December 11, 1970

To the Graduate Council:

I am submitting herewith a thesis written by Louise Johnson Bennett entitled "Observations and Experiences in the Nutrition Division, St. Louis County Health Department in 1970." I recommend that it be accepted for nine quarter hours of credit in partial fulfillment of the requirements for the degree of Master of Science, with a major in Nutrition.

Mary Nelle Trueba
Major Professor

We have read this thesis
and recommend its acceptance:

John T. Smith

Cyrus Mayshark

Accepted for the Council:

Vice Chancellor for
Graduate Studies and Research

OBSERVATIONS AND EXPERIENCES IN THE NUTRITION DIVISION, ST. LOUIS COUNTY HEALTH DEPARTMENT IN 1970

A Thesis

Presented to

the Graduate Council of

The University of Tennessee

In Partial Fulfillment

of the Requirements for the Degree

Master of Science

---

by

Louise Johnson Bennett

March 1971

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L. J. B.

ABSTRACT

This thesis is based upon observations and experiences during eight weeks with the Nutrition Division of the St. Louis County Health Department. The purpose of this field training was to supplement the academic phase of the program in public health nutrition at The University of Tennessee.

The field experience and the preparation of this report provided an opportunity for the student nutritionist to evaluate the health needs of a community and to observe the public health program which had been planned for that community. A varied schedule of activities with health department personnel was devised to familiarize her with the functions and responsibilities of other divisions and to develop an appreciation of the interrelationships of these divisions with nutrition. Visits with nutritionists in numerous allied health agencies located in the St. Louis area were arranged to increase the student's awareness of community and state programs. Involvement in the formulation and execution of an individual project and of cooperative services with public health nurses encouraged growth of professional competencies and also self-appraisal of performance.

Additional knowledge of interdisciplinary approaches to health care enabled the student to expand her understanding of the role of the nutritionist on a health team. Working with public health nurses and discussions with individuals involved in nursing education broadened her perspectives in this area.

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CHAPTER I

INTRODUCTION

The tremendous growth and technological development of our country in the relatively few years since its founding have made the United States of America a country admired throughout the world. We have the highest standard of living of any nation. In spite of our accomplishments, and to some extent because of them, the United States is faced with many problems. One of the most pressing problems is providing adequate health services. While the general concept of prosperity in this country would suggest the highest level of care for all our population, we need look only at the infant mortality rate to see that many needs are not being met. Even the prosperous find it more and more difficult to afford the continually increasing costs of medical care. For the indigent, there is little hope for health care unless it is provided by the government in the form of a public health service.

Because of the expansiveness of the problem, it is imperative that a broad spectrum definition of public health be accepted. Dr. C. Howe Eller states his definition of public health as "an organized effort--whether by an official or voluntary agency, lay or professional group, whose activities are aimed toward the promotion of health, prevention of mental or physical illness, or care and rehabilitation of those already ill or handicapped." (1)

At present the need for personnel to supply even minimal care through public health services cannot be met. Skilled manpower is lacking, and vacant posts can be found in many health departments. The colleges and universities of the nation, including The University of Tennessee, are helping to meet this need by training personnel to fill these vacancies. An invaluable aspect of the Public Health Nutrition program is the field experience which allows the student nutritionist to apply what she has learned in her academic program during a work experience of eight weeks in a health agency.

In order to direct the student during this period, certain objectives were identified prior to the field experience. They were:

1. To help the student strengthen her philosophy and understanding of and especially her identification with the profession of public health.
2. To provide a thorough understanding of a nutrition service within a health agency and to share with a public health nutritionist her daily activities and thereby gain an insight into how she performs her professional duties and renders nutrition services.
3. To apply her knowledge and abilities gained in the classroom to actual health agency situations, including cooperation with those within the agency as well as those in allied agencies.
4. To increase her competence through personal involvement in developing, planning, and executing activities with professional and nonprofessional groups and individuals.

5. To provide an opportunity for personal growth through self-appraisal of her performance.
6. To increase the student's knowledge of the role of the nutritionist in schools of medicine and nursing.

The remainder of this thesis will relate the history and characteristics of St. Louis County and its health program. In addition, an analysis of the activities and observations of the student during her experience in the summer of 1970 with the St. Louis County Health Department in Clayton, Missouri, is included.

CHAPTER II

FACTORS WHICH DETERMINE THE POLICIES AND PROGRAMS OF THE ST. LOUIS COUNTY HEALTH DEPARTMENT

In order to assess the needs of a community its past and present must be studied. The information from this study and projections for the future are utilized to identify the health needs of the area and to establish the most appropriate methods for meeting those needs. Part I of the chapter will provide background information describing the population of St. Louis County, Part II will include a discussion of the services of the public health department, and in Part III the nutritional aspects of the health problems and programs will be examined.

I. CHARACTERISTICS OF THE POPULATION

Vital and Biostatistics

Until World War II St. Louis County was recognized primarily as an agricultural community. With the outgrowth of the city of St. Louis following the war, the county has become progressively urban. The rise in population of St. Louis County from 1950 to the 1960 figure of 703,532 represented a 73.2 percent increase. The city figure at this point was 750,026, still slightly above that of the county. (2)

When the 1970 preliminary census figures were released, however, the county census revealed an increase to 947,231 while the city population decreased to 608,078. (3) Projected studies completed in September of 1968 predicted that county inhabitants would number 1,525,500 by 1990. (2)

St. Louis County is larger than some of our states, and even some independent nations. Within the state of Missouri there are 73 cities with more than 5,000 people; 28 of these cities are in St. Louis County. Within the boundaries of the 497 square miles included in the county, two-thirds of the population reside in municipalities, while only one-third live in unincorporated areas. (2)

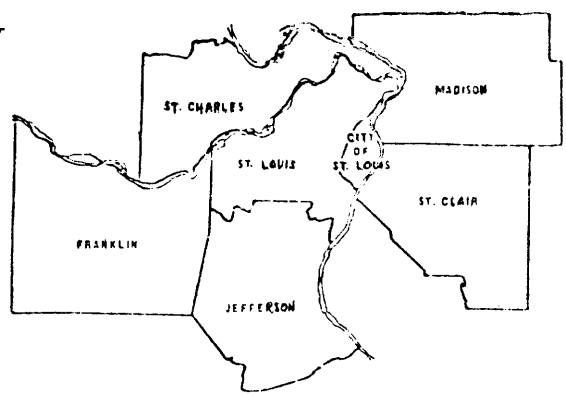
The county is bordered on three sides by the Mississippi, the Missouri, and the Merramec Rivers which are very vital to its economy. The eastern boundary surrounds the city of St. Louis. It is important that the relationship of St. Louis County to the city of St. Louis and the state of Missouri be recognized (Fig. 1). The division of the city and county and their proximity to the state border contribute to the conflicts that often arise in availability of services to the area inhabitants. (4)

The inhabitants of St. Louis County are slightly younger on the whole than those of the state of Missouri. The 12.4 percent of those four years and younger exceeds the state average of 10.8 percent. Likewise those 5 to 17 years of age comprise 25.7 percent of the population as compared with the 23.0 percent for this age group for the state. The percentage of residents over 65 years is lower in the county, 7.0, than in the state, 11.4. The number in the work force is then about equal to the number in the population who are either too young or too old to work. (2)

The population of St. Louis County is almost totally white with the percentage of the nonwhite population remaining constant from 1960 to 1968 at 2.8 percent. The birth rate for the two groups, however,

Missouri

St. Louis County - St. Louis City



Areas bordered on St. Louis County

Fig. 1 St. Louis County and its relation to the city of St. Louis, adjacent counties, and the state of Missouri.

varies considerably. The nonwhite rate in 1968 was 30.5 per 1000 population compared to 15.0 per 1,000 for the white rate. Most of the births were to mothers 20 to 34 years of age with nonwhite mothers generally younger than white mothers. The percentage of illegitimate births was considerably higher among the nonwhite population (31.3 percent) than among the white population (3.3 percent).

Table 1 provides an overall picture of the infant birth and death statistics for St. Louis County as compared to the city, state, and country. The county compares favorably in all categories.

The resident infant deaths in the county in 1968 numbered 239 for a rate of 16.5 per 1000 live births. The white infant mortality rate decreased only slightly from the 1967 rate, but the nonwhite rate appears remarkably reduced from 33.6 in 1967 to 16.2 in 1968. It must be noted, however, that the stillbirth rate doubled that year and there were very few nonwhite infant deaths (only 13). Such small numbers contribute to the great variability in the statistics. The greatest percentage of infant deaths occurred within the first week of life. The leading causes of death in descending order were: anoxic and hypoxic conditions, congenital anomalies, and infections. Only three maternal deaths were reported in 1968. These resulted from abortion and complications of pregnancy and the puerperium.

Nonwhite deaths comprised 5 percent of total deaths in St. Louis County in 1968. The rate for the year, however, increased to 11.8, as compared to 9.3 for the previous year. The white death rate was 7.0 per 1000 population. This higher death rate for the nonwhite population is also seen in the national pattern. The ten leading causes of death for

TABLE 1

Birth, infant mortality, stillbirth, and death rates for St. Louis County, the city of St. Louis, Missouri, and the United States, 1968

Rates	Rates per 1000 Population			
	St. Louis County	St. Louis City	Missouri	The United States
Birth	15.4[a]	17.1	16.5[a]	17.4[a]
Infant Mortality	16.5[a]	31.1	21.4	21.7
Stillbirth	14.2[a]	20.6	--	--
Death	7.1	13.6	11.5[a]	9.6[a]

[a]Provisional figures.

Source: St. Louis County Health Department 1968 Statistical Report of St. Louis County Health Department. St. Louis County Health Department, Clayton, Missouri.

1968 as shown in Table 2 differ from 1967 in only one respect. Deaths attributable to diabetes mellitus in the county rose from ninth position in 1967 to seventh, the same as the state rate in both 1967 and 1968.

Morbidity statistics indicate a consistent decline in the incidence of all communicable diseases. However tuberculosis and venereal disease still warrant continued surveillance. Increasingly the focus is shifting to the chronic diseases which are affecting large numbers of the population. (2)

Economic Characteristics

St. Louis County is located 50 miles west of the population center of the United States. This proximity to the marketing crossroads of the nation and the fact that the county has the physical space for expansion have been very important factors in the economic growth of the county.

A wide variety of industries and services are headquartered in the county. Missouri's largest industrial employer, McDonnell Corporation, is located here. The presence of three large automobile plants have made metropolitan St. Louis the second largest automobile center in the country. (4) Metropolitan St. Louis is the nation's only industrial area that produces the six basic metals and has in close proximity all of the materials necessary for the production of steel. (5)

Missouri is an agricultural state and St. Louis County reflects this in miniature. Many of the county's farms have been transformed into industrial sites and residential areas, but there are still approximately 700 working commercial farms which are valued at over $7.6 million. (4)

The proximity of St. Louis County to three rivers, the Mississippi, the Missouri, and the Merramec, assures adequate power and utilities to

TABLE 2

Ten leading causes of resident deaths with rates per 100,000 population for St. Louis County, 1968

Cause of Death	Rate
1. Diseases of Heart	262.3
2. Malignant Neoplasms	134.7
3. Cerebrovascular Diseases	70.7
4. Accidents	36.8
5. Symptoms, Senility and Ill-Defined Conditions	24.6
6. Pneumonia	20.0
7. Diabetes Mellitus	16.1
8. Certain Causes of Perinatal Morbidity and Mortality	15.8
9. General Arteriosclerosis	13.8
10. Cirrhosis of Liver	9.8

Source: St. Louis County Health Department 1968 Statistical Report of St. Louis County Health Department. St. Louis County Health Department, Clayton, Missouri.

new industries. Underground gas reservoirs and communication systems which are available in the county also attract industry. Flood control measures will considerably increase the land capacity of the county and make available even more room for expansion. (4)

Seventy percent of the work force in the county are men employed by manufacturing firms. Other areas of employment include wholesale and retail trade, public service and administration, finance, and education. Only a very small portion of the population are engaged in construction or agriculture. This is emphasized by a white collar force of 55.7 percent of the total workers. It is interesting to note that 52.4 percent of those employed work outside the county. (6)

The median family income of St. Louis County in 1959 as reported by the U. S. Bureau of Census was $7,527 or a per capita income of $2,561. The more recent figure from the Comptroller General of the United States in 1966 is $4569 per capita. In 1959 only 7.2 percent of the county's families grossed less than $3000 per annum with 26.7 percent of the population earning $10,000 or more. This high average tends to mask the problem that does exist in the poverty segment of the population. (6)

History and Government

For the first 25 years after its founding in 1764 by Pierre Laclede, St. Louis was known as Laclede's Village. It began as a trading post and grew to become the last stop for traders and pioneers embarking on their journeys to the West and Northwest territories. St. Louis is still referred to as the "Gateway to the West."

President Thomas Jefferson purchased the Louisiana Territory from France in 1803. The following year St. Louis was made the seat of government for the Territory. In 1812 both the territory of Missouri and St. Louis County officially came into being. Nine years later Missouri was admitted to the Union. (6) In addition to the first French settlers, German and Irish immigrants contributed to the rapid growth of the area. (7)

Disagreements over money and governmental powers and the desire for "home-rule" finally resulted in the separation of the city and county. In 1875 the Missouri Legislature declared St. Louis County separate from the city of St. Louis. The voters ratified this act, and soon the commissioners had several offers of free land for the new county seat. Ralph Clayton's offer of 100 acres was accepted and confirmed by popular election. It was agreed that the new town should be called Clayton in honor of its donor.

This setting of boundaries proved to be a problem for St. Louis in later years when the city was growing and yet unable to annex additional sections of the county for expansion. Later attempts to merge or form a more efficient governing system have not succeeded in finding favor with a large enough proportion of the population to be approved. Consequently a great deal of overlapping of service has resulted. St. Louis County is now responsible in some part to 168 separate taxing entities, ranging from the county government itself to a Sidewalk District and a Soil and Water Conservation District. It is this situation that has resulted in the phrase the "Jurisdictional Jungle" which is often used to describe the county. (6)

The St. Louis County Government is directed by a County Supervisor and seven County Council members. The 1968 Charter contains the new governmental organizational charts shown in Fig. 2. Contrary to the 1950 Charter the supervisor now has the authority to appoint, with the approval of the council, the heads of all departments except the Police Department. The Merit System was retained by this charter for the majority of the county employees. The new charter is accepted by most county residents as establishing intelligible and easily-identified lines of authority for a more progressive government. (2)

Social and Educational Characteristics

The county of St. Louis has undergone a great deal of change in the last three decades. The population of the county has increased drastically due to the influx of inhabitants from small towns and rural areas. The county has long been recognized for its diversity and is composed of a heterogenic population of various national, religious, and ethnic backgrounds. The county is comprised primarily of "white, middle class" people. (2)

More than 80 percent of the families in the county own their own homes, but multi-family apartment units and the newer condominiums are increasing. While it is difficult to designate a specific area of the county that is composed of a low socio-economic class, the municipalities of Kinloch, Wellston, Valley Park, and several unincorporated areas, designated in Fig. 3, do contain the largest percentage of the county's poor and, consequently, are primarily deprived neighborhoods.

Commensurate with the high income level of the majority of the residents previously discussed, a high educational level would be

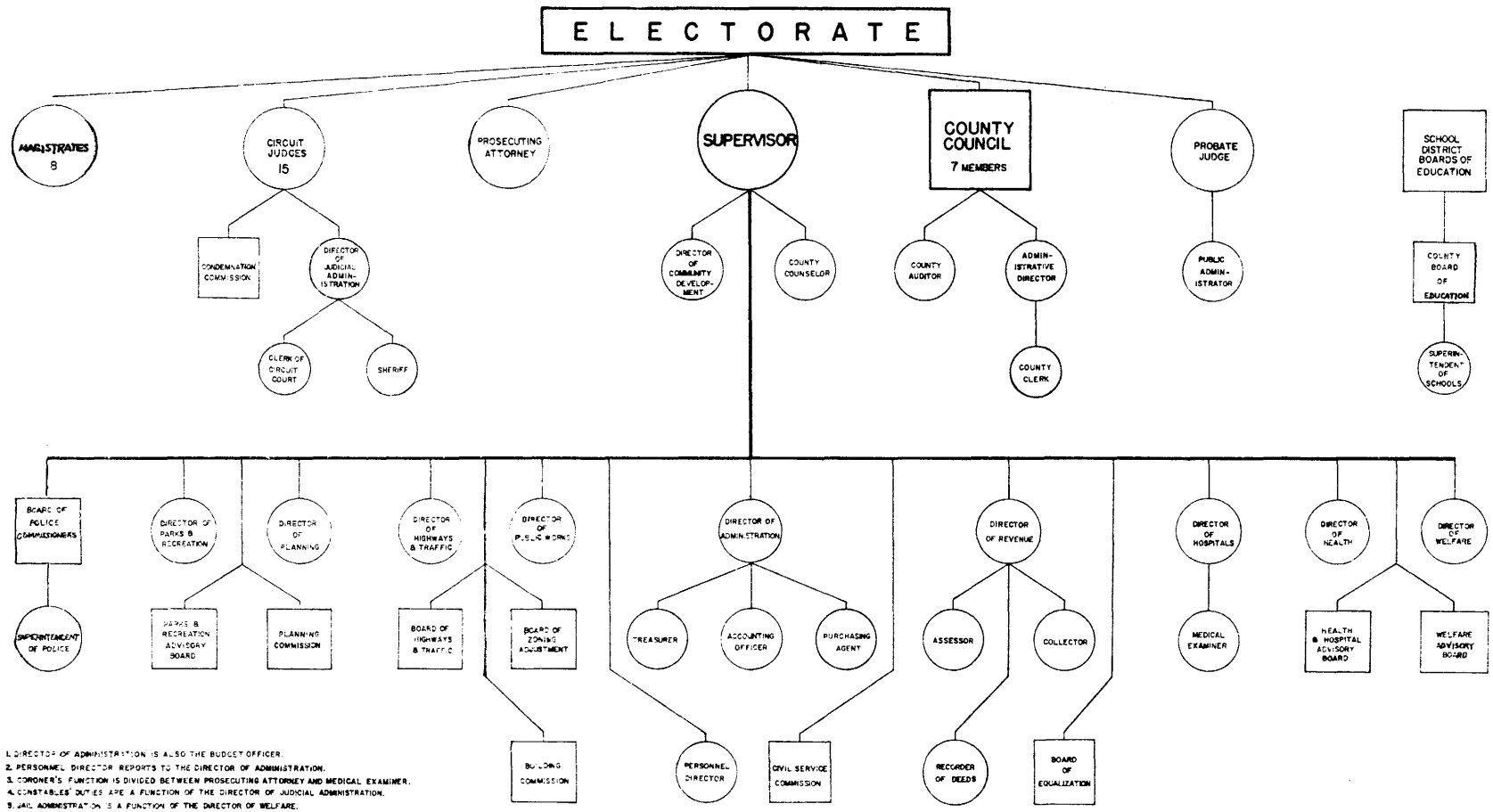
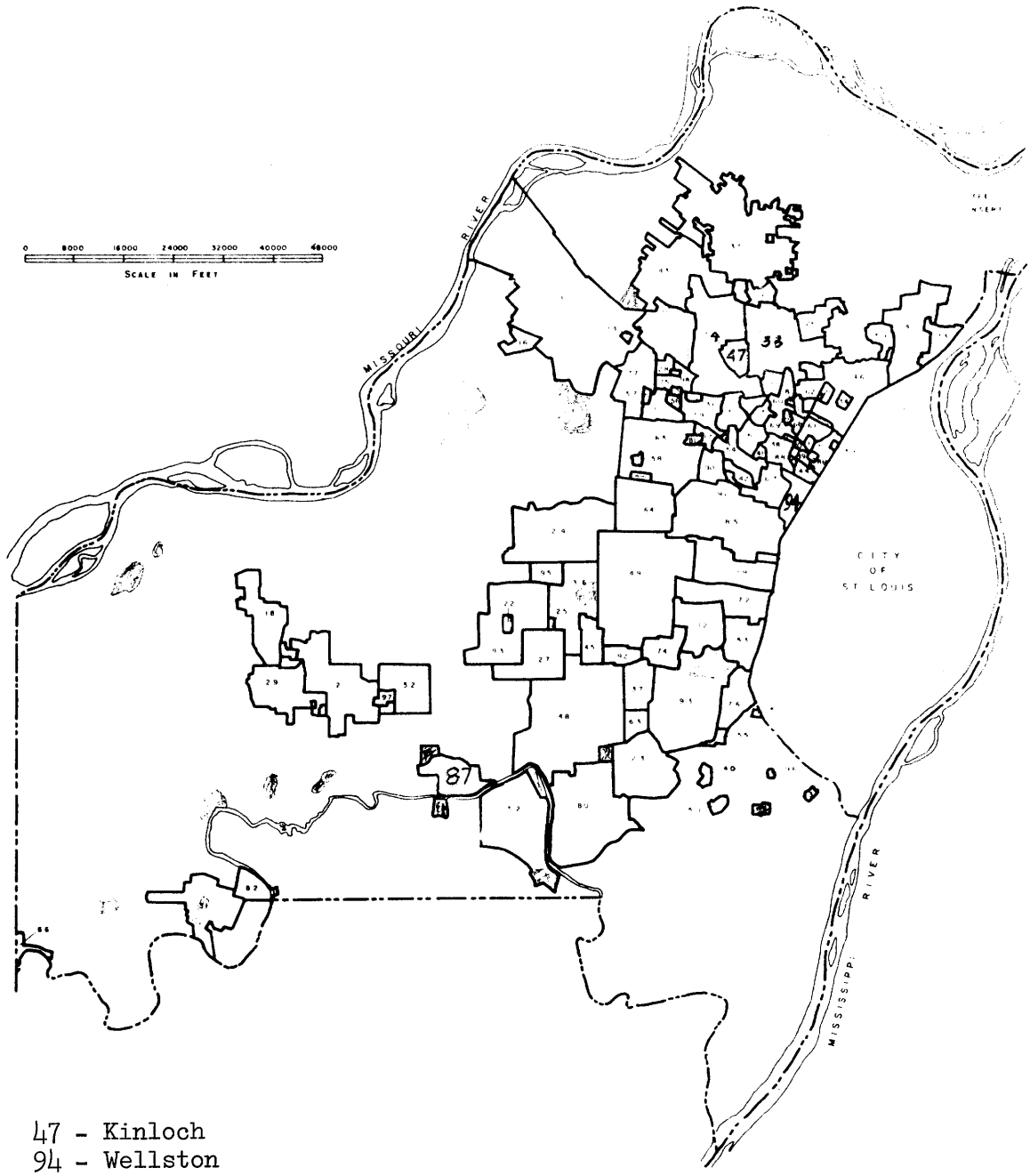


Fig. 2 St. Louis County Government Organizational Chart

Source: Cohn, R. A. 1968 The History and Growth of St. Louis County, Missouri. St. Louis County, Clayton, Missouri.



47 - Kinloch
94 - Wellston
87 - Valley Park
■ - Unincorporated Areas

Fig. 3 Deprived municipalities and unincorporated areas of St. Louis County.

Source: Cohn, R. A. 1968 History and Growth of St. Louis County, Missouri. St. Louis County, Clayton, Missouri.

expected. The following data confirm this observation. The median number of school years attended was 11.7. Only 3.5 percent of the 1959 population had less than 5 years of formal education and 48.4 percent had completed high school. (6) The county residents also take advantage of many adult education courses offered. (4)

Population statistics indicate that the residents are largely young families. These families tend to be child-centered, and there are few working mothers. Leisure time is spent enjoying the many cultural, educational, and recreational facilities provided by the county. With the increase in leisure time and increased mobility, the need for even more extensive park facilities has been recognized and proposed by the St. Louis County Planning Commission. (8)

II. ST. LOUIS COUNTY HEALTH DEPARTMENT

As with most of the other public services in St. Louis city and county, public health and sanitation services are provided separately. Examination of health services for the city and county in 1958 by the American Public Health Association showed that this situation was effective for the community. Closer cooperation was encouraged in some areas.

Development of the Department

The general function of the St. Louis County Health Department has not changed since its establishment in 1926; namely, to meet the public health needs of everyone living in the county, and not just the few. At the time of its establishment the primary problem was the control of communicable diseases, specifically tuberculosis. Deaths

were not infrequent since resources for tackling the problem were so limited. In the beginning, a staff of only six were responsible for providing medical care to the indigent and jail patients, quarantining contagious diseases, and making sanitary inspections.

Today the problems that must be overcome in providing for the public health are vastly different than they were in 1926. Facing and solving these problems has required much ingenuity and persistence. The growth in population and diversity of services required has resulted in a staff which numbers 300 and includes men and women trained to provide specific health services, such as physicians, dentists, public health nurses, engineers, sanitarians, veternarians, sociologists, psychologists, medical and psychiatric social workers, health educators, nutritionists, satisticians, X-ray technicians, and laboratory personnel. Today efforts are centered upon prevention and control of communicable diseases; protection of the health of mothers and children through appropriate medical, dental, nursing, and nutrition programs; and prevention of chronic illness and long-term disabilities. Other services offered are: environmental health evaluation and consultation, aid to emotionally disturbed or mentally handicapped children through mental health programs, maintenance and evaluation of vital records, education of the public concerning health problems and the means available for eliminating them, and research to develop solutions to existing public health problems. (9)

Organization and Administration

The basic structure of the St. Louis County Health Department is provided for in the Home Rule Charter adopted in April 1968.

C. Howe Eller, M.D., Dr. P.H., the Commissioner of Health in St. Louis County, was appointed in 1959 by the County Supervisor. The commissioner directs and coordinates the health department staff in the county public health program. (10) As an active commissioner he supports his professional organizations and the progressive development of the area he serves. In addition, Dr. Eller holds an appointment as Professor of Public Health at Washington University Medical School. He has authored and co-authored many publications.

The Health and Hospital Advisory Board is composed of nine county residents, two but no more than four of whom must be licensed medical practitioners. A dentist is also appointed to the board. The board members receive no pay and are appointed for three-year terms. (11) The organizational chart shown in Fig. 4 reflects the March 1968 reorganization of the department to include an Assistant Commissioner for Environmental Health. At this time the Sanitation Division was revamped and is now included under the Division of Environmental Services. Each division is headed by a supervisor who directs its activities and works with the other division supervisors to coordinate the services of the department. Each supervisor is directly responsible to the Health Commissioner except in the Division of Preventive Medicine and Departmental Services. In these divisions, each program supervisor is responsible to the commissioner. All health department personnel, with the exclusion of the commissioner, are employed under the merit system.

In the political system of municipalities in St. Louis County, the health department has autonomous power only in the unincorporated

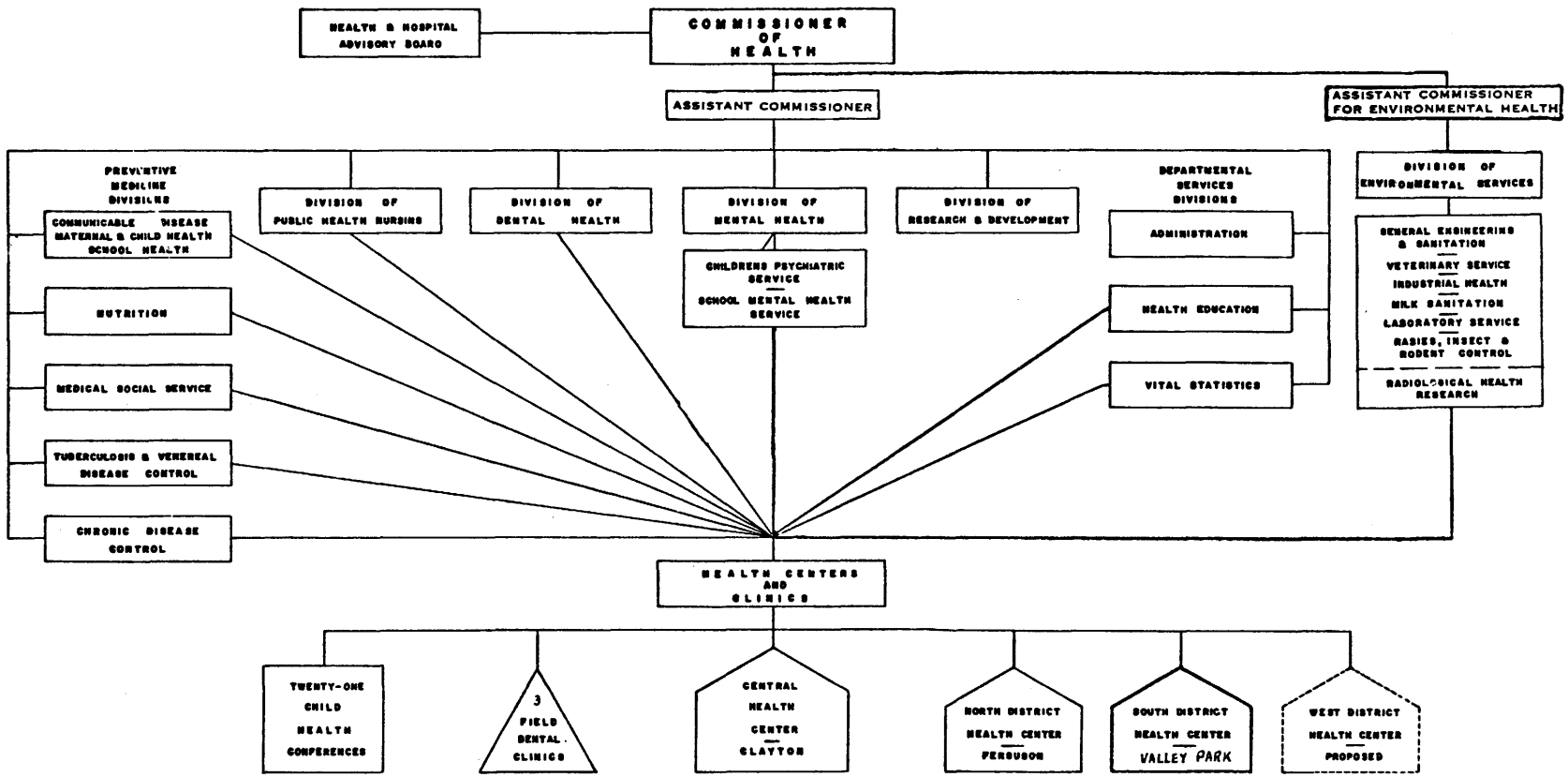


Fig. 4 Organizational Chart of the St. Louis County Health Department.

Source: 1970 St. Louis County Health Department, Clayton, Missouri.

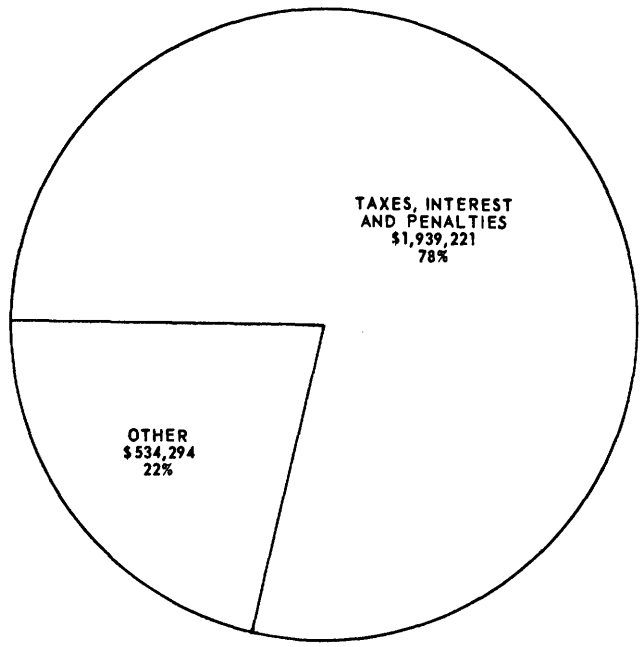
sections of the county. In these areas the St. Louis County Health Department supplies all health services. Vital statistics, chronic disease control, and preventive medical services, however, are provided for all county residents.

Some municipalities have chosen to provide health services individually. This pattern necessarily results in varying levels of health care because of the differences in size and wealth of the municipalities. In an attempt to equalize the health services in the county, the St. Louis County Health Department decided in 1952 to make its services, such as sanitation, available through contracts with the municipalities which are legalized by the payment of a minimal, one-dollar-per-year fee. Other services, such as dental care in the schools, can also be contracted on a per hour or per patient basis.

There are three health centers in the county which provide health services. The central office in Clayton and the north office in Ferguson have permanently based staff while the south office in Valley Park is fully manned only at designated clinic times by personnel from the central or north office.

Budget

The budget for the St. Louis County Health Department in 1970 is $2,538,675; an estimated 5 percent increase will be required for 1971. The 1969 revenues from general property taxes, licenses and permits, interests, state aids, and charges for health services were $2,473,515. As can be seen in Fig. 5, the largest portion of the income is from county taxes. The 1969 tax rate was eight cents per



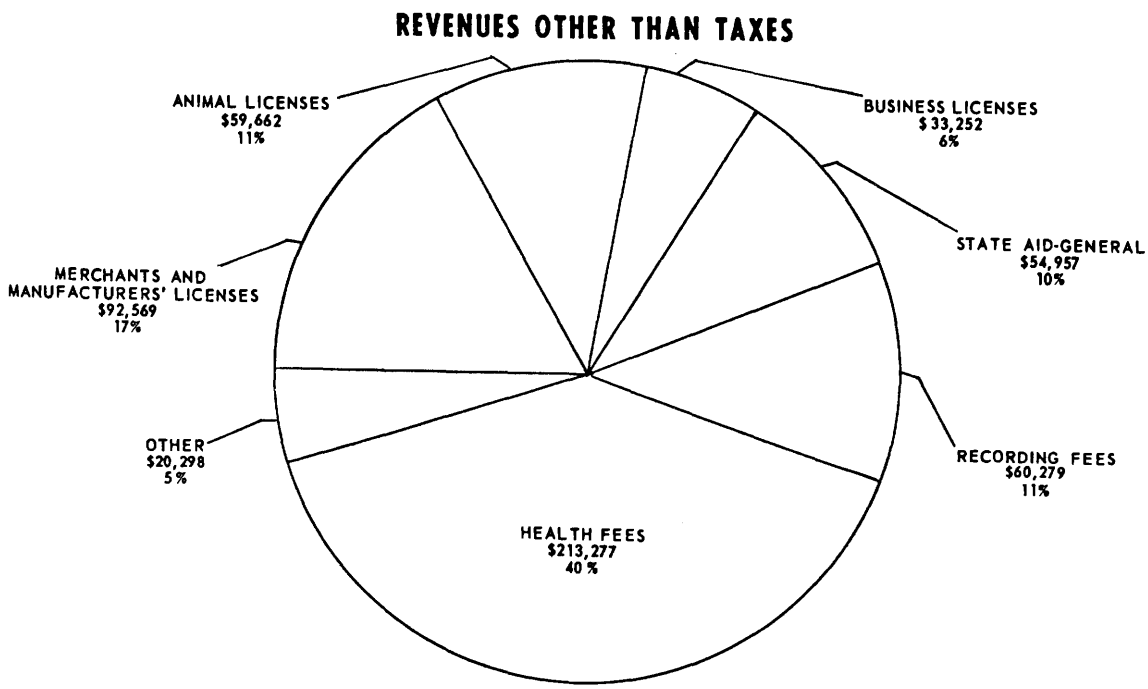
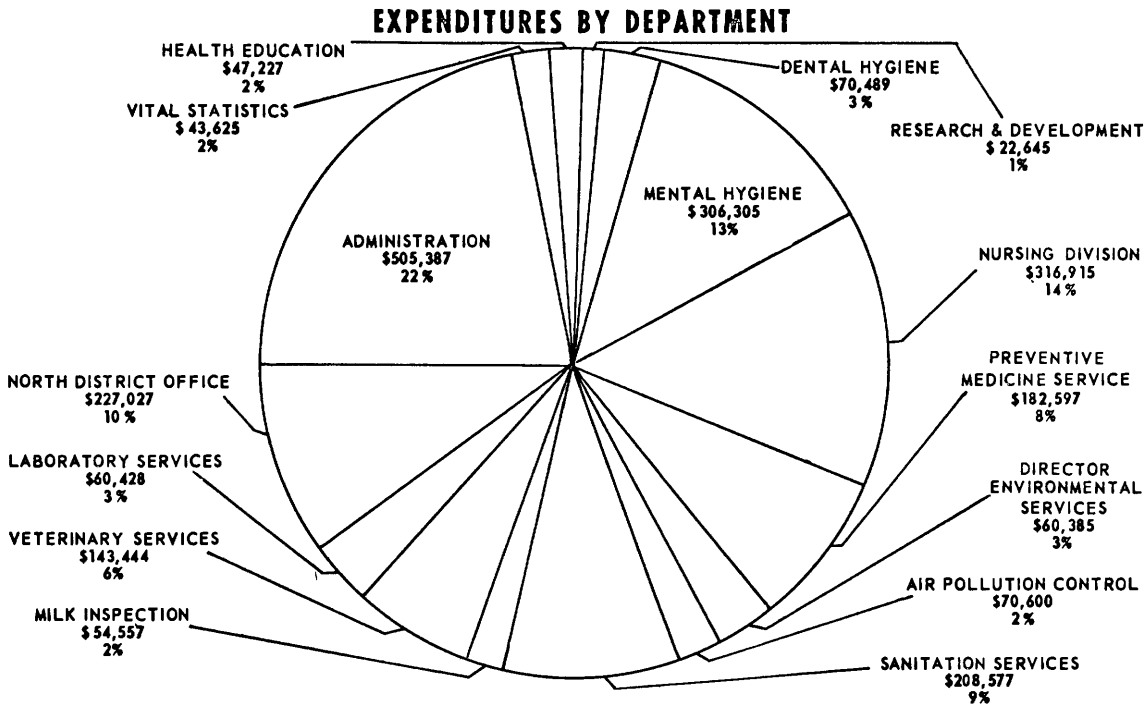


Fig. 5 Revenues for the St. Louis County Health Center Maintenance Fund for 1969.

Source: Keller, R. J. and H. T. Morley 1969 St. Louis County, Mo. Financial Report, Year Ended Dec. 31, 1969. St. Louis County, Clayton, Missouri.

$100 assessed valuation which was an increase of one cent over the 1968 rate. Several of the divisions within the department also receive federal or private grants which are not included in the budget since these funds are appropriated only for a designated purpose. Some examples include grants for air pollution control, maternal and infant care, family planning, and tuberculosis control. All revenues excluding grants are prorated over 15 cost centers as seen in Fig. 6. While the St. Louis County Health Department does work with the Missouri Division of Health, it is not a branch nor is it directly responsible to it. Consequently the department receives little monies in state aid for its budget. (12) Fig. 6 indicates the proportion of the budget allocated by departments and by major categories. Environmental Services is the largest division recipient while the major category is salaries, which represents 73 percent of total expenditures. (13)

The St. Louis County Health Department is composed of seven divisions: Preventive Medicine, Public Health Nursing, Dental Health, Environmental Services, Mental Health, Research and Development, and Departmental Services. In order to establish the relationships between these divisions as they function to provide for the public health, a brief description of the objectives and services of the St. Louis County Health Department will be discussed. A complete more detailed examination of the Nutrition Division and its programs and services will follow in Chapter III.



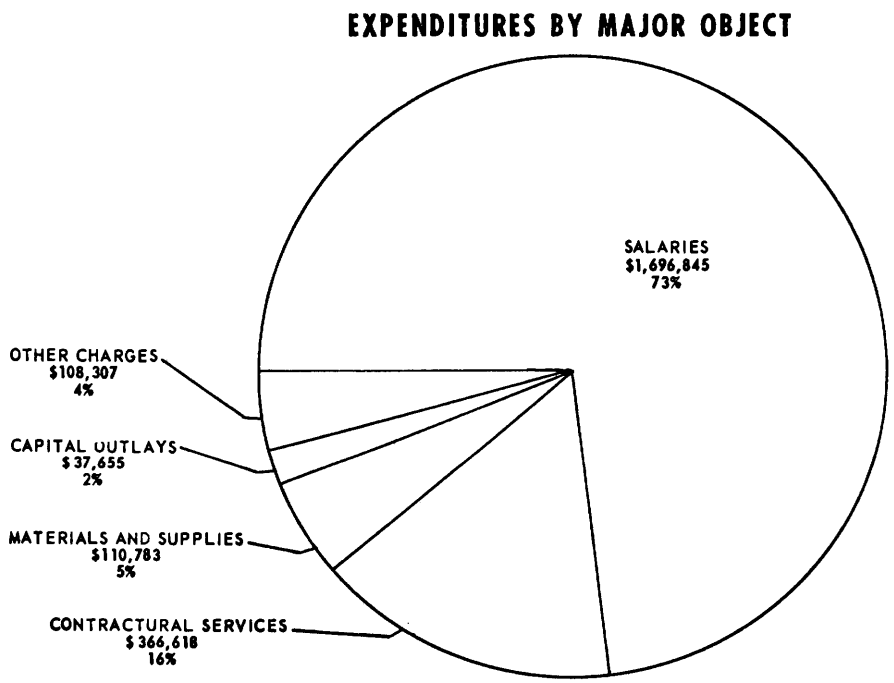


Fig. 6 Expenditures from the St. Louis County Health Center Maintenance Fund for 1969 by Department and Major Object.

Source: Keller, R. J. and H. T. Morley 1969 St. Louis County, Mo. Financial Report, Year Ended Dec. 31, 1969. St. Louis County, Clayton, Missouri.

Preventive Medicine Divisions

Communicable Disease. Because of the extensive advances of medical science the Communicable Disease Division requires a much smaller proportion of the health department resources today than it did when the health department was first organized. Today the major emphasis is on disease surveillance and prevention instead of treatment or quarantine. Immunization clinics to protect against smallpox, diptheria, whooping cough, tetanus, polio, and measles are conducted for those unable to purchase private medical care.

Medical personnel investigate reported communicable disease cases needing control measures to protect the public health. Regular reports concerning the incidence of communicable diseases in the county are submitted to the Missouri Division of Health. (9)

Maternal and Child Health. Many health problems can be avoided if children receive regular medical examinations and immunizations. In order to provide supervision in this area, the health department has developed a countywide system of clinics and educational programs. Recognizing that transportation to a central clinic can be a very great problem for mothers with young children, over twenty child health conferences are held throughout the county for the convenience of the patients. Infants and preschool children of parents unable to afford medical care are seen here and receive immunizations, tuberculin testing, and periodic physical examinations from the physician. These periodic checks on growth and development patterns allow problems to be detected early so children can be referred for the necessary medical care.

Prior to 1966 the only services available to indigent maternity patients in the county were provided at St. Louis County Hospital. Eligibility requirements there are quite restrictive. Often patients fail to meet some aspect of the requirements. Although the statistics describing the infant mortality rates of St. Louis County do not appear excessive in comparison with those of the rest of the United States, there are definite poverty pockets (as shown in Fig. 3, page 15) in the county where the need for medical care is great. In an attempt to provide care to persons who cannot afford private services and may not meet these eligibility requirements, a grant was requested from the federal government to expand and improve the maternal and child health program. With these funds the maternal and infant care program supports two clinics, so that there are now three locations (including the hospital), where people can receive prenatal and infant care. By reviewing the maternity admissions at County Hospital and certain welfare statistics, it was decided that clinics located in Freguson and Valley Park could best serve the majority of persons needing this care.

At these clinics patients receive comprehensive care with attention to their medical, social, economic, nutritional, and emotional needs. Prenatal and special infant services are provided free of charge to these patients. With the barriers of transportation and finances removed, more people can receive care earlier, and high-risk patients can be identified and closely observed. (14)

Another federal grant has enabled the St. Louis County Health Department to operate family planning clinics in the Clayton, Ferguson, and Valley Park Health Centers. These patients receive complete physical

examinations including hemoglobin determinations and are referred to the nutritionist if they have problems with weight control or anemia. The last grant proposal submitted included a request for a part-time nutritionist. Information about the different methods of birth control and advice from physicians, nurses, and social workers on the method best suited to each individual are provided in these clinics. (9) In 1969, 759 women enrolled in these clinics bringing to 2,092 the number of women actively enrolled in the clinics. It is interesting to note that 85 percent of the women in the clinics have chosen oral contraceptives. (15)

School Health. Appraisal of health services in St. Louis County in 1956 by the Infant and Child Care Committee of the Missouri Medical Association and in 1957 by the American Public Health Association prompted the organization of a committee to examine existing school health programs and to make recommendations for a basic standard of health service for area schools. The School Health Committee was formed under the auspices of the St. Louis County Medical Society and consisted of representatives from medicine, dentistry, school administration, and the health department, as well as other interested persons. The recommendations of this group were compiled and made available as the official guide to all county schools in March of 1960. The health department was asked to be the official agency to implement these recommendations. As a result, the School Health Consultation Service was established. Consultation services from all disciplines in the health department are available through this service.

The objective of the school health program in St. Louis County is to provide services to maintain and improve the health of school-age children. It does not assume the full responsibility for health, but works in cooperation with private physicians and area clinics.

These standards for care have been very helpful in assuring uniform health services in the many school districts of the county. There are 26 of these public school districts including one special school district for emotionally, mentally, and physically handicapped children in the county. Each is directed by its own school board and superintendent. In addition there are over 100 parochial schools in the county under the Archdiocese of St. Louis, approximately 30 Lutheran schools coordinated under one superintendent, and an additional 30 private schools. The health services for the schools may be obtained independently or by contract from the St. Louis County Health Department. Contract services available from the health department include nursing, mental health, and dental health. Regardless of whether direct contractual services are purchased, consultation regarding school health is available to any school.

The School Nurse Consultant, who is an active member of the St. Louis Surburban School Nurse Association, coordinates activities to provide current information concerning all aspects of health services to school nurses in the county. She is responsible for the School Health Bulletin which is published several times throughout the year. Annual workshops for those involved in school health services are planned under her direction.

Another aspect of the health department's role in school health is the establishment of school physical examination clinics. Preschool and periodic physical examinations and immunizations are available here to children whose parents are financially unable to obtain the services of a private physician. At present there are six clinic locations throughout the county. (15)

Nutrition. The services of the Nutrition Division will be described in Chapter III.

Medical Social Service. As the concept of treating the whole person is becoming more and more accepted in the medical field, the social worker is finding a definite place on the health team. Illness if often complicated by psychological, financial, and social problems. It is the medical social worker's responsibility to help patients solve these problems so that they can return to health and productivity. In addition to direct services to patients cared for by public health nurses or in maternal and infant care clinics, social service personnel also offer consultation and referral services to professional groups and community social agencies. (9)

Tuberculosis and Venereal Disease Control. Many activities are included in the program developed to control tuberculosis. Chest X-rays are available to adults and children, and clinics are held each week for diagnosis and treatment of tuberculosis and for casefinding of various other chest ailments. When a case of tuberculosis is found, an investigation must follow to locate and examine close associates. A current register of all active cases of tuberculosis is assured by

vigilant surveying of county physicians and hospitals. Department clinical and X-ray services are always available to private physicans.

Tuberculin skin testing in schools, child health conferences, and other settings results from the cooperative efforts of the health department, Tuberculosis and Health Society, St. Louis Academy of General Practice, and school physicians. Follow-up X-rays for persons with positive skin reactions are made at the health department or in the mobile unit of the Tuberculosis Society.

Although the discovery of penicillin in the early 1940's prompted a very decided decrease in the incidence of venereal diseases, in the past fifteen years the incidence has been increasing again. More staff and money need to be allocated to the time-consuming investigation of contacts and treatment of infected patients.

Of course education of the public to the nature and danger of these diseases is the key to their prevention. The Venereal Disease Control staff devote considerable effort to seeing that this information is available, especially to the young adult population. (9)

Chronic Disease Control. Chronic disease is defined as any impairment or deviation from normal which is either permanent (lasts longer than three months), leaves residual disability, is caused by non-reversible pathological alteration and requires special training of the patient for rehabilitation, or may be expected to require a long period of care. Chronic diseases, as viewed by the St. Louis County Health Department, include many general disabilities as well as the more commonly known conditions of cardiovascular disease, cancer, diabetes,

and arthritis. Services to persons with mental illness, mental retardation, or tuberculosis are provided under separate programs.

Activities to combat chronic diseases include prevention, through encouraging good general health habits; early detection and treatment; the delay or prevention of complications of disease; and both physical and social rehabilitation. Chronically ill patients in the county hospital are reported to the Chronic Disease Public Health Nurse Consultant and referrals are made to either the health department or the Visiting Nurse Association of Greater St. Louis. (17) Public health nurses, social workers, nutritionists, and other members of the health department team cooperatively establish policies and carry out procedures to insure optimum care to meet the needs of the whole patient. (9)

One of the more recent programs involving the Chronic Disease Control Division's support is aimed at preventing rheumatic fever and assists physicians in obtaining low cost drugs for medically indigent patients. (17)

Division of Public Health Nursing

The registered nurses and licensed practical nurses in the Division of Public Health Nursing are involved in some way in almost every program of the health department. Services are provided through home visits to county residents and staffing clinics and child health conferences.

In describing her primary objective, the public health nurse might say that it is to help people reach their maximum goal in health status. In order to do this the nurse must often assist the persons to

realize that they need help. Once this fact is accepted, she can work with them in developing and implementing a plan for change suitable for the specific individual. Frequently she can be of particular aid by acting as a liaison between the patient and a community health agency. Follow-up contact allows the nurse to keep an open line to the patient for progress reports or future problems that might arise. (18)

Division of Dental Health

Contractual services to area schools are available from the Division of Dental Health. For these schools regular dental examinations are made, and each child's parents are notified of the child's dental needs. For children whose parents cannot afford to engage a private dentist to attend to their needs, three dental clinics are available. A second aspect of the dental health program is health education. All schools, community groups, and clubs may request speakers for dental educational programs.

A long range research program to determine the effect of fluoridation of the county water supplies on the incidence of dental caries was begun in 1963. Continuing evaluations are being made at five year intervals. (9)

Division of Mental Health

The health department considers the mental and emotional health of the county residents just as important as their physical and environmental health. It strives to promote this aspect of health through the Division of Mental Health. It delivers direct services to children in the child guidance clinic where diagnosis and treatment are conducted.

Consultation to child care institutions and to training programs for future mental health professionals are additional functions of this division. Providing contractual services to public and parochial school systems for consultation with school staff and parents is another important aspect of their program. Public education concerning the importance of good mental health is not overlooked by the Division of Mental Health. They are occasionally called upon to describe their services to lay groups. (9)

Division of Research and Development

The Division of Research and Development was the first such division in a county health department in the United States. Research projects can be very valuable in defining problems and their characteristics within a community. Once adequate information about the problem has been accumulated, appropriate preventive and control measures can be planned and instigated. In addition the effectiveness of the old and new public health programs can be tested. All other divisions within the department may request consultation regarding research and evaluation techniques from this division.

Much of the funding for research projects comes from federal grants and other outside sources. At present the Research Division is working in cooperation with the St. Louis University School of Medicine on a project to determine the problems people have in obtaining health care. The information will be gathered by interviewing individuals in over one thousand households in three areas of St. Louis County. Hopefully this project will provide insight for the development of improved health services for the county. (19)

Departmental Services Divisions

Administration. The Administration Service of the St. Louis County Health Department is involved in all facets of the health department. It does not function to provide direct services to the community but prepares budgets, maintains accounts, collects fees for licenses and permits, directs personnel, and is responsible for various other areas including building maintenance and janitorial services.

Health Education. While each division within the health department is active in providing educational programs concerning their area of specialization, the Division of Health Education assigns full-time personnel to this area. The staff not only conduct meetings for the lay public, but also arrange inservice education programs for employees.

Health educators are important members of any health department group planning workshops, classes, or other educational functions. Their training includes instruction in methods of appealing to and motivating different groups of people. This knowledge, of course, is invaluable in planning programs designed to promote change or evoke action. (9)

In the early spring of 1970 the health department employed its first community health aides. They were hired to work part time under the Maternal and Infant Care Project in specific areas of the county. Along with a public health educator these aides are part of an expanded community outreach program. Specifically the aides will supplement the services of the health professionals by planning and conducting educational programs designed to encourage residents to use public health services and clinics within the neighborhood to which they are assigned.

They also make follow-up visits to patients who fail to keep appointments and assist in arranging for and keeping future appointments. (20)

The Division of Health Education is also responsible for providing a library of up-to-date public health literature and audio-visual equipment for use by the staff and the public. The staff publish the Health Reporter, a bimonthly newsletter of the department.

Vital Statistics. The Division of Vital Statistics is an essential service within the health department. All the birth and death certificates for the county are recorded in this office and are stored on microfilm. A copy is also sent to the State Division of Health in Jefferson City, and a third copy is buried in a safe place in case of disaster. Permits for burial, cremation, and transportation of bodies are also issued by this office. (9)

Perhaps the most important function of the office of vital statistics, as far as the policy-makers of the county are concerned, is the compilation and analysis by the statisticians of the births, deaths, diseases, and population characteristics of the county. Such statistical reports are prepared periodically and are helpful in evaluating and revamping public health programs.

Division of Environmental Services

The responsibilities of the Division of Environmental Services are varied and multiple. Insuring a safe environment for the residents of St. Louis County is the primary objective of this, the largest, division of the health department. Sanitarians inspect eating and drinking establishments, as well as animals, equipment, and operations of milk

producers, distributors, and processors to insure that county food and food service is wholesome and safe.

Consultation and inspection in the areas of sewage, refuse disposal, water systems, and swimming pools are provided by the sanitarians and engineers. They also check the county water supply for purity including that from private sources on request.

Industrial hygiene and air pollution are other areas of concern for this department. Health department personnel monitor the degree of atmospheric pollution, respond to citizen complaints by investigating sources of pollution, and provide consultation to industries to help them conform to air pollution laws. Obviously laboratory examinations are necessary to perform some of these tests for pollutants. Facilities are available in the Central Health Center in Clayton for these procedures as well as for detecting radioactive contamination of the air, water, and milk.

Mosquito and rodent control services are available to municipalities wishing to purchase this service and are provided to the unincorporated areas of the county. Veterinary services are also provided by the health department to protect the public against rabies. Facilities are also provided for quarantining animals. (9, 21)

CHAPTER III

THE NUTRITION DIVISION OF THE ST. LOUIS COUNTY HEALTH DEPARTMENT

I. DEVELOPMENT AND ORGANIZATION OF THE NUTRITION DIVISION

History of the Division

Provisions for including a nutritionist on the staff of the St. Louis County Health Department were first made in 1954. The position was filled only briefly, however, and the division did not really begin to function until 1956. It was at this time that Miss Ruth Brennan was employed. Her first objectives were to determine the nutritional needs of the county. Consultation with other division supervisors, observations in clinics and homes, and review of written reports were utilized by Miss Brennan in formulating plans for nutrition services.

To assist in providing these services and in performing the additional duties associated with the Nursing Home Program which was established in 1956, a second nutritionist was added to the staff in 1958. The funding of a Maternal and Infant Care Project for the county in 1966 created another nutrition position.

Philosophy and Objectives

Nutrition is an integral part of good health, and, in essence, the promotion of good health by improving the nutritional status of the public is the primary aim of the Nutrition Division. More specifically the program goals may be described as follows:

1. Promotion of health and prevention of disease in the general population. Emphasis is given to those members of the population most vulnerable to nutritional impairment such as infants, children, pregnant women, older persons, and persons with low income or who are institutionalized.

2. Improvement and maintenance of health for persons with diseases such as tuberculosis, diabetes, heart disease and obesity in which dietary modification is an essential part of the total treatment. (22)

Organization

Administrative responsibility. The Nutrition Division is one of five Divisions of Preventive Medicine. As with all other programs in Preventive Medicine the division supervisor is directly responsible to the Health Commissioner. The personnel for the health department are selected and supervised locally and are not a part of the Nutrition Service of the Missouri Division of Health although they do share a cooperative professional relationship.

The staff is composed of Dr. Ruth Brennan, Nutrition Supervisor, and staff nutritionists, Mrs. Madeline Oldeg and Miss Carol Giblin. An additional part-time position may be added to the division in the near future through the proposed Family Planning Project.

In addition to her responsibilities with the health department, Dr. Brennan is Instructor in Nutrition, School of Medicine, Washington University.

Qualifications. All nutritionists are employed under the St. Louis County Merit System which is administered through the Civil Service Commission. Copies of job qualifications and descriptions for the

two positions of Nutrition Supervisor, or Nutritionist II, and Staff Nutritionist, or Nutritionist I, are included in the Appendix.

Dr. Brennan received her Doctor of Science degree in 1966 from the University of Pittsburgh, School of Public Health. Her major area of emphasis was nutrition. Both staff nutritionists received their B. S. degrees from Fontbonne College and each has earned the Master of Public Health degree with a major in Nutrition. The entire staff has had varied experiences in public health and related fields.

Communications. For a staff of three housed in the same office, communication between members is generally easily conducted. In the Nutrition Division, however, each nutritionist has a varied schedule involving clinics, speaking engagements, and other assignments requiring her to be away from the Central Office. Tuesday mornings have been set aside by all three nutritionists for staff meetings to discuss program plans and progress and to insure that all staff members are informed of recent developments within the department.

The health commissioner conducts periodic staff meetings with representatives from each discipline within the department to report and coordinate activities. The Health Reporter, a bimonthly newsletter edited by the Division of Health Education, is also helpful in relating department activities, including those of the Nutrition Division, to all personnel.

Professional development. The rapidity with which all knowledge becomes obsolete requires continuing education for any person truly interested in doing the best in his job. Active participation in one's

professional organizations is one of the best ways to keep abreast of current developments within the field and also to make others aware of the work being done in public health. All the nutritionists belong to local, state, and national dietetic associations and to the American Public Health Association.

The supervising nutritionist serves on a variety of local and national committees, including the Committee of Maternal Nutrition of the Food and Nutrition Board of the National Research Council and the Food and Nutrition Section of the American Public Health Association.

The organization of a Journal Club by the division supervisor in 1966 has enabled the nutrition staff and other area members of the St. Louis Dietetic Association to share nutrition information appearing in a number of scientific periodicals. The publications to be reviewed are decided by the group at the beginning of each year. Each member provides abstracts of the articles containing a nutritional component for distribution to the group. The student accompanied the nutrition staff to one of the Journal Club meetings. The nutritionist must be aware of current information in professional, news, and variety periodicals for she is often questioned about the validity of these sources.

II. MAJOR PROGRAMS AND ACTIVITIES OF THE NUTRITION DIVISION

Before programs to improve the nutritional status of the community can be developed, the needs of the population and the priority of these needs must be determined. Much information can be extracted from current and past statistical data. Interviews, consultation, and sometimes

studies of special groups within the community are utilized in gathering this information.

The importance of nutrition in all phases of health necessitated the integration of nutrition activities with other health services. Program activities are described and discussed on the following pages.

Overall Activities

Orientation of new departmental employees is a very important function of the nutritionist. General orientation programs are held at regular intervals and some explanation of nutrition services are given at this time. Since many agencies do not employ nutritionists it is exceedingly vital to the life of the division that all new employees are aware of the services offered by a nutrition division and are encouraged to utilize them in carrying out their own jobs.

Inservice education programs, especially in the Division of Public Health Nursing, are conducted by the nutritionists at various times throughout the year. These programs may relate to general family nutrition or may be designed to help the nurse deal with patients on therapeutic diets, such as the diabetic.

It would be impossible for the small staff of three to provide direct services to all divisions within the department. Consultation, then, is the primary service received by the divisions of Tuberculosis and Venereal Disease Control, Medical Social Service, Dental Health, Mental Health, Health Education, and Environmental Services.

Requests to the nutrition staff for speaking engagements are not limited to health department personnel and patients. The student had

the opportunity to observe staff members speaking to a nutrition class at the University of Missouri in Columbia on nutrition in governmental agencies and to a lay group in a program sponsored by the American Heart Association on the fat controlled diet.

The division also cooperates with the dietetic internship program by providing an orientation to public health nutrition through a group presentation and individual visits in the department. The St. Louis County Health Department serves as a home base for many students from throughout the country who are participating in their public health field training. Generally one graduate student in nutrition visits annually. Graduate students from other disciplines also receive their orientation to nutrition by the staff.

In order to provide the most effective teaching possible, attractive and informative visual aids are necessary. Appropriate materials which can be secured from other sources are utilized when possible. Sometimes visual aids for use with specific groups are developed by the nutritionists. One such visual aid is a chart for use in maternity clinics and child health conferences which the nutritionists developed describing the amount of iron needed during the day by children and prenatal women and the iron content of various foods.

Maternal and Child Health

As mentioned previously one nutritionist's salary is funded through the Maternal and Infant Care Project. Consequently a large portion of service from the division is concentrated in this area. A nutritionist is present at each prenatal clinic and counsels referrals from the family

planning clinics. Each new patient is seen and a 24-hour dietary history is taken to give the interviewing nutritionist an idea of her food pattern. The nutritionist may find that a person has very poor eating habits because of inadequate income, inability to budget, lack of transportation for shopping, or food needs or patterns of other family members. Detecting these problems and helping to solve them is essential before teaching basic nutrition can be accomplished. The whole family benefits from nutritional counseling for the mother.

From the initial interview the nutritionist records in the patient's record pertinent information for the doctor regarding the patient's dietary intake. She is seen periodically thereafter according to her needs. A record of weight gained and hemoglobin values are helpful in directing the nutritionist to areas of particular concern. Often it is difficult for a pregnant woman to include all the foods necessary to meet her needs, and she may require special help in selecting foods to prevent excessive weight gain.

After delivery the woman is again seen by the nutritionist at her postpartum clinic visit. At this time she is advised about her own nutritional needs and those of her newborn infant.

Group sessions are planned for the patients throughout their prenatal care. Two classes are conducted by the nutritionist in this series.

The health team approach used at these clinics provides an excellent opportunity for inservice education for all health disciplines. The post-clinic conferences have become a time for sharing of information and observations from all team members.

Most of the nutrition services in child health conferences are through consultation to Public Health Nurses. Since there are so many

conferences and they are held in so many different locations, it is not feasible for the nutritionist to attend them. Sometimes special emphasis programs, such as the one described in the next chapter of this report, are conducted.

School Health Program

Nutrition information for school nurses may be provided by telephone or personal interviews or in the form of literature suggesting nutrition programs and resources for use in the schools. These resources are available not only to nurses, but to teachers and school administrators to encourage nutrition education in the total health program.

A very successful project initiated last fall was the Health Workshop for school nurses. Nutrition materials were displayed and nutritionists were present to answer questions and make suggestions. The plans for this fall's program began in June.

Sometimes the nutritionist may receive a referral either from a school clinic or from a school nurse. For example, a juvenile diabetic observed by the school nurse was referred to a public health nurse and eventually to the nutritionist for home visits to help the child and her mother better understand her diet.

Chronic Disease Control

The incidence of chronic diseases in St. Louis County is following the national pattern. More than ever dietary modifications are involved in treating such diseases.

The nutrition staff have worked with the Chronic Disease Nurse Consultant in several group sessions for diabetics. Clinics held at

County Hospital have been the site of these meetings. Another way in which the nutritionists provide services is by conducting inservice programs for the public health nurses. Additional training or refresher instruction for nurses increases their competence in dealing with the patients on home visits and in detecting problems which require the aid of a nutritionist. The student made home visits to two chronic disease patients to assist the nurses with complicated problems.

Public Health Nursing

The Public Health Nurse is the one person on the health team who frequently has the opportunity to go into the home and see how a person lives. This is very important not only because she is able to take information into the home but also because she can bring information back from the home to the other health professionals. She can be very helpful by relating her observations to the nutritionist who can then plan her approach to the patient. The nurse and nutritionist have the common goal of promoting optimum health. A good working relationship and mutual respect for each other is essential in achieving this goal.

Research

The Nutrition Division of the health department has worked with the Research Division on several projects. Research personnel provide the manpower for planning and directing research projects, and the nutritionists decide what information is required to insure meaningful results.

Some of the projects on which the two divisions have coordinated their efforts include studies to determine the nutritional status of patients in nursing homes, dietary habits of chronically ill patients in their own homes, and the adequacy of school lunches served to children in a low-income area.

In addition the supervisor engages in several research projects with medical students from the School of Medicine, Washington University. This summer under Dr. Brennan's supervision a medical student investigated the serum levels of Vitamin A and ascorbic acid of children seen for preschool physical examinations.

III. COORDINATION OF NUTRITION SERVICES WITH OTHER AGENCIES

There are several organizations and agencies in the St. Louis area with whom the nutrition staff are cooperatively working to promote good nutrition. The student visited several of these agencies to observe their daily activities and to talk with them about their programs. Several of these programs are discussed to provide a better understanding of the interrelated services.

University of Missouri Extension Division

The main office of the University of Missouri Extension Division which serves the St. Louis area is located within the Inner City. Employed in this office are representatives from home economics, horticulture, adult education, and agents in industry, environment, and health. Obviously absent from the city office is the agricultural agent who is located in the satellite offices in the county.

Four home economists and 32 nutrition assistants are based in this main office to serve the surrounding population. Continuing education courses ranging from eighth grade and high school certifications to professional workshops are organized through the Extension Division. Some of the methods of communication and media utilized include television, radio, newspapers, and other publications, speaking engagements, correspondence courses, and nutrition conferences. The Foods and Nutrition specialist instigated the organization of an area committee on nutrition. Lay and professional representatives, including the Public Health Nutritionist, work together to improve the nutritional status of the community.

The Extension Division feels that one of the most successful innovations in communicating nutrition information to the lay public has come through Missouri's Expanded Food and Nutrition Program. Nutrition assistants from low-income areas have been employed and trained to return to their community to provide information and encouragement to low-income families so that they might have more rewarding lives. They attempt first to determine what the people need and want to know and then develop their educational programs around these topics. Training in nutrition and food preparation is a very important portion of the program. (23)

Missouri State Department of Welfare

The home economists employed by the St. Louis Office of the Missouri State Department of Welfare work closely with the caseworkers to help welfare recipients raise their standard of living by providing training in how to use the money they receive more effectively. Their

teaching varies from sewing and crafts to nutrition and budgeting. Their approach is both through groups, such as in senior citizens' centers and neighborhood community rooms, and individual contacts. Often just providing the information needed by this population is inadequate. Providing transportation to a store where they can buy more for their money or obtaining sterilizers so that the baby's formula can be prepared as directed are often a part of the home economist's duties. Communication with other agencies who are concerned with a client, such as the health department, is essential. (24)

Child Development Center

The Child Development Center was established in 1959 under a grant from the Children's Bureau. It is operated by the Department of Pediatrics of St. Louis University in cooperation with the Missouri Division of Health. The purposes of the center are multiple. A primary purpose is the provision of diagnostic services for children who are or are suspected of being mentally retarded. The center also provides information and counseling to parents of these children and serves as a training center for graduate students in various health fields. Consultation is available to agencies and individuals regarding mental retardation. Research relating biological, psychological, and social factors to mental retardation is conducted here.

The health team includes the pediatrician, clinical psychologist, social worker, nurse, speech and hearing specialist, and nutritionist. The nutritionist conducts a preliminary interview with each patient and decides whether or not a thorough nutritional evaluation is needed. Some indications for nutritional evaluation are: dietary

modification, for example phenylketonuria or obesity; mechanical feeding difficulties; feeding skills below mental age; bizarre food habits; or a grossly inadequate dietary intake.

Special training classes in feeding the mentally retarded and home visits to work individually with patients are part of the nutritionist's duties. She also evaluates menus for use in the Day Activities Center for mentally retarded. Liaison between the Public Health Departments and the Visiting Nurse Association is necessary to prevent duplication of services. (25)

Yeatman Medical Health Center

The Office of Economic Opportunity is active in St. Louis as the Human Development Corporation. The city has further been divided into areas of need, and the Yeatman District Community Corporation represents one of these areas. About 65,000 people, or 10,000 families, live in this primarily low-income neighborhood. The Yeatman Citizens Committee, made up solely of residents, defines the needs of their area and proposes solutions. Fewer than five physicians are located in this neighborhood so medical care was obviously one of the first projects of the citizens committee. The Yeatman Medical Health Center is now offering health services to all residents of the Yeatman district. The center is indeed comprehensive with medical, surgical, pediatric, obstetrical, and dental clinics, and pharmacy, laboratory, and X-ray services provided in one building.

Each person requesting care is required to have a complete physical evaluation which includes evaluation by the nutritionist. If there are nutritional problems, the patient is counseled by the

nutritionist as often as necessary. Classes for weight control are conducted biweekly for patients for whom the physician has ordered reduction diets. The nutritionist also visits with two retirement homes in the area and is presently involved in planning for a hot food program for senior citizens. The Child and Parent Center which is located adjacent to the Yeatman Center also uses the nutritionist as a resource for individual diet evaluation and for their day care center. The supplemental food distribution center for Yeatman is located in the basement of the building so that patients for whom these foods are prescribed can pick them up before leaving the clinic. (26)

Visting Nurse Association

The Visiting Nurse Association of Greater St. Louis employs two part-time nutritionists who provide consultative services to the nursing staff. The association serves the city and county of St. Louis and several adjoining counties. Any nurse assigned a patient with a dietary problem can review the case with and receive advice from the nutritionist in planning her nursing care. When warranted, the nutritionist makes home visits. The nutritionist may also develop literature to meet the specific needs of the patients. (27)

St. Louis District Dairy Council

The purpose of the National Dairy Council and its subsidiaries is to provide health education to the public. Four home economists and one dietitian comprise the staff of the St. Louis District Dairy Council. Their methods for disseminating information include radio and television programs, ex ibits, classes, food demonstrations, and workshops.

The literature prepared and distributed by the Dairy Council is utilized by people involved with health and nutrition throughout the metropolitan area. The public health nutritionist often uses these in her teaching. The home economist at the Dairy Council may also use the public health nutritionist as a resource when she receives questions related to modified diets. Together they compile resources on food and nutrition for school children and alert teachers and school nurses to their availability.

American Heart Association and American Diabetes Association

Nutritionists from the health department are active supporters of both the American Heart Association and the American Diabetes Association in the Greater St. Louis area. These associations share the goal of making chronic disease services and information available to the community. The division supervisor is chairman of the committee on nutrition of the Heart Association, and all the staff have been participants in programs sponsored by the two groups.

Official Food Programs

It is essential that the nutrition staff be aware of the various food programs available in the area. The Food Stamp Program and the Supplemental Food Programs are administered by U.S.D.A. and local agencies. Considerable time is spent in keeping abreast of changes in these programs and evaluating the usefulness of the programs to the population for which they are intended.

The Food Stamp Program was developed to provide more food buying power to persons who have inadequate incomes to purchase the quantity

or quality of foods required by their family. Eligibility is determined by the welfare worker. The nutritionist may refer persons to this program and occasionally may give assistance in budgeting.

The sponsoring agency for the Supplemental Food Program in the St. Louis area is the Human Development Corporation. The program began operation in October of 1969 in both St. Louis city and county with distribution centers located in key poverty neighborhoods. Prescriptions for supplemental foods are written by the staff of the St. Louis County Health Department and by private physicians for eligible pregnant women and preschool children. When the first proposal was drafted it was estimated that over 5000 persons would be eligible for the program. By May, 1970, the number receiving supplemental foods was only 1800, but this was an increase over the previous months.

The purpose of this food program is to make available certain nutritious foods to persons in low-income groups who do not have adequate food and who have been designated as in need of food for health reasons. These vulnerable groups include pregnant, post partum and nursing mothers, and children from birth through five years of age. The foods are selected primarily to provide additional calories, protein, iron, calcium, vitamins A and D, and ascorbic acid.

CHAPTER IV

STUDENT'S ANALYSIS OF OWN PREFORMANCE

I. ANALYSIS OF ABILITIES THROUGH OBSERVATION AND EXPERIENCE

Consultation with Other Professional Workers

An opportunity to both observe and actively participate in consultation services with other professionals was helpful in increasing the student's experiences. The function of a consultant is to participate in the problem solving process with another professional person who seeks her advice. She evaluates the situation and offers suggestions for follow through by the person seeking help.

One day of the field experience was spent with the nutritionist at the Visiting Nurse Association. The early morning hours in this agency are reserved by the nurses for completing records and consulting with the nutritionist and other members of the staff. During the student's visit several nurses made appointments and met with the nutritionist. The nutritionist evaluated each case and advised the nurse concerning her care plan for the patient. The nutritionist was very skillful in evaluating the nurse's own knowledge concerning the dietary modifications. One nurse assigned to a diabetic patient was concerned about her competency in teaching the diet. The nutritionist tactfully stated that she would be available to counsel the patient if the nurse so desired.

A visit to a nursing home with one of the area dietary consultants provided the student with another opportunity to observe a

consultative visit. Since there was no full-time food manager in the home, the consultant functioned as a supervising dietitian instead of a consultant in most of her duties. She did assume the role of consultant when meeting with the administrator and architect to discuss plans for renovating the kitchen.

Observing these two consultative situations helped the student to more accurately delineate consultation, counseling, and supervision. Evaluation of these examples will be important for the student when assuming these different roles.

The public health nurses often rely upon the nutritionists for advice when they are working with patients on modified diets. While in the department the student was available for consultation with nurses on several occasions when the nutritionists were out of the office. On one occasion a nurse requested advice concerning a diabetic patient who was also schizophrenic, obese, and receiving an oral hypoglycemic preparation. She had a four-day diet record which had been kept by the patient. The student reviewed the record with the nurse and presented her evaluation and recommendations. The student benefited by having experience in assuming a professional role and in learning to think quickly in evaluating and making recommendations.

Inservice Education

In the St. Louis County Health Department various methods of inservice education are utilized such as lectures, films, and actual participation programs such as the driver training classes. Soon after the student's arrival, Dr. Eller repeated an address for the

department employees on the Organizational Goals of the 70's. The speech was originally presented at a meeting of the Missouri Public Health Association. After his comments, Dr. Eller asked for questions from the audience and took considerable time in talking with them. This provided an excellent opportunity for developing communication between the head of the department and the staff. The personal interest expressed by the Commissioner for each of the employees helped to create a pleasant working relationship within the department.

The student was also included in an inservice education program conducted by the public health nursing supervisor. The purpose of the program was to familiarize newly employed community health aides with the history of public health nursing, its first programs, and the duties of the public health nurse today. The health aides had limited educations and varying backgrounds so the nurse frequently asked them questions to determine their previous knowledge and to reinforce, clarify, or correct their ideas. The meeting was conducted very informally and questions or comments were encouraged.

Group Work with Other Professionals

From 1956 until 1969 the Nutrition Division of the health department was responsible for inspecting and providing consultation to the nursing homes in the county. Although many laws regarding the establishment and services of nursing homes were passed in Missouri in the 1930's and 1940's, they were poorly enforced until 1956. The nutritionists received help in the area of consultation when, in 1966, the Medicare requirements for nursing homes resulted in the employment

of eleven area dietitians in the roles of dietary consultants to some of the nursing homes.

The health department nutritionists now meet regularly with the dietary consultants as they share experiences and clarify their responsibilities as consultants. The public health nutritionist is helpful in interpreting the standards for nursing homes and other governmental requirements. A meeting of the dietary consultants was held at the health department during the summer, and the student was able to observe the nutritionist in the role of a co-member of the group. One of the consultants showed a series of slides on sanitation procedures for food workers and other members of the group made comments and shared inservice programs they had used for employees. The nutritionist provided information concerning educational materials available from the government and other agencies with which she was familiar.

Planning Conferences

The fall workshop for school nurses is a joint endeavor by the School Nurse Consultant, the nutritionist, and the health educator. The organizational meeting was held during the month of June, and the student was invited to accompany the nutritionist.

After the designation of a committee chairman, the problems of location and time were resolved. Many suggestions were made concerning representation from the schools and the theme of the workshop. The variety of backgrounds of the group members resulted in many ideas about topics which should be covered by the workshop. It was decided to promote materials concerning environmental pollution and drugs since these

issues seem to be foremost among young people today. Other exhibits, such as nutrition and mental health, will also be included. The student contributed to the group by suggesting involving school representatives on the committee and inviting students to the workshop might be beneficial. Several conferences were held between the student and the nutritionist during the field experience to plan activities which would aid in attaining the objectives of the student. Continuous evaluation and modification were necessary.

Guidance and Counseling of Nonprofessional Groups

The Heart Association of Greater St. Louis provides programs to lay groups concerning heart disease and the fat controlled diet. One of the department nutritionists represented the association at a meeting sponsored by a neighborhood library. The film "Eat to Your Heart's Content" was shown, and then the nutritionist discussed the role of diet in heart disease. She provided explanation concerning the different foods available and guidance in determining which foods to purchase. After a food demonstration by a representative of the utilities company, she counseled individuals concerning diets prescribed for them by their physicians. The student noted that the nutritionist used terms which were understood by this group of middle to lower-middle class individuals. While the vocabulary used was not technical, it was not simplified quite so much as that which she used with the medically indigent patients in clinics.

The student first observed and then participated in the interviewing and counseling of patients seen in prenatal clinics. The student at some point observed each of the three nutritionists

interviewing patients and making suggestions about their diet, or examining a particular problem which the patient wished to discuss. Each person related a little differently to the patients because of the individual personalities of the interviewers and in response to the patients' needs, attitudes, educational level, and personality. After observing them the student was better able to develop her own approach to counseling.

II. ANALYSIS OF PARTICIPATION IN A SPECIFIC SERVICE ACTIVITY

Description of the Problem and Service

Nutritional anemia is a deficiency disease, just as are rickets and scurvy. The etiology and methods of prevention for all these diseases are known. There the similarity ends. In the United States today the actual diagnosis of rickets or scurvy is rare. Iron deficiency anemia, however, is the most prevalent nutritional disorder among children in our country. (28, 29) We know the problem exists, but we have not been able to establish the best method for preventing anemia.

Studies to determine the prevalence of anemia among different population groups and the feasibility of various methods of treatment have been conducted throughout the world. Using the commonly accepted definition of anemia as a state in which the concentration of hemoglobin is less than 10 gm./100 ml. blood (30), Haughton observed that 41 percent of 46 infants and 23 percent of 137 children one to three years of age tested in three New York City child health stations were anemic. (31) Of 337 children seen in a Chicago Child Welfare Station 76 percent became

anemic, most before the age of one year. (32) Similar results are being found in almost all parts of the country. A common observation has been the high incidence of anemia among children from low socioeconomic communities seen in clinics as compared to the lower incidence reported by private physicians who generally treat children from higher socioeconomic groups. (33)

To determine if the children in St. Louis County followed this national pattern, the St. Louis County Health Department and Washington University School of Medicine conducted a study of hemoglobin concentrations among children between the ages of six months and five years who were seen in Child Health Conferences during the summer of 1969. The results of this study are shown in Table 3. These data indicate that anemia is most prevalent in the six months to two years age group. It is at this age that 35 percent of the Kinloch children, 39 percent of the children from Wellston, and 10 percent of those seen in Ferguson had hemoglobins less than 10 gm./100 ml. blood. The parents of anemic children were given nutritional counseling and referred to a hospital where they could receive medicinal iron.

The preliminary testing revealed that there is definitely a segment of the population in St. Louis County who have anemia. In order to identify these children as early as possible, it was decided that hemoglobin determinations should be done on all children aged six months to two years seen in the Child Health Conferences. The screening was begun this spring, and the results from six clinics, shown in Table 4, confirm the preliminary findings. Of 51 children tested in Kinloch in May and June, 32 children, or approximately 63 percent, had hemoglobin

TABLE 3

Hemoglobin concentrations of children six months to six years seen in St. Louis County child health conferences, July-August 1969

Clinic	Age Group	Number	Mean Hemoglobin (Gm. Percent)	Percent of Group less than 10 Gm. Percent	Percent of Group less than 11 Gm. Percent	Percent of Group 11 Gm. Percent and over
Kinloch	6 mo.-2 yr.	55	10.2	35	71	29
Kinloch	2 yr.-5 yr. 6 mo.	74	11.9	0	15	85
Wellston	6 mo.-2 yr.	44	10.5	39	50	50
Wellston	2 yr.-6 yr. 8 mo.	64	12.1	2	12	88
Ferguson	6 mo.-2 yr.	30	11.3	10	30	70
Ferguson	2 yr.-5 yr.10 mo.	58	12.4	2	7	93
Lemay	6 mo.-2 yr.	36	11.6	8	31	69
Lemay	2 yr.-5 yr. 7 mo.	50	12.4	0	0	100
Valley Park	6 mo.-2 yr.	14	11.5	7	21	79
Valley Park	2 yr.-5 yr. 9 mo.	25	12.0	4	4	96
Total		450				

Source: Unpublished Data, St. Louis County Health Department.

TABLE 4

Hemoglobin concentrations of children six months to two years of age seen in six St. Louis County child health conferences, May-June 1970

Hemoglobin Concentrations	Valley Park	Pine Lawn	Well-ston	Kin-loch	Robert-son	Total	Percent of Total
<10 g/100 ml	8	11	22	32	8	81	37.5
10-11 g/100 ml	11	16	27	15	2	71	32.9
>11 g/100 ml	23	11	24	4	2	64	29.6
Total	42	38	73	51	12	216	100.0

Source: Unpublished Data, St. Louis County Health Department.

readings (per 100 ml. of blood) below 10 gm., 29 percent from 10 gm. to 11 gm., and only 7.8 percent above 11 gm. Again parents of anemic children were counseled concerning foods high in iron and, if the hemoglobin is below 10 gm./100 ml. blood, a commercial iron preparation is prescribed for the child. He is reappointed in six weeks to three months for retesting.

The nutritional counseling is generally conducted by the public health nurse, who has received some guidance from the nutritionist. In considering the high incidence of anemia in some of the clinics, the nutrition staff have given high priority to activities related to prevention and control of iron deficiency. They decided that classes would conserve time since there were so many people with the same problem.

With the guidance of the nutrition staff the student elected to talk with parents of children brought to the clinic about anemia and iron-rich foods. The Kinloch community, where the incidence of anemia was the highest, was selected as the site.

Development and Planning

The first step in planning for the actual classes was to confer with the supervising public health nurse for the district and the public health nurse in charge of the clinic. They both agreed that there was definitely a need for these services and offered their cooperation. The week preceding the first class the student and one of the nutritionists visited the clinic to observe the physical layout and facilities available in the center. In order to be more aware of the functioning of the clinic, the nutritionist and student were present during

the examinations of several children by the physician. The purpose of the visit and plans for the classes were described to the physician. Conferences and observations were helpful in establishing a good working relationship with the other personnel and in preventing the student from making plans which might interfere with the routine procedure of the clinics.

In planning for the actual presentation it was agreed that an informal discussion group of three to five parents and the student would be preferable to one large class and lecture because of the large group and the noise from the children. This was also more appropriate for the clinic since there were small groups of people free between interviews by the nurses and examination by the physician.

Presentation

The participation from the group was good. All seemed to have a fairly accurate concept of what anemia is and the methods available for treating it. The student tried to encourage involvement in the discussion at some point by each member of the group by asking questions. Several women had been instructed in foods high in iron during their pregnancies, and they contributed their prior experiences to the group. In one group each of the four women had a different method for preparing liver, and they shared this with the other members. A father was present in another group, and he gave his ideas of some of the symptoms of anemia and foods high in iron. Two of his children had been anemic at different times.

Occasionally parents quoted inaccuracies related to anemia and food high in iron. For instance grape juice and beets were given as

examples of foods high in iron. When mentioned these were discussed and corrected by the student as tactfully as possible so that the parents would not be discouraged from talking. In addition to those reached in groups, individual referrals were made by the nurses for counseling.

One fold-out poster depicting children's food needs and a poster showing the amount of iron needed by an infant and the amount provided by various foods were referred to during the discussion. Pamphlets describing a basic food plan with emphasis on iron-rich foods were marked and distributed to the parents.

Self-evaluation of Performance

Working with small groups was very helpful for the student because it provided an experience in relating to individual personalities and needs. Being able to talk informally and conversationally afforded an exchange of ideas that was important in making the student more aware of the priorities of the group, which varied from her own. An example of this was the importance that the group placed on convenience and taste appeal of foods rather than their nutritional value. By changing group members the student became more aware of the variability of individuals within the same community. The younger women tended to have a more up-to-date understanding of foods and used more of the commercially prepared foods than did the older women. The poster which expressed iron needs and quantities of iron in foods with a bar graph was not easily comprehended by some. Pictures of foods were more useful with these people. The one man in the group required special consideration by the student. An approach which would encourage him to

carry the information about foods high in iron home to his wife was necessary.

This experience was beneficial because it did emphasize the importance of an awareness of the thoughts and feelings of group members and adaptation of the program plan to the audience. It also provided the student with experience in relating to the medically indigent.

Although it was impossible to immediately determine the real benefit in decreasing anemia which can result from classes like these, the response of the group members and the clinic personnel was enthusiastic and encouraging. The nurse in charge of the clinic was very favorable in her comments and asked when the student would return.

CHAPTER V

CONCLUSION

In retrospect the student considers her experience in the St. Louis County Health Department extremely beneficial. Since the student had had no work experience in this area, mere proximity to the department and day-to-day contact with personnel from the various disciplines were most helpful in establishing a better understanding of the procedures and policies employed in public health. As a representative of the department on various occasions, she soon felt a part of the organization.

Dr. Brennan and her staff were most patient and thorough in explaining the programs of the Nutrition Division and its relationship to the other divisions and the health department as a whole. By observing the nutritionists in their work the student was able to identify from their interviewing and teaching many of the principles which she had been taught in the classroom. Other duties, including the administration of a division, were carried out and discussed during the student's stay.

The nutritionists' activities very frequently involved other agencies. The student was given a comprehensive view of several of these from both within the agency, by visiting with the nutritionists, and from outside the agency, as she shared the public health nutritionist's role in working with these allies.

There were several occasions when the student was included as a working member on planning committees. This helped the student to better

understand the mechanics involved in developing workshops and other projects. In addition to formal orientations, these planning sessions were valuable in providing additional insight into the disciplines with whom the public health nutritionist works. The student developed confidence in her own ability as a nutritionist by performing as a representative of the Nutrition Division with other health workers. By evaluating the activities in which she was involved, the student was able to appraise her own performance and its effect upon the program.

Because the field experience took place during the summer the medical school with which the supervising nutritionist is associated was not in session. Even though actual experience or observation was impossible, the student was able to discuss some approaches utilized in teaching nutrition to nursing students with the supervisor and two other nutritionists who were instructors in schools of nursing.

By working with the nurses in the health department in planning conferences, in clinics and on home visits, the student observed that their most positive responses to nutrition result from the practical application of nutrition principles. This approach will be utilized by the student in teaching nursing students.

The field experience created for the student an increased appreciation for public health as a profession and the role of the public health nutritionist. She feels better prepared to function as a member of the public health team in promoting the health of the community.

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APPENDIX

JOB SPECIFICATIONS FOR NUTRITIONIST I

Definition: This is professional nutrition work of an educational and consultative nature in the Public Health Nutrition Program.

Employees in this class are responsible for promoting a program of education in public health nutrition in an assigned district. Work includes providing consultative services in nutrition practices and food management, conducting and participating in clinic conferences, participating in clinics for special projects, making home visits, and conducting or participating in surveys and studies involving food or nutrition. Work involves considerable public contact. Work is performed with considerable independence under the general supervision of a professional and administrative superior and is reviewed for adherence to accepted practices and established policies through conferences, reports and observation of results obtained.

Examples of Work Performed: Analyzes needs and develops nutritional services as a part of a Public Health Nutrition Program.

Provides consultative and advisory nutritional services to nursing home operators, school administrators, teachers, school-lunch supervisors, and other interested groups and organizations.

Makes home visits and gives instructions regarding special diets, food budgets, and menu planning.

Inspects nursing homes in an assigned district for compliance with state dietary regulations involving licensure.

Participates as a member of a team in Public Health Clinics established under grant programs; conducts conferences at clinics.

Participates in in-service training and orientation programs in nutrition for Public Health personnel.

Conducts or participates in studies and surveys relating to food and nutrition.

Prepares or assists in the development, preparation, and distribution of educational materials on nutrition such as, newspaper releases, pamphlets, articles, reports, and radio and television scripts; promotes interest in nutrition by demonstrations, films and other visual aids; prepares charts, posters, and exhibits; attends conferences and meetings and lectures to community groups.

Maintains records and prepares reports.

Performs related work as required.

Required Knowledges, Abilities and Skills: Considerable knowledge of the principles and practices of nutrition and dietetics.

Considerable knowledge of current developments in public health nutrition.

Knowledge of the principles and practices of public health administration as related to nutrition.

Some knowledge of community health problems.

Ability to apply nutrition principles and practices to the feeding of individuals, families and groups.

Ability to understand and interpret pertinent public health laws and regulations.

Ability to assist in the preparation of educational and publicity materials and to deliver effective talks before interested groups, and to present material through the use of various media, including radio, television, slides, motion pictures, exhibits, and demonstrations.

Ability to establish and maintain effective working relationships with other departmental personnel, interested groups, and the general public.

Ability to express ideas clearly and concisely in oral and written form.

Minimum Experience and Training: Two years of professional experience as a nutritionist or in teaching nutrition, and such training as may have been gained through graduation from an approved four year college or university with major course work in foods and nutrition; supplemented by work to the graduate level of a Master's degree in Public Health; or any equivalent combination of experience and training.

NUTRITIONIST II

Definition: This is responsible professional and administrative work in directing a County-wide program in public health nutrition.

An employee in this class is responsible for planning, organizing, coordinating, and directing a comprehensive program in public health nutrition. Work includes developing and implementing plans and policies for the improvement of nutrition practices in the County, coordinating the nutritional services program with the overall public health program and with programs of other agencies and community groups, and coordinating consulting techniques and programs. Work requires considerable public contact. Supervision is exercised over subordinate professional and clerical personnel. Work is performed independently under the

administrative direction of the Commissioner of Health who reviews program plans and accomplishments through conferences and review of reports.

Examples of Work Performed: Plans, organizes, and directs the County Public Health Nutrition Program. Provides training and advice in nutrition and good management to public health nurses, nursing homes and public health clinics; cooperates with administrators in the school health program by furnishing information concerning food management and planning.

Consults with officials of local school districts and with other public and private agencies to promote and encourage interest in the public health nutrition program.

Prepares reports and recommendations for the formulation of policies, plans and procedures.

Develops, prepares and distributes educational materials on nutrition such as, newspaper releases, pamphlets, articles, reports, and radio and television scripts; promotes interest in nutrition by demonstrations, films and other visual aids; prepares charts, posters and exhibits; attends conferences and meetings and lectures to community groups.

Plans and participates in in-service training and orientation programs in nutrition for public health personnel.

Confers with physicians, dentists, nurses, and others on programs and nutritional problems.

Plans, directs, evaluates and reports results of dietary studies and surveys.

Collects and analyzes statistics; supervises the collection and maintenance of records; and prepares research reports.

Develops the budget for the division, and orders supplies and equipment.

Performs related work as required.

Required Knowledges, Abilities and Skills: Thorough knowledge of the principles and practices of nutrition and dietetics.

Considerable knowledge of current developments in public health nutrition.

Considerable knowledge of the principles and practices of public health administration as related to nutrition.

Knowledge of community health problems.

Ability to plan, organize, and direct an educational and consultative public health nutrition program.

Ability to coordinate the activities of the nutrition division with other divisions of the Health Department.

Ability to apply nutrition principles and practices to public health problems.

Ability to understand and interpret pertinent public health laws and regulations.

Ability to prepare educational and publicity materials and to deliver effective talks before interested groups, and to present material through the use of various media, including radio, television, slides, motion pictures, exhibits, and demonstrations.

Ability to establish and maintain effective working relationships with other departmental personnel, subordinates, professional and educational groups, and the general public.

Ability to express ideas clearly and concisely in oral and written form.

Minimum Experience and Training: Four years of professional experience as a nutritionist or in teaching nutrition, including one year of supervisory or administrative experience in a public health agency; and such training as may have been gained through graduation from an approved four year college or university with major course work in foods and nutrition, supplemented by graduate work to the level of a Master's degree in Public Health; or any equivalent combination of experience and training.

VITA

Louise Johnson Bennett was born in Douglas, Georgia, on September 15, 1943. She attended elementary schools in that city and was graduated from Coffee County High School in 1961. The following September she entered The University of Tennessee, and in June, 1965, she received a Bachelor of Science degree in Home Economics.

After graduation she married Willie R. Bennett and lived in Memphis, Tennessee, where she worked in the Dietary Department of John Gaston Hospital. In October, 1966, she resigned and accompanied her husband to Germany where they resided for two years.

After accepting a position as Instructor of Nutrition and Diet Therapy at St. Mary's School of Nursing, she entered the Graduate School of the University of Tennessee in January, 1969, and received the Master of Science degree with a major in Nutrition in March, 1971.

She is a member of Omicron Nu and the National League for Nursing.