and sections within the Division are described with emphasis being given to the specific departments visited by the student during Central Office Orientation. As of January 1973, a merger of services incorporated the Division of Health Maintenance and Ambulatory Patient Services into the Louisiana Health and Social and Rehabilitation Services Administration. The Division will be referred to as the Louisiana State Department of Health for the sake of continuity and clarity throughout this paper.

I. HISTORY OF THE LOUISIANA STATE DEPARTMENT OF HEALTH

The first State Board of Health in the United States was organized in Louisiana in 1855 (8). The public health problem of yellow fever existed in New Orleans; therefore, the early history of public health in Louisiana centered in New

Orleans (8). Other reasons given for the development of a state public health program were 1) the population had increased, 2) a medical school had been established in New Orleans, and 3) the public recognized that government action was required (8). The Louisiana State Board of Health was established by the "Act to Establish Quarantine for the Protection of the State" passed in 1855 (8).

Since 1855, the continuity of public health service through prevention of disease and promotion of public health in Louisiana has been unbroken (9). The Louisiana State Department of Health has been able to progress with the times by adapting its services to the changing needs of the people.

The 1973 merger consolidated the 59 agencies and health related programs within the state to form an overall umbrella agency, called the Louisiana Health and Social and Rehabilitation Services Administration. The main purpose for the formation of this agency stemmed from rapidly rising costs of the numerous health programs and services provided for the people of Louisiana (10). The merger has aided the umbrella agency in the acquisition of federal and state funding on a broad-scale basis rather than the previous small-scale distribution of needed monies.

Local Health Services

The state legislature passed a law in 1882 enabling town councils and police jurys to organize boards of health (8). A special act of 1898 established the organization, authority, duties, and the relationship of the parish and municipal boards to the State Board of Health (8). In 1940, regional offices opened to serve the four administrative areas of the state; today there are health units in each parish.

Five regional consultants who work with each parish include: the nurse, a sanitarian, a health educator, a medical records consultant, and a nutritionist. The team approach is often used in the health units to better meet the interrelated health needs and eliminate problems caused by numerous contributing factors. Different clinics and screenings are held weekly at the individual health units utilizing various regional consultants, health unit personnel and physicians. Health personnel and physicians make referrals for special health and social services and needed hospital care. Introduction, orientation, and implementation of health services and programs are usually carried out in the parish health units.

II. ORGANIZATION OF THE LOUISIANA STATE DEPARTMENT OF HEALTH

Policies governing the Louisiana State Department of Health are determined by the Louisiana Health and Social and Rehabilitation Services Administration and are carried out by the Director, who is also the Deputy State Health Officer, and his staff. In Figure 1 the organization of the Louisiana State Department of Health is shown. Personnel from the various units briefed the student on the responsibilities of the bureaus, divisions, and sections of the Health Department. The Bureau of Health Conservation briefings were especially interesting to the student since the majority of nutrition related health services are under its supervision.

Health Education

The Division of Health Education has mainly a resource function in that it offers a variety of materials, methodology, personnel, and knowledge all related to the promotion of good health for the people in Louisiana (13). This division works with the different bureau heads and acts as a liaison between the Division of Health Maintenance and Ambulatory Patient Services and other agencies within the state (13).

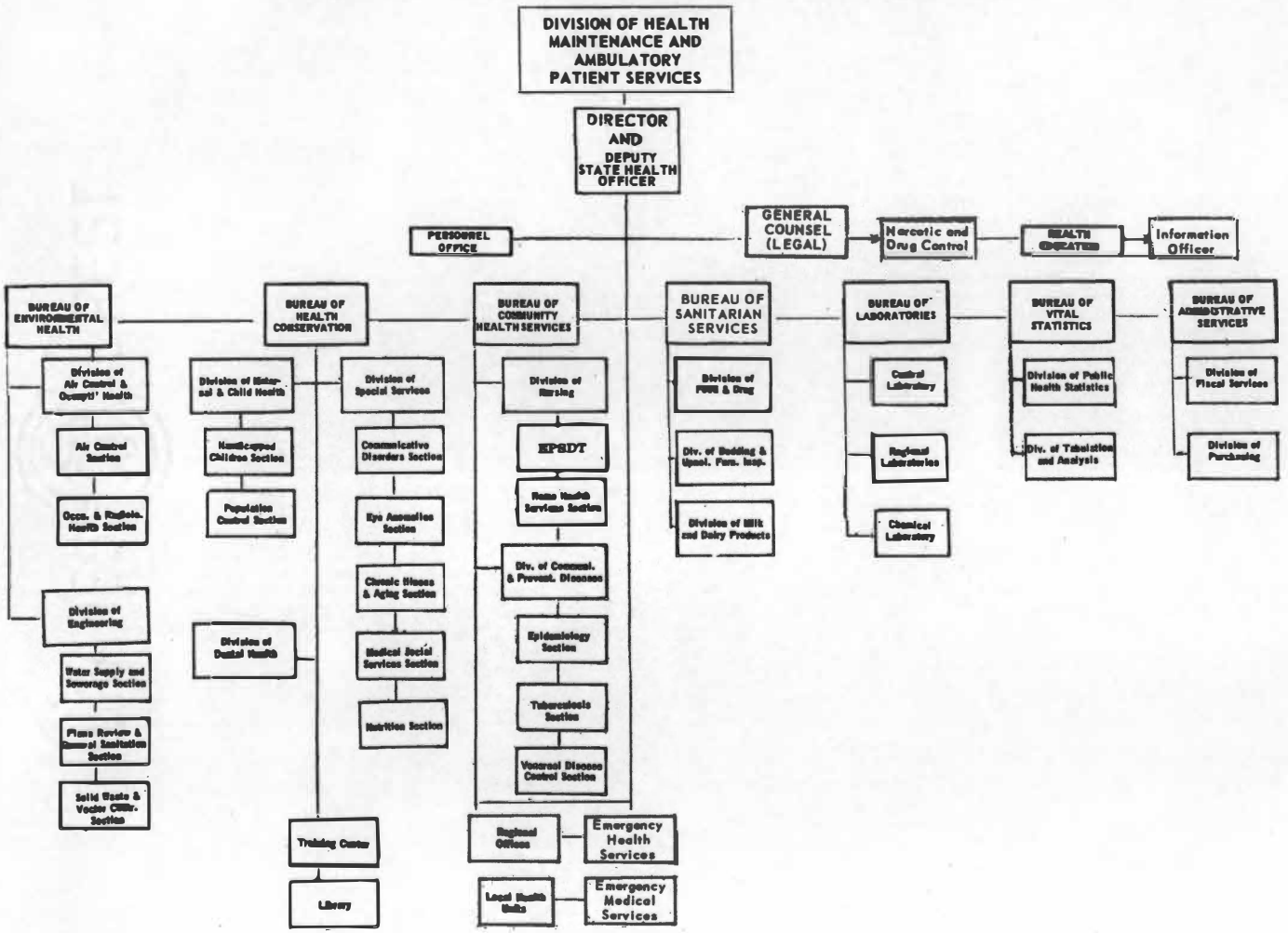


Figure 1. Organization chart of the Louisiana State Department of Health (Louisiana Health and Social and Rehabilitation Services Administration, Division of Health Maintenance and Ambulatory Patient Services).

Today, health educators are becoming increasingly involved with newer community organizations outside of the traditional school settings (9). Various programs and demonstrations are provided for the young and old alike. The Division of Health Education is concerned with evaluation and the effectiveness of programs. Major focus on the need for better health education in the public school systems has resulted in working toward requiring mandatory health education methodology courses for future elementary education teachers (13).

Bureau of Environmental Health

Included in the Bureau of Environmental Health are the Division of Air Control and Occupational Health and the Division of Engineering. The bureau and its units work closely with the Bureau of Sanitation Services, which includes the Division of Food and Drugs (9). Some of the major environmental health problems in Louisiana include air pollution control, solid waste disposal, and water pollution abatement (9).

The Division of Air Control and Occupational Health provides an environmental surveillance program for detection of radiation levels in certain foods and the environment and focuses on coordination with the state and federal aid control commission for compliance with air pollution standards

(11). Various personnel within this division include: engineers, sanitarians, and laboratory workers.

The Division of Engineering is divided into three main sections: 1) a Water Supply and Sewage Section, 2) a Plans Review and General Sanitation Section, and 3) a Solid Waste and Vector Control Section (12). Assurance of safe public water supplies and proper waste disposal systems are the two main functions of the Water Supply and Sewage Section (12). The Plans Review and General Sanitation Section functions as a regulatory unit for enforcement of State Sanitary Code requirements and engineers evaluations of new methods, materials, and machinery used in buildings which effect public health (9). Solid waste is the major environmental problem in the state of Louisiana; the Solid Waste and Vector Control Section works to remedy this great problem (12).

Bureau of Health Conservation

The Bureau of Health Conservation is composed of three main divisions: 1) the Division of Maternal and Child Health, 2) the Division of Special Services, and 3) the Division of Dental Health. The Nutrition Section is located in the Division of Special Services within this bureau. This bureau also includes a Training Center, that provides inservice training for new personnel and numerous courses for nonaccredited and accredited training in the field of

health (9). The Public Health Library is administered by the Director of the Bureau of Health Conservation and staffed by an Assistant Librarian (9). In spite of funding crises, the Bureau of Health Conservation is continuing its efforts to develop comprehensive health services for children (9).

Division of Maternal and Child Health (MCH). The Division of Maternal and Child Health is first of all an administrative unit functioning to coordinate MCH programs (9). This division plans the extension and improvement of services, prepares budgets and reports, and provides funds for training, salaries, travel expenses, and part time clinical fees (9). Buying educational material for free distribution and purchasing equipment and supplies are two other major functions (9).

The Division of Maternal and Child Health coordinates and plans health services for mothers and children in Louisiana. The parish health units provide direct services to mothers and children through medical clinics, nursing conferences and home visits, immunization clinics, school health programs, day care centers (including those for the mentally retarded), midwife supervision and training, family planning clinics, pediatric diagnostic clinics, psychological evaluation, and social services (9). Information on mental

retardation is provided by genetic studies on families with phenylketonuria (PKU), and Lofenalac is provided for families with children affected by PKU who are unable to buy the product (14).

Within the Division of Maternal and Child Health are two main sections: the Handicapped Children Section and the Population Control Section. The Handicapped Children Section provides medical, surgical, and rehabilitative treatment for handicapped children (15). Initially, the program provided services for patients with orthopedic conditions and later expanded to provide plastic surgery, opthalmology, otology, urology, cardiology, and cystic fibrosis services (14). The program accepts children from birth to 21 years of age with congenital anomalies and other handicap conditions (15).

Division of Special Services. The Division of Special Services is responsible for numerous needed health services provided for the people in Louisiana. Some of the services provided by this division include, an eye anomalies detection program, a hearing-conservation program, and numerous nutrition programs (9). These programs strive for early detection and prevention of sight, hearing, and nutrition problems. The Louisiana State Department of Education and this division take joint responsibility for developing and carrying out an annual eye testing program for school children (9).

Examples of other programs within this Division of Special Services include: 1) home nursing services to the chronically ill who do not need hospitalization, 2) medical social services for the chronically ill, aging, and handicapped children, 3) environmental hygiene services for the homebound, 4) multiphasic screening clinics, and 5) automated laboratory services to decrease the cost of preventive medical care (9). The nutrition programs and services offered through this division will be discussed in the following chapters of this paper.

Division of Dental Health. The Division of Dental Health works with the public school system in a preventive capacity in hopes of developing good dental hygiene habits in school age children (16). A special dental program in the future may be provided, that will offer comprehensive dentistry services to welfare eligible children (16). The Division of Dental Health works jointly with the Early Periodic Screening, Diagnosis, and Treatment Program (EPSDT) to provide dental care and limited materials for dental education (16).

Bureau of Community Health Services

The various parish health units are administratively responsible to the Bureau of Community Health Services. The bureau is responsible for the efficient operation of the health unit and each health unit participates in all programs.

Parish needs that are consistent with the available staff, funds, and facilities determine program priorities (15). The Bureau of Community Health Services has two main divisions: the Division of Nursing and the Division of Communicable and Preventable Diseases.

Division of Nursing. As an integral part of the Bureau of Community Health Services, the Division of Nursing is responsible to and assists the director of the bureau in the supervision and administration of generalized public health nursing programs (9). Two subdivisions of this division include the Early Periodic Screening, Diagnosis, and Treatment Program and the Home Health Services Section. The EPSDT Program was begun in 1972 and provides health care for children of families receiving funds thru the Aid to Families with Dependent Children (5). The State Health Department, as a qualified Home Health Agency offers nursing and medical social services to chronically ill, homebound patients throughout Louisiana (9).

Division of Communicable and Preventable Diseases. The Sections of Epidemiology, Tuberculosis, and Veneral Disease Control are supervised by the Division of Communicable and Preventable Diseases (9). Statewide surveillance of all reportable diseases is maintained by the Epidemiology Section (17). The state of Louisiana utilizes a contact method

of investigation for finding unreported and/or new cases of various communicable diseases (17).

Bureau of Sanitarian Services

The Bureau of Sanitarian Services is composed of three main divisions: the Division of Food and Drug, the Division of Bedding and Upholstered Furniture Inspection, and the Division of Milk and Dairy Products. The bureau provides technical direction and information related to sanitation and cooperates with the State Departments of Hospitals and Welfare in improving sanitation in hospitals, nursing homes, and day care centers (9). A general sanitation staff for inspection for air pollution, of the water supply, and of food services facilities is incorporated within this bureau (18).

Division of Food and Drugs. The Division of Food and Drugs is responsible for seafood sanitation and narcotics and drug control (19). This division enforces the state food and cosmetic laws to insure the wholesomeness of the product and to insure proper packaging and labeling (19). Sanitary supervision of Louisiana's important oyster and shrimp industry is a major responsibility of this division.

Division of Milk and Dairy Products. The Division of Milk and Dairy Products grades milk for the state of Louisiana (18). Inspection of the facilities used in the production and processing of milk products are supervised by this division (9). Milk is analyzed for bacterial content, adulteration, butterfat, and nonfat solids (15).

Bureau of Laboratories

The Bureau of Laboratories includes the Central Laboratory, Regional Laboratories, and a Chemical Laboratory. Once a routine testing laboratory, the role of the public health laboratory is changing to provide special services for private and hospital laboratories (9). Some of these services include: 1) reference or diagnostic testing, 2) consultation, 3) training, and 4) proficiency and evaluation programs (9).

Bureau of Vital Statistics

The Bureau of Vital Statistics is divided into two main divisions: the Division of Public Health Statistics and the Division of Tabulation Analysis. The bureau director also administers the Division of Public Health Statistics which records, preserves, summarizes, and analyzes data on vital events originating from the local level (20). The selection of health programs are often based on morbidity and mortality

trends that indicate needs for initiation and/or expansion of programs.

Division of Tabulation and Analysis. A centralized data processing system and statistical service is provided by the Division of Tabulation and Analysis of the Louisiana State Department of Health. Morbidity and mortality statistics are sent to the division from the local parishes for processing by the computer (21). Monthly, quarterly, and annual statistical reports are also published by this division. Deaths are reported via use of the International Classification of Diseases adopted for use in the United States (21). This classification is an international coding system used for reporting basic causes of death (21).

Bureau of Administrative Services

All financial and budgetary records are maintained by the Bureau of Administrative Services (9). This bureau is the general service bureau of the State Department of Health which provides printing, mailing, telephone, and messenger services to the units of the health department (9). The parish health units are assisted by the bureau in the preparation of their budgets.

CHAPTER IV

NUTRITION PROGRAMS AND SERVICES

The state of Louisiana offers numerous nutrition programs and services to its people. Malnutrition, growth retardation, and anemia are just a few of the recognized nutrition related health problems. Cooperation of other state and federal health agencies has often allowed Louisiana to take the lead in developing innovative nutrition programs. The student was able to observe and participate in a variety of experiences related to the nutrition programs and services in Louisiana. This chapter will focus on some of the programs and projects to which the student was exposed.

I. NUTRITION SECTION

The Nutrition Section of the Bureau of Health Conservation functions as a base from which a variety of needed nutrition programs and services are planned and implemented. The goal of the Nutrition Section is to improve the eating habits of all persons in Louisiana by helping them meet their nutritional requirements during health and disease and contribute to their highest possible level of health and well-being (22).

A state public health office located in New Orleans is the nucleus for nutritional programs and services branching outward to encompass 62 of the 64 parishes within the state. At the present time there are five main staff members working at the state level: a Mass Media Coordinator, a Dietary Consultation Coordinator, a Training Coordinator, a Home Economist, and a Public Health Advisor. A section chief is responsible for the administration of the Nutrition Section.

The Chief of the Nutrition Section plans, organizes, and directs the statewide program and develops policies for the operation of the section. The Chief advises the State Health Officer and represents the Nutrition Section of the Louisiana State Department of Health on the State Nutrition Council. She serves on several state committees such as: Advisory Committee for the Development of Maternal and Child Health Programs, Civil Rights, Salary Equalization, and other extra agency committees (10). The Chief functions administratively through deciding personnel needs and securing funds for the needed nutrition programs and services.

As seen in Figure 2, the Nutrition Section has 12 regional positions and one local position. At the present time all of these positions are filled with either regional nutritionists or temporary personnel from the Central Office at the state level.

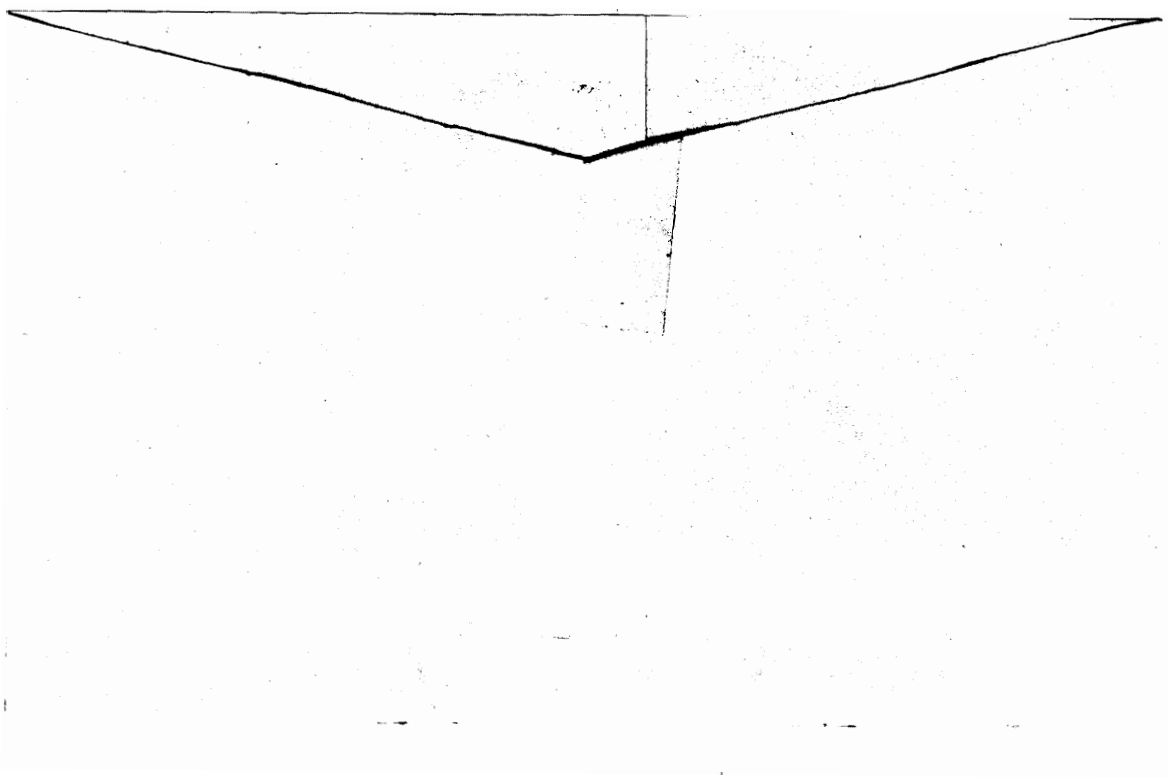
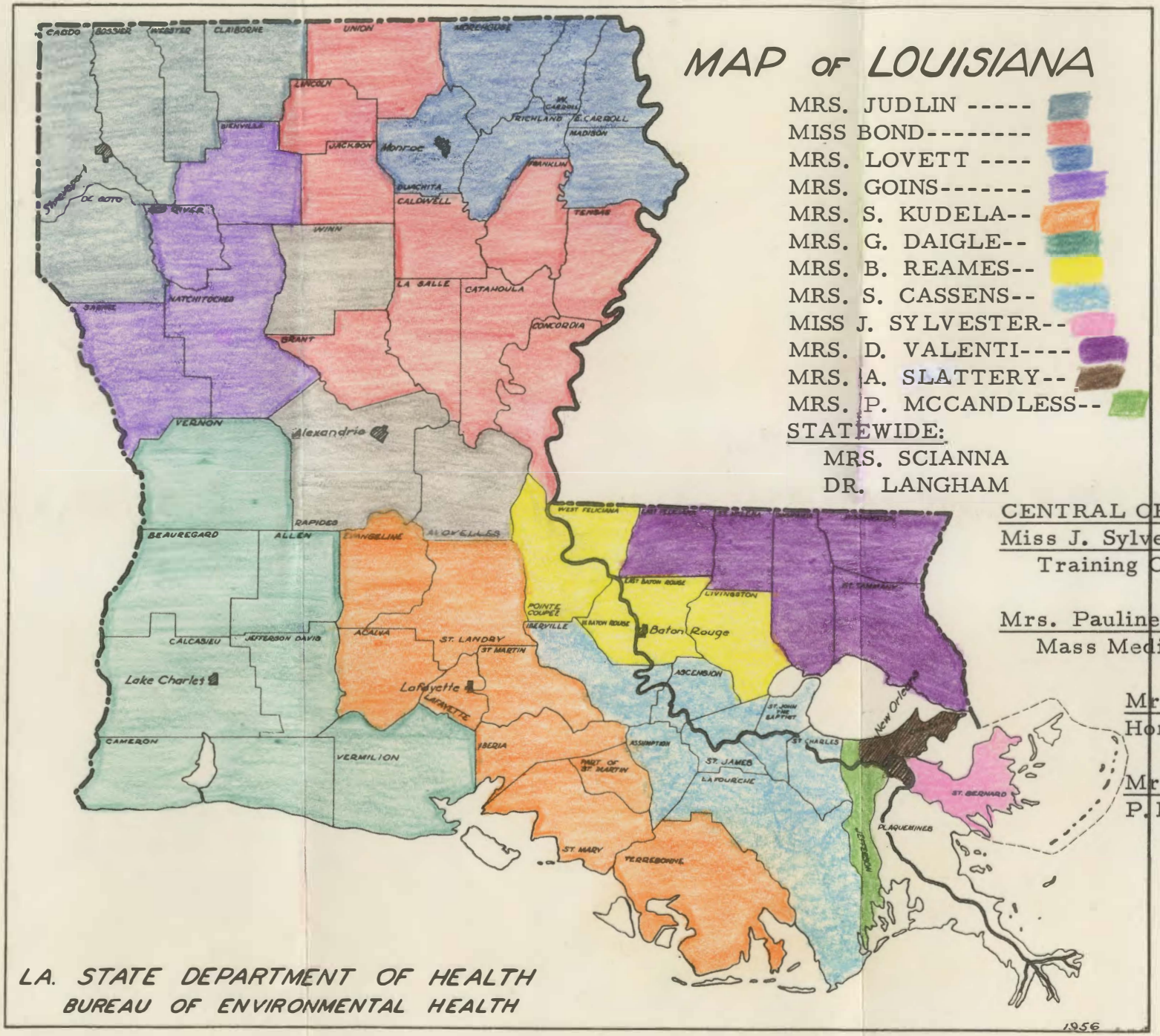


Figure 2. Nutrition positions in the Louisiana State Department of Health, April, 1974.



LA. STATE DEPARTMENT OF HEALTH
BUREAU OF ENVIRONMENTAL HEALTH

The Nutrition Section plans and implements activities in three major areas: preservice activities, inservice activities, and activities of the nutritionist. Preservice activities center around the organization and development of plans for future learning capacity situations, such as writing contracts for coordinated undergraduate programs and planning dietetic and student field placements (22). Inservice activities focus on nutrition education for teachers, doctors, nurses, and other professionals with emphasis on current nutrition information. The activities of the nutritionist include: teaching, counseling, supervising, consulting, and writing. The state level nutrition staff functions in all three of the major activity areas; the regional nutritionist usually functions in the inservice and nutritionist areas.

Mass media coordinator. The Mass Media Coordinator develops materials and resources for nutrition education. Some of the materials that have been developed include: slides, films, crossword puzzles, pamphlets, work sheets, and scripts for puppet shows. The material is geared to different age and socioeconomic levels. A monthly newsletter "Confidentially Speaking" is edited by the Mass Media Coordinator. This newsletter usually focuses on current nutrition topics and often is used as an informative teaching tool.

Dietary consultation coordinator. The Dietary Consultation Coordinator works with group care facilities using dietetic skills and knowledge to aid the implementation of group feeding. This coordinator acts as a consultant to individual facilities throughout the state and works cooperatively with other agencies and organizations to develop licensure procedures. The Dietary Consultation Coordinator functions as a liaison between the Nutrition Section and other divisions of the health department.

Training coordinator. The primary function of the Training Coordinator is to provide inservice training in nutrition for students, teachers, nurses, and physicians. The Training Coordinator carries out preservice and inservice activities; not only in a training capacity but also by planning and organizing the schedules of the field placement students. At the present time the Training Coordinator is also acting as a regional nutritionist for St. Bernard parish and functions as a consultant to this parish. This coordinator supervises the phenylketonuria (PKU) and metabolic disease case load throughout the state often visiting families and counseling mothers on nutritional practices related to specific metabolic diseases.

Home economist. Louisiana is the only state in the United States that has a staff member functioning as a Home Economist at the state level (10). The Home Economist focuses on basic nutrition as opposed to therapeutic nutrition. Some of the responsibilities of the Home Economist include working with food distribution programs, planning menus, and developing nutrition education materials. At the present time one of the major responsibilities of the Home Economist is organizing and aiding the implementation of the Women Infant and Children (WIC) supplemental feeding program throughout the state.

Public health advisor. In 1972 a Public Health Advisor was assigned to the Venereal Disease Control Section of the Louisiana State Department of Health, and was loaned to the Nutrition Section to help develop a nutrition surveillance program. This advisor works with the Nutrition Section in planning and implementing the statewide Nutrition Surveillance Program. At the present time the EPSDT Program is used to obtain the sample population utilized in the initial stages of the surveillance program. The Public Health Advisor has developed reporting forms and evaluation techniques that aid in understanding the statistical data collected by the Nutrition Surveillance Program.

II. NUTRITION SURVEILLANCE PROGRAM

For many years the Louisiana State Department of Health, Division of Health Maintenance and Ambulatory Patient Services, Nutrition Section, has been involved in methods of identifying nutritional problems within the state (23). Establishing that an area has a nutritional problem is a much easier job than the actual identification of the specific population that is in need of priority. In 1973, Louisiana developed an ongoing Nutrition Surveillance Program. This program is used to identify nutritional problems geographically, enabling Louisiana to compare different subsections within the state (23). Therefore, nutrition and health programs that effectively decrease nutrition problems can be applied to the identified areas where the problems continue to exist.

At the present time Early Periodic, Screening, Diagnosis, and Treatment (EPSDT) clinics are utilized in the collection of data for the Nutrition Surveillance Program. The target populations are those children ages 0 to 21 years of age from families receiving Aid to Families with Dependent Children (5). Forms were developed through pilot studies in St. Bernard and Lafourche parishes. Personal letters from the Deputy State Health Officer were sent to parish health officers asking for their cooperation and for advice and

ideas to assist the program (23). Each local health unit was instructed in methods of completing and submitting the forms for nutrition surveillance.

The data collected by health unit personnel records the height, weight, and hematocrit and/or hemoglobin for each child attending EPSDT screenings and clinics. Checking the forms for errors and for lack of information is one of the jobs of the Public Health Advisor. The Center of Disease Control in Atlanta, Georgia processes the data and sends the Nutrition Section computer printouts that compile the data into age, sex, race, and geographic categories. The Public Health Advisor with the help of the Nutrition Section staff and other health professionals studies, analyzes, and evaluates the data.

Standards utilized for the comparison of the data collected in the surveillance program include standards used for the Ten State Nutrition Survey, the World Health Organization (WHO) standards, and the Stuart - Meredith growth standards (5). These standards can be found in the statistical report included in the Appendix. As of this date, monthly morbidity reports and numerous regional and metropolitan reports and analyses have explained and discussed the findings of the EPSDT Nutrition Surveillance Program (5, 23).

For her special project the student had an opportunity to work with this innovative Nutrition Surveillance Program

through evaluation of part of the statistical data collected for the second six months of the program. The Public Health Advisor aided the student in this evaluation which focused on a comparison of the data from two reporting periods. An indepth discussion of the special project can be found in the following chapter.

II. MATERNAL AND CHILD HEALTH SERVICES

In Maternal and Child Health Services the nutritionist is responsible for educating mothers and children in sound nutrition practices. The nutritionist often teaches the patients in a group setting explaining the importance of a well balanced diet including plenty of meat, milk, fruits, vegetables, and bread and cereals. Pregnant women are taught to eat for their health and for the proper growth and development of their baby. During medical screenings and clinics the doctor or nurse often recognizes symptoms that can be attributed to poor nutritional practices. A mother and child may be anemic and need nutrition counseling focusing on iron-rich foods.

Knowing the facts about good nutrition is one of the most important aspects of nutrition education, but good foods cannot be acquired without money or some type of supplemental food program. Another responsibility of a nutritionist is to explain the nutritional component of supplemental feeding

programs. The Food Stamp Program allows recipients to purchase a variety of foods with special coupons. The nutritionist often focuses on the Basic Four food groups and economy in food buying and preparation. The Women Infant and Children Program (WIC) now operating within Louisiana requires recipients to purchase specific foods as stated on the reverse side of the WIC coupons. In this instance the nutritionist reviews these selected foods and discusses alternative methods of food preparation to insure that the recipient actually consumes the foods allocated.

Some of the other programs offered by Maternal and Child Health Services which utilize nutritional services include: the PKU program in which the nutritionist helps to educate the parents in appropriate dietary changes and special foods; the Pelican Program which is a program that offers a series of pre- and postnatal newsletters focusing on proper maternity and infant care including ideas on good nutrition; and the Special Teenage Project which is a new program that focuses on the teenage mother and her baby as related to their total life and not just the pregnancy period.

Nutritionists provide services for mothers of children with phenylketonuria (PKU). If left untreated, the disease usually results in mental retardation and brain damage (24). PKU is an inborn error of metabolism which is caused by the lack of the enzyme phenylalanine hydroxylase which in the

normal individual converts the essential amino acid phenylalanine to tyrosine (24). The nutritionist prescribes a diet based on Lofenalac, a synthetic food low in phenylalanine containing fat, carbohydrate, and certain minerals and vitamins (24). The nutritionist instructs the mother of a PKU child not only to use a variety of fruits and vegetables low in protein, but also to use the right amounts of nutrients needed by the growing child.

IV. WOMEN INFANT AND CHILDREN PROGRAM (WIC)

Louisiana has invested much effort in the Women Infant and Children Program which is coordinated by the Nutrition Section of the Bureau of Health Conservation. The WIC program is a special feeding program for pregnant women, infants, and children taking the place of the past supplemental feeding program that was too expensive and at the present time lacking in available supplemental foods (25). The participants for the program must fall into one of the following categories:

A. Woman - pregnant, postpartum up to six weeks, or breast feeding the infant. For this program, a breast fed infant is defined as one who receives eight ounces or less of formula per 24 hours.

B. Infant - birth until first birthday. Must be formula fed. Formula must be iron fortified. In keeping with the

recommendations of the American Academy of Pediatrics, iron fortified formula and dry infant cereal will be furnished until one year of age.

C. Child - age one year to four years. Must be terminated from the program by the fourth birthday.

The recipients of the WIC program are given vouchers at individual health units. These vouchers are used like checks at any participating grocery store, and only the foods listed on the back of the voucher may be purchased with the voucher. The staff of the health units determine the eligibility of the patient. Height, weight, hemoglobin or hematocrit, and head circumference (if an infant) are determined and various required health information is recorded.

Participating grocery stores handle the vouchers just like a check. Each store must be approved and must agree to stock food items listed on the vouchers, to send the Nutrition Section a price list of food items by the 10th of each month, and to sign an agreement card (25). Due to price fluctuation the monthly food price list aids the Nutrition Section in fixing price allocations for the selected food items.

By first observing the nutritionists at work in a counseling situation, the student was able to perceive and anticipate some problems that might occur during counseling

sessions. The student, under the supervision of two regional nutritionists, counseled WIC participants and interviewed recipients to determine dietary habits and feeding problems. This experience offered the student a chance to practice her counseling and interviewing techniques.

V. DIETARY CONSULTATION PROGRAM

The Dietary Consultation Program is an important segment of the total Nutrition program. Improving the nutritional status of persons fed in group-facilities can be the catalyst in spreading nutrition information to staff, family, and friends (26). The purpose of the Dietary Consultation Program is twofold: 1) to assist group-care facilities in Louisiana to provide nutritionally adequate enjoyable meals that meet the needs of the population, served at a reasonable cost and in a sanitary manner, and 2) to assist in nutrition and food service education for personnel, patients, and families (26).

A Dietary Consultant functions to assist health department personnel by acting as a consultant on food service in group-care facilities and by acting as the official representative of the health department, on matters pertaining to group-feeding (26). Counseling and guidance are provided to the staff of group-care facilities regarding such subjects as: normal and therapeutic needs of patients; nutrition education;

menu planning; food purchasing, storage, and preparation; and procedures for cost control, record keeping, personnel selection, training, and supervision (26). The Dietary Consultant cooperates with other agencies and organizations through consultation in planning training programs for personnel for quantity food service, assisting in development of nutrition and food service sections of regulations of facilities licensed by agencies not employing nutrition personnel, recruiting and training qualified personnel for food service, and providing education reference materials for use by group care and agency personnel (26). Some of the facilities served by the Dietary Consultation Program include: hospitals, nursing homes and related facilities, child-care facilities, and other group facilities.

The Dietary Consultation Coordinator of the Nutrition Section and the student visited Belle Chase State School for the mentally retarded. The coordinator acts as a dietary consultant to this school reviewing new diet changes as prescribed by the physician and checking weekly menus. While visiting the school the student, with the help of the dietary consultant, reviewed a four week menu cycle to eliminate repetitive food selection and insure a balanced diet.

A tour of the school gave the student an opportunity to learn how the school operates to offer vocational training

and alternative rehabilitation life-styles to the mentally retarded patient.

The student had never had the opportunity to see the lunchroom attitudes and food habits of mentally retarded children. Better perspectives were gained by observations of some of the feeding problems and physical handicap situations that mental retardation often causes. The student learned that mentally retarded children can feed themselves guided by lunchroom aides and appropriate verbal reinforcement.

The Dietary Consultation Coordinator acts as a consultant for the American Association Correspondence Course for the Training of Food Service Supervisors. The student had the opportunity to travel to Alexandria, Louisiana to attend the 1974 Spring meeting of the Hospital, Institution, and Educational Food Service Supervisors (HIEFSS) which included the graduation exercise for the members of the correspondence course. Speakers presented a variety of useful information concerning food service work and the new federal regulations for food service supervisors. The student enjoyed participating in this experience and observed the dietary consultant plan, organize, and facilitate the implementation of the program agenda.

VI. SPECIALIZED CENTER OF RESEARCH-- ARTERIOSCLEROSIS

Louisiana is one of the 15 Specialized Centers of Research in the United States. All of these centers direct their research toward heart disease, the number one killer in the nation (27). The federal government funds these programs in hopes that the information will help scientists to explain the cause of heart diseases and its development.

The Specialized Center of Research on Arteriosclerosis (SCOR-A) in Louisiana is located at Louisiana State University in New Orleans. The New Orleans SCOR-A is focusing on children because heart disease does not restrict itself to the very old, and studies have revealed that the foundation for heart disease is already laid during childhood and adolescence (27). The major research and service program was conducted by SCOR-A in the Bogalusa Heart Study. In September 1973 the Bogalusa Heart Team began the major program which included screening over 4,000 children in the Bogalusa schools. Although the general screening ended in May, 1974, the research will continue for at least three more years including screening of other child populations (27). Part research and part service, the study is looking for the "risk factors" in children associated with heart disease.

VII. LOUISIANA EXTENSION SERVICE

The Louisiana Extension Service is an educational arm of research extending knowledge to families and individuals within the state (28). Some educational areas include textiles and clothing, agriculture, home management, and nutrition. Home demonstration agents, nutrition aides, and extension agents provide a variety of services to groups and individuals in Louisiana. The Extension Service offers programs for adults and youth working with such groups as homemakers, 4-H Clubs, and low-income welfare recipients. A variety of education materials such as slides, cassette tapes, displays, and pamphlets are available for use to groups in workshops and classes. Often times a special educational workshop series on current homemaking topics is offered to the public by the Extension Service.

The Extension Food and Nutrition Education Program provides aides to the parishes with the largest numbers of low-income families (28). Home demonstration agents teach the aides basic nutrition in a series of lessons that prepare the aides for their community work. An Extension Nutrition Specialist in the state office of the Louisiana Extension Service provides information for home demonstration agents and assists in program planning for the Extension Service (28).

The nutrition aides of the Extension Service start with small homemaker groups and once accepted into the home, assist the homemaker with food preparation techniques, budgeting, and meeting the nutritional requirements of the family. Some of the popular topics of interest to homemakers have included gardening, canning and freezing home grown vegetables, and understanding food labels.

CHAPTER V

PROFESSIONAL DEVELOPMENT

During the field placement the student gained confidence and competency for her future role as a public health nutritionist and nutrition educator. The student developed professional skills through observation and participation in a variety of activities of the Nutrition Section and at the regional level. The field placement experience offered the student many opportunities to increase her nutritional knowledge and to facilitate a better understanding of the interrelationship of the social and cultural factors that effect sound nutritional practices. During the seven week field experience the student worked on a special project that aided her in the development of writing skills and program evaluation techniques. This special report will be described within this chapter. Many of the activities that the student experienced will be discussed and evaluated and some of the functions and responsibilities of a nutritionist will be included.

I. COUNSELING

To communicate with patients and parents with nutrition related health problems and in need of nutrition education,

knowledge of economic, social, and cultural conditions is essential. In Louisiana the student observed that many of the people who utilized the services of the public health department generally had low incomes, limited education, and a basic diet consisting of red beans, gravy, and rice. Clinics and screening programs offer the nutritionist an opportunity for interviewing and counseling on proper diet practices and good eating habits. The student, under the supervision of regional nutritionists, was able to counsel numerous patients during her experiences while working out of Baton Rouge. The student acted in the capacity of a member of the health team by offering nutrition counseling and consultation services at EPSDT screenings, implementation of WIC programs, maternity clinics, and medical and pediatric clinics. The student observed a cleft palate clinic and an orthopedic clinic in which physicians made referrals to the nutritionist for needed services.

The nutritionist attempts to talk with each patient at the health unit that is screened or medically checked and in need of nutrition education. Medical history and basic family information are obtained from the health records. The nutritionist must aid the development of good rapport between herself as a counselor and the patient in which a relaxed atmosphere promotes positive communication. It is the job of the nutritionist to determine the typical eating

pattern of the patient, to discover economic and social problems related to nutrition, and to assess the nutritional status of the patient. Once these factors are determined, the nutritionist can then proceed to discuss alternative avenues to good eating including a balanced nutritional diet geared to the needs and economic capabilities of the individual.

The student counseled individuals and groups about good nutritional practices and food buying and preparation techniques. Some of the major nutrition problem areas relating to health that the student observed included: obesity, infant and early childhood anemia, poor choices of snack foods, and inflationary food costs.

The student felt most effective when the patient responded with questions and participated in discussions focusing on nutritional problems and solutions. Often times the patient had failed to cooperate or follow the instructions of the nutritionist or physician; at these times the student felt frustrated and attempted to better understand the complexity of the patient's problems. Pamphlets were often used to illustrate appropriate diets and nutrition facts that related to the problem area.

The student had the opportunity to accompany a regional nutritionist on a home visit of two homocystinuria patients. Homocystinuria is an inborn error of metabolism in which

there is a deficiency of cystathionine synthetase, an enzyme normally present in the brain and liver (29). This enzyme is essential for the conversion of homocysteine to cystathionine, products formed in the metabolism of methionine (29). Mental retardation is present in almost all homocystinuria patients (29). There were only two recorded homocystinuria cases in Louisiana as of May, 1974. The cases were females within the same family and were following prescribed low-methionine high cystine diets. The physician was following a diet therapy regime which included experimental pyridoxine and folic acid supplementation (30). This experience provided the student the opportunity to observe the nutritionist as she discussed the special diet and problems arising from the use of Isomil, a milk substitute formula. The student had never had any contact with homocystinuria patients and appreciated the opportunity to observe some of the physical signs associated with the disease including eye impairments and skeletal abnormalities.

Working in the capacity of a nutritionist as a member of the health team was a truly unique opportunity afforded to the student by the field placement experience. The participation and observations of the student allowed her to better appreciate the organization and hard work that goes into the development of teamwork necessary for good health care.

Patience and cooperation were often the key in the development of this team approach enjoyed and especially respected by the student.

II. TEACHING

A variety of requirements are needed to teach nutrition in groups or on an individual basis including knowledge of the subject, an interested audience, materials geared to the level of the listener, the ability to attract and retain attention, and the flexibility within the lesson. A nutritionist must be able to utilize each of these requirements in order to educate the people about good nutrition. Varying the method of presentation is an important teaching technique, and incorporating group participation into the lesson often facilitates learning.

The student taught a lesson in nutrition education methodology to a class of early childhood education undergraduates and presented a program on foods for the elderly to a small group in a community project area. Previous experience in teaching and education theory had given the student a variety of opportunities to utilize her ability in teaching. Her interest in nutrition education also provided a good basis for these nutrition education experiences.

The student was responsible for the development, organization, and implementation of a lesson on nutrition

education methodology at Dillard University in New Orleans. The main purpose of the lesson was to arouse an interest in teaching nutrition and to illustrate numerous techniques and materials that could be used to teach nutrition to children. The subject was nutrition education, and numerous materials were demonstrated including: a hook'n loop board, posters, a transparency box, food models, pamphlets and booklets, and cookbooks. Overall student response was good, and a variety of materials were given to the students for future use.

The student thoroughly enjoyed this teaching experience and felt a certain gratification in her ability to teach and in her interest in nutrition education. This was the first time that the student had taught an undergraduate education class. Developing and teaching a lesson geared to such an intellectual college level offered the student an opportunity to practice her teaching skills at a higher level.

The student taught a short lesson on general nutrition and a balanced diet for the elderly at a community center. A show and tell phonoviewer lesson called "Food for Older Folks" was used along with a hook'n loop board and food models to implement the lesson. The audience participated by providing simple dietary recalls which were discussed and related to the nutrient needs of the elderly. The student realized that flexibility and improvisation are necessary in

meeting the variety of interests and needs of different age, economic, and ethnic groups.

III. WRITING--A SPECIAL PROJECT

One of the main responsibilities of a nutritionist centers around her ability to manipulate the written word. Communication, through the development of writing skills, is one important method of disseminating nutrition information to the public. Often times educational materials such as pamphlets on prenatal diets, infant feeding, iron-rich foods, and diabetic diets are needed to reinforce counseling messages. Newspaper articles, newsletters, and radio and television announcements relating nutrition news and upcoming events are often written by the nutritionist; illustrating the important need for a good writing ability.

Cooperation with other health personnel and agencies offers a variety of writing experiences to the nutritionist. Research, statistical analysis, and program planning and evaluation are just a few of the areas in which this cooperation can be utilized. The student was given the opportunity to work with the Public Health Advisor to the Nutrition Section on a special project of program evaluation that was published in Public Health Statistics, a statistical report focusing on the Nutrition Surveillance Program (Appendix). The student developed and wrote a comparison of the two sets

of data thus far collected from the Nutrition Surveillance Program. Professionals interested in the health status of the people of Louisiana are the audience for this publication.

Development and Planning

The Public Health Advisor and the student worked cooperatively to develop the report. The major purposes of the report were to present an evaluation of the data collected from the second six month period of the Nutrition Surveillance Program and to compare two six month reporting periods. A monthly morbidity report focusing on the findings of the first six month reporting period served as a guide for the student. The student reviewed computer printouts and discussed previous findings with the Public Health Advisor. Bar graphs were used to illustrate the statistical findings, and the student transcribed data from the computer printouts onto graph paper. Planning sessions were held with various staff personnel in which important findings were discussed and analyzed.

During the time the student was located in Baton Rouge, a rough draft was developed and mailed to the Public Health Advisor in New Orleans for evaluation and suggestions. A second draft was made, and following various revisions the written portion of the report was completed. The Nutrition Section and the State Department of Health printed the bar graphs and published the statistical report.

Evaluation

The objectives for the student in developing this special project were to improve writing skills and to evaluate a program. The Nutrition Surveillance Program afforded the student a unique opportunity to experience and participate in the evaluation of a new program that offers one solution in identifying nutritional problem areas.

The student learned that information must be geared to the level of the audience to insure good communication and understanding. An important factor influencing the student stemmed from concentration on certain nutrition areas which the Nutrition Section wished to emphasize. The student also learned that the objectives of a project must be specifically determined to insure optimum use of time and materials. Time limitation was the major flaw in the development and writing of the evaluation report. More time was needed for data analyses and review. This experience made the student aware that she needs to strengthen her writing abilities in order to communicate more effectively through this medium.

IV. EXPANDING PROFESSIONAL KNOWLEDGE

A nutritionist is responsible for expanding professional knowledge through seeking individual self-growth and through offering professional knowledge to others. During the field placement experience, the student was offered many

opportunities to expand her professional knowledge. The student attended various professional meetings and had the experiences of talking with numerous professionals from universities and other health fields. The student observed and discussed nutrition related health problems and gained new ideas and insights into many areas of professionalism.

The student attended the Louisiana Public Health Association convention held in Alexandria, Louisiana. The theme of the convention was "Prevention," to emphasize the need for more preventive services in the public health field. The convention included well-known speakers, workshops, and exhibits, and drew public health professionals from across the state. One topic that the student found most interesting was hypertension. This topic was discussed by a physician who emphasized the associated risk factors such as smoking, heredity, physical activity, and psychological stress. A lecture on the priorities of the newly formulated umbrella agency of the Louisiana State Department of Health was also interesting and informative to the student. Observation and participation in this public health convention helped the student to recognize the need of conventions and workshops in which public health professionals can meet and discuss information for expansion of their professional knowledge.

The student attended the Third Graduate Institute on Nutrition sponsored by Alton Ochsner Medical Foundation, Division of Graduate and Postgraduate Medical Education and the Louisiana Dietetic Association. This Institute was held in New Orleans and focused on the nutritional aspects of kidney disease including acute and chronic renal failure and dialysis. Problems in gastroenterology were considered the second day of the convention, but the student could not attend this portion of the program. Guest speakers included staff members of the Alton Ochsner Medical Foundation and faculty members of Tulane University and Louisiana State University Schools of Medicine. Outstanding speakers from other areas of the country also participated.

The area of nutrition problems related to kidney disease and renal failure is one in which the student needed further knowledge and education. This Institute enabled the student to better understand the interrelationships of the social, psychological, and physical aspects of kidney disease. The various speakers presented their information in progressive steps aiding the student in grasping a clearer picture of the role nutrition plays in dietary control of kidney disease.

The student attended a meeting of the Food Service Management and Dietetic Technician Advisory Committee at Nicholls State University in Nicholls, Louisiana. A regional nutritionist attends the biennial meeting, acting in an

advisory capacity to make recommendations and suggestions for curriculum changes and educational improvement. The committee functions to evaluate and make recommendations for the two year food service management program offered by the university. The student was impressed by the enthusiastic and highly motivated attitude of some of the students participating in the two year program. More creativity and positive attitudes are needed in the field of food service work, and this experience aided the student in the recognition of this need.

The field experience provided a variety of situations in which the student gained contact with international nutrition. Stimulation in the field of international health aided the student in broadening her views of the numerous nutrition problems of the world. The student observed a panel discussion entitled "Better Food for a Healthier World" held in New Orleans by Tulane University School of Public Health and Tropical Medicine to celebrate World Health Day. The student had never attended any type of discussion or meeting in which current international ideas were exchanged and interrelated. This panel discussion increased her knowledge in nutrition and exposed her to a more realistic overall world view of nutrition problems.

The student requested a visit to the United States Public Health Service Hospital located in Carville, Louisiana, and

from her visit she learned about a hospital dedicated to the treatment of leprosy. In 1921 the hospital was acquired by the U. S. Public Health Service from the state of Louisiana, which had operated it since 1894 as a home for leprosy patients within the state (31). The primary purpose of the hospital today is to afford patients with leprosy a facility for complete evaluation and treatment (31). It also serves as a research and training center. Eligibility for admission to the hospital includes any person with a confirmed diagnosis of leprosy (Hansen's Disease) made in the United States (31). Ages vary from 7 to 92 years, and numerous patient activities benefit their treatment and rehabilitation.

The Daughters of Charity of St. Vincent de Paul provide nursing, dietetic, and other health services to the Public Health Service Hospital. The personnel are Commissioned Officers or Civil Service employees of the U. S. Public Health Service. A professionally staffed, state-accredited secondary school provides an opportunity for many patients to continue their education. More than 100 patient employment positions are available at the hospital, and an active recreation program is available to all patients. In recent years an average of 135 patients were admitted each year and 125 patients were discharged (31).

A tour throughout the facility at Carville provided the student an indepth view of the care and treatment for leprosy

patients. The student had never seen an actual case of leprosy before and was able to observe some of the various effects and stages of the disease. Often times as the disease progresses the central nervous system is effected causing a loss of sensation in the body, especially the limb areas. Development of special feeding tools for food preparation techniques are just some of the interrelated nutrition factors that effect the rehabilitation of the patient. Special diets are sometimes prescribed due to other physical complications brought about by the disease. Exposure to such a total care facility impressed upon the student the never-ending need for research in the field of health and disease control.

CHAPTER VI

SUMMARY

Practical experience in the field of public health nutrition offers the student a variety of opportunities to incorporate academic learning into real life situations. Such opportunities aid the student in developing a better understanding of the functions and responsibilities of a public health nutritionist. The field placement experience allowed the student to observe the functions of a state department of health and to work as a member of the health team at a regional level. The student was provided numerous opportunities to observe and participate in the nutrition programs and service of Louisiana.

In developing a philosophy of public health nutrition, the student realized the interrelationship of social, economical, psychological, and nutritional factors that effect the overall health status of the individual. Each of these factors must be considered as the nutritionist strives to promote good nutrition for all people.

During the field experience the student gained confidence for her job as a future nutritionist and obtained the needed clinical experiences and supervision that aided in the

development of counseling and diet therapy techniques. Program evaluation and statistical data manipulation skills were strengthened when the student planned, developed, and wrote a statistical report evaluating a portion of the Louisiana Nutrition Surveillance Program.

The student recognized the need to strengthen certain areas of competency that include: counseling patients with PKU and diabetes, motivating patients to follow dietary instructions and to practice sound nutrition, and writing reports to communicate the desired message. Continuous self-evaluation and more practical experience will assist the student in acquiring additional confidence in consultation, program evaluation, and nutrition education.

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APPENDIX

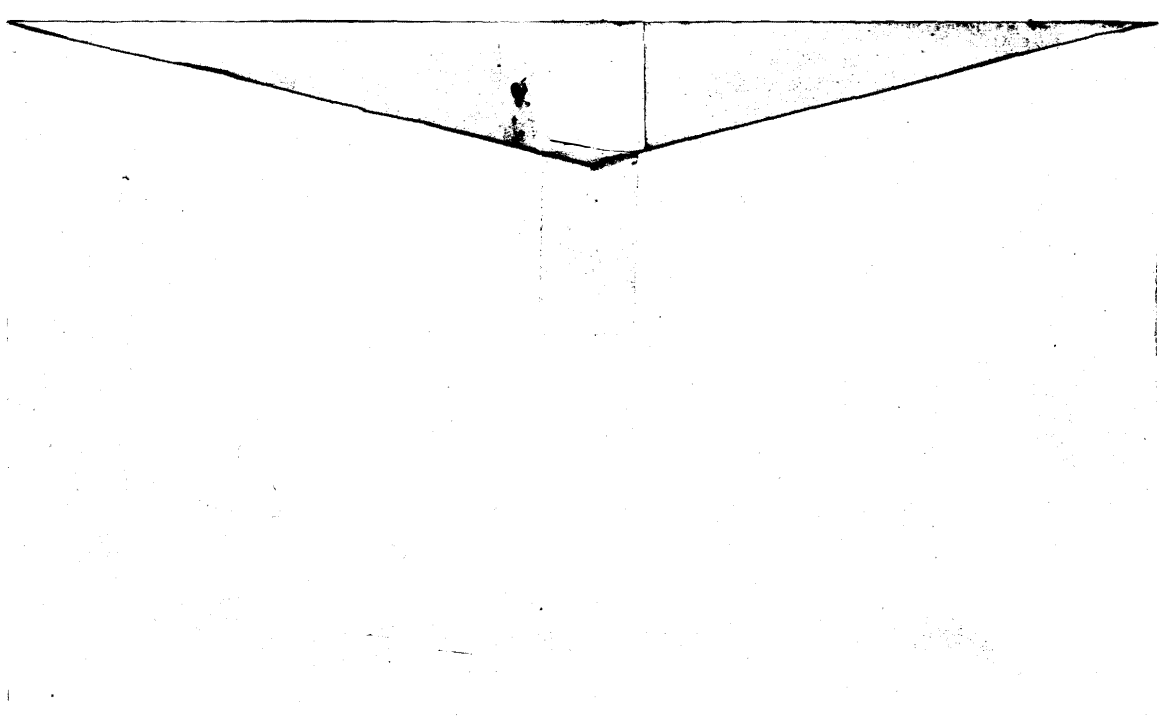


Figure 3. Public health statistics (June), 1974.

Louisiana Health & Social & Rehabilitation Services Administration

LHSRSA

PUBLIC HEALTH STATISTICS

Anthony Ciaccio, Director
Bureau of Vital Statistics

William H. Stewart, M.D.,
State Health Officer

Published by: DIVISION OF TABULATION AND ANALYSIS

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THE LOUISIANA NUTRITION SURVEILLANCE PROGRAM

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The Louisiana Health and Social and Rehabilitation Services Administration, Division of Health Maintenance and Ambulatory Patient Services, Nutrition Section, with the efforts of other health personnel in Louisiana, is continuing to implement a new and challenging health tool for geographical identification of nutrition problems. This tool should be of use in the development and evaluation of health programs throughout the state.

The Ten State Nutrition Survey in 1968-1969 identified such nutritional problems as anemia, malnutrition, and growth rate deficiencies. The data collected by the nutrition surveillance program have and will enable Louisiana to compare the indices of nutritional status such as height, weight, and hemoglobin levels of the sample population with different subsections within the state. In this article, the graphs present data collected for the second six month reporting period of the Early Periodic Screening, Diagnosis, and Treatment (EPSDT) Program. The staff in EPSDT clinics determine indices of of individual health status of children from families receiving Aid to Families with Dependent Children. Their data are used for the nutrition surveillance program.

Data from the first six month period were graphically illustrated and discussed in the October, 1973 Louisiana Monthly Morbidity Report. This article includes a discussion of the most recently compiled data (July-December, 1973) as well as a variety of comparisons of the two six month reporting periods. An attempt will be made to better understand the data by interrelating it with aspects of general nutrition and health.

By recommendation of the American Academy of Pediatrics the indices of nutritional status that were used for the EPSDT portion of the Surveillance Program included: height, weight, and hemoglobin, and/or hematocrit levels of a given child. The current World Health Organization (WHO) standards with revised age divisions were used to define low hemoglobin (Hgb.) and hematocrit (Hct.) values.

WHO STANDARDS

Age in Years	Low Hct.	Low Hgb.
Under 1	< 31%	<10 gms.
1	< 31%	<10 gms.
2 - 5	< 34%	<11 gms.
6 - 13	< 37%	<12 gms.
>14 (Male)	< 40%	<13 gms.
>14 (Female)	< 37%	<12 gms.

In the first six month reporting period, standards for hemoglobin and hematocrit from the Ten State Nutrition Survey were used.

TEN STATE SURVEY STANDARDS

Age in Years	Low Hct.	Low Hgb.
Under 2	< 31%	<10 gms.
2 - 5	< 34%	<11 gms.
6 - 12	< 36%	<11.5 gms.
13 - 16 (Male)	< 40%	<13 gms.
13 - 16 (Female)	< 36%	<11.5 gms.
>16 (Male)	< 44%	<14 gms.
>16 (Female)	< 38%	<12 gms.

Program expansion to the age of 17 years requires a division by sex in the older age groups. The previous reporting period simply included children of less than one year to nine years of age. This division will help health personnel to better pinpoint nutritional problems in certain age and sex categories.

For a clearer understanding of areas of greatest nutritional needs and health problems, the state has been divided into regions and metropolitan areas. Sixty-one parishes are represented in this report. Lincoln, Orleans, and Plaquemines were not participating during this reporting period.

The regions and parishes included in each area are the following:

REGION I - Caddo, Bossier, Webster, Claiborne, DeSoto

REGION II - Bienville, Natchitoches, Red River, Sabine

REGION III - Union, Jackson, Caldwell, Franklin, Tensas, Grant, LaSalle, Catahoula, Concordia

REGION IV - Morehouse, West Carroll, East Carroll, Ouachita, Richland, Madison

REGION V - Winn, Rapides, Avoyelles, Pointe Coupee

REGION VI - Vernon, Beauregard, Allen, Evangeline, St. Landry, Acadia, Calcasieu

REGION VII - Cameron, Jefferson Davis, Vermilion, Lafayette, St. Martin, Iberia, St. Mary, Terrebonne

REGION VIII - Ascension, St. James, St. John, St. Charles, Lafourche, Iberville, Assumption, St. Bernard

REGION IX - East Feliciana, St. Helena, Tangipahoa, Washington, St. Tammany

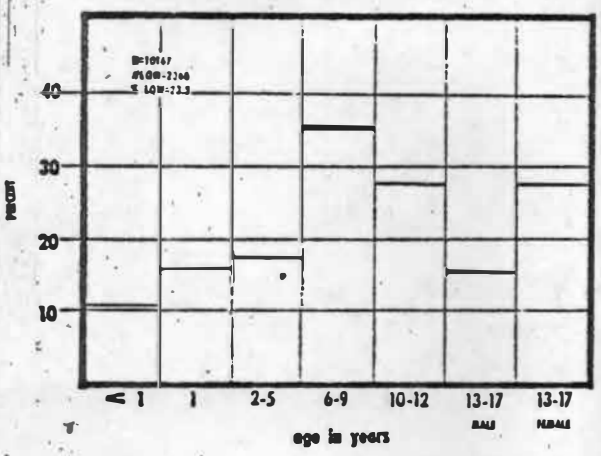
REGION X - West Feliciana, East Baton Rouge, West Baton Rouge, Livingston

METROPOLITAN PARISHES
Caddo, Ouachita, Rapides, Calcasieu, East Baton Rouge, and Jefferson Parishes.

In most regions and metropolitan areas, hemoglobin values are used to demonstrate iron levels; some areas use hematocrit values and a few report both types of information.

The percent of low hemoglobins for the entire state is shown in Figure 1. The 6 - 9 year old group shows the greatest percentage with low hemoglobins. This fact was also illustrated in the first six month reporting period but was questioned because of the small sample size in this age grouping. The high percentage, 35.8 percent, although a slight decrease from the last reported data, is consistent with the past findings of the surveillance program and the Ten State findings of more than 40 percent in this approximate age range with documented anemia. Different standards were used to define hemoglobin and hematocrit values for this age grouping for the Ten State Survey, but similar findings are still evident (refer to standards). With progression of age up to 9 years there is an increase in the percentage of children with low hemoglobin levels, but the findings for the older age groupings are also quite poor.

FIGURE 1
PERCENT LOW HEMOGLOBIN BY AGE
LOUISIANA SURVEILLANCE PROGRAM JULY–DECEMBER 1973



In comparing the data for the two reported periods, there is an overall decrease in the percentage with low hemoglobins for children of 1 to 9 years of age. Regional nutritionists become involved in the treatment plan through referrals for dietary evaluation and counseling when malnutrition is identified. Oral iron is usually administered to patients with identified anemia in addition to the dietary counseling. Local nursing staff assume the responsibility for dietary counseling if a nutritionist is not present. No substantial change in anemia is evident in the less than 1 year grouping. This age grouping should be most representative of the screened population because they are new cases and have had little opportunity to experience any benefit from the program. The sample size of 10,167 increased by almost 4,000 children. The state average of low hemoglobin level of 23.3 percent is slightly higher than the 20.4 percent noted the first six months.

No comparison can be made concerning the statistics on indications of iron levels for the 1 - 17 age ranges because they were not seen during the first reporting period. Separation of EPSDT data by sex and age gives a clearer picture of the nutritional problems within certain groups. Data for the 10 - 12 year old children were approximately the same, so an average of both sexes is given. The age range between 13 - 17 shows a more defined difference by sex grouping and has been subdivided for this purpose.

Averaged hemoglobin data from the two periods illustrate little variation with no age grouping varying above 1 percent, so basically the reported findings are identical except for a slight decrease in all ages above one year. There was a minimal increase in the below one age grouping, but again this group is composed of cases without the benefit of nutritional counseling or iron supplementation.

FIGURE 2
PERCENT LOW HEMOGLOBINS BY REGION JULY–DECEMBER
(1–9 YEARS)

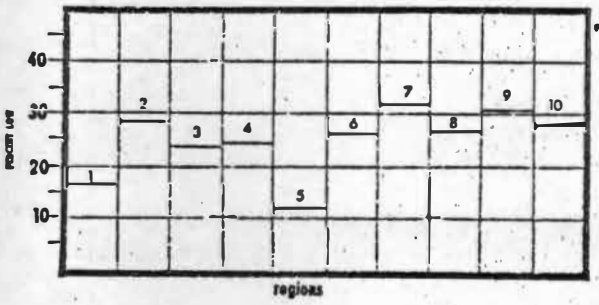
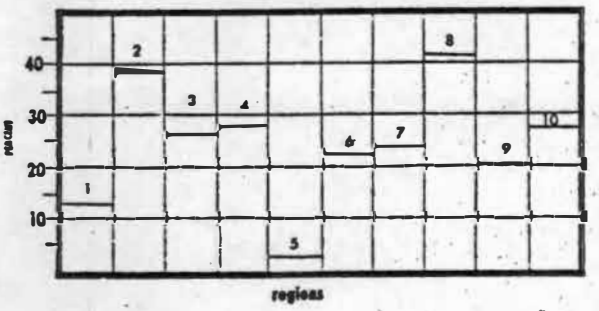


Figure 2 shows the subdivisions of the state into ten regions and depicts the percentages of birth - 9 year olds with low hemoglobins. Seven out of the ten regions had a considerable increase of percentages with low hemoglobins as compared to the previous reporting period. Region V has a small sample size. For this reporting period, Region I had a slight decrease in the percent with low hemoglobin levels compared to the first report. Region VIII remained the same. Regions II, VII, and IX had very high percentages of this age group that are low and point out areas of needed nutrition programs and intervention.

FIGURE 3
PERCENT LOW HEMOGLOBINS BY REGION JULY–DECEMBER 1973
(10–17 YEARS)



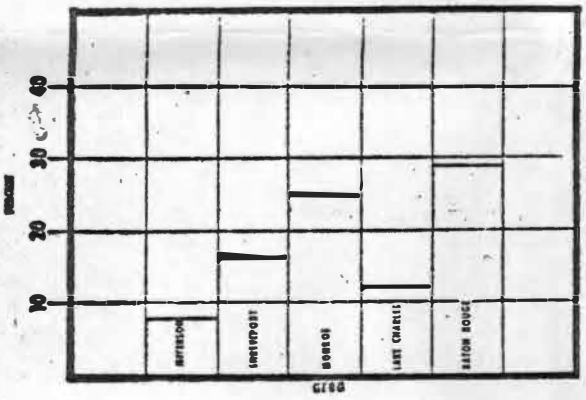
In Figure 3 the percentages of 10 - 17 year old children with low hemoglobins for the different regions are illustrated. All of the regions show poor results. Once again, the low percentage of Region V may be misleading because of small sample size. There are no comparisons

that we can make in regards to the data for the older age groupings due to the lack of previously reported data. The initial results from this age group are much worse than expected. Viewing the data seems to point out two main problem areas in Regions II and VIII.

Each region in Figures 2 and 3 can be compared to the state average of low hemoglobins of 23.3 percent. In the birth - 9 age grouping few regions fall below this 23.3 figure. The 10 - 17 age group picture is better, but half of the regions are above the state average of low hemoglobins.

The metropolitan areas offer a more positive picture of hemoglobin levels. Figure 4 depicts the percent of children age 1 to 9 years of age with low hemoglobins in the different metropolitan areas. The sample size of Alexandria was too small to allow for a representative picture. Once again, as in the last six month period, Jefferson Parish has a smaller percentage falling into the low hemoglobin group than any other metropolitan or regional area.

FIGURE 4
PERCENT LOW HEMOGLOBINS BY METRO AREA (AGE 1-9 YEARS)
JULY—DECEMBER 1973

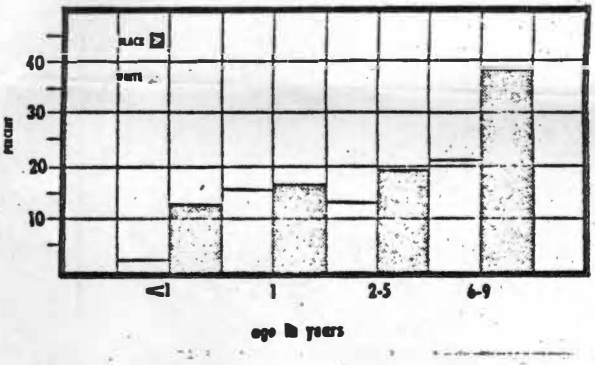


In a comparison of metropolitan data for the two reporting periods, Shreveport and Lake Charles had a considerable decrease in the percentage with low hemoglobins. On the other hand, Monroe and Baton Rouge had large increases in their percentages; this fact may have been due to better reporting and increased sample size. Although anemia is more common among rural populations in Louisiana the data presented for the different metropolitan areas illustrates growing nutritional anemia problems within the big cities of Louisiana. Due to the lack of data and small sample sizes, the presentation of data for the percentage of children with low hemoglobins age 10 - 17 years has been eliminated.

Breakdown by ethnic group is another important aspect in identifying problem areas and nutrition needs. The black children represent the majority of the sample and in some instances have twice the percentages of low hemoglobin levels. Children between the ages of 6 - 12 especially reflect this finding.

Figure 5 shows the percentage of low hemoglobins by age and race of children from birth to 9 years of age. The 6 to 9 year old group has the highest percentage of low hemoglobins. In relationship to the previous reporting period this fact was also found to be true, but was thought to be misleading due to the small sample sizes. The data from the first and second reporting periods indicate that both sets of statistics for the ages 6 to 9 black children are consistent, but this same set of data reflected lower trends for white children with low hemoglobin levels. The 6 to 9 age group is a real nutritional problem area in regards to low hemoglobin levels; this finding was not expected.

FIGURE 5
PERCENT LOW HEMOGLOBINS BY AGE AND RACE
JULY—DECEMBER 1973 (1- 9 YEARS)

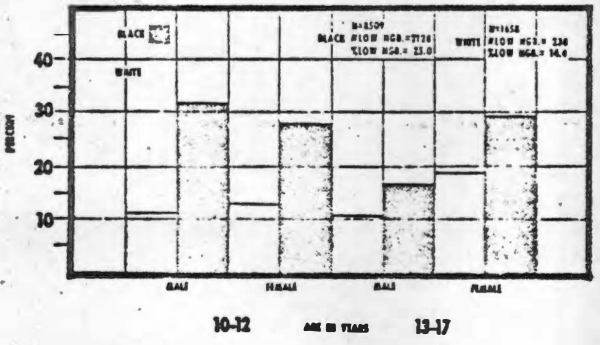


An overall picture of the graph in Figure 5 illustrates a slight increase of incidence of low hemoglobin levels as age increases. In comparing the two reporting periods, one of the major differences is a considerable decrease in percentages of low hemoglobin levels of black children, except for those in 6 - 9 age bracket. This decrease may be a result of nutrition counseling and iron supplementation through the medical component of the EPSDT clinic structure.

The data in Figure 6 depict the percent low hemoglobin by age, race, and sex of children 10 - 17 years of age. Again blacks tend to have the higher percentages of low hemoglobin levels, especially in the 10 - 12 age ranges. No comparisons with previous data can be made because screening was not done for the 10 - 17 age range

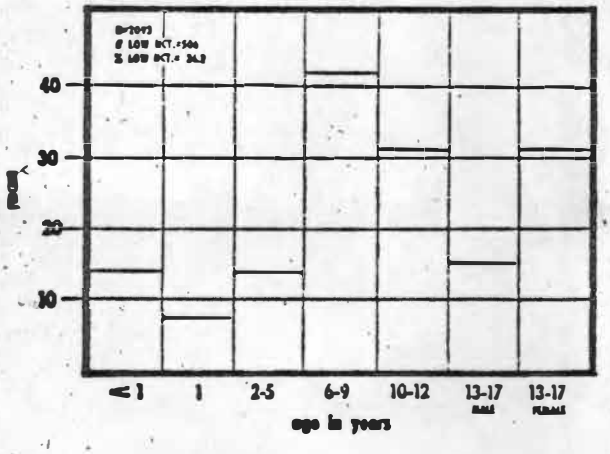
during the first reporting period. The sex breakdown illustrates special nutritional problem areas of females 10 - 17 years of age and black males 10 - 12 years of age.

FIGURE 6
PERCENT LOW HEMOGLOBINS BY AGE AND RACE AND SEX
JULY—DECEMBER 1973 (10—17 YEARS)



In Louisiana, the hematocrit levels have been better in the two reporting periods of EPSDT data than overall hemoglobin levels. Hematocrit procedures are performed in few areas, although the state total is significant. Figure 7 presents the state picture. The percent of the total with low hematocrits is 24.2 percent. This figure is considerably higher than the 15.9 percent figure reported in the first six month reporting period.

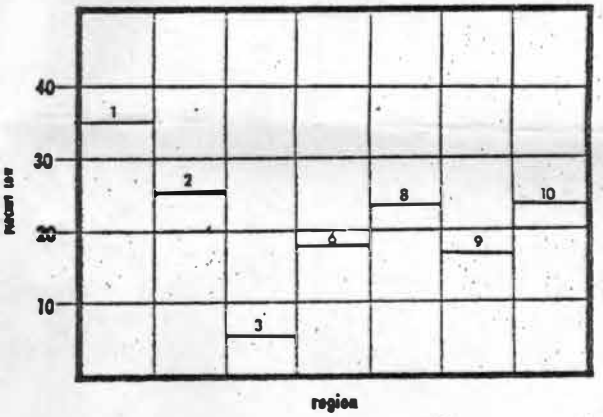
FIGURE 7
PERCENT WITH LOW HEMATOCRITS BY AGE
JULY—DECEMBER 1973



In comparing the reporting periods, the current report illustrates a considerable decrease in the percentage of children 1 to 5 years of age with low hematocrits. The 6 to 9 year old age grouping is almost 10 percent higher than the data reported in the previous period, but this increase may have been due to the small sample size of the first reporting period. Once again, no comparison can be made in relationship to the 10 - 17 year old groupings, but the high percentages of the 10 - 12 year olds and the 13 - 17 year old females illustrate problem solving areas for nutrition intervention.

The regions that provide hematocrit data are shown in Figure 8. The contrast noted in the hemoglobin and hematocrit levels can be illustrated by comparisons of region to state and region to region. Region I, depicting such a high percentage with low hematocrit levels, and Region IX have not been previously reported. In comparing the data from the two reporting periods, the overall trend seems to follow considerable increases in percentages with low hematocrits. Regions I, II, VIII, and X reveal poor results displaying needs for further follow up and health programs.

FIGURE 8
PERCENT LOW HEMATOCRITS BY REGION
JULY—DECEMBER 1973 (1— 9 YEARS)



The use of racial divisions of hematocrits illustrates the fact that the prevalence of anemia in black to white children is approximately 2 to 1, as seen by hemoglobin levels. Figures 9 and 10 depict the percent with low hematocrits by race, age, and sex for the second reporting period. A comparison of sample size for the population indicates that the black sample is over five times that of the white sample. A similar situation existed concerning this same population in the previous reporting period. The average percentage with low hematocrits is 26.1 percent for the black children and a considerably lower figure of 15.3 percent for the white. A comparison of the two reporting periods illustrates a similar trend in percentage low hematocrit findings for the children between the ages of 2 to 17 in that approximately twice as

many black children are anemic as compared to the percentage of white children.

FIGURE 9
PERCENT WITH LOW HEMATOCRITS BY RACE AND AGE
JULY—DECEMBER 1973

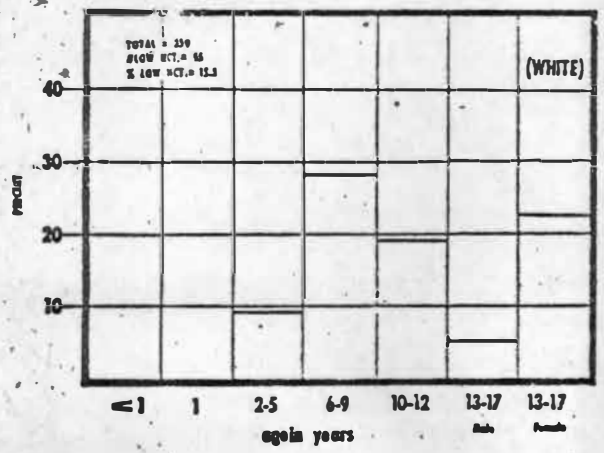
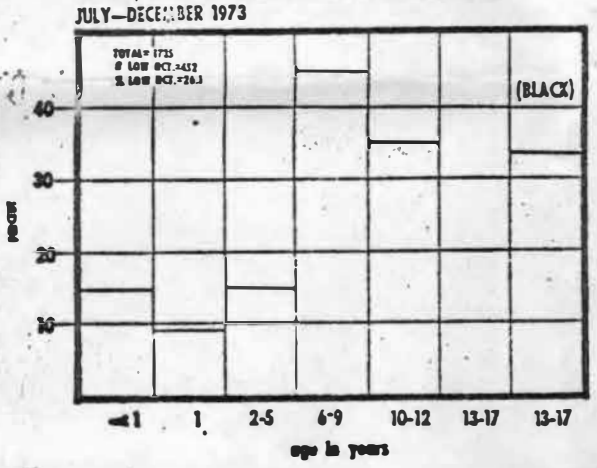


FIGURE 10
PERCENT WITH LOW HEMATOCRITS BY RACE AND AGE
JULY—DECEMBER 1973



The data for the second reporting period depict a considerable decrease in the percentages of both white and black children with low hematocrits between the ages of 1 to 5 years of age. The white sample for age birth to 2 was small and no cases were reported. Data for the under 1 year old black children indicate a slight increase in the percentage with low hematocrits, when compared to the first reporting period.

Although the medical component of the EPSDT program may be affecting both black and white populations, as evidenced by decreasing hematocrit percentages within specific age groupings, a look at the 6 to 9 year old children reveals a definite problem for nutrition consideration. The findings of the Ten State Survey and this nutrition surveillance program are similar although the Ten State Survey was made more than five years ago. Many nutritional programs are geared toward infants, but the findings of the surveillance program indicate a definite need for more nutrition programs for adolescent children in the 6 - 9 age ranges.

Using the Stuart-Meredith growth standards, a comparison of height-weight data from the EPSDT reported population can be made. All of the height-weight data has been super-imposed upon these standards.

Figures 11 and 12 display height by race of Louisiana boys and girls under nine years of age. As seen in the previous reporting period a higher percentage of white children fall below the 5th percentile for height. Black children tend to have considerably lower percentages falling below this same level. In comparing the data of the two reporting periods the findings follow similar patterns for each category for height.

FIGURE 11
PERCENTAGE DISTRIBUTION BY HEIGHT FOR AGE CENTILES LOUISIANA BOYS UNDER 9 YEARS

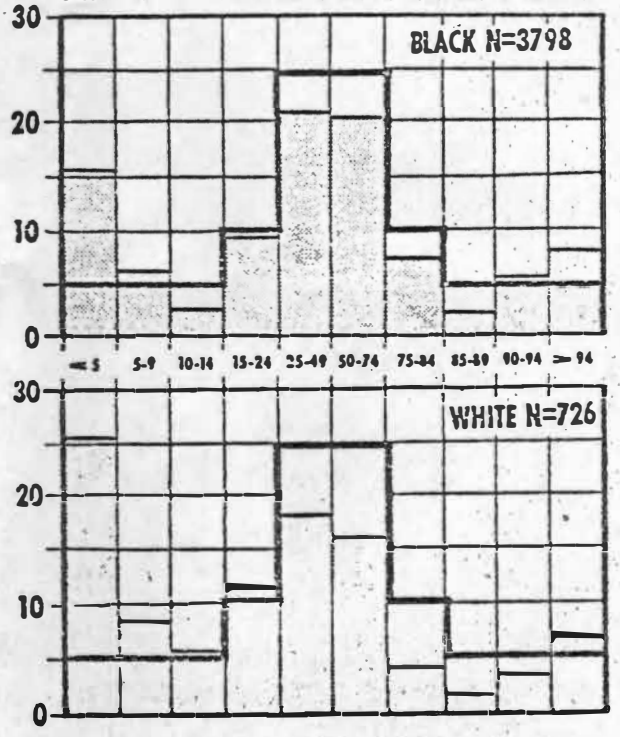


FIGURE 12
PERCENTAGE DISTRIBUTION BY HEIGHT FOR AGE
CENTILE LOUISIANA GIRLS UNDER 9 YEARS

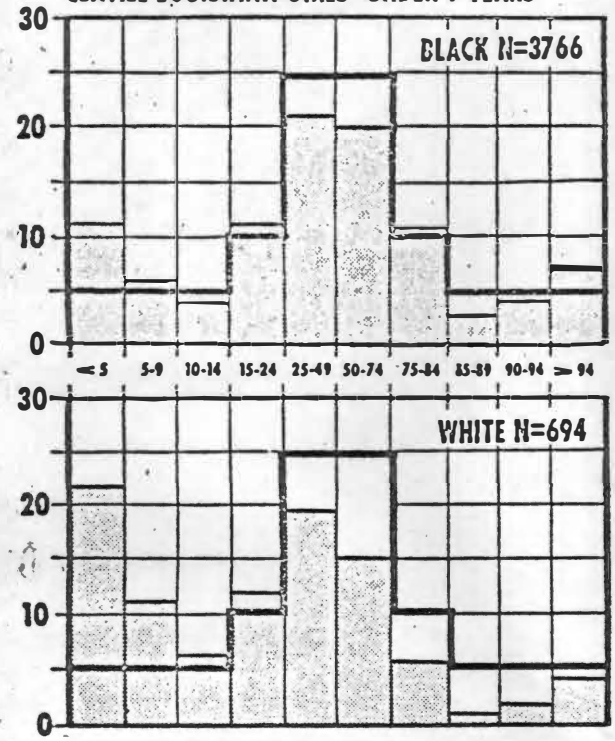
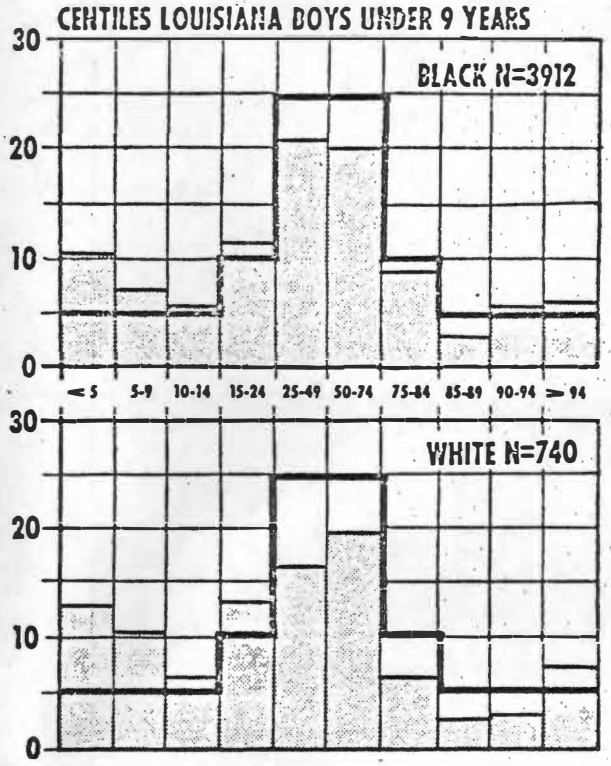


FIGURE 13
PERCENTAGE DISTRIBUTION BY WEIGHT FOR AGE
CENTILES LOUISIANA BOYS UNDER 9 YEARS

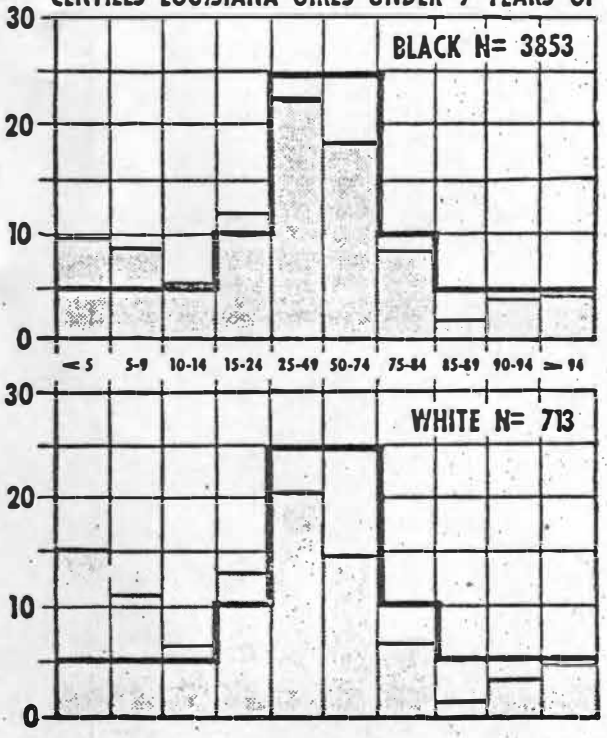


Basically, the same trends can be seen in a comparison of the weight data of EPSDT children under nine years of age. Figures 13 and 14 depict such data indicating large percentages falling below the 5th percentile. Once again, more white children are in the lowest percentile grouping for weight. A comparison of these data with the previously reported period indicates a decrease in the percentage of boys under nine years of age falling below the 5th percentile for weight, but the data for the girls indicate no such decrease.

Data collected for children birth to 17 years of age reporting both height-weight statistics by race and sex tend to illustrate similar growth patterns to the height-weight data presented in the first reporting period.

Development of nutrition and health programs to remedy growth problems within a certain age grouping or ethnic group is one of the most difficult jobs program planners have before them. The Louisiana surveillance program challenges them by identifying some of the problem areas and deficient children in specified age divisions.

FIGURE 14
PERCENTAGE DISTRIBUTION BY WEIGHT FOR AGE
CENTILES LOUISIANA GIRLS UNDER 9 YEARS OF AGE



Many new concepts have been developed in the field of nutrition in the past decade. Not all have been adaptable to resources available and have not been incorporated into the state's nutrition section. The exploration of the different concepts have led to new and successful means of nutrition management. Severe undernutrition reporting and nutrition surveillance are but two of this section's efforts at identifying problem areas. A feeding program developed for the nutritionally vulnerable is being managed through the section. The new Women, Infants, and Children (WIC) program should enhance positive nutritional trends reflected through the surveillance program. The high nutrient content of foods supplied through WIC during nutritionally critical periods of life should improve the poor health standards noted in the EPSDT clinics. Ten parishes are currently participating in this program with probable expansion expected this next fiscal year. Continued review of new or proven nutrition concepts for identification and intervention means will enable "best" methods for nutrition management to be utilized.

VITA

Nancy Lee Livers was born in Charleston, West Virginia, on May 12, 1948. Her father was a member of the U. S. Air Force. The family lived in many different locations throughout the United States during her adolescent years. The most notable experience was living three years in Alaska. She attended high school in Smyrna, Tennessee, and graduated from Smyrna High School in 1966. She received a Bachelor of Science degree in Elementary Education from the University of Tennessee, Knoxville, Tennessee, in March, 1972. Having completed prerequisites in September, 1973, she entered the Graduate School of the University of Tennessee with a Maternal and Child Health Service Fellowship (Children's Bureau Fellowship) to work toward a Master of Science degree in Nutrition.