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Taylor

To the Graduate Council:

I am submitting herewith a thesis written by Mary Alice Dillingham entitled "Nutrition Field Observations and Experiences in the St. Louis County Health Department." 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 Alice Taylor
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We have read this thesis and
recommend its acceptance:

Harold H. Walker

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Accepted for the Council:

Dean of the Graduate School

NUTRITION FIELD OBSERVATIONS AND EXPERIENCES IN THE ST. LOUIS COUNTY HEALTH DEPARTMENT

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

Mary Alice Dillingham

August 1966

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M. A. D.

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CHAPTER I

INTRODUCTION

An important aspect of the graduate program of study in public health nutrition is the field experience in a health agency which provides a supplement to on-campus training. The purpose of this report is to present a summary of the activities and observations of the student nutritionist's seven weeks field training in the St. Louis County Health Department. This local health department, which serves both suburban and rural areas, was selected because the student could get an overview of the generalized program in a local public health department.

During the training period the student attempted to broaden her knowledge of public health programs and services and their relationship to the population's general welfare through observations and experiences in the St. Louis County Health Department. The student set up priority objectives to work toward throughout the field experience. These objectives were: (1) to gain understanding of the appraisal of nutritional needs in a community, (2) to gain understanding of the supporting work of a nutrition program in meeting these needs, (3) to gain understanding of problems involved in establishing public health programs and in evaluating their progress, (4) to gain understanding of the contribution of the nutrition component to the total public health program, (5) to gain understanding of the coordination of nutrition programs within groups, agencies, and organizations

in the community, and (6) to develop ability to carry responsibilities and to function as a nutritionist through participating in nutrition activities and services.

The student spent the majority of her training period in the St. Louis County Health Department under the supervision of Dr. Ruth Brennan, Supervisor of Nutrition Services, and Miss Madeline Zitt, Nutritionist. Activities and experiences during the training period aided the student in accomplishing her objectives. Since she had not had any previous hospital experience, five days were spent at Barnes Hospital observing the work of the therapeutic dietitians and the nutritionist in the Washington University Nutrition Clinic. These observations were supervised by Miss Marlene Hunter, Head Therapeutic Dietitian. Inspection visits were made with a milk sanitarian to several dairy farms in the county milkshed. One day was spent at the Pet Milk Company in St. Louis City so that the student could get a better understanding of food research and nutrition application in industry. Under the supervision of Miss Nelle Sailor, one day was spent observing the Maternal and Infant Care Service Project in the City of St. Louis Division of Health, Jefferson-Cass District Health Center. The purpose of this visit was to acquaint the student with the services of a maternity clinic that is a service project supported through Federal funding. Other activities included individual conferences with supervisors of the divisions of the St. Louis County Health Department. The student also attended several in-service

conferences with division supervisors for new public health nurses. Observations were made in several of the health department clinics. Field trips were made with the nutritionists to nursing homes, well child conferences, Head Start Centers, and community organizations. A planning session of the Chronic Disease Control Service Team, several planning sessions for the in-service training of nurses, and one of the Diabetes Symposium in-service meetings for nurses were attended by the student.

Because the observation time was limited, it was impossible to cover the entire scope of the St. Louis County Health Department's programs. It was necessary to restrict observations to certain divisions and services which were of interest to the student and related to the nutrition program. Although material covered in this report is centered around the nutrition program and related divisions, brief descriptions of other divisions and services help to create an overview of the services of the total public health program.

Observations and experiences during the field training are discussed in the following four chapters. Chapter II is a summary of the geography, history, culture, economics, and statistics of St. Louis County which may be related either directly or indirectly to the work of the health department. In Chapter III a discussion of the history and organization of the St. Louis County Health Department is presented. Chapter IV contains a discussion of varying aspects of the nutrition program, and Chapter V presents a summary and evaluation of the experience in terms of the stated objectives.

CHAPTER II

ST. LOUIS COUNTY

It is advantageous in any work with people to understand and have a knowledge of their background if their needs are to be met as adequately as possible. This may be applied to the work of a local health department in a large metropolitan area. In this type of setting, many factors influence the lives of individuals with whom the health department will be associated; therefore, it is beneficial to establish some characteristics of the environment in which they live which relate to the work of the health department. In an effort to better understand the people of St. Louis County, consideration was given to the county's geography, history, culture, economy, government, and health statistics. Careful study of these areas help to reveal underlying factors which influence the population's way of life and which provide a basis for better evaluation of their health needs.

I. GEOGRAPHY

Located within a few miles of the country's westwardly shifting population center, St. Louis is an interesting blend of the North, South, East, and West. The natives' dialect, which may be an accelerated drawl or a muted Midwestern twang depending on the listener's ear, is a reflection of this all-American amalgamation (1).

The 493 square miles of gentle hills and broad valleys in St. Louis County are circled by three rivers, the Meramac, Mississippi, and Missouri (2). On the north the county is bordered by St. Charles County, on the east by the Mississippi River and the City of St. Louis, on the south by Jefferson County, and on the west by Franklin County. Outstanding geographic features include the uplift of the Ozark Mountains, limestone caves, and sinkholes underlying much of the area. Approximately 15 per cent of the total land area has been designated as flood plains (3).

The area enjoys a modified continental climate with varied weather conditions (2). Summers are hot, winters cold, and springs and autumns are moderate (4). Clay-rich soil, deposited from the Ice Age, is found in the North and West side of the county, but chemical weathering has made most of the soil in the South residual thus posing problems for septic tank installation. An ample water supply, natural gas fields, and coal fields are among the natural resources which enrich the area (2).

II. HISTORY AND CULTURE

Despite its pioneer origins St. Louis has more in common with the older eastern metropolises than with expanding, land-annexing western cities. It has been an urban pioneer enacting one of the nation's first zoning ordinances and earliest housing conservation programs (1).

In 1764 Pierre Laclede founded St. Louis as a fur-trading outpost. Until Thomas Jefferson's negotiation with Napoleon in 1803, which gave the United States control of the Louisiana Territory, Spain and France were the rulers. The city still retained its brawling, frontier atmosphere until the 1830's when conservative, German immigrants then began to make it respectable. A tremendous industrial expansion in the mid-nineteenth century helped to increase the population from 75,000 in 1850 to 160,000 in 1860. Steamship trade flourished, and soon St. Louis became the greatest inland port. At this time it was also gaining status as a rail center.

The boundaries of St. Louis in 1876 were politically frozen at their present location when the charter providing for legal separation of St. Louis City and St. Louis County became effective. This left St. Louis City a roughly lemon-shaped area of sixty-one square miles along nineteen miles of Mississippi waterfront (1). The city functioned as both a municipal corporation and a county and, according to state laws and constitution, could not extend its boundaries. Since this time efforts have been unsuccessful to merge St. Louis County and St. Louis City so that a metro-district government could be created and many area-wide problems could be partially solved. The only merging of the city and county as yet, however, was in 1954 when the Metropolitan St. Louis Sewer District was created to meet the increasing health hazards (5). This sewer district is a body corporate, a municipal corporation, and a political subdivision of the state. It has the

authority to take all necessary steps to provide sanitary and storm-water drainage in the Mississippi River watershed which includes all of the city and about two-thirds of the county area (3).

By 1910 St. Louis was the fourth largest city in the nation with a population of 687,000. At this time the urban centers were beginning to develop in adjoining sections of the county. Growth continued, but in 1930 and throughout World War II and the post war years, a mass of low-income immigrants flowed into St. Louis. The once stately dwellings became bulging tenements, and blight threatened the city. One-half of the city's housing supply was classed as deteriorating in 1953. Aiding this decline was the flow of middle-class St. Louisans from the city to the suburbs. During 1959-1960 the city gained 100,000 low-income migrants while the county gained 200,000 middle-income residents (1).

Today the neighborhoods of both St. Louis City and St. Louis County are essentially alike with the working-class, middle-rank neighborhoods constituting almost 70 per cent of each area. The difference is found in the two extremes. Thirty per cent of the county neighborhoods are mostly of higher social class while 30 per cent of the city neighborhoods are mostly of lower social class.

The city-county area has grown rapidly in the last twenty years. Migration into the county has come from both the city population and from areas outside the county. Residential opportunities of the county have been a main factor in this migration (5). Between 1955

and 1960 approximately 300,000 people moved into St. Louis County. Although less than 3 per cent of the St. Louis Countians are foreign, 11 per cent have foreign parentage (2). Accompanying this increase in population and the number of incorporated areas has been a corresponding increase in the need for public health programs in the county. Problems of sewage and garbage disposal, inspection of public places such as restaurants and swimming pools, and rabies control have become more numerous as people continue to move into the county.

Although there is a rapid increase in multi-family construction in suburban areas (6), fewer apartment house dwellers, fewer working women, and more children per family characterize the county population. Suburban life is the main style of living (5). Family people and homeowners have per average household 3.49 persons compared to 3.23 in the city. Around 85 per cent of county families live in their own homes while single family homes comprise 90 per cent of the vast 200,000 living units. Homes in the county have a median of 5.1 rooms and are valued at a median of $15,000 (2). The 1964 estimate of effective buying income per household for the city and county is $8,892 (7), and the most recent for the county is $9,762.

Although more than half of the men in the St. Louis Metropolitan Area who hold professional, technical, and managerial positions live in St. Louis County (2), the two areas are highly dependent on each other. A large part of the labor force of the city comes from the county, and the county depends on the city for a place to work (5).

In 1961 around 816,000 people lived in St. Louis County as compared to 113,000 in 1926 (8). The past twenty years has seen 72 per cent of the growth in the St. Louis Metropolitan Area centered in the county. During that period nearly half a million people plus many industries and services have moved to the county (2). The city and county presently have almost equal populations. In 1964 the percentage of non-whites in the county was 2.8 as compared to 28.8 in the city. Male and female distribution in 1964 was 48.7 and 51.3 respectively (9).

St. Louis County is divided into three sections--North, South and Central. Central, like the city, contains older families with adolescent children of college age. People at an earlier stage in family life mainly populate the North and South because this is where many of the large industrial plants are located (5). An estimated 72.8 per cent of the county's population lives in the incorporated villages, towns, and cities. Of the 27.2 per cent living in the unincorporated areas, less than 3 per cent live on farms (3).

Educational facilities in St. Louis County are highly rated (2), and most of the adults are well educated. The median years of school completed is 11.7 as compared to 8.8 in the city. More men and women in the county have completed four or more years of college than have stopped after three or fewer years. Since 1954 public schools in the twenty-six school districts have been racially integrated, and students of all races and nationalities are admitted at St. Louis University

and Washington University. In addition to approximately thirty-one colleges, universities, and professional schools, the St. Louis Metropolitan Area contains one of the outstanding medical centers in the nation which is constituted of Washington University and the affiliated hospitals of the Barnes group (4).

Cultural activities in the county include yearly art exhibitions, numerous theatre productions, museums, and modern libraries. Recreation is found in the form of state parks, county parks, city parks, and several city recreational programs. Religion is not neglected in either the city or the county. There are 350 churches and synagogues divided among approximately 360,000 Protestants, 234,000 Catholics, and 50,000 Jews (2).

III. ECONOMY AND GOVERNMENT

Economic interdependence is apparent in the St. Louis Metropolitan Area from the large number who live in one section of the area and work in another. About 80 per cent of the employed residents of St. Louis City work in the city while 52 per cent of the employed countians work in the city. The area's industrial and economic core is St. Louis City (5), but in size and products St. Louis County industry ranks second only to the City of St. Louis and Kansas City.

Large employers in the county include industries such as Chrysler Assembly Plant, Monsanto Chemical Company, and McDonnell Aircraft Corporation. Light industry is distributed in about a dozen organized

park arrangements. Approximately 30 per cent of the St. Louis Metropolitan Area retail business is in the county. The 1958 Census of Business revealed that the county accounts for some 70 per cent of the city's volume of trade with only 38 per cent of the retail outlets. Forty-four of the fifty-four shopping centers in Metropolitan St. Louis are in St. Louis County.

Although farm population is decreasing because of mechanization (2), farming in the county is a hundred million dollar business activity (3). Today only one-third of the county is farmland with the average size farm around ninety-five acres and the average value around $61,000. Most farms are moderately equipped and are operated by the owners. Nearly one hundred vegetable farms and about one hundred poultry, dairy, and livestock farms (2) produce an annual income of approximately ten million dollars.

Construction in business, industry, and highways is constantly being improved. County construction valued at over $277 million in 1962 was completed or in progress. Housing units are rapidly increasing, approximately seven thousand yearly, and construction activities in the unincorporated county areas in 1962 showed a thirteen million dollar increase (2).

Location of the St. Louis Metropolitan Area has resulted in economic advantages. Situated on two rivers it has become an important trading center. Raw materials and markets in the United States are easily accessible, and freight rates for barge and traffic are low (5).

Transportation is not lacking in either the city or the county. Five major railroads have right of way, and tracks of the Terminal Railroad connect county industry with rail facilities in the City of St. Louis, the second largest rail center in the nation. The city also has the nation's third largest trucking center. Five major highways, five interstate expressways, and five steel bridges connect the county to the vast network of highway facilities in the city. Located in the county St. Louis Municipal Airport handles over two million passengers, 31.5 million pounds of air freight, and 10.8 million pounds of air express each year (2).

An almost unlimited supply of water provides low water rates for the St. Louis Metropolitan Area and makes waste disposal relatively easy and safe. Gas and oil rates are presently relatively low, and the coal fields located nearby give favorable rates. The economic future looks bright especially since electricity in this area is generated from coal.

Diversified industry in Metropolitan St. Louis has resulted in a wide range of skilled labor. This high degree of diversification has long been characteristic of the St. Louis Metropolitan Area economy, and this helps to give a more stable economic base.

Unfortunately, locational advantages have still not pushed the St. Louis Metropolitan Area ahead of its competitors. When compared to the first half of the century, recent years have shown a proportional decline in growth in terms of population, labor force, and per

capita income. This could stem from the decrease of warehouses in the city, the sluggish industrial growth of the Mid-American region, and the need for more industry and location sites. An increase in tax rates has still not provided sufficient services in many areas. Attraction of more industry and provision for the expansion of firms already located there is inhibited by a definite shortage of industrial area. Much of the undeveloped land in the county has not been zoned for heavy industry.

Although the water supply is ample, the sanitary sewer situation is in need of improvement. The five privately owned trunk lines are far from sufficient to meet future needs of industrial and residential sites outside of the Metropolitan Sewer District. Divisions, some of which are governmental, of the St. Louis Metropolitan Area have hampered progress of civic leadership and discouraged men of vision (5).

Phenomenal growth of St. Louis County in recent years has resulted in the government's finding it necessary to expand services and functions. In the 1940's an official planning and zoning commission was created, and subdivision regulations for unincorporated areas were enacted (5). This need for land development proved that the present method of government was inadequate.

The Missouri Constitution contains a permissive home rule provision which authorizes that a county of more than 85,000 people can frame, adopt, and amend a charter. In 1950 the county adopted a new charter (5), and today this provides the basic structure of the county

government. The legislative branch is the St. Louis County Council, and the chief executive is the St. Louis County Supervisor. Elected officials carry out duties authorized by the Missouri Constitution and the Missouri statutes. Jurisdiction over the unincorporated sections of the county, which constitutes one-fourth of the population and two-thirds of the land area, is overseen by the St. Louis County Council.

Administrative functions of the county government are performed by the Departments of Administration, Revenue, Public Works, Planning, Public Health, Hospitals, Public Welfare, Parks and Recreation, and Police. Employees in the Department of Public Health, Hospitals, Public Welfare, and Parks and Recreation are under the merit system. The Commissioner of Health heads the Department of Public Health and is appointed by the St. Louis County Supervisor under merit system rules. The St. Louis County Hospital, which is headed by the Commissioner of Hospitals, gives medical and surgical care to indigent residents in the county (3).

Recent years have resulted in an expansion of county services to county cities and towns. Some services are rendered county-wide regardless of community boundaries, and others are on a contractual basis with incorporated areas. These services consist of property tax collections, police service, and health and sanitation services (2).

Figure 1 is a map which shows ninety-eight municipalities in the county in April 1962. As a result of merging, today there are

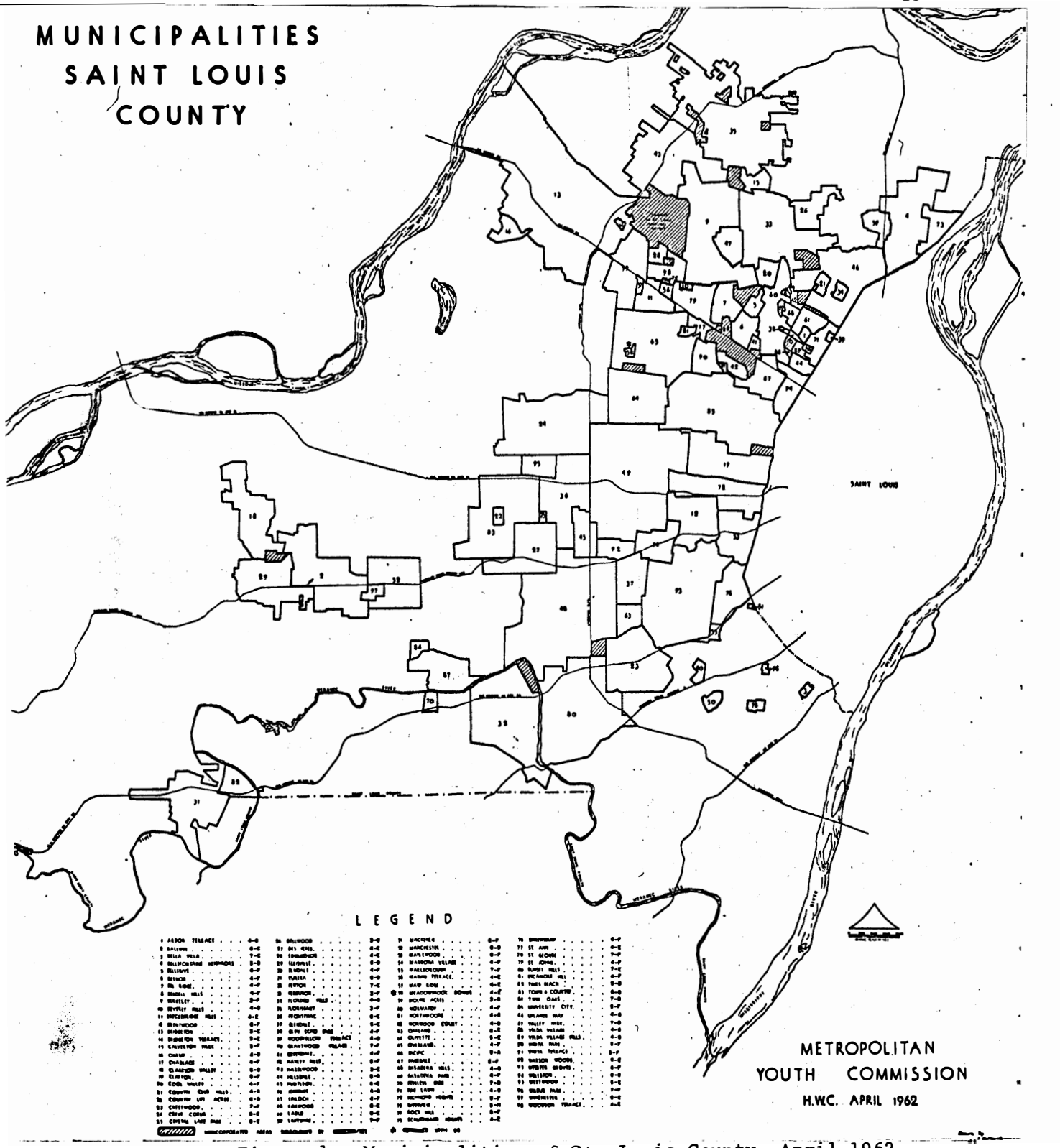

Figure 1. Municipalities of St. Louis County, April 1962.

only ninety-five. These incorporated cities or villages in St. Louis County function politically by having the power to tax, to sue, and to borrow money delegated to it by the Missouri Constitution. They vary greatly in population, area, wealth, powers, and services provided. When comparing the municipalities a range of fifty people to over fifty thousand; a few acres of land to several square miles; a few thousand dollars of assessed valuation to a few million; no tax rate to a rate of $1.40 per hundred dollars assessed valuation; and one service to all types may be found. In addition to services provided by the municipalities, services from the St. Louis County government or neighboring cities may be contracted (3).

IV. VITAL STATISTICS AND HEALTH

From 1950-1964 the birth rates per an estimated thousand population have increased from 10.1 to 12.4. Over this fifteen-year period, there was an increase from 4,134 to 10,159 births or a 145.7 per cent increase. The 1964 rate increase is partially due to the location of another hospital in the county. Resident live births in 1964 totaled 16,194. This was a rate of 19.8 per an estimated thousand population (9) as compared to the Missouri rate of 19.8 and the national rate of 21.8 (10). Almost all of the county's resident live births occurred in either the county or the city. Fifty-one and one-tenth per cent of the county's resident live births occurred in the county while 45.4 per cent occurred in the city. Only 3.5 per cent of the resident live births occurred elsewhere.

More than 99 per cent of the county's 15,618 resident live births which occurred in either the city or county were in hospitals. A medical physician attended approximately 96 per cent of white live births and an osteopathic physician 4 per cent. The non-white population differed only in the fact that no births were attended by osteopathic physicians. In 1964 there was a slightly higher non-white birth rate (24.7) than white (19.7); however, the non-white births comprised only 4 per cent of total births. There was a slight increase in the number of male births over female. White mothers were generally older than non-white, and 78.4 per cent of all resident births occurred in mothers twenty to thirty-four years of age.

The death rate per an estimated thousand population in 1964 was 7.1 (9) as compared to the Missouri rate of 11.1 and the national rate of 9.4 (10). Resident infant death rate was 17.0 per estimated thousand population (9) in comparison to the national rate of 24.2 (10). The maternal death rate was 3.7 per 10,000 live births (9) in comparison to the national rate of 3.1 per 10,000 live births (10). Most of the county's resident deaths occurred in the county. Fifty-four and three-tenths per cent of all resident deaths occurred in the county, and 31.3 per cent occurred in the city. Approximately 61 per cent of these deaths occurred in hospitals. Although the non-white death rate of 9.8 was higher than the white death rate of 7.0, the number of non-white deaths was less than 4 per cent of the total. Persons sixty-five years of age and over had the highest proportion of deaths, 58.4

per cent, and the second highest proportion occurred between the ages of forty-five and sixty-four (9).

There are many excellent health services and facilities in the county. The St. Louis County Health Department is staffed by over 250 qualified employees and offers a variety of services which will be more thoroughly examined later. Some municipalities maintain full-time health departments and some contract with the county health department for a variety of health services.

Hospitals include St. Louis County Hospital, St. Mary's Hospital, St. Joseph's Hospital, Normandy Osteopathic Hospital, Missouri Baptist Hospital, St. John's Hospital, and Shriners Hospital for Crippled Children. Private health service throughout the county provides, within a few minutes, emergency medical aid for every person. About 465 medical physicians, 300 dentists, and 150 osteopathic physicians conduct part or all of their practice in the county. Located strategically throughout the county are more than a dozen good sized medical centers. Fifty-three licensed homes for the aged and chronically ill are located in the county (2).

CHAPTER III

THE ST. LOUIS COUNTY HEALTH DEPARTMENT

I. HISTORY

Forty years ago St. Louis County directed its public health work from a one-room office in the St. Louis County Court House. A physician, three nurses, a sanitary inspector, a lay quarantine officer, and a clerk made up the staff. In 1926 the first full-time health commissioner, Dr. A. E. Walters, was appointed by the St. Louis County Court. During this time their work consisted of a wide-spread tuberculosis attack in a time when no drugs or other medical advances were available. Medical care was provided for jail patients and all "indigent poor." Sanitary inspections were made, and homes where contagious diseases were prevalent were identified by posted placards. Transportation was poor, few roads were paved, and cars had to travel slowly. Deaths were not uncommon from the communicable diseases, and continually front-page headlines and editorials of newspapers were filled with health activities.

In 1936 St. Louis County received its first financial assistance, $3,600, from the Missouri Division of Health. The Tuberculosis Society also supplemented these funds by paying some of the salaries. Less than $10,000 in all was spent on public health.

Today the St. Louis County Health Department is operating from a new building in Clayton with about 250 employees. A bond issue posted

by county voters made this building possible. Ferguson is the location of the North District Health Center. In 1961 the St. Louis County Council appropriated $1,246,048 or $1.77 per capita for the health department. Private and Federal agencies have given funds to support current research projects (8). Public health tax rate for 1965 in the county was seven cents per hundred dollars assessed valuation representing an average cost of $2.11 per year for each resident. This compared to appropriations of $1.07 per year for each resident of Knox County, Tennessee, in 1964.

II. ORGANIZATION

Dr. C. Howe Eller, the Commissioner of Health, heads the St. Louis County Department of Public Health. He has been with St. Louis County since July 1959 (8). The position as Commissioner of Health requires that the appointee have a Doctor of Medicine degree and have had graduate training in public health. Major duties of the Health Commissioner are comprised of coordinating a staff of trained specialists in the public health fields, directing the county public health program, and holding an appointment as Professor of Public Health at the Washington University School of Medicine. Additional responsibilities at present include serving on the Health and Hospital Advisory Board, serving as President of the St. Louis County Medical Society and the Missouri Public Health Association, and membership in the Research Policy Committee of the American Public Health Association.

Assistants to Dr. Eller include an assistant commissioner in the Clayton Health Center and a health officer in the North District Health Center. Seven divisions, as seen in Figure 2, make up the organization of the St. Louis County Health Department. These are the Divisions of: Preventive Medicine, Public Health Nursing, Dental Health, Environmental Health, Mental Health, Research and Development, and Departmental Services. The Division of Sanitation, as seen in Figure 2, has recently been changed to the Division of Environmental Health. Services under this division were reorganized and are now designated as: General Sanitation Services, Engineering Services, Veterinarian Services, Air Pollution and Industrial Hygiene, and Laboratory Services. Copies of the revised organizational chart are not available at present.

Employees of the health department include men and women with specialized training and skill in public health. Physicians, dentists, public health nurses, health educators, nutritionists, engineers, sanitarians, veterinarians, sociologists, psychologists, psychiatric social workers, medical social workers, health educators, statisticians, x-ray technicians, laboratory personnel, and others make up the staff. The supervisor or director of each division is directly responsible to the Commissioner except in the Divisions of Preventive Medicine and Departmental Services. Each program in these divisions is headed by a supervisor who is directly responsible to the Health Commissioner.

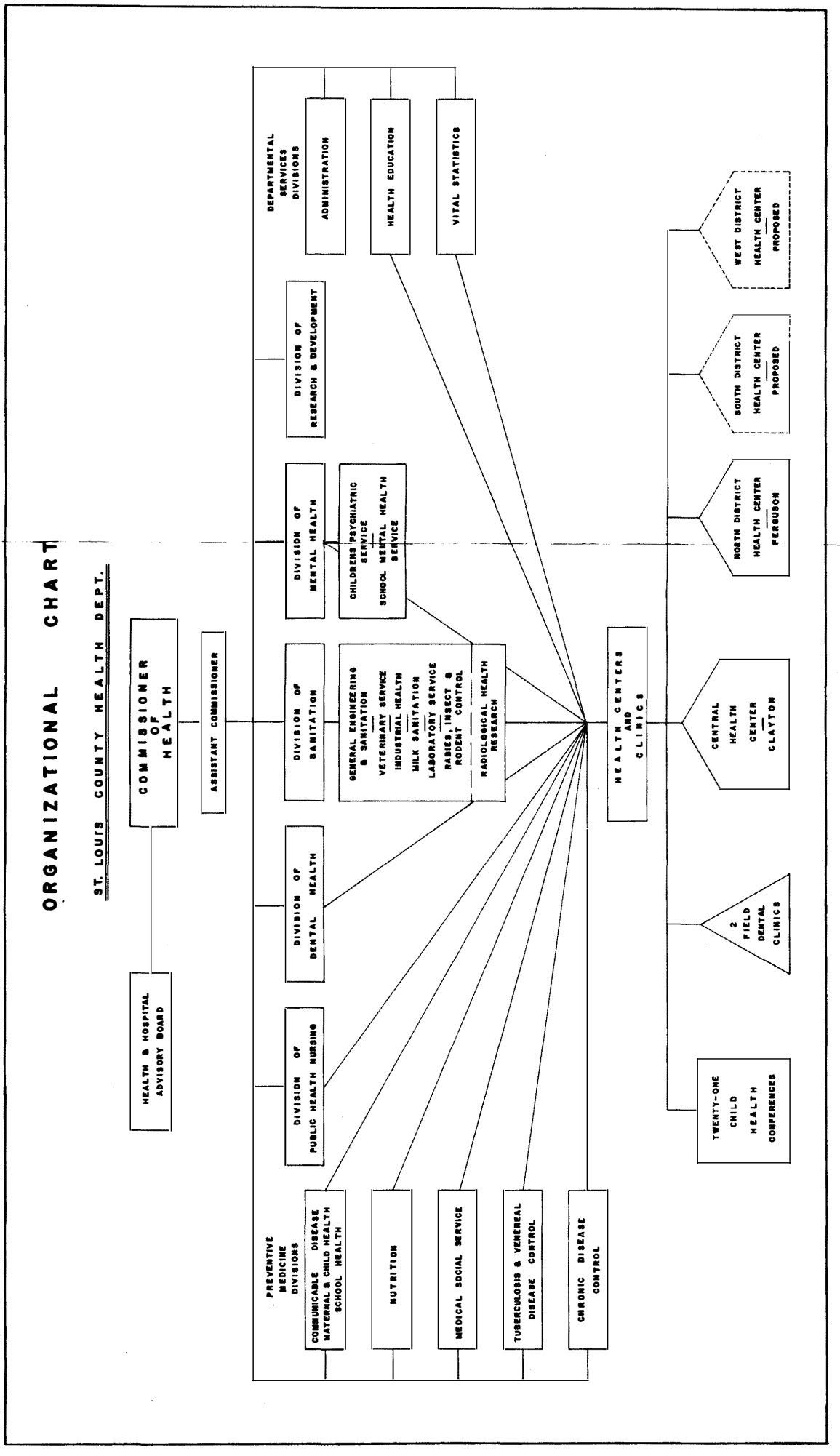

Figure 2. Organizational chart of the St. Louis County Health Department.

Located in Ferguson the North District Health Center is headquarters for a health officer, ten nurses, six sanitarians, two secretaries, and a secretary who is trained to take x-rays. At present the North District Health Center is located in a house, but plans are underway to purchase property and build a new office.

The goal of the county health department staff is to maintain in St. Louis County the highest possible degree of public health. Specific objectives include:

1. Preventing or controlling the incidence of communicable and contagious diseases

2. Protecting the health of mothers and children through specific medical, dental, nursing, and nutrition programs

3. Preventing long-term illness and disability, and adding years of useful and healthy activity to each person's life

4. Aiding communities in the improvement of local sanitation conditions

5. Safeguarding the purity of food, water, and milk supplies

6. Helping emotionally disturbed or mentally handicapped children through specific mental health programs

7. Maintaining and analyzing vital records

8. Explaining to people the existing health problems and showing how they can help in eliminating these problems

9. Maintaining research projects designed to find solutions to public health problems (11).

Health services are funded locally by tax yield, revenues, and reserves. Seven cents out of every hundred dollars assessed valuation goes to the health department, but 10 per cent of this amount has to be put into an emergency fund. The tax base is usually around

$19,000,000. A small amount of money is received from the state, and money is received from the Federal government for project grants. In 1966 the preliminary budget of $1,775,000 showed that allocation to the various divisions and services was as follows:

Sanitation	27 per cent
Administration	15 per cent
Mental Health	15 per cent
Nursing	14 per cent
Preventive Medicine	11 per cent
North District Health Center	9 per cent
Dental Health	3 per cent
Health Education	2 per cent
Vital Statistics	2 per cent
Research and Development	2 per cent

Funds for department improvements totaling almost $160,000 have been budgeted. These funds came from an additional one cent on the tax dollar. Additions and expansions will include the completion of the third floor at the Clayton Health Center, construction of a new canteen, and construction of a new rabies control and mosquito control center at an undetermined site (12).

III. CONTRACT PROGRAM FOR HEALTH SERVICES

An increase in the need for public health services has resulted from the rapid population growth in the county. Responsibility for the

provision of these services was divided among the local governmental units. Unfortunately, all units did not have available resources for providing services. In 1952 the St. Louis County Health Department made its facilities available to municipalities and school districts on a contract basis in an effort to end the problem of uneven distribution of health services. Today local units can obtain comprehensive, reasonably uniform, technically competent, and economical services. Approval of available specialized services to municipalities or school districts must be made by the St. Louis County Council. The St. Louis County Health Department negotiates the contract, and the St. Louis County Supervisor executes it.

The general public health contract requires that the city establish a department of public health and appoint the Health Commissioner, without pay, as the health officer of the city. These services are integrated with the county-wide services. A trained sanitarian is appointed by the St. Louis County Health Department to serve in the city health department and administer a general sanitation program. School districts contract with the county health department for nursing, mental health, and dental hygiene services.

IV. RELATED SERVICES, PROGRAMS, AND DIVISIONS

In order to work effectively in any program of public health, it is advantageous to understand the other programs and their services. This is important because integration of some services is necessary if

a health department is to adequately meet the needs of people it serves. In an effort to better understand the total scope of public health, the student had conferences with many of the supervisors in the various programs.

Health Education Services. Changing the attitudes of people is the goal which personnel work toward in Health Education Services. Five health education workers serve as a public relations media to the press and provide departmental services to large groups, county committees, and community agencies. Some specialized programs in which these workers play an important part are the Immunization Project, Venereal Disease Control Program, Chronic Disease Control Program, Air Pollution Control Program, and the Accident Prevention Program.

Three health educators have graduate training in public health. Two other health educators have been assigned to the health education staff, but they are funded through special grants. One grant is for the Immunization Project, and one is for the Air Pollution Control Project. These workers have an undergraduate science background but do not have graduate training. A worker has recently been assigned from the United States Public Health Service to work in the Accident Prevention Program.

Medical Social Service. Medical social workers help individuals and families with psychological, social, and financial problems, who are receiving health services from the department, to understand their

situation. Referrals are received from the Tuberculosis Control Program for every tuberculosis case diagnosed. Other referral sources include the housing inspection service of the Environmental Health Division and clinics such as the venereal disease clinic. Many times the workers take on a case that the Division of Public Health Nursing is not carrying. A member of the Medical Social Service staff serves on the Chronic Disease Control Service Team. Workers are associated with Child Welfare, Juvenile Court, and the family planning clinic. Consultation services are given to many community agencies.

Maternal and Child Health and School Health Programs. The goal of the Maternal and Child Health Program is to provide continuing health supervision for infants and preschoolers and to maintain the health of mothers. Sixty-seven well child conferences, which are held monthly at twenty-one locations in the county, offer health supervision to children from birth to five years of age. A conference is not held at the Clayton Health Center because the people in the nearby areas are of the higher socio-economic class. Prenatal and postnatal clinics are held at the St. Louis County Hospital. Public health nurses receive referrals and follow-up these patients at home.

Each of the twenty-six public school districts and each of the private school districts is autonomous and directs the type of health service for its own district. Services of the School Health Program consist of two main types, direct and consultation. Direct services include the contract programs.

The Division of Public Health Nursing contracts with schools for a fee of $4.50 per hour. A nurse is assigned to the contracting school for a stipulated number of hours based on one hour of service per week for each hundred students enrolled. Some districts contract for only part-time services.

The Division of Dental Health contracts with schools for a fee of seventy cents per child. It is primarily a health education and screening service, and individual records and follow-up services are provided by the school nurse.

The Division of Mental Health contracts with schools for a fee of $7.50 per hour. This service is developed both on the basis of needs as seen by the school personnel and mental health workers and in relation to the amount of money available for this service. Co-ordinated effort between the school and mental health personnel is important in order to understand and correct earliest evidence of behavior deviation.

Another program in school health is the physical examination clinics which are held in three locations of the county. These clinics were set up in accordance with a recommendation of the St. Louis County Medical Society School Health Committee, and each is staffed with a pediatrician and a registered nurse.

Consultation services by a school health team composed of many disciplines are given free to any school upon request. This advisory service, which began five years ago, encourages and assists schools

to maintain a school health program set up by the St. Louis County Medical Society School Health Committee.

Tuberculosis Control Program. Control of tuberculosis is the most extensive program of the health department against any one disease. Included in this program is the maintenance of a tuberculosis register on all known cases, follow-up of all cases, x-ray service, school testing, and clinic services for adults and children (13). In 1965 a special tuberculosis project was set up through a United States Public Health Service grant. This project was coordinated with the already present Tuberculosis Control Program so that the tuberculosis register and department's clinical services could be improved and services to known active and inactive cases, investigation of contacts, and the detection program could be intensified (14).

Chronic Disease Control Program. Coordination of agencies and treatment centers for the welfare of patients is the major goal of the Chronic Disease Control Program. An Administrative Team, composed of the supervisors of each discipline, meets monthly to discuss administrative aspects of chronic disease control. In this program the overall objective is to better educate the nurses so that they can better educate the patient. Instead of providing bedside nursing care, the general aim of the nurses is to provide moral support and pave the way for patients to be seen in clinics and voluntary agencies.

The Chronic Disease Control Service Team is composed of representatives from four disciplines: public health nursing, medical,

medical social service, and nutrition. Regular group meetings are not held, but members meet when the need arises to discuss various ways in which their disciplines can help individuals. Limitation is not made on the diseases included except for tuberculosis and mental illness or retardation. Other programs in the department include these categories.

Referrals for this program are received from many sources such as St. Louis County Hospital, public health nurses, the tuberculosis project, physical examination clinics, and the Visiting Nurse Association. Many disciplines are involved both in the health department and in voluntary agencies. At present there are plans to begin some group teaching in the clinics at the St. Louis County Hospital. In addition to this work, a grant has been proposed for funds to provide a mobile unit for multi-phasic testing, follow-up of the testing, and a bus to transport patients to the health department and to a hospital.

Division of Public Health Nursing. The Division of Public Health Nursing places emphasis on the promotion of health and the prevention of disease and disability. Helping people use community health resources and teaching them good health practices is the primary role of the nurse. Fifty nurses are divided among four districts. One of these districts is the area around the North District Health Center, and ten nurses work from this office. The health officer in the North District Health Center shares responsibility for nurses in that district, but

the Director of Public Health Nursing is directly responsible to the Health Commissioner at the central agency.

Services of the nurses are interrelated with many programs in the department. The nurses: (1) provide consultation to these programs, (2) make home visits, (3) give demonstrations to patients, (4) staff the health department's clinics, and (5) receive referrals from many other clinics. Two nurses, who work only in nursing homes, are the only specialized nurses. Nurses who work in schools also work in the community.

Because St. Louis County is so large, transportation to the health department's clinics is a big problem for many residents, and much time and mileage are used to reach the people. Future plans are to build a district health office in the South and West so that health services can be taken to the people.

An effort is made to keep nurses better informed on ways that they can work with patients more effectively. On-going educational in-service meetings are a regular part of the nursing program. Guest speakers and staff members of other programs are included in many of the meetings.

Division of Dental Health. Three types of activities are involved in the Division of Dental Health Program: dental examinations, dental health education, and dental clinics. Schools contract for dental examinations, and health education is interwoven in this service. At present there are eight contract schools. On request dental health

education is provided for other schools and community groups. There are two full-time dental clinics located at the Clayton Health Center and two part-time dental clinics located in two of the schools. These clinics operate on an appointment basis, and the demand is so great that the books are filled for months in advance.

Division of Mental Health. Programs in the Division of Mental Health consist of mental health services with schools and a Children's Psychiatric Service. Children seen in the child guidance clinic are under the supervision of three types of health workers: social workers, psychologists, and psychiatrists. Each worker interviews the child or parent and writes up a report. The three workers then jointly have a diagnostic conference. Treatment is based on the decisions made in the conference. Referrals for this clinic come from public health nurses, school mental health workers, Juvenile Court, and Child Welfare. Consultation to other disciplines and to schools and community agencies is a part of the services.

Division of Environmental Health. The Division of Environmental Health is divided into the following five services: General Sanitation Services, Engineering Services, Veterinarian Services, Air Pollution and Industrial Hygiene, and Laboratory Services. Each of the five services has a chief who is directly responsible to the Director of Environmental Health. This is the largest division of the St. Louis County Health Department with approximately seventy staff members.

Sanitarians are divided over seventeen environmental health districts.

The general sanitation program contracts with municipalities for a minimum of one dollar per year in order to legalize the contract. Examples of services requiring this contract are restaurant inspection, nuisance control, and rodent control. Mosquito control is expensive, and a fee is charged on an hourly basis. Only twenty-two municipalities contract for this service.

Approximately 250 milk producers are in the county milkshed. Inspections are made at producers and bottlers at least four times per year. Although the city and county milksheds may overlap in some areas, inspection is not duplicated for any producer or bottler. The city will respect the county's inspection, and the county will accept the city's inspection. In Missouri the producer must be a member of a cooperative association. Bottlers contract from these associations for a certain amount of milk. Milk is hauled from the producer to the bottler in unmarked trucks because trucks may not carry the name of the prospective bottler. Milk samples are taken from milk cartons of each size, and laboratory tests are run daily at the county health department.

Engineering services consist of: (1) consultation to contractors and operators of community plants and pools, (2) reviewing plans for disposal of sewage in subdivisions, (3) reviewing plans for swimming pools, and (4) checking the purity of the county's water supplies. On request individual wells and cisterns are checked for water purity and design sanitation.

Rabies control and air pollution services are now county-wide. A control grant from the United States Public Health Service for air pollution has strengthened the services. Because of the many industries in St. Louis, dust, fumes, and gases in the air have been a constant health problem.

Laboratory services include tests on milk, water, sewage, meats, and other foods. A radiological contract from the United States Public Health Service has provided funds for the health department's continuing research regarding the influence of dairy farming practices on the level of ^{90}Sr-strontium and other radionuclides in milk. Samples of soil, water, feeds, and milk are taken from farms in the county milkshed for the determinations.

Division of Research and Development. Research projects began formally in the St. Louis County Health Department in 1953. This local health department was one of the first in the country to set up research. The first project began in mental health with a proposal to the National Institute of Mental Health for funds to evaluate a preventive community mental health program. Gradually this project grew into other projects, and by 1960 the research activities were so great that a separate Division of Research and Development was created. Today there are sixteen projects in progress.

Although most of the research staff are on grant funds, four are on health center funds. Research is mainly carried out in the areas of mental health and tuberculosis control. Projects are primarily

research, but a few are service improvement projects. A large percentage of the staff are social psychologists, and most research is done along this line. Research in all of the areas is mainly an evaluation of the health department's programs. This makes the program one of great value to the health department because it offers the greatest potential for public health programming and contribution to the understanding of human behavior.

The research staff act as consultants to and collaborate with other divisions. In the role of a consultant, they offer advice to a division doing research in some area; but in the role of a collaborator, they take part of the responsibility for the project. For example, the Division of Research and Development collaborates with the Division of Environmental Health on the projects in air pollution and radiological health.

Although no formal relationship exists with a university, many of the division personnel hold appointments at the local universities. This helps the staff to get new ideas which may be applied in research. Last year $368,000 in total allowance was granted to this division for research. Because the money is Federal the division is not responsible to the county government for the way it is spent (13).

CHAPTER IV

THE NUTRITION PROGRAM OF THE ST. LOUIS COUNTY HEALTH DEPARTMENT

I. HISTORY AND PHILOSOPHY

The nutrition unit was established in 1954 when the first nutritionist was employed by the St. Louis County Health Department under the merit system. This position was filled for only a few months; therefore, a nutrition program was not developed at that time. A vacancy remained until 1956 when Miss Brennan, the present Supervisor of Nutrition Services, was hired under the merit system of the St. Louis County Civil Service Commission. Through observations, written reports, conferences with staff members, and home visits; needs of the community were brought to the attention of the nutritionist. Increased needs in the county for nutrition services resulted in the appointment of another nutritionist in 1958.

Promoting good health through preventive service and providing appropriate services in the treatment of disease are the goals of the Nutrition Service. Services are mainly consultative because of the large population to be served by two nutritionists. On request some direct services are provided.

A good working relationship exists between the nutritionists and other disciplines of the department. Consultation between disciplines

is carried out when the need arises. The Health Commissioner has given the nutrition staff considerable freedom in determining needed services, but no service is carried out without his support.

II. STAFF

Organization. The Nutrition Service is administratively placed in the Division of Preventive Medicine. The supervisor of each service in this division is directly responsible to the Health Commissioner. Both of the county nutritionists are appointed on a local position basis and are therefore not administratively a part of the Nutrition Service of the Missouri Division of Health. St. Louis County Health Department is the only local health department in Missouri that employs nutritionists.

Presently there is a part-time nutrition position vacant with the Maternal and Infant Care Service Project. Funds for the project were granted during the student's field training. It is hoped that the health department will be able to match funds so that this position can become full-time. A position for a half-time nutritionist has been written in the proposal, now under study, for the anti-poverty project grant.

Qualifications. Nutrition personnel are employed under the St. Louis County Merit System Civil Service Commission (see Appendix A, page 72). These positions require that the applicants have a Master's

degree in Public Health Nutrition. In the future it is hoped that another position, formerly listed with the Civil Service Commission and not requiring a Master's degree for applicants, can be reinstated.

Staff meetings. Regular staff meetings are not held since there are only two nutritionists in the county health department. An informal working relationship exists between the nutritionists. Whenever the need arises they meet to discuss services and problems. The Supervising Nutritionist attends the monthly staff meetings called by the Health Commissioner.

Provision for professional advancement and growth. Membership in professional organizations is encouraged by the Health Commissioner. He feels that it is important for professional people to stay active in related professional organizations so that they can grow and develop in their own area and help others to become aware of the work being done in public health. Each year one or more members of the staff in each division is allowed to attend a convention of a related health organization with all expenses paid. Both nutritionists hold membership in the American Dietetic Association, the American Public Health Association, the Missouri Dietetic Association, and the St. Louis Dietetic Association. The Supervising Nutritionist has served on local, state, and national committees. She has been executive secretary of the Food and Nutrition Section of the American Public Health Association. She also holds membership in the American Home Economics Association although

the majority of her time is given to nutrition related organizations. Both nutritionists have been President of the St. Louis Dietetic Association.

Staff members are encouraged to hold appointments in colleges and universities on a basis which must be approved by the Health Commissioner. Both nutritionists have taught classes, and the Supervising Nutritionist holds an appointment with the Washington University School of Medicine. She is allowed to teach the equivalent of one-half day per week and still maintain a full-time position in the health department. Personnel are also allowed a leave of absence for course study.

III. ACTIVITIES

Program planning. In any overall planning where nutrition seems even romotely concerned, the Health Commissioner always includes the Supervising Nutritionist. There is not a written procedure for planning the over-all nutrition program for each year. In planning programs and services the nutritionists try to establish health needs of the population. For example, when the nutrition program was first begun in 1956, the nutritionist was orientated to the needs of the county through home visits with nurses so that a variety of cases could be observed. Office conferences with nurses and other staff personnel helped to point out nutrition problems found in pregnancy and school age children. This also gave the nutritionist some idea of the nutritional knowledge of the staff, especially the public health nurses. Observations in

chest and maternity clinics were helpful in giving the nutritionist a general idea of the kinds of people seen and the services rendered.

At this time the Supervising Nutritionist began to participate in in-service training for nurses. The Health Commissioner and the Director of Nursing felt that nutrition was greatly needed in these meetings. She also began some office consultation with nurses on family and patient care. At the request of school health services, nutrition consultation was given to the nurses working in schools. The nutritionist also participated in county-wide institutes for both private and public health school nurses.

Nursing home visits were made with a nurse to as many of the homes as possible. This gave the Supervising Nutritionist an opportunity to meet the administrators and see some of the needs in the homes. Gradually it was possible to begin some consultation in the homes. Dietary inspections later resulted in more nursing home visits and the uncovering of more needs. It was possible through well child conference visits to become familiar with the nutritional needs of many pre-schoolers.

Today much work is being done in the Chronic Disease Control Program. Needs for services in this area were partly determined by the vital statistics of the county. Technical knowledge of disease and knowledge of families' financial resources and cultural habits also helped in determining needed services.

Needs must also be established for staff education. When consulting with staff nurses, it is important to understand their nutritional

background. Case conferences help the nutritionists to determine this as well as reading records of patients that the nurses have written. Another method of establishing needs is by testing. For example, this spring a test on diabetes was given to the nurses. The test results were used as a basis for planning a Diabetes Symposium for nurses.

Nursing homes. In 1941 the State of Missouri adopted its first nursing home legislation, but the requirements were extremely limited. Nutritional consultation to nursing homes in St. Louis County began in 1956. At this time there were fifty-five homes in the county. This large number of homes was partially the result of an enforcement code which the city had adopted many years previous. Because of the strict fire prevention regulations, many nursing homes moved from the city to the county. At this time appraisal of services in nursing homes was done according to: (1) observations of the preparation and serving of food in the nursing home, (2) checking of menus to determine kinds of food served daily, and (3) analysis of the records of food purchased to determine amounts of food purchased. All consultation was on an educational basis.

The disastrous nursing home fire in Warrenton, Missouri, in 1957 hastened the amending of the licensing and regulation bill. This bill authorized that nursing homes must pass inspection by nursing, sanitation, and nutrition personnel as well as pass fire and electrical inspections. Responsibility for granting or withholding nursing home licenses on the basis of dietary service was delegated to the nutritionists in

St. Louis County and to public health nurses in other counties of Missouri. St. Louis County Health Department was given the authority from the Missouri Division of Health to license nursing homes in the county.

Advantages and disadvantages were encountered when the nutritionists began work as a consultant and a licensure inspector. Gradually administrators no longer looked on them as a threat, and by 1958 some small group meetings with nursing home administrators were begun. Today county-wide nursing home institutes are held as well as some small sessions for one or more homes.

Yearly visits are made by the health department to the fifty-seven nursing homes to make legal inspections. The nutritionists average about three visits per year to check the dietary service and offer suggestions. See Appendix B, page 74, for the dietary inspection form sent in to the Missouri Division of Health. Many nursing home visits are made upon request and as many services as possible are offered on an educational-consultative basis. Educational materials such as menu planning manuals, summer recipe suggestions, and cycle menus are sent to the homes on request and as needed.

The student went with the nutritionist to observe a dietary inspection. During inspections some consultation is given to the administrator. On one visit the student observed interpretation of modified diets to the administrator. She also attended several classes on normal and modified diets which were taught by a nutritionist for employees in a nursing home.

Teaching materials. Development of nutritional materials is the result of a special request or of a "felt" need of material in certain areas. For example, after talking to physicians the nutritionists developed much concern over the presence of anemia in children and their normal eating habits. Over a period of time, the two nutritionists visited all of the well child conferences in the county. From interviews with some of the mothers about the dietary histories of their children, charts on low income foods rich in iron were developed. These charts and an explanation of their development were sent to all physicians in the well child conferences as a visual aid in conveying information to the mother on foods rich in iron. The original charts have been revised (see Appendix C, page 75), and they are now included in nutrition packets given to the public health nurses.

Inspections, consultation, and requests from administrators resulted in the development of educational materials for nursing homes. Copies of the Missouri Diet Manual are distributed to all homes.

The county nutritionists use some printed literature developed by other agencies which they feel is reliable and valid and serves the intended purpose. Materials from the St. Louis Dairy Council and the United States Department of Agriculture are the main sources of this literature.

Many educational leaflets on basic nutrition and simple modified diets are available for nurses to use. This literature is used both in consultation and in orientation with public health nurses to explain the

importance of modified diets. Some literature is available for the nurses to use in educating the patient. Two examples of this type of literature are pamphlets which were prepared especially for the pregnant woman. One pamphlet is for a normal diet and the other a mild low-sodium diet. When the nutritionists take part in the on-going educational in-service meetings for nurses, they also provide materials to help the nurses better understand the topic of discussion. For example, at the Diabetes Symposium for nurses, the Supervising Nutritionist gave a talk on the metabolic pathways of food in normal and diabetic individuals. To help the nurses better understand the lecture, she developed and gave to each of them a very simplified schematic diagram of the metabolic pathways.(See Appendix C, page 77).

Evaluation procedures. Procedures for evaluation used by the county nutritionists are primarily informal. Constructive criticism is one method used in evaluation because it is hard to determine good clear-cut evaluative methods for nutrition services. Measurements become very difficult to evaluate even in clinical data. One way in which the nutritionists attempt to evaluate services is through the examination of narrative records written by nurses concerning the dietary patterns of follow-up patients. This gives an idea of how well the nurses understand nutrition as well as their comprehension of material discussed in office conferences with a nutritionist.

Evaluation of nursing home menus is difficult when one considers that the nutritional status of patients may not necessarily improve with

nutritionally adequate menus. Comparison of amounts and types of foods served in nursing homes to the amounts recommended in the booklet, Planning Food for Institutions, is one method the nutritionists use to evaluate food purchased. A nutritional status study, which was carried out in two nursing homes, partially provided evidence of the adequacy of the food served.

Narrative records are filed of nutrition counseling with individuals and families. Reference to these records helps the nutritionists see what work has previously been done with certain individuals. Comparisons can thus be made in terms of how well people have followed the advice. Records are also kept of the number and kinds of talks given to groups. These records are beneficial to the nutritionists because it gives them some idea of the demand of the nutrition services as well as the types of individuals requiring services.

IV. COORDINATION OF NUTRITION SERVICES WITH OTHER HEALTH DEPARTMENT PROGRAMS

Orientation. Through office conferences the nutritionists participate in orientation of public health nurses, medical social workers, and health educators. The objective of the orientation is to inform new personnel in the department of the nutrition services available and to briefly describe some of the needs in the community where nutrition services play a vital role. The student attended an orientation for two public health nurses. During this orientation the nutritionist explained the relationship of the Nutrition Service and the Division of Public

Health Nursing. Material especially designed for use by nurses in teaching nutrition was distributed.

Consultation services. For many of the divisions and services, consultation and referrals are the main nutrition services. This applies to Medical Social Service where consultation is given to the workers on ways to plan nutritionally adequate low-cost diets. Many times the nutritionist will plan the diet. The Divisions of Dental Health and Mental Health and the Health Education Services receive similar nutrition services. Nutritionists work with health educators in preparing and selecting materials. They also help plan community group meetings and materials for hospital teaching where nutrition is included.

Division of Public Health Nursing. Nutrition services are related to the Division of Public Health Nursing in many ways. Nutritionists participate in orientation and in-service training of nurses. They plan with the Director of the Nursing Division and the Director of Nursing Education so that these in-service meetings will meet the needs of the nurses. Much of the nutritionists' work involves consultation with nurses when nutritional problems arise. Nurses may refer certain cases to the nutritionists which they feel require expert nutrition knowledge. The nutritionists will go with a nurse on home visits if a request is made.

The student had an opportunity to attend meetings in which the nutritionists planned with the supervising nurses for an in-service

program stressing nursing care of diabetics. She also had an opportunity to make a visit with the nutritionist and a public health nurse to the home of a sixteen year old diabetic girl. The nurse had recently been employed at the health department and had not previously visited in this home, The nutritionist had been giving dietary counseling to the girl for several months. This was one example of how the nutritionists participate in the orientation of nurses.

Chronic Disease Control Program. Nutritionists play a vital role in developing the nutrition component of the Chronic Disease Control Program. The Supervising Nutritionist serves on the Administrative Team, and both nutritionists serve on the Chronic Disease Control Service Team. They do consultative work with one or more members of the service team whenever the need arises. Diet is considered an important part of the work in chronic disease control, and many times the nutritionists are called upon to interpret hospital dietary records. Since chronic illness may occur in both young and old, nutritionists help adapt diets to the age of the patients. They may also be a source of patient referral for the service team. Because diet plays such a vital part in controlling these diseases, the proposal under consideration for the chronic disease control grant includes a nutrition position.

Maternal and Child Health Program. In the Maternal and Child Health Program, consultation to nurses is the main service of nutritionists, but some direct services to the patients are provided. For example, the

student attended a well child conference where the nutritionist gave a brief talk on low-cost foods rich in nutrients. Recipes using commodity foods were also given to the mothers since the county receives commodity foods.

School Health Program. In the School Health Program, nutritionists give consultation to nurses who work in the schools and receive referrals from the physical examination clinics. Most referrals are for obese children. On one occasion a physician asked the Supervising Nutritionist to conduct weekly conferences with groups of obese girls in a junior high. Occasionally referrals give the nutritionists an opportunity to meet the teachers and parents and discuss the nutritional needs of a child. The nutritionists may also have an opportunity to talk to teachers about effective ways nutrition can be taught in the classroom.

Each year an institute is held for school nurses and administrators. The nutritionists always take a part. In 1965 the topic was "Nutrition For School Children." A resource booklet was sent to each school. This institute is attended by both nurses who are employed in the school districts and public health nurses on contract to schools. Consultation can thus be given indirectly to schools where public health nurses do not provide services.

Division of Environmental Health. Nutrition services are primarily coordinated with the Division of Environmental Health through the milk sanitation section of the General Sanitation Services. The

nutritionists are kept informed of new milk formulas on the market such as special fat-free milks. Milk sanitarians keep files of all ingredients in different milks and ice creams that are sold by dairies in the county milkshed. They may also confer with the nutritionists when decisions must be made concerning the nutritional adequateness of a specially prepared milk. Another way the two services work together is through the discussion of milk advertisements. If a company is using false claims, the milk sanitarians consult with the nutritionists to get scientific reasons why the advertisements are invalid. For example, the nutritionists and the milk sanitarians helped companies to focus emphasis on whole milk for baby formulas rather than condensed milk. Nutritionists may call on the milk sanitarians if they need the name of a milk product which contains specific ingredients and is available in St. Louis County.

The sanitarians who inspect nursing homes may refer food service problems to the nutritionists. The nutritionists, in turn, refer to the sanitarians any sanitation problems in nursing homes which they feel need attention.

Division of Research and Development. Much work has been done between the Division of Research and Development and the Nutrition Service on the subject of consultation. Several consultation sessions between the Supervising Nutritionist and a public health nurse have been tape recorded. The Director of Research, who teaches in the Institute of Social Sciences at Washington University, has analyzed some of the

results with his classes. Both the Supervising Nutritionist and the Director of Research hope to continue this research in consultation and eventually determine in a detailed analysis what goes on during the consultation process. The results will also be of value in improving consultation services of the nutritionists.

Whenever the nutritionists set up research in any area, they either consult or collaborate with the Division of Research on methods to use. For example, one summer in two nursing homes research was carried out on weighed seven day dietary intakes of some patients. The division helped the nutritionists work out methods to insure valid results. In this project blood and urine determinations were taken for each patient. A weighed food intake was also taken and compared to the results of the blood and urine determinations.

Nutrition services were of value to the Division of Research and the Division of Environmental Health during the study of ^{131}I-iodine levels in the thyroid glands of ten children. A dietary history was obtained for each child, and dietary records were kept by each mother on the child's intake of milk, fresh milk products, fresh fruits and vegetables, and water. Samples of each of these foods were obtained so the ^{131}I-iodine content could be analyzed.

V. COORDINATION OF NUTRITION SERVICES WITH OTHER OFFICIAL AGENCIES

Missouri Division of Health. The nutritionists cooperate with the Chronic Disease Control Service of the Missouri Division of Health

by doing dietary inspections for nursing home licensure. The Supervising Nutritionist also helped revise the dietary inspection form for nursing home licensure.

Meetings are arranged two to three times per year between the county and the state nutritionists to discuss bulletins and teaching materials that are appropriate for use in both the state and county. Charts showing foods rich in iron, which the county nutritionists developed, were later used by the state nutritionists.

Nutritionists in the county participate in some in-service training for the state's nurses, and the state nutritionist has taken part in meetings for the county nurses. Copies of the revised Missouri Diet Manual were printed by the Missouri Division of Health so that they could be distributed throughout the state to nursing homes and hospitals.

St. Louis County Lakeside Center. The St. Louis County Lakeside Center is a residental psychiatric treatment center for boys under the direction of the Juvenile Court of St. Louis County. In an effort to insure nutritionally adequate meals in the center, the judge suggested that the food service supervisor contact the health department nutritionist. Several visits were made to the center by the nutritionist, and menus are now sent in regularly for approval.

Missouri Extension Service. The nutritionists have served on an advisory council for the Missouri Extension Service and have helped plan some joint educational meetings. Materials are shared between the two services.

Missouri Division of Welfare. Each local welfare unit is a part of the Missouri Division of Welfare. Consultation is given by nutritionists to case workers and to visiting homemakers who are in Child Welfare Services. For example, at the request of one supervisor in the Child Welfare Services, a home visit was made with a visiting homemaker. The nutritionist helped the mother and the homemaker plan menus which would be nutritionally adequate, low in cost, and easy to prepare.

City of St. Louis Division of Health. Although the City of St. Louis Division of Health does not employ a nutritionist, one has recently been hired with the special Maternal and Infant Care Service Project at the Jefferson-Cass Health Center. On occasions she has worked with the county nutritionists in preparing appropriate materials to use in the clinic.

The student had an opportunity to spend a day with the nutritionist and get a better insight of a maternal and infant care project. This project was sponsored by the Children's Bureau in selected cities over the United States where there is a high maternal and infant mortality rate. Statistics in 1952 revealed that St. Louis City had the highest infant death rate among major metropolitan cities, and in 1963 it ranked third. Studies revealed that the two municipal hospitals in St. Louis City had more maternal deaths than the other seventeen hospitals put together. A committee, which was formed to study these problems, submitted a proposal for a maternal and infant health project grant, and

the funds were approved. The objective of the project is to demonstrate, by a coordinated, unfragmented system of high quality total health care to the mother-child unit in a tightly controlled geographic area, that the rates of preventable infant and maternal deaths can be materially reduced.

All administrative offices and a few clinics of the City of St. Louis Division of Health are located in the Municipal Courts Building. Four district health centers are situated in integral parts of the city. The Jefferson-Cass Health Center was chosen as the pilot clinic, and personnel already functioning at the center were incorporated into the new program. Funds from the grant provided positions for several additional personnel who are paid on the same salary basis as regular city employees. It is hoped that this program will become city-wide and incorporated into the on-going health program of the City of St. Louis Division of Health.

The nutritionist sees every new patient and takes a dietary history. She sees regular patients only on referral from the doctor. Most of these patients are referred for low-calorie or sodium-restricted diets. Patients do not have to meet financial eligibility to attend the clinic, but they must live in the Jefferson-Cass area. On the day the student attended, 102 patients were seen in the clinic. Twenty-three were new patients. Sixteen were new prenatals, and the rest were there for planned parenthood instruction.

Four part-time physicians work in the clinic three days per week for three hours. An ideal number of patients per doctor is ten, but the demand is so great that this ratio is not possible. Delivery is done in the municipal city hospitals for patients who attend the clinic.

Office of Economic Opportunity--Project Head Start. Project Head Start is a child development program made possible by the Federal Government. The purpose is to meet the need of preschool children living in poverty who are subject to serious risks to their health, education, and welfare. When Project Head Start was in the planning stage in St. Louis County, the Supervising Nutritionist was asked to be on the nutrition committee. There is now a nutritionist employed for Project Head Start in the St. Louis Metropolitan Area.

While the student was in training, she visited several of the centers to observe the feeding arrangement. Since centers were distributed over many areas of the county, some were located in lower socio-economic municipalities than were others. This partially affected the type of food served and food service in the centers. For example, several centers are in Kinloch, a low socio-economic completely Negro municipality. The Kinloch School District was so low in funds that school lunch facilities could not be arranged for the centers. A caterer has to provide the lunches. In other centers where school districts are able to feed the children, Type A school lunches are received by the children. One of the centers in another district was able to arrange for the services of a nearby restaurant.

The type of food served in each center depends on the available food service. The allotted money per child must include transportation of food to the center as well as paper plates, cups, forks, and spoons. Because some of the food service facilities in the centers do not seem to be working effectively, the Head Start nutritionist faces many problems. The student had hoped to carry out a project with some of these centers. Unfortunately, there were many reasons why this type of project could not be carried out at this time.

After visiting the centers, the county nutritionist was asked by the Head Start nutritionist to evaluate and offer suggestions for menus to be used in the centers. The student noted from her observations that each center presented different problems and would have to be handled on an individual basis if the food service was to be successfully worked out.

VI. COORDINATION OF NUTRITION SERVICES WITH ORGANIZATIONS AND INSTITUTIONS

Professional organizations and voluntary agencies. Membership is held by the nutritionists in the American Public Health Association and the American Dietetic Association. They serve on local, state, and national committees and have served as officers of the St. Louis Dietetic Association. One of the nutritionists worked with the Missouri Dietetic Association in revising the Missouri Dietetic Manual. Both nutritionists work closely with the St. Louis Diabetes Association, and

every year one of the nutritionists helps teach classes to diabetic patients. Materials are received from the St. Louis Diabetes Association to be used in the nutrition program. Teaching materials such as food models and bar charts are received from the St. Louis Dairy Council. The nutritionists have cleared some of the National Dairy Council films for nutrition validity.

Community organizations. The nutritionists give talks to local clubs in the community on request. One local club, which the nutritionists have done work with on many occasions, is TOPS. This is a club to help members "take off pounds sensibly."

The student had an opportunity to teach a nutrition lesson to one of these clubs. Club members were interested in learning about low-calorie foods which could also be served to their families. A talk was prepared by the student based around the Basic Four food groups and different foods in these groups which were high in nutritive value but low in calories.

In order to prepare this lesson so that it would meet the needs of the group, the student talked to the nutritionists concerning generalized information about the TOPS groups in the community and the general nutritional knowledge of the members. She also discussed with the nutritionist, who had given talks to these groups, the types of visual aids and teaching materials that had been most effectively used. After the student felt she had a general idea of the needs of the TOPS members, she began to read references on dieting and foods for low-calorie diets.

The student used several of the National Dairy Council bar charts which showed the nutritive value of foods. Charts were chosen so that nutritive values of some common foods in each group could be compared. A chart of the Basic Four food groups was used because the student wanted to emphasize eating a nutritionally balanced diet. A flip chart, which was made by the student, contained points such as why we eat, why our body needs foods from each group, and nutrients which supply energy. In the original request for a nutritionist to talk to the TOPS group, it was mentioned that the members would like to see food models of average size servings. The student selected food models from the fruit and vegetable group and the meat group. She arranged these models on several pages of the flip chart so that they could easily be seen and would be easier for her to manage. An exchange list of foods was given to each member. This list showed the different amounts of foods in six groups which contained the same number of calories. All of the members seemed to feel that these lists would be quite useful.

The lesson was very informal and time was allotted for any member to ask questions. Many questions were asked both during and after the talk. Questions were not only asked about points brought out in the lesson on choosing a nutritionally adequate low-calorie diet, but they were also asked concerning problems of their family members. The student found the members of this group very receptive. All seemed to be very interested in the material discussed and in the visual aids used.

Washington University School of Nursing and School of Medicine. The Supervising Nutritionist is giving, on request, some special lectures on modified diets to nurses in the Master's degree program at Washington University. Two such classes were taught while the student was in training, and she attended both of them. One class was on diets for gastrointestinal diseases, and the other was on sodium-restricted diets. The nutritionist also holds an appointment with the School of Medicine of Washington University. She serves on special committees at the university and presently is preparing a seminar on alcoholism for the medical students.

The Dietetic Departments of St. Louis University and Barnes Hospital. Interns from St. Louis University and Barnes Hospital Dietary Departments are sent to the St. Louis County Health Department for field experience in public health. The nutritionists and the respective dietary departments plan the type of experience. For example, during the student's training period, a class taught to nursing home personnel on normal and modified diets was attended by a dietetic intern. The Supervising Nutritionist usually gives one lecture to each class of interns in both departments.

While the student was in training, she spent five days at Barnes Hospital observing in the therapeutic dietitians' office and the Washington University Nutrition Clinic. She observed the therapeutic dietitians giving dietary instruction to patients on modified diets. Opportunities

were provided for observation of the generalized work of therapeutic dietitians. In the Washington University Nutrition Clinic, she observed the nutritionist giving consultation to patients on modified diets. Approximately eight to twelve patients can be seen in the clinic daily since one hour is usually allotted per patient. This clinic sees, without charge, patients who are diabetic or from the Gastrointestinal, Metabolism, or Allergy Clinics. Maternity patients are not seen unless they need a modification of the normal diet for pregancy.

Colleges and universities. Students from many of the state and private colleges all over the country receive field training in the St. Louis County Health Department. The nutritionists participate in this training by assisting in the in-service orientation of nursing, social work, medical, and health education students. They provide field experiences on request. All of the students come for extended field training in the county health department except the medical students who come in the summer on a clerkship. Many choose a special project to work on, and the nutritionists assist in planning and developing the project when it is nutrition related. For example, one medical student helped with a nursing home study on dietary intakes of individuals, one worked on a food habit survey, and one worked on a study of school health medical records.

Graduate nutrition students from universities and colleges in many areas of the country receive their field training in the St. Louis

County Health Department. They are supervised by the nutritionists for a period of seven to eight weeks. These students receive diversified experiences in both generalized public health programs and in public health nutrition (15).

CHAPTER V

SUMMARY AND EVALUATION

The student has presented her activities and observations during seven weeks of field training in the St. Louis County Health Department. Activities were provided throughout the training period which gave the student an overview of the generalized program and the nutrition services in a local public health department.

After evaluating these experiences and observations of her field training, the student feels that her objectives were accomplished. An over-all objective was to broaden her knowledge of public health programs and services and their relationship to the population's general welfare. Throughout the training period the student was exposed to the work involved in many programs and services of the health department and was made more aware of generalized public health work in communities. Conferences with many of the supervisors of divisions and programs gave her a better understanding of public health programs and services and their relationship to the total public health program. The student feels that this exposure to programs in the health department was an important facet of her field training because she was unacquainted, previous to her graduate work, with the actual work involved in public health. She feels that the opportunity to have conferences with program supervisors and to attend health department clinics was advantageous. They not only helped her to better understand and see in

practice the public health philosophy and over-all program of a local department, but they also orientated her to her future work as a public health nutritionist.

In order to work effectively in public health, the student felt that she must have a generalized knowledge of the over-all public health program. She feels that placement in the St. Louis County Health Department helped her to achieve this objective because it is a large local department which carries out extensive programs in many areas. She also feels that the many conferences with program supervisors helped her to gain skill in communicating with other disciplines in public health.

Six priority objectives were set up in an attempt to give the student a better understanding of various facets of the nutrition program and the related work of a public health nutritionist. One of these objectives was to gain understanding of the appraisal of nutritional needs in a community.

Observations, conferences with the nutritionists, reading reports, and field trips provided the student with a better understanding of the appraisal of nutritional needs in the community as well as the supporting work of the nutrition program in meeting these needs. The student feels that these experiences were valuable and necessary in orientating her to the nutrition program of a health department because each experience provided examples of the way needs are established when programs are developed.

Another objective was to gain understanding of the supporting work of a nutrition program in meeting these needs. Since the student had not had any previous working experience in any phase of nutrition, she felt it was important for her to develop an awareness of ways that one can work more effectively to help individuals and groups meet their needs. Observations of the planning sessions for the Diabetes Symposium helped the student to see needs evaluated for nurses and a series of meetings planned around the results. Aiding in the preparation of educational materials for talks on nutrition to the staff and to nursing home personnel helped the student to better understand how needs can partially be met through use of effective visual aids.

The student attempted to better understand problems involved in establishing public health programs and methods to evaluate their progress. Opportunities were provided for the student to observe the nutritionists in their administrative work. Conferences with the Supervising Nutritionist gave the student a deeper insight of the methods used to develop a nutrition program in a local health department. These conferences also made the student more aware of the many problems and challenges which face any public health nutritionist when developing services.

Insight of the evaluative methods used in nutrition services was gained through conferences with the nutritionists, observing the work of nutritionists, and through a conference with the Assistant Director of Research. Each of these experiences made the student more conscious of the problems encountered when evaluating services.

To gain understanding of the contribution of the nutrition component to the total public health program was another objective. Through observations and conferences the student gained understanding of the coordination of nutrition services with other health department services. She observed situations involving nutritionists that made her more aware of the many aspects in which nutrition is a contributing component to the total public health program. These observations included orientation to public health nurses, consultation to public health nurses, planning sessions for education of public health nurses, and a meeting of the Chronic Disease Control Service Team. Many of the program supervisors pointed out in conferences with the student the role that nutritionists play in helping to achieve a particular health department program.

An objective was also set up to help the student gain understanding of the coordination of nutrition programs within groups, agencies, and organizations in the community. The student observed the work of the nutritionists in professional and voluntary organizations and community agencies. These observations helped her to recognize the importance of establishing a good relationship between nutritionists and professional people in the community. She also became more aware of the vital role that nutrition services play in areas outside of the health department. The student attended with the nutritionists meetings of the St. Louis Dietetic Association, and she attended one of a series of classes for diabetics sponsored by the St. Louis Diabetes Association.

Because the student had not previously been associated with personnel in voluntary agencies on a professional basis, this experience was an important facet of her field training. She now feels that she better understands ways in which the public health nutritionist and professional personnel in voluntary agencies, which are nutritionally related, can work together.

Developing ability to carry responsibility and function as a nutritionist through participating in nutrition activities and services was another objective. An opportunity to teach a nutrition lesson to a community organization gave the student responsibility for planning a lesson around the "felt" needs of the TOPS members. The student realizes that she is still in the learning process of establishing needs for individuals and groups, but she does feel that she has gained skill in planning education materials and nutrition lessons to meet the needs of people.

In an attempt to better understand food research and application as well as the work of nutritionists in industry, one day was spent at the national headquarters of the Pet Milk Company. The student feels that this experience was of value to her because she was unfamiliar with the work in food research, nutrition research, and promotion of products of a large food company. She felt it was important to have some understanding of the work of nutritionists in industry because this information could at times be beneficial to a public health nutritionist.

The student spent five days at Barnes Hospital observing the work of the therapeutic dietitians and the nutritionist in the Washington University Nutrition Clinic. These observations were provided because the student had not had any previous hospital experience. The student feels that the observation in Barnes Hospital gave her a better understanding of hospital dietetics. She feels that technical knowledge such as food service procedures and equipment layout as well as an understanding of the way hospital patients are instructed on modified diets will be of value to her in public health nutrition. The student hopes to further develop her knowledge in these areas. Observations in the Washington University Nutrition Clinic were most beneficial in giving the student an understanding of dietary instruction to patients in an out-patient clinic.

In an attempt to become better acquainted with maternal and infant care service projects, the student spent one day observing a project in the City of St. Louis Division of Health. This provided the student with a better understanding of the problems and time involved in getting a service project approved and funded. She also became more aware of the tremendous job involved in carrying out the work to meet the needs of the patients.

Observations in the Head Start Centers provided an opportunity to become familiar with the nutritionist's relationship to some of the Federal programs. These observations were included because the student felt that a better knowledge of the War on Poverty programs would be beneficial in her future work.

The student feels that the training period in the St. Louis County Health Department was an important aspect of her graduate work. This training supplemented the on-campus training by providing experiences so that she could acquire "first-hand" knowledge of public health nutrition. It also helped the student relate principles and ideas, which were learned during the academic training, to application in public health programs and services.

The observations and experiences in nutrition activities and services to which the student was exposed during the training period have been invaluable in preparing her to assume responsibilities of a nutritionist in public health work. Because the health department was large, she feels that it offered many opportunities for her to observe ways in which nutrition is a component of various programs and services as well as help her to develop knowledge and application of public health nutrition principles. These diversified observations and experences have given the student more confidence in accepting her future challenge as a public health nutritionist.

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APPENDICES

APPENDIX A

JOB SPECIFICATIONS FOR PUBLIC HEALTH NUTRITIONISTS

I. SUPERVISING NUTRITIONIST

Definition

Under direction, to plan, organize, and supervise the nutrition program for the County; to advise patients, public health nurses and community groups concerning nutritional needs; and to do related work as required.

Typical Tasks

Plans and administers nutrition programs; provides training and advice in nutrition and food management to public health nurses, nursing homes and public health clinics; cooperates with administrators in the school health program in furnishing information concerning food management and planning; develops, prepares and distributes educational materials on nutrition such as newspaper releases, pamphlets, articles, reports, radio 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.

Employment Standards

Any combination of training and experience equivalent to completion of a college education in foods and nutrition, supplemented by completion of one year of graduate training in public health nutrition, and two years of public health nutrition experience.

Knowledge of food values, preparation, budgeting, purchasing, storage and meal planning; knowledge of health education principles and methods with respect to nutrition; knowledge of community health problems; ability to develop and maintain cooperative public relationships; ability to prepare educational and publicity materials on nutrition.

II. NUTRITIONIST

Definition

Under supervision, to perform professional services in providing training and advice in nutrition and food management to public health nurses, public health clinic personnel, school administrators, nursing home operators, community groups and individuals; and to do related work as required.

Typical Tasks

Provides consultative nutrition services to nursing home operators, school administrators, teachers, and school-lunch supervisors; advises public health department personnel and community groups concerning nutritional practices; assists with in-service training program relating to field of nutrition; makes home visits and gives instruction regarding special diets, food budgets and menu planning; conducts conferences at clinics; makes talks and gives demonstrations in this field; makes surveys and studies to foster the promotion of public interest in the field of nutrition; prepares charts, posters and exhibits; distributes educational materials; uses films and other visual aids; attends conferences and meetings; prepares reports and maintains records.

Employment Standards

Any combination of training and experience equivalent to completion of a college education in foods and nutrition or dietetics, supplemented by one year of graduate training in public health nutrition, and one year of professional experience as a nutritionist or dietitian. One year of dietetic internship can substitute for the required year of professional experience.

Knowledge of modern nutrition theory, methods and practices; ability to give consultative nutrition services to departmental staff; school adminstrators, nursing home operators, and others; ability to gain the confidence and support of professional workers and lay groups interested in nutrition programs; knowledge of community health problems; ability to prepare educational and publicity materials on nutrition.

APPENDIX B

NURSING HOME LICENSURE

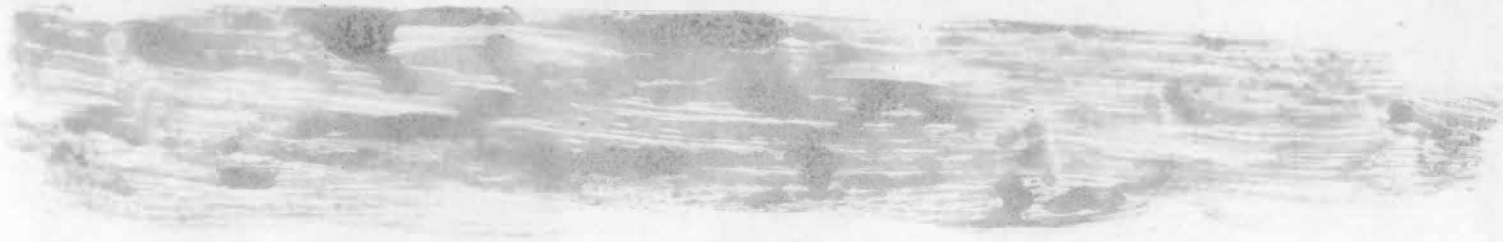


Figure 3. Dietary inspection form for nursing homes.

Inst. L. 26 Rev. 10/65

DEPARTMENT OF PUBLIC HEALTH AND WELFARE OF MISSOURI
DIVISION OF HEALTH

Inspected by _____ This inspection is No. _____

DIETARY INSPECTION

Date of Inspection _____

Approved ☐ Not Approved ☐

Name of Home _____

Location _____
STREET OR R.F.D. CITY COUNTY DISTRICT

Name of Administrator _____ Person Interviewed _____

Name of Person Responsible for Food Service _____ Training _____

Number of Residents _____ Number of Personnel Fed _____ Total _____

DIETARY SERVICE

1. There is insufficient personnel to insure adequate preparation of food. Home needs additional personnel ( )
   Specify position and hours needed:
2. There is insufficient personnel to insure adequate service of food to residents. The home needs additional personnel to cover hours ( )
3. A time schedule for service of meals to residents and personnel is not established ( )
4. Meals are not served approximately five hours apart ( )
5. Time schedule between the evening meal and breakfast exceeds maximum 14 hours by hours ( )
6. Home does not provide for three well-planned meals served at regular hours each day ( )
7. Home does not provide supplementary feedings as necessary ( )
8. Ample time is not given to the residents for eating their meals ( )
9. The meals for each individual for each day does not include the following:
   a. One serving of a good source of Vitamin C or two servings of a fair source of Vitamin C ( )
   b. One serving at least every other day of a good source of Vitamin A ( )
   c. At least two cups daily of fruits and vegetables ( )
   d. Two or more cups of milk or milk group daily ( )
   e. Two or more servings of meat group daily ( )
   f. Four or more servings of bread or cereal group daily ( )
   g. Other foods such as butter or margarine, sugars, jellies, grain products and other fats ( )
10. Menus showing the foods to be served each day are not posted ( )
11. Menus are not filed for three weeks ( )
12. Changes in the menu are not noted on the posted menu ( )
13. Modified diets are not being provided as ordered by the resident's physician ( )
14. Individual tray service is not being provided to residents who have objectionable table manners ( )
15. No provision is made to serve the hot food hot and cold food cold ( )
16. Tray service and dining room service for the residents is not attractive ( )
17. Bed patients or semi-ambulatory residents who are served their meals in bed are not provided with an over-bed tray or over-bed table ( )
18. Special attention is not being given to texture of food for patients without dentures or with poor teeth ( )
19. The size of servings to each individual resident is not adequate ( )
20. The current record of purchases is not kept to show the kind and amount of food purchases each month ( )
21. Food is not properly stored ( )
22. A daily menu in writing is not provided for all modified diets ( )

RECOMMENDATIONS

The following recommendations are made, however, they are not required for licensure.

1. Meals should be served at tables in a room or rooms other than bedrooms to ambulant and chair residents ( )
2. Standard recipes should be used in preparation of the food ( )
3. Food purchased according to planned menus ( )
4. A standard diet manual should be available and should be used ( )
5. A record of meals served should be kept ( )
6. A record of food cost should be so kept that the administrator can determine the per capita food cost ( )

Meals for 24 hour period: Date _____ Day of Week _____

Breakfast: _____ a.m. Dinner: _____ (TIME) Supper: _____ p.m.

_____ _____ _____

_____ _____ _____

_____ _____ _____

_____ _____ _____

_____ _____ _____

_____ _____ _____

_____ _____ _____

Between Meals: (List Food Served and Time Served)

_____

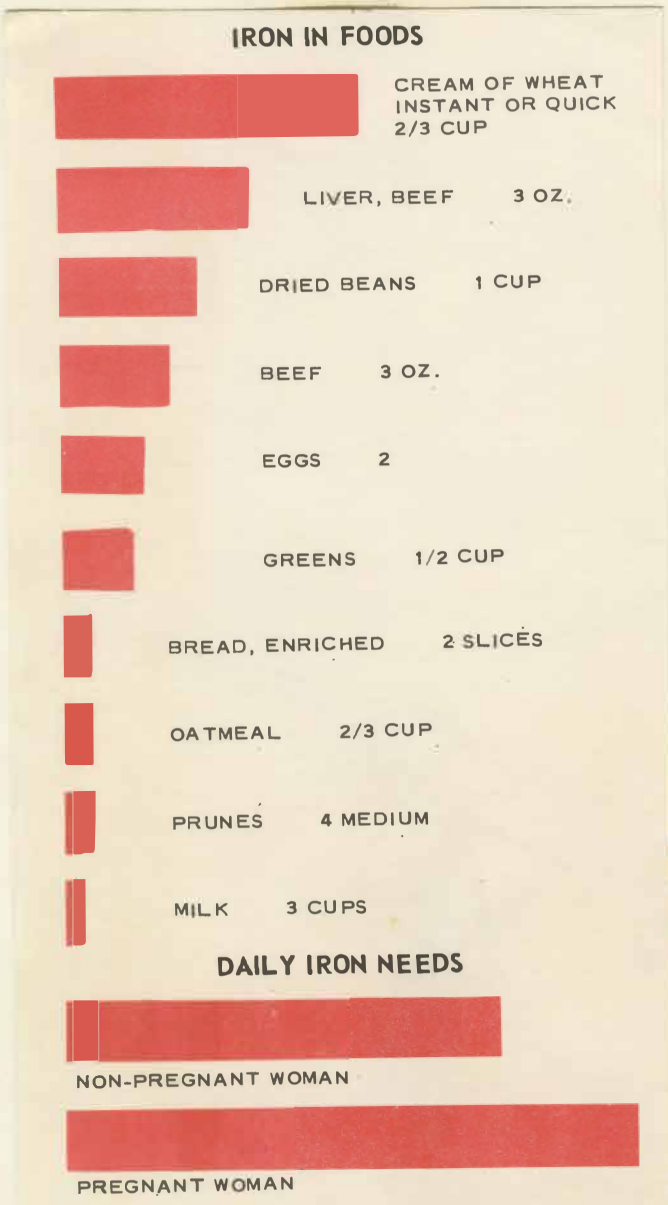
Number of employees working in kitchen _____

Name of Employee	Hours Worked Per Day	Days Per Week	Duties
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____

Food Purchased by _____ _____ (TITLE)

APPENDIX C

VISUAL AIDS FOR TEACHING



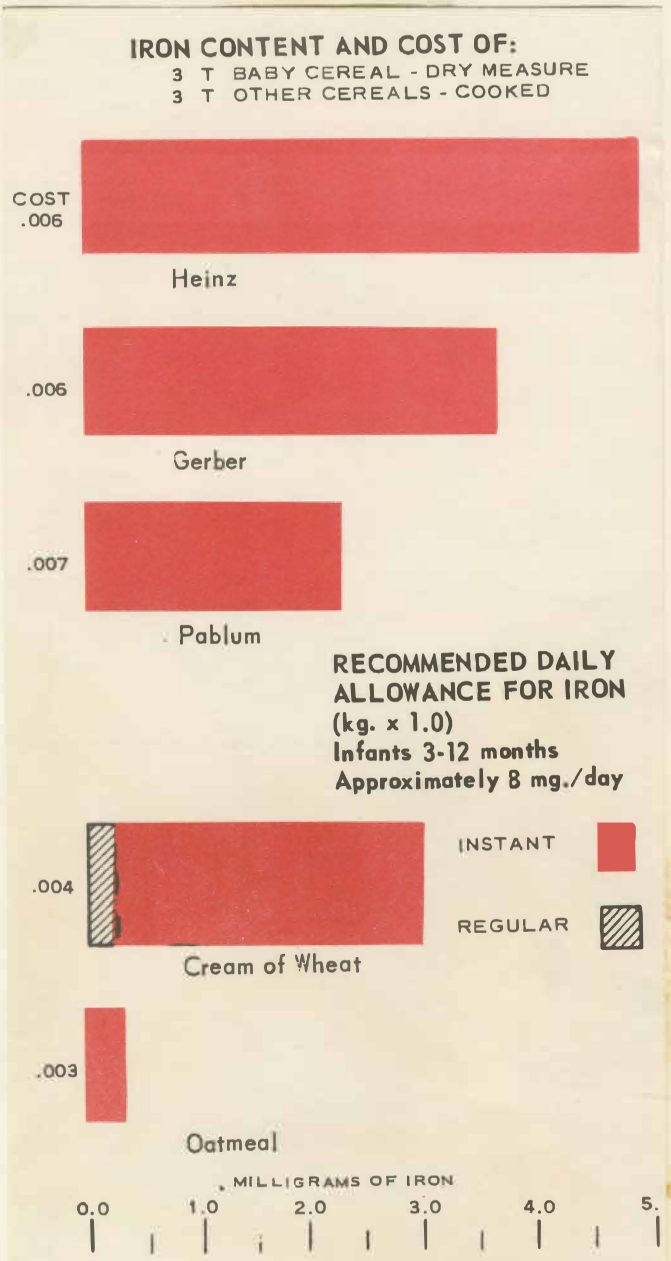
IRON IN FOODS

THE CHART, IRON IN FOODS, WAS DESIGNED TO BE USED IN MATERNAL COUNSELING OR OTHER CONDITIONS WHERE THERE IS AN INCREASE IN THE BODY'S DEMAND FOR IRON. AS YOU WILL NOTICE FROM THE TWO BARS AT THE BOTTOM OF THE CHART, THE INCREASED NEED FOR THE PREGNANT WOMAN IN THE LAST TRIMESTER IS ONE-THIRD GREATER THAN THAT OF HER NON-PREGNANT NEED. THIS INCREASE IS NECESSARY TO MAINTAIN THE EXPECTANT MOTHER'S HEMOGLOBIN LEVEL AND PREVENT NUTRITIONAL ANEMIA, TO SUPPLY A RESERVE FOR IRON IMMEDIATELY AFTER DELIVERY AND TO FURNISH THE INFANT WITH A RESERVE IRON DURING THE FIRST FEW MONTHS OF LIFE WHEN GROWTH IS RAPID AND THE CHIEF FOOD, MILK, IS LOW IN IRON.

THE FOODS AT THE TOP OF THE CHART ARE THE BEST SOURCES OF IRON. AT LEAST ONE SERVING SHOULD BE CHOSEN DAILY WITH OTHERS IN AMOUNT AND COMBINATION TO MEET THE DAILY REQUIREMENT. IT IS NOT ALWAYS EASY FOR THE PREGNANT WOMAN TO INCLUDE SUFFICIENT IRON IN HER DAILY DIET, ESPECIALLY IF SHE IS IN THE LOW INCOME GROUP. SOME OF THE FOODS HIGH IN IRON, I.E. MEATS, ARE RELATIVELY EXPENSIVE FOODS. DRIED BEANS AND PEAS, AND ENRICHED CEREALS, HOWEVER, ARE GOOD SOURCES OF IRON AND MAY MAKE A SIGNIFICANT CONTRIBUTION IN COMPLIMENTING THE IRON FROM ANIMAL SOURCES. IT MAY BE WELL TO REMEMBER THAT PORK LIVER IS CONSIDERABLY CHEAPER AND CONTAINS ABOUT TWICE THE AMOUNT OF IRON AS LIVER FROM OTHER ANIMALS. EVEN IF AN IRON SUPPLEMENT IS BEING GIVEN, THE EXPECTANT MOTHER NEEDS TO KNOW THE IRON-RICH FOODS ARE ALSO SOURCES OF OTHER NEEDED NUTRIENTS AND SHOULD BE ENCOURAGED TO INCLUDE A VARIETY OF THESE IN HER DIET.

THE CREAM OF WHEAT GIVEN ON THE TOP OF THE CHART IS THE QUICK COOKING AND INSTANT, CONTAINING ABOUT TEN TIMES THE AMOUNT FOUND IN REGULAR CREAM OF WHEAT. ALSO, LIVERWURST AND BRAUNSCHWEIGER CONTAIN APPROXIMATELY THE SAME AMOUNT OF IRON AS LIVER WITH THE EXCEPTION OF PORK LIVER. IF THE INDIVIDUAL OBJECTS TO TAKING LIVER ITSELF WITH ANY FREQUENCY, SHE MAY FIND THESE PRODUCTS MORE ACCEPTABLE.

Figure 4. Iron in foods.



IRON CONTENT AND COST OF BABY FOODS

BECAUSE OF THE CONCERN WITH NUTRITIONAL ANEMIA OF YOUNG CHILDREN, CHARTS HAVE BEEN PREPARED SHOWING COMPARATIVE IRON CONTENT AND COST OF STRAINED BABY FOODS AND CEREALS. SOME OF THE MOTHERS YOU COUNSEL HAVE LIMITED INCOME AND ARE NOT ABLE TO BUY A VARIETY OF FOODS FOR THEIR INFANTS. THE PURPOSE OF THESE CHARTS IS TO POINT OUT THAT LIMITED INCOME NEED NOT BE A DETERRANT IN PROVIDING ADEQUATE IRON INTAKE FOR INFANTS. THE INFANT'S DAILY REQUIREMENT FOR IRON IS APPROXIMATELY 8 MG. AND THIS AMOUNT CAN BE PURCHASED FOR ABOUT 1-¼¢ PER DAY USING BABY OR OTHER ENRICHED CEREALS. WHEN POSSIBLE THE USE OF OTHER GOOD SOURCES OF IRON AS SHOWN, SHOULD BE ENCOURAGED FOR VARIETY AND MOST IMPORTANT, TO MEET THE OTHER NUTRIENT NEEDS.

MILK WAS INCLUDED ON THE COMPARATIVE CHART TO SHOW ITS LACK OF SIGNIFICANT CONTRIBUTION IN MEETING THE INFANT'S DAILY NEED FOR IRON. HOWEVER, WE DO NOT WISH TO MINIMIZE THE PRIMARY ROLE OF MILK IN PROVIDING PROTEIN, CALCIUM, AND OTHER FOOD NUTRIENTS ESSENTIAL DURING THIS PERIOD OF RAPID GROWTH.

THE IRON CHARTS RELATED TO INFANT FOODS WERE PREPARED INDEPENDENTLY OF THE NUTRITION TEACHING AIDES (6-1/2X3-1/2) WITH WHICH YOU ARE FAMILIAR. YOU WILL NOTE THAT THE BARS INDICATE MG. OF IRON IN A GIVEN AMOUNT OF BABY FOOD. COST IS GIVEN TO THE LEFT OF INDIVIDUAL FOODS. ONLY THOSE FOODS COMMONLY USED FOR INFANT FEEDING WERE CONSIDERED.

THE REFERENCES USED IN PREPARING THESE CHARTS WERE:

CHURCH, CHAS. F., M.D. AND CHURCH, HELEN M. BOWES AND CHURCH'S, FOOD VALUES OF PORTIONS COMMONLY SERVED. PHILADELPHIA: LIPPINCOTT. 1963.

Figure 5. Iron content and cost of baby foods.

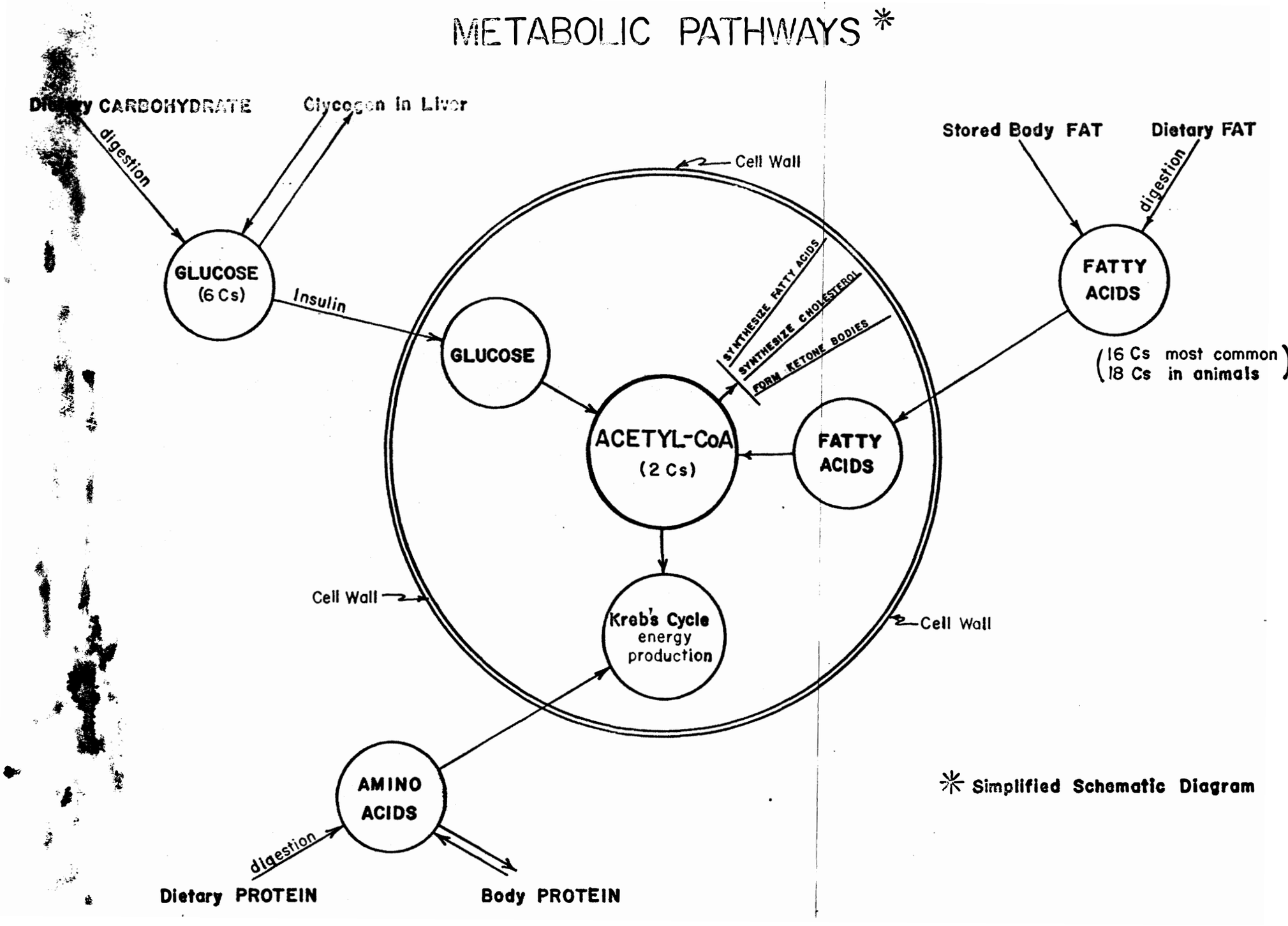


Figure 6. Schematic diagram of the metabolic pathways.