

AN EVALUATION OF FOOD SERVED AT SELECTED  
DAY CARE CENTERS IN OKLAHOMA

By

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## CHAPTER I

### INTRODUCTION

#### Purpose

The purpose of this study was to evaluate the food served to children in selected day care centers in Oklahoma. In order to achieve this purpose, direct observations were made of the meals and snacks actually served to children in 39 day care centers. Voluntary and proprietary centers participated in the study. Some of these centers received the benefits of the Special Food Services Program for Children, and others did not. The foods served in these various types of day care centers were compared in terms of quality and quantity of food served to the children.

#### Problem

Malnutrition exists in serious proportions in the United States. It can be found at every socio-economic level and is most prevalent among the poor. It can be found at every age level and is most prevalent in early childhood at which time it is particularly damaging.

In the past American scientists who were interested in the clinical aspects of nutrition focused their attention on the underdeveloped countries of the world. Concern about malnutrition in this country became evident in the early 1900's. This concern gradually increased until, in the 1960's, malnutrition became a



national issue. Evidence indicated that the school lunch programs, which had been developed as an attack on the problem of malnutrition in childhood, were not adequately meeting the nutritional needs of children.

Attempts to provide food services to school children date back over a period of more than 100 years. These attempts were sporadic and were usually undertaken by private groups and associations interested in the welfare and education of children. For example, in 1853, The Children's Aid Society of New York initiated a program for serving meals to students attending the vocational school. In spite of these early attempts, no significant effort to provide food services for school children were initiated until the early 1900's when some of the larger cities in the nation began to provide school lunch programs. Support for these programs was provided by philanthropic organizations, school-oriented associations, school boards and/or interested individuals. Under the auspices of these, school lunch programs continued to expand, and by 1931 there were approximately 64,000 school cafeterias in operation throughout the country.

The depression of the 1930's served to deepen the nation's concern over hunger and malnutrition. Many states adopted legislation to provide school lunches at cost for children from families who could not otherwise afford to pay; however, state governments were unable to provide sufficient funds for this program, and the need for Federal aid was evident (Briggs and Hart, 1931).

Federal aid for school lunch programs began in 1932. This aid was in reality an attempt to take care of problems that grew out of the depression rather than being a real commitment to meeting the

nutritional needs of children. For example, school lunch programs provided constructive outlets for surplus farm commodities; thus hungry children were fed at school, and farmers were helped by being given an outlet for their products. However, these Federally aided school lunch programs reached only a small percentage of the children who needed them.

In 1946, the passage of the National School Lunch Act marked a change in national policy. The feeding of children was given priority; and the purpose of this Act was clearly stated as a measure of national security to safeguard the health and well-being of the Nation's children.

During the next two decades, the National School Lunch Act was periodically examined and amended to meet changing needs and to serve a greater number of children. A School Breakfast Program where needed was added to the Act in 1966.

These periodic changes improved the Act, but there was still a group of children in this country who needed a nutritious feeding program and were not involved in it. This group consisted of a growing number of preschool children whose mothers were working. Frequently these mothers lacked the necessary knowledge and had neither the time nor the economic resources to see that their children's nutritional needs were being met. This problem had been brought to the attention of lawmakers many times, but legislative efforts related to the problem had always met with strong opposition.

In response to a growing awareness of the need to include preschool children in the school lunch program, Representative Charles Vanik introduced a bill to Congress in 1968, proposing that

the National School Lunch Program be extended to all public and private nonprofit day care centers (U.S., Cong., Sen., 1972). The Bill readily passed the House, but was held up by the Senate because it was considered to fall outside the scope of the School Lunch Act.

While the Vanik Bill was being debated, a group of women's organizations initiated a study of the School Lunch Program. These groups included Church Women United, the YWCA, and the National Councils of Negro, Catholic and Jewish Women. The findings of this study showed that of 50 million children enrolled in the nation's schools, fewer than two million were getting a free or a reduced-price lunch in school. The study also showed that eligibility for the free lunch program varied from community to community and was being determined, not by a universally accepted formula, but by local decisions about administration and financing which might or might not have anything to do with the needs of the individual child (Fairfax, 1968). Some schools could not meet the eligibility requirements of the program at all; and in some schools the administrators believed the program should be self-supporting. However, the main reason for lack of participation in the program seemed to be inadequate funding at Federal, State and local levels. The end result was that the children who could not afford to pay were not served by the program. The detailed findings of this study were published in a report titled Their Daily Bread (Fairfax, 1968).

Also in 1968, a nation-wide study was conducted by a group called the Citizens Board of Inquiry into Hunger and Malnutrition in the United States. The findings of this study, published in a booklet titled Hunger, USA (U.S., Cong., Sen., 1972) provided evidence of

chronic hunger and malnutrition throughout the United States, that is, in every part of the United States in which the Citizens Board held hearings or conducted field trips. Following the publication of these findings, the Columbia Broadcasting System prepared a television documentary showing the extreme poverty in this country and the need for free or reduced-price lunches for school children. The public was alerted and demanded action.

The trio of events described above, and the public furor they evoked, had a profound effect on the Vanik Bill. The public exposure of the inadequacies in the School Lunch Program apparently influenced the Senate, and the Vanik Bill was passed in May, 1968. The program provided by the Vanik Bill became known as the Special Food Services for Children.

So important was the passage of the Vanik Bill that a Senate Select Committee on Hunger and Malnutrition, proposed by Senator George McGovern, was established in November, 1968. This committee conducted hearings in which testimony by experts on nutrition, pediatrics, and child development was sought. These hearings resulted in the initiation of surveys that would identify existing nutritional needs of the nation's children and would facilitate the recommendations of ways to meet those needs.

In response to national concern about malnutrition, the 1969 White House Conference on Food, Nutrition and Health was called by President Richard Nixon. The conference set up 26 panels to investigate and make recommendations for identifying and eliminating the problems of malnutrition in this country. The panel surveying the state of nutrition of the American people identified preschool

children as one of the groups most vulnerable to malnutrition. The panel dealing with nutrition education recommended greatly improved nutrition education programs from the preschool level to the university and community levels.

The panel concerned with children and adolescents stated that highest priority should be given to assuring adequate nutrition for the fetus, child, and adolescent because the consequences of unsatisfactory nutrition are likely to be greatest in the growing individual. This panel felt that the most effective way to meet the immediate problem of hunger in the United States was through full application of all existing laws and programs. They requested a presidential directive for the elimination of inefficiencies, inequities and inflexibilities of food programs including School Lunch and Breakfast Programs and expansion of these programs where necessary. The panel recommended the continued and expanded use of day care centers. Day care should be available, particularly for working mothers, and a reasonable goal would be day care facilities for 600,000 additional children each year for the next five years. By the end of 1975, the number of children in day care would then be approximately 3,500,000. The panel suggested that opportunities for improving the nutritional status of children and for teaching elements of sound nutrition to small children might be an important aspect of day care programs and could be an effective means of helping to eliminate malnutrition in this vulnerable group.

The panel, concerned with children and adolescents, also realized that the nutritional services provided in day care facilities would depend upon the hours children are in attendance and suggested that a

center open from 7:00 A.M. to 5:00 P.M. should provide 80 percent of a child's daily nutritional needs. The panel also called for a strong nutrition education program which would include nutritionists and specialists in early childhood education who would prepare specific goals for nutrition and nutrition education in day care programs (U.S., Cong., Sen., 1969).

Historically, in the United States, day care programs have been established for reasons other than simply concern for the needs of children. For example, day care services were funded by the Federal government during both World Wars, when women were needed in the labor force.

During the 1960's, with an ever-increasing number of women working outside their own homes, interest in day care was revived. Again, as during the wars, the primary reason for the revived interest in day care was to free women to work rather than to meet children's needs. In spite of the interest in freeing women to work, there was a growing desire to use day care as a vehicle to promote the optimal development of each child.

Early in the 1970's there were an estimated 46,500 licensed or approved day care facilities in the United States. These facilities served 638,000 children, which was a relatively small number when compared to the millions of young children who needed care. At that time there were an estimated five million preschool children of working mothers and another three million children in very poor families who could benefit significantly from good day care services (Lazar and Rosenberg, 1971).

### Current Status of Day Care

Day care facilities in the United States are under the auspices of a number of different groups. Public Centers are those which are sponsored and funded by Federal, State and local governments. Voluntary Centers are those which are sponsored and funded by a variety of groups, such as churches and charitable organizations, who operate on a non-profit basis. In the Oklahoma Child Care Facilities Licensing Act, the term voluntary refers to a facility owned or operated by a group either incorporated or unincorporated wherein any profit is turned back in the facility for use thereof. Proprietary Centers are those which are privately owned and are operated for a profit. In the Licensing Act the term proprietary refers to a facility owned or operated by an individual or group of individuals and is a profit-making facility. Over 90 per cent of all full-time day care centers in this country are in this last category (Lazar and Rosenberg, 1971).

The Special Food Services Program of the National School Lunch Act is available for public centers and voluntary centers. This is the program which was set up to provide better nutrition for preschool children on a year-round basis. Funds for this program are granted to public child care institutions and non-profit non-residential child care institutions. Voluntary centers, those with community and church groups, are included in the latter category.

The majority of voluntary centers in the State of Oklahoma are located in churches of various denominations. Many are using the available federal feeding programs, but some elect to assume

responsibility for feeding the children in their care without the help of these programs. Some seem to fear or resist any involvement with government funds because of the church and state issue. Some do not want the paper work involved. Others do not participate in the federal feeding programs simply because they are not sufficiently aware of the true nature of the program, its purpose and the way it operates.

#### Special Food Services Program

The Special Food Services Program of the National School Lunch Act was established in order to provide better nutrition for preschool children. Many day care centers are eligible for participation in this program. The requirements for participation are as follows:

- (1) The center must operate a non-profit food service for all children without discrimination.
- (2) The center must meet the nutritional requirements as prescribed by the United States Department of Agriculture.
- (3) The center must supply free or reduced-price meals to children unable to pay the full charge.

Centers which meet these requirements are eligible to receive a reimbursement of 95 cents a day per child -- 15 cents for breakfast, 30 cents for lunch, 30 cents for supper, and 10 cents for each of the two daily between-meals snacks (U.S., O.E.O., 1971).

Specific regulations have also been established for the type and quantity of food which is to be served in the centers which participate in the Special Food Services Program. These specifications, as reported in the USDA Nutrition Service Bulletin (FNS-80), (Poole, Luck, Lewis and Curtin, 1972), are presented in Figure 1, page 10.



**REQUIRED AMOUNTS OF FOOD TO SERVE FOR BOYS AND GIRLS OF SPECIFIED AGES**  
(Special Food Service Program for Children)

Pattern	1 up to 3 years	3 up to 6 years	6 up to 12 years <sup>1</sup>	12 and over:	
				Girls	Boys <sup>1</sup>
<b>BREAKFAST PATTERN:</b>					
Juice <sup>2</sup> or Fruit	1/4 cup	1/2 cup	1/2 cup	3/4 cup	1 cup
Cereal and/or Bread: <sup>3</sup>					
Cereal	1/4 cup	1/3 cup	3/4 cup	3/4 cup	1 cup
Bread <sup>4</sup>	1/2 slice	1/2 slice	1 slice	1 slice	2 to 3 slices
Milk	1/2 cup	3/4 cup	1 cup	1 cup	1 cup
<b>LUNCH AND/OR SUPPER PATTERN:</b>					
Meat and/or Alternate:					
One of the following combinations to give equivalent quantities:					
Meat, poultry, fish	1 ounce	1-1/2 ounces	2 ounces	3 ounces	3 ounces
Cheese	1 ounce	1-1/2 ounces	2 ounces	3 ounces	3 ounces
Egg <sup>5</sup>	1	1	1	1	1
Cooked dry beans and peas	1/8 cup	1/4 cup	1/3 to 1/2 cup	3/4 cup	1 to 1-1/4 cup
Peanut Butter	1 Tbsp.	2 Tbsp.	3 to 4 Tbsp.	4 Tbsp.	5 Tbsp.
Vegetable and/or Fruit <sup>6</sup>	1/4 cup	1/2 cup	3/4 cup	1 cup	1-1/4 to 1-1/2 cups
Bread <sup>4</sup>	1/2 slice	1/2 slice	1 slice	1 slice	2 to 3 slices
Butter or Fortified margarine	1/2 teaspoon	1/2 teaspoon	1 teaspoon	1 teaspoon	1 to 2 teaspoon
Milk	1/2 cup	3/4 cup	1 cup	1 cup	1 cup
<b>AM OR PM SUPPLEMENT:</b>					
Milk or Juice <sup>2</sup> or Fruit or Vegetable	1/2 cup	1/2 cup	1 cup	1 cup	1 cup
Bread and/or Cereal <sup>3</sup>					
Bread <sup>4</sup>	1/2 slice	1/2 slice	1 slice	1 slice	2 slices
Cereal	1/4 cup	1/3 cup	3/4 cup	3/4 cup	1 cup

<sup>1</sup> When a range in amounts is given, the smaller amount is suggested for younger children.

<sup>2</sup> Full strength fruit or vegetable juice.

<sup>3</sup> Enriched or whole grain.

<sup>4</sup> Or an equivalent quantity of cornbread, biscuits, rolls or muffins, etc. made of whole grain or enriched meal or flour.

<sup>5</sup> When egg is served as main dish, use in addition a half portion of meat or alternate for all children except those 1 up to 6 years.

<sup>6</sup> Must include at least two kinds.

NOTE: Crackers and cookies made of enriched or whole grain meal or flour may be used as bread alternate for am or pm supplements.

Figure 1. Food Requirements as Reported in the USDA Food and Nutrition Service Bulletin (FNS-80), 1972.

Commodities

Centers which are eligible for participation in the Special Food Services Program receive the cash reimbursement described above and are also eligible to receive commodities. Approximately one-fourth of the food used for school lunches is bought by the United States Department of Agriculture under two basic programs. One is a surplus removal program which provides primarily meat, poultry, eggs, fruits and vegetables. The other is a price support program and provides primarily flour, rice, butter, beans, cheese, dry milk and cornmeal. These two groups of foods are bought in accordance with the needs of the local farmer.

Commodities in plentiful supply can be received by the centers in any amount without regard to a fixed guide or rate, provided only that they are used without waste or spoilage. States are not required to meet the Federal contribution of commodities (U.S., O.E.O., 1971).

The Special Food Services Program has not been used to the extent that it might be. For example, in the fiscal year 1970 only eleven states spent as much money as they were authorized to spend in this program. The reason for this limited use of the program was that relatively few of the eligible centers applied for the funds (U.S., O.E.O., 1971). This fact, plus the fact that more than 90 per cent of the full-time day care centers are ineligible for the program, clearly indicates that the Special Food Services Program is used by only a few of the facilities in need of the program.

## CHAPTER II

### REVIEW OF LITERATURE

In review of literature for this study there will be a look into the research regarding the effects of malnutrition. It will include: (1) research with animals and the effect of malnutrition on their physical development, on their behavior, and on their learning ability; (2) research with people and the effect of malnutrition on their physical development, on their behavior, and on their learning ability; and (3) intervention into malnutrition with good nutrition in both animals and people and its subsequent effect. Implications for the present research will be discussed.

#### Research With Animals

##### Effects of Malnutrition on Physical Development

Much of the information on malnutrition and its effect has come from animal studies. When animals are used in research, nutrition and environment can be precisely altered in ways that are quite impossible with human beings.

Information gained from research with animals cannot be applied directly to human beings. Species differences must be taken into consideration. For example, there are critical periods in the development of all young organisms and each species has a different

timing in its development. For example, a rat's brain achieves 80 per cent of its adult weight by the end of the fourth week of post-natal life, whereas for a pig the time interval is eight to ten weeks, and for the child the time interval is three years (Davison and Dobbing, 1966).

In studies of animal nutrition, a number of experimental designs have been used. Some diets have been unbalanced in regard to specific nutrients; restricted quantities of a stock diet have been administered; test diets have been administered for short and long periods of time; and nutritional intervention has been focused on the effects of malnutrition on physical development, on behavior, and on the ability to learn and adapt to the environment. There are the areas in which the effects of malnutrition have been noted in human organisms, and it has been in these areas that scientists are seeking a greater understanding.

Animals fed on severely restricted quantities of a stock diet are primarily affected in body growth and brain development. Piglets have been held down in size and weight so that at one year of age they weighed what a normal pig weighs at about four weeks. Brain growth has been less retarded than body growth, but there have been marked reductions both in brain size and in the number of brain cells (McCance, 1960). The restricted diet has also caused retarded brain growth in piglets. Marked reductions have been found both in brain size and in the number of brain cells (Dickerson, Dobbing, and McCance, 1960). When a more moderate level of food deprivation has been introduced in young rats, brain growth has been reduced but has been less affected than body growth. When these undernourished

young rats were weaned at three weeks and allowed to feed at liberty on a stock diet, they gained weight more quickly than control animals, but never recouped their early deficit in either body or brain growth (McCance and Widdowson, 1966).

Animals fed on diets unbalanced in regard to specific nutrients grow quite differently from those fed normally balanced rations in reduced quantities. Pigs fed a diet unbalanced in the ratio of calories to protein lost their desire to eat and some had to be force fed. There were marked changes in the brain, spinal cord and central nervous system of these animals. The severity of their symptoms was inversely related to the absolute amounts of protein consumed (Widdowson and McCance, 1963). Reduced brain size and deficient myelination have been demonstrated in animals who have experienced severe or moderate degrees of deprivation at a time when their nervous systems were developing most rapidly. These deficits were not made up in later life even when the animals were placed on excellent diets subsequent to the period of nutritional deprivation (Birch and Gussow, 1970).

#### Effects of Malnutrition on Behavior and Learning Ability

Animal researchers interested in malnutrition have studied possible learning process damage. Research indicates that behavior is affected by nutritional deprivation. Animals raised on nutritionally inadequate diets may suffer from behavioral and learning difficulties which are evident even when measured crudely. Animals fed on restricted diets show a tendency to be hyper-emotional. With these animals, the presence of food, or any average stimulation such

as a loud noise or a mild shock, produces excessive response; and this emotional response may interfere with learning and behavior. In a study of Rhesus monkeys fed on a low protein diet from one month of age, it was found that the monkeys performed as well as well-nourished controls if the testing situation was familiar to them; however, if the testing situation was unfamiliar, the performance of the malnourished monkeys was markedly disrupted. These monkeys responded negatively to the novel stimuli and this interfered with their test performance (Zimmerman, Strobel, and Maguire, 1970). Protein-calorie deprivation in pigs and dogs has produced changes in the central nervous system, and in subsequent behavioral testing, these animals have performed poorly (Platt, 1962).

Animals maintained on a poor diet over several generations produce young who are handicapped in their learning ability. This condition persists even after generations of adequate feeding (Birch and Gussow, 1970). When rats have been maintained on a low protein-calorie diet for four generations, there has been a progressive decrease in the ability of each succeeding generation to respond to standardized tests. Severe maternal malnutrition in animals has been shown to stunt physical growth and retard the behavioral development of the young for two generations during which the offspring have been provided with an adequate diet (Cowley and Griesel, 1963).

#### Research with People

Information gained from research with animals cannot be applied directly to human beings. However, the findings obtained from animal studies give direction to research with people. An area of human

nutrition which is relevant to the present research and which has been studied is the effect of malnutrition on children's physical development and on their behavior and learning ability.

#### Effects of Malnutrition on Physical Development

The single most important factor that produces stunted physical growth in children is malnutrition. Children in Uganda who have been rehabilitated after a period of severe malnutrition have continued to show retarded physical development as compared to that of normal children of the same age and ethnic group (Dean, 1960). In Venezuela, children who have recovered from severe malnutrition were followed for a period of ten years and were at that time still retarded in their growth (Birch and Gussow, 1970).

The effects of malnutrition on growth are not limited to severe malnutrition. A moderate degree of malnutrition is referred to as undernutrition. This does not necessarily imperil survival, but it does produce growth retardation. Abnormal body proportions have been found in Mexican school children who live under conditions conducive to undernutrition. In Britain and Japan, research has shown that the growth of children's legs and their body height are responsive to the relative adequacy of the available diet (Birch and Gussow, 1970).

Research findings have also indicated that severe malnutrition in human beings can affect the physical development of the brain. Both the brain size and the number of brain cells can be adversely affected. In Uganda, post mortem studies were made of the brains of malnourished and well-nourished children. The malnourished children had significantly smaller brains than did the well-nourished

children (Brown, 1966). The findings of another study in which the brains of children who died of malnutrition were examined, indicated that these children had significantly fewer brain cells than do normal children (Winick and Rosso, 1969).

There is some severe protein-calorie malnutrition in the United States, but for the most part, in this country malnutrition can best be described in terms of dietary deficiencies in the area of vitamins and minerals. This type of deficiency is referred to as chronic undernutrition. There is evidence that chronic undernutrition affects physical and mental development adversely. Children hospitalized in infancy because of problems related to undernutrition, have been followed and checked for possible adverse effects three and four years later. These children were significantly smaller than control children of the same age, and their stunted physical growth was clearly related to the duration of their undernutrition. These children's IQ's were lower than those of control children, and it was found that their neurological and intellectual development was related to the duration of undernutrition they experienced in infancy (Chase and Martin, 1970).

#### Effects of Malnutrition on Behavior and Learning Ability

Inadequate or borderline intakes of specific nutrients can interfere with behavior and learning ability. Thiamin deprivation causes anxiety, irritability, depression, and increased sensitivity to noise and pain. Inadequate amounts of nicotinic acid result in lassitude, apprehension, and depression. A deficiency of Vitamin



B-12 causes mental confusion. Inadequate iodine causes a low basal metabolic rate, and physical and mental languor. Insufficient iron results in lowered hemoglobin and reduced capacity of the blood to carry the oxygen needed by the tissues for normal functioning.

Abnormal functioning of the tissues contributes to the most common behavioral problem found in malnourished children, which is apathy accompanied by irritability. In the early stages of undernutrition, there is an increase in motor restlessness; while in later stages, there is a depression of motor activity (Birch and Gussow, 1970).

The effects of malnutrition described above disappear when the deficiencies have been corrected; however, the effect on a child's learning ability may be permanent. Malnutrition affects learning in two ways: directly, by interfering with the functioning of the central nervous system, and indirectly, by interacting with social and environmental factors.

A child's ability to respond appropriately to significant stimuli in his environment is retarded during any period of chronic malnutrition, and this retardation is accompanied by progressive behavioral regression (Foster, 1972). Children with poor nutrition also have problems that involve concentration and alertness. Children with low energy levels respond to learning situations with apathy or even with high excitability, neither of which is conducive to learning (Sulzer and Thomas, 1973). Often an adult will reject a child because of his sluggish behavior, thus compounding the problem of malnutrition with social and psychological factors of regression and social interaction (Cravioto, Delicardie, and Birch, 1966).

### Intervention Research

In research with animals there has been evidence that adequate nutrition can at least partially overcome the adverse effects that have resulted from malnutrition. In intervention research with children similar results have been obtained.

The relationship between nutrition and physical growth has been dramatically shown in Japan. Since 1948, improved nutrition practices in that country have resulted in increased stature of the school children (Mitchell, 1964). On the other hand, there is evidence that when malnutrition has stunted physical growth during childhood this condition cannot be corrected by an adequate diet later in life. There is also evidence that when mental development has been stunted by malnutrition, the condition may be irreversible (Lederberg, 1968).

In cases of undernutrition, which is less severe malnutrition, intervention with an adequate diet can effect a real improvement in the child's condition. Malnourished children who have been given nutritionally adequate diets have shown significant gains in intelligence test quotients, while a control group of well-nourished children showed no such gain. The explanation of the difference between the two groups of children was that because of dietary deficiencies, the malnourished children had not reached their potential; and when the deficiency was corrected, these children were able to reach their potential (Latham and Cobos, 1971).

Intervention with a mid-morning snack for children in school and in day care situations has clearly demonstrated the relationship between nutrition and behavior. In one study the effect of fruit

juice versus water as a mid-morning snack for preschool children was investigated. This study was conducted over a period of one year, and during that time each child participated alternately in the two snack programs. The behavior of the children was observed, and from these observations, the effects of fruit juice versus water as a snack was determined. The findings indicated that the mid-morning orange juice was beneficial in relieving fatigue, in reducing irritability and tension, and in decreasing negative behaviors (Keister, 1951). In England, a study of 6000 school children showed that school performance improved as a result of a mid-morning milk break (Nat'l Inst. for Res. in Dairying, 1939).

By far the most thorough and impressive intervention study is one that is in progress at the Tulane University Childhood Research Center (Smith and Unglaub, 1972). It is a multi-disciplinary longitudinal research project in which psychologists, nutritionists, physicians, bio-chemists, and sociologists are involved. The project is designed as an investigation of the effects of a set of biochemical elements, including proteins, vitamins, iron and other minerals essential for nutrition. The purpose of the research is to determine the effects of a lack of these elements on the psychological reactions of children in testing situations and the ultimate effect of this lack on the behavior and learning of the children. During the first year of the Tulane study, standard survey techniques and preliminary psychological tests were used in order to identify undernourished children and children representing the extremes in psychological performance. From these data, a significant relationship was found between nutritional deficiency and specific types of test

performance. Malnourished children performed at a lower level than did the better nourished children on several of the psychological tests.

During the second year of the Tulane study a food intervention program was introduced in order to determine whether dietary supplements would improve the learning ability and behavior of the children, as well as their nutritional status. One group of children, in their school setting, was served a lunch which provided one-third of the minimum daily requirements for minerals, vitamins, and proteins. Another group of children was served a breakfast and lunch, thereby being provided more of the minimum daily nutritional requirements. At the end of six months, medical examinations of these children indicated that those who had received breakfast and lunch had made a marked physical improvement, whereas those who had been given only lunch had made very little improvement physically.

At the present time the implications of the Tulane study have been clearly stated by Dr. Shuell H. Jones, director of the Center:

We know that there is a significant relationship between nutrition and learning ability. Malnourished children definitely perform poorer than normal ones. We also know that proper food intervention can improve the nutritional and psychological conditions of these children....It is downright silly to provide classroom teachers for kids who can't learn because they are undernourished. We have to get malnutrition wiped out and I'm sure we can do it. What we need is public support. We must convince taxpayers to back up good nutritional programs as strongly as educational programs. Just think how wonderful it would be if every child in the United States were well nourished and performing up to his maximum capacity (U.S., O.E.O., 1971, p. 10).

### Implications for the Present Research

Research indicates that malnutrition does exist in this country. Research also indicates that malnutrition or undernutrition retards physical growth and development as well as retarding a child's ability to learn and to adapt to his social environment. Concern about the existence of malnutrition in this country led to the establishment of the Special Food Services Program for Children. However, the question still remains as to whether this program actually is solving the problem of malnutrition among preschool children.

The Special Food Services Program for Children helps day care centers meet the nutritional needs of children. However, only voluntary centers are eligible for this program and a relatively small number of children in day care are in the voluntary centers.

A study of the extent to which different types of day care centers meet the nutritional needs of the children they serve is appropriate at this time. If day care centers, other than the voluntary centers, are not meeting the nutritional needs of children, then the problem of malnutrition in this country continues to exist. The present research is seen as a contribution to our understanding of this problem.

## CHAPTER III

### METHOD AND PROCEDURE

The purpose of this study was to evaluate the food served to children in selected day care centers in Oklahoma. Data was gathered by observing the meals and snacks actually served to children in 39 day care centers. The foods were then evaluated, and the foods served in different types of centers were then compared. This chapter includes information about the day care centers participating in the study, the method of data gathering, and the data analysis.

#### Centers Participating

Thirty-nine day care centers participated in this study. The distribution of these centers by size and type is presented in Table I. Most of the centers (34) were located in Oklahoma County. Of the remaining five, two were located in Cleveland County and three were in Kay County. The centers included in the study were primarily those served by licensing workers who were interested in participating in the data gathering.

#### Data Gathering

Data were gathered by Licensing Service Workers from the Department of Institutions Social and Rehabilitative Services. The observations were made during the worker's regular visits to the

TABLE I  
 DISTRIBUTION OF DAY CARE CENTERS  
 BY SIZE AND TYPE  
 (N = 39)

Type of Center*	N	Number of Children	
		Median	Range
A	4	88	82 - 100
B	7	70	40 - 140
C	10	86	55 - 225
D	18	66	22 - 231

\*A: Voluntary centers, eligible for but not participating in any Special Food Service Programs.

B: Voluntary centers, participating in the School Lunch and Commodities Programs.

C: Voluntary centers, participating in the School Breakfast, Lunch, and Commodities Programs.

D. Proprietary centers, not eligible for any Special Food Service Programs.

centers that they were supervising. Six licensing workers, including the writer, participated in the data gathering. All observations were made during an eight month period beginning in September, 1973, and continuing through April, 1974.

The participation of the licensing workers in the data gathering had definite advantages. Each worker was familiar with the centers she supervised and was able to interact freely with the children and the staff. Also, each worker was familiar with the food requirements for day care centers and was experienced in evaluating food services. Beyond this, each worker was motivated by her belief in the importance of this study.

An observation sheet was prepared for use in the data gathering. A sample sheet is presented on page 26. For each center the worker recorded whether it was proprietary or voluntary and whether it participated in any food program. For each meal and snack the worker recorded the actual food served to each child and noted whether there was adequate food for additional servings and whether or not additional servings were actually given the children. From one to four visits were made to each center in order to observe all food service.

#### Data Analysis

The evaluation of foods served in the various centers participating in this study was based on the food requirements established by the United States Department of Agriculture for day care centers participating in the Special Food Service Programs. The USDA requirements for foods served to children of pre-school age are presented in Figure 2, Appendix A. Numerical values were assigned to these foods



OBSERVATION SHEET

CENTER: \_\_\_\_\_ Proprietary \_\_\_\_\_ Voluntary

Food Program: \_\_\_\_\_ School Breakfast

\_\_\_\_\_ School Lunch

\_\_\_\_\_ Commodities

Breakfast: \_\_\_\_\_

\_\_\_\_\_ Adequate food for additional servings

\_\_\_\_\_ Additional servings given

Morning Snack: \_\_\_\_\_

\_\_\_\_\_ Adequate food for additional servings

\_\_\_\_\_ Additional servings given

Lunch: \_\_\_\_\_

\_\_\_\_\_ Adequate food for additional servings

\_\_\_\_\_ Additional servings given

Afternoon Snack: \_\_\_\_\_

\_\_\_\_\_ Adequate food for additional servings

\_\_\_\_\_ Additional servings given

by the writer and a nutrition consultant, who worked together and used as their guideline a food selection score card (Bogert, Briggs and Calloway, 1966, page 18) and the USDA Table of Nutritive Values (U.S.D.A., 1962). The numerical values assigned in this way to the USDA list are presented in Table II, page 28. The numerical rating of the foods actually served in each center is presented in Table VI, Appendix B; and the observation records of the actual foods served in each center are presented in Appendix C.

In the data analysis the centers which qualified for and were using the Special Food Service Programs (i.e., Types A and D) were compared to the centers which were not receiving the benefits of the Special Food Service Programs for Children (i.e., Types B and C). The major focus of the comparison was an analysis of the food value of the meals and snacks in the two types of centers (A-D and B-C). The centers were also compared in terms of whether or not additional servings of food were offered to the children. Chi-square and Mann-Whitney U tests were used for these analyses.

TABLE II  
 NUMERICAL VALUES ASSIGNED TO THE FOODS REQUIRED  
 FOR DAY CARE CENTERS PARTICIPATING IN THE  
 SPECIAL FOOD SERVICE PROGRAMS

Pattern	Amount	Value
<u>Breakfast</u>		
Milk (fluid, whole)	3/4 cup	25
Juice (undiluted fruit or vegetable) or fruit	1/2 cup	25
Cereal and/or bread		
Cereal	1/3 cup	15
Bread	1/2 slice	10
Butter	1/2 tsp.	5
<u>Mid-Morning or Mid-Afternoon Snack</u>		
Milk (fluid, whole)	1/2 cup	25
Juice (undiluted fruit or vegetable) or fruit or vegetable	1/2 cup	25
Bread or Cereal		
Bread	1/2 slice	10
Cereal	1/3 cup	15
<u>Lunch or Supper</u>		
Milk (fluid, whole)	3/4 cup	25
Meat or Alternate		
Meat	1 1/2 ounces	25
Cheese	1 1/2 ounces	25
Egg	1	25
Cooked dry beans or peas	1/4 cup	25
Peanut butter	2 Tbsp	25
Vegetable and/or fruit (must include at least two kinds)	1/2 cup	25
Bread	1/2 slice	10
Butter	1/2 tsp.	5

## CHAPTER IV

### RESULTS

The purpose of this study was to evaluate the food served to children in selected day care centers in Oklahoma. In order to achieve this purpose, direct observations were made of the meals and snacks actually served to children in 39 day care centers. In these observations, data were obtained which made it possible to evaluate the food served and to compare the different types of day care centers in terms of the extent to which they were meeting the nutritional needs of children.

In the analysis of data the centers which qualified for and were using the Special Food Service Programs were compared to the centers which were not receiving the benefits of the Special Food Service Programs. The two types of centers (A-D and B-C) were compared in terms of the food value of the meals and snacks served and in terms of whether or not additional servings of food were offered to the children.

#### Analysis of Meals and Snacks

The evaluation of meals and snacks in the four types of day care centers is presented in Table III. The evaluation is expressed as numerical ratings based on the United States Department of Agriculture regulations for the Special Food Service Programs for Children. For the statistical analysis, the data for the centers (A-D) using

TABLE III  
 EVALUATION OF FOOD SERVED IN FOUR TYPES OF DAY  
 CARE CENTERS: MEDIANS AND RANGES  
 OF RATINGS FOR MEALS AND SNACKS

	Type of Day Care Center			
	A (N:4)	B (N:7)	C (N:10)	D (N:18)
Breakfast				
Number	2	2	10	4
Median	40	45	58	30
Range	35-45	35-55	40-85	20-41
Morning Snack				
Number	2	5	3	13
Median	13	40	37	15
Range	10-15	35-45	32-45	05-35
Lunch				
Number	4	7	10	18
Median	59	98	89	63
Range	54-115	75-116	82-105	47-93
Afternoon Snack				
Number	4	7	10	18
Median	10	33	40	10
Range	10-28	13-70	08-55	00-33
Total				
Number	4	7	10	18
Median	104	160	197	95
Range	74-158	142-227	148-265	63-173

the Special Food Service Programs were combined, and the data for the centers (B-C) not using these programs were combined.

Mann-Whitney U test analysis indicated that in every area of food service the day care centers participating in the Special Food Service Programs were meeting the nutritional needs of their children to a significantly greater extent than were the centers not participating in the Special Food Service Programs. This was true for breakfast ( $U = 8; p < .01$ ), for morning snack ( $U = 3; p < .001$ ), for lunch ( $U = 30; p < .001$ ), for afternoon snack ( $U = 34.5; p < .0001$ ), and for the total food service ( $U = 10; p < .0001$ ). These findings are presented in Table IV.

#### Analysis of Additional Servings

As a part of each observation a notation was made as to whether adequate food was available for additional servings and whether additional servings were actually given to the children. In Table VI, Appendix B, asterisks throughout the table indicate when additional servings were offered to the children.

The number of centers offering additional servings of food to the children at each meal and snack is presented in Table V. Of the 17 centers participating in the Special Food Service Programs, 15 centers always offered additional servings to the children, and two centers offered additional servings except at the afternoon snack. Of the 22 centers not participating in the Special Food Service Programs, only one center offered additional servings each time food was served, and for these centers as a group additional servings were offered less than half the time. A Chi-square analysis indicated

TABLE IV  
 MANN-WHITNEY U TEST ANALYSIS OF THE FOOD SERVICES  
 IN DAY CARE CENTERS PARTICIPATING IN THE  
 SPECIAL FOOD SERVICES PROGRAMS AND  
 THOSE NOT PARTICIPATING IN  
 THESE PROGRAMS

Food Service	A-D*		B-C**		U
	N	Median	N	Median	
Breakfast	6	35	12	55	08.0 p < .01
Morning Snack	15	15	08	38.5	03.0 p < .001
Lunch	22	63	17	93	30.0 p < .0001
Afternoon Snack	22	10	17	35	34.5 p < .0001
Total	22	96	17	190	10.0 p < .0001

\*A-D: Centers not using the Special Food Services Programs for Children.

\*\*B-C: Centers using the Special Food Services Programs for Children.

TABLE V  
 NUMBER OF CENTERS OFFERING ADDITIONAL SERVINGS  
 OF FOOD TO THE CHILDREN

	Number of Centers	
	Observed	Offering Additional Servings
Breakfast		
Centers A-D	06	02
Centers B-C	12	12
Morning Snack		
Centers A-D	15	03
Centers B-C	08	08
Lunch		
Centers A-D	22	13
Centers B-C	17	17
Afternoon Snack		
Centers A-D	22	10
Centers B-C	17	15
Total*		
Centers A-D	65	28
Centers B-C	54	52

Chi-Square = 37.9;  $p < .001$ .



that the centers participating in the Special Food Service Programs offered additional servings significantly more often than did the centers not participating in the food service programs. (Chi-square = 37.9;  $p < .001$ ).

#### Summary of Findings

1. The centers participating in the Special Food Service Programs served meals and snacks which met the nutritional needs of the children to a significantly greater extent than did the meals and snacks served by the centers not receiving the benefits of the food service programs.

2. The centers participating in the Special Food Service Programs offered additional servings to the children significantly more often than did the centers not participating in the food service programs.

## CHAPTER V

### SUMMARY AND IMPLICATIONS

The purpose of this study was to evaluate the food served to children in selected day care centers in Oklahoma. In order to achieve this purpose, direct observations were made of the meals and snacks actually served to children in 39 day care centers. In these observations, data were obtained which made it possible to evaluate the food served and to compare the different types of day care centers in terms of the extent to which they were meeting the nutritional needs of children.

Two major types of day care centers were included in this study, voluntary and proprietary. Voluntary centers are those which are sponsored by charitable organizations and are operated on a non-profit basis. These centers are eligible for participation in the various Special Food Service Programs for Children and are eligible to receive commodities. Some choose to participate in these programs and others do not. Proprietary centers are those which are privately owned and are operated for a profit. These centers are not eligible for participation in the Special Food Service Programs for Children.

In the data gathering, the food service in each participating center was observed. Each center served breakfast and/or a morning snack, lunch and an afternoon snack. The type of food served and the amount served were recorded by the observer. These data were then

evaluated in terms of the extent to which the food served met the nutritional needs of the children. The evaluation (numerical rating) of the food served in each center is presented in Table III, Appendix B. The observation sheets for the individual day care centers participating in this study are presented in Appendix C.

In the data analysis the centers which qualified for and were using the Special Food Service Programs (i.e., Types A and D) were compared to the centers which were not receiving the benefits of the Special Food Service Programs for Children (i.e., Types B and C). The major focus of the comparison was an analysis of the adequacy of the meals and snacks served in the two types of centers (A-D and B-C). Statistical analyses indicated that the centers participating in the Special Food Service Programs were meeting the nutritional needs of the children to a significantly greater extent than were the other centers. The centers were also compared in terms of whether or not additional servings of food were offered to the children. Again, statistical analyses indicated that the centers participating in the Special Food Service Programs offered additional servings to the children significantly more often than did the other centers.

#### Implications

The present research was a pilot study and no attempt was made to obtain a representative sampling of day care centers in Oklahoma. The centers included were those served by licensing workers interested in participating in the data gathering. Because of this, the findings cannot be generalized to all day care centers in the state; nevertheless, the findings do show that the centers which participate in the

Special Food Service Programs and those that do not are dramatically different in the extent to which they meet the nutritional needs of the children they serve. This finding combined with the fact that more than 90 per cent of the children in day care in this country are cared for in proprietary centers (those not eligible for the SFSP) suggests that the Special Food Service Program is not available to the bulk of the young children who need these benefits. Additional efforts to alleviate malnutrition and undernutrition in early childhood are needed.

There are two possible reasons for the difference in the quality of food service in day care centers using the Special Food Service Programs and those not receiving these benefits. The financial supplement alone helps a center to meet the nutritional needs of the children more adequately. Beyond this, the United States Department of Agriculture requires that a center participating in the program be supervised and meet specific standards in the foods they serve. Undoubtedly, it is a combination of the financial help and the help received during supervision that is responsible for the evident difference in the quality of food service in the different types of day care centers.

On the basis of the above facts and reasoning, an extension of the Special Food Service Program is recommended so that all young children in day care can receive these benefits. It is probable that before this can be achieved, or a comparable program introduced, a larger and more accurate survey must be done, in this state and in other states, in order that the national picture be determined.

### Incidental Observations

Unsolicited comments from the licensing workers who participated in the data gathering underscore some of the findings of this study and illustrate specific problems with which this study was concerned. Some comments were based on direct observations made during data gathering, and other comments were based on evidence accumulated during routine visits to the centers.

Some centers apparently changed the menu to be served after the observer arrived. In one center when milk was being poured, a child commented, "How come no water?" In another center a staff member was hurriedly sent to the store for a vegetable which was then added to the children's meal.

The good quality of specific foods was noted. In some centers cookies were "home-made", and raisins, nuts, peanut butter, and/or oatmeal were used in the making. In one center eight pounds of cheese were used in a macaroni and cheese dish for 90 children. In another, three dozen eggs were used in French toast for 75 children. Less specific comments included reference to "ample meat" in a chicken casserole, and the addition of tomato juice or sauce in Sloppy-Joe sandwiches. Comments such as these were made about the food services in the voluntary centers participating in the Special Food Service Programs.

Some voluntary centers were most generous in their food servings. In some, children were reported to have two or three servings of any foods they wanted. In one center, large bowls of food were placed on the tables and the children served themselves all they wanted.

Non-nutritious snacks were served in most of the centers not participating in the Special Food Service Programs. In 11 of these centers Kool-ade was the beverage served. Among the snacks reported were dry cereal, such as sugar smacks and fruit loops, popcorn, marshmallows, hard candy, crackers and commercial cookies. Of the 37 snacks (a.m. and p.m. combined) observed in centers not participating in SFSP, 27 were nutritionally inadequate, i.e., the food value score was below 25. Of the 25 snacks observed in centers participating in SFSP, only two were nutritionally inadequate.

The need for breakfast in day care centers is evident. Many children arrive in the early morning at 6:30 or 7:00, without having had any breakfast. Other children arrive eating a doughnut or sweet roll as they walk in. Some children bring a box of dry cereal to eat at the center, and some children are served breakfast at the center if the parents pay extra for it.

Day care centers participating in the Special Food Services Program provide for the children's morning nutritional needs more adequately than do the other centers. Twelve of the centers participating in the SFSP served breakfast. The remaining five served a most nutritious morning snack and served it early in the morning, thereby meeting the children's breakfast needs. Six of the 22 centers not participating in SFSP served breakfast. Of the remaining 16, five served a nutritious snack, nine served a snack which was nutritionally inadequate and two served no snack at all.

In a colorful way these incidental observations support the findings reported in this research. In most day care centers, the

staff want to do the best they can for the children. Nevertheless, in many centers, corners are apparently cut in food services because of the financial necessity.

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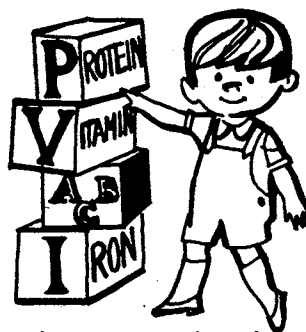


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**APPENDIX A**

## MEAL PATTERNS FOR YOUNG CHILDREN IN CHILD CARE PROGRAMS



Young children master many skills during their first six years. Learning to eat a variety of foods is one of the most important ones. Those responsible for food service in child care centers should provide the opportunity for children to learn to eat and enjoy a variety of nutritious foods.

As specified in the regulations for the Special Food Service Program for Children, meals or supplements served between meals (snacks) approved for cash reimbursement by USDA shall contain as a minimum the following food components in the amounts listed:

PATTERN	CHILDREN 1 up to 3 years	CHILDREN 3 up to 6 years
<b>BREAKFAST</b>		
Milk, fluid whole	½ cup	¾ cup
Juice or Fruit	¼ cup	½ cup
Cereal and/or Bread, <sup>1</sup> enriched or whole grain		
Cereal	¼ cup	⅓ cup
Bread	½ slice	½ slice
<b>MID-MORNING OR MID-AFTERNOON SUPPLEMENT</b>		
Milk, fluid whole, or Juice or Fruit or Vegetable	½ cup	½ cup
Bread or Cereal, <sup>1</sup> enriched or whole grain		
Bread	½ slice	½ slice
Cereal	¼ cup	⅓ cup
<b>LUNCH OR SUPPER</b>		
Milk, fluid whole	½ cup	¾ cup
Meat and/or Alternate		
One of the following or combinations to give equivalent quantities:		
Meat, poultry, fish, cooked <sup>2</sup>	1 ounce	1½ ounces
Cheese	1 ounce	1½ ounces
Egg	1	1
Cooked dry beans and peas	⅛ cup	¼ cup
Peanut butter	1 tablespoon	2 tablespoons
Vegetable and/or Fruit <sup>3</sup>	¼ cup	½ cup
Bread, <sup>1</sup> enriched or whole grain	½ slice	½ slice
Butter or Fortified Margarine	½ teaspoon	½ teaspoon

<sup>1</sup> Or an equivalent serving of cornbread, biscuits, rolls, muffins, etc. made of enriched or whole grain meal or flour.

<sup>2</sup> Cooked lean meat without bone.

<sup>3</sup> Must include at least two kinds.

Figure 2. Food Requirements as Reported in the USDA Food Service Bulletin (FNS-64), 1971.

APPENDIX B

TABLE VI  
 RATINGS OF THE FOOD ACTUALLY SERVED  
 IN EACH CENTER PARTICIPATING  
 IN THE STUDY

Center	Breakfast	a.m. Snack	Lunch	p.m. Snack	Total
1-A	45	-	55	10	100
2-A	35	-	62*	10	107
3-A	-	10*	54	10	74
4-A	-	15*	115*	28	158
5-B	-	45*	112*	70*	227
6-B	55*	-	116*	35*	206
7-B	-	40*	98*	13*	151
8-B	-	35*	110*	33*	178
9-B	35*	-	75*	32	142
10-B	-	40*	78*	35*	153
11-B	-	35*	93*	32*	160
12-C	65*	-	105*	40*	210
13-C	75*	-	82*	45*	202
14-C	75*	-	100*	25*	200
15-C	85*	37*	88*	55*	265
16-C	40*	-	98*	45*	183
17-C	40*	-	83*	25*	148
18-C	50*	45*	88*	08	191
19-C	42*	-	85*	45*	172
20-C	60*	-	90*	40*	190
21-C	55*	32*	95*	35*	217
22-D	-	05	68*	25*	98
23-D	-	15	48	32	95
24-D	23*	-	80*	09*	112
25-D	-	30	55	10	95
26-D	-	23	55*	10*	88
27-D	35	25	80	33*	173
28-D	41	-	63*	00	104
29-D	-	10	93	10	113
30-D	-	-	78*	15	93
31-D	20	-	67*	10	97
32-D	-	10	73*	10*	93
33-D	-	-	63	00	63
34-D	-	33	48*	05	81
35-D	-	25	47*	25*	97
36-D	-	10*	48	07*	65
37-D	-	05	63	05*	73
38-D	-	13	72*	10	95
39-D	-	35	55*	10	100

\*There was adequate food for additional servings and adequate servings were given to the children.

APPENDIX C

OBSERVATION SHEETS FOR INDIVIDUAL DAY CARE CENTERS  
PARTICIPATING IN THE EVALUATION OF FOOD SERVICES



## OBSERVATION SHEET

CENTER: 1A     Proprietary     VoluntaryFood Program:     School Breakfast  
                   School Lunch  
                   CommoditiesBreakfast: 1 large pancake, 1/2 t. butter,  
3 oz. grape juice Adequate food for additional servings  
 Additional servings givenMorning Snack: none Adequate food for additional servings  
 Additional servings givenLunch: 8 oz. chicken casserole (peas, corn,  
or beans, chicken), 1 biscuit,  
3 oz. milk, 1/2 cup ice cream Adequate food for additional servings  
 Additional servings givenAfternoon Snack: 3 oz. Kraft concentrate drink, Adequate food for additional servings 1 small  
 Additional servings given cookie  
(store-bought)

## OBSERVATION SHEET

CENTER: 2A     Proprietary     VoluntaryFood Program:     School Breakfast  
                   School Lunch  
                   CommoditiesBreakfast: 4 oz. Fruit Loops, 3 oz. orange  
juice Adequate food for additional servings  
 Additional servings givenMorning Snack: none Adequate food for additional servings  
 Additional servings givenLunch: 1 1/2 oz. meat patty, 1/2 bun, 1 slice  
tomato, small piece lettuce, 3 oz.  
milk, 1 slice pickle, cup cake/icing Adequate food for additional servings milk only  
 Additional servings given milk onlyAfternoon Snack: 1 handful cheese swirls, 4 oz. punch Adequate food for additional servings  
 Additional servings given

## OBSERVATION SHEET

CENTER: 3A     Proprietary     VoluntaryFood Program:     School Breakfast  
                   School Lunch  
                   CommoditiesBreakfast: none Adequate food for additional servings  
 Additional servings givenMorning Snack: 2 Hiho crackers, 4 oz. kool-aid Adequate food for additional servings  
 Additional servings givenLunch: 1/2 oz. hamburger meat, 1 bun, 8 potato  
chips, 1 T. relish, 3 oz. kool-aid,  
1/2 cup jelly w/fruit Adequate food for additional servings  
 Additional servings given  
(store-bought)Afternoon Snack: 2 choc. chip cookies, 3 oz. kool-aid Adequate food for additional servings kool-aid  
 Additional servings given

## OBSERVATION SHEET

CENTER: 4A     Proprietary     VoluntaryFood Program:     School Breakfast  
                   School Lunch  
                   CommoditiesBreakfast: none Adequate food for additional servings  
 Additional servings givenMorning Snack: 3 soda crackers, 5 oz. Hi-C juice Adequate food for additional servings  
 Additional servings given crackers onlyLunch: 1 weiner, 1/2 cup cottage cheese,  
1/2 cup pork & beans, 1/2 slice bread &  
butter, 1/3 cup peaches, 6 oz. milk Adequate food for additional servings  
 Additional servings given  
(store-bought)Afternoon Snack: 3 cookies, 5 oz. milk Adequate food for additional servings  
 Additional servings given cookies only

## OBSERVATION SHEET

CENTER: 5B     Proprietary     VoluntaryFood Program:     School Breakfast  
                   School Lunch  
                   CommoditiesBreakfast: none Adequate food for additional servings  
 Additional servings givenMorning Snack: 1 blueberry muffin, 4 oz. fruit juice Adequate food for additional servings  
 Additional servings givenLunch: 2 fish sticks, 1/2 cup spinach, 1/2 cup  
peas, 1 slice bread, 1/2 t. butter,  
6 oz. milk, 1/3 cup tapioca pudding Adequate food for additional servings  
 Additional servings givenAfternoon Snack: 1 slice bread, 2 T. peanut butter,  
1 t. jelly, 6 oz. milk Adequate food for additional servings  
 Additional servings given

## OBSERVATION SHEET

CENTER: 6B     Proprietary     VoluntaryFood Program:     School Breakfast  
                   School Lunch  
                   CommoditiesBreakfast: 2 blue-berry pancakes, 8 oz.  
hot chocolate Adequate food for additional servings  
 Additional servings givenMorning Snack: none Adequate food for additional servings  
 Additional servings givenLunch: 3 oz. meat balls, tomato sauce, 1/2 cup  
peas, 1/2 oz. cheese, 1 slice bread,  
1/2 t. butter, 1/2 banana, 8 oz. milk Adequate food for additional servings  
 Additional servings givenAfternoon Snack: 2 cookies - oats & nuts, 4 oz. milk  
(homemade) Adequate food for additional servings  
 Additional servings given

## OBSERVATION SHEET

CENTER: 7B     Proprietary     VoluntaryFood Program:     School Breakfast  
                   School Lunch  
                   CommoditiesBreakfast: none Adequate food for additional servings  
 Additional servings givenMorning Snack: 1/2 slice cinnamon toast, 1/2 t. butter,  
4 oz. orange juice Adequate food for additional servings  
 Additional servings givenLunch: 6 oz. steak fingers, 1/2 cup gr. beans,  
1/3 cup stewed tomatoes, 1/2 cup fruit  
cocktail, roll, 1/2 t. butter, 4 oz. milk Adequate food for additional servings  
 Additional servings givenAfternoon Snack: 6 oz. ice cream Adequate food for additional servings  
 Additional servings given

## OBSERVATION SHEET

CENTER: 8B     Proprietary     VoluntaryFood Program:     School Breakfast  
                   School Lunch  
                   CommoditiesBreakfast: none Adequate food for additional servings  
 Additional servings givenMorning Snack: 1/2 slice toast, 1/2 t. butter, 4 oz. milk Adequate food for additional servings  
 Additional servings givenLunch: 4 oz. macaroni & cheese, 1/4 cup beets,  
1/4 cup gr. beans, 1/4 cup peaches,  
1 slice bread, 8 oz. milk Adequate food for additional servings  
 Additional servings givenAfternoon Snack: 4 oz. orange juice, 1 cookie - oats &  
raisins (homemade) Adequate food for additional servings  
 Additional servings given

## OBSERVATION SHEET

CENTER: 9B     Proprietary     VoluntaryFood Program:     School Breakfast  
                   School Lunch  
                   CommoditiesBreakfast: 5 oz. Fruit loops, 4 oz. milk Adequate food for additional servings  
 Additional servings givenMorning Snack: none Adequate food for additional servings  
 Additional servings givenLunch: 2 T. sloppy joe, 1/2 slice bread, 1/4 pickle,  
6 french-fried potatoes, 1/2 cup apple  
sauce, 4 oz. milk, 1/2 t. butter Adequate food for additional servings  
 Additional servings givenAfternoon Snack: 1 (4-sections) graham cracker,  
5 oz. milk Adequate food for additional servings  
 Additional servings given

## OBSERVATION SHEET

CENTER: 11B     Proprietary     VoluntaryFood Program:     School Breakfast  
                   School Lunch  
                   CommoditiesBreakfast: none Adequate food for additional servings  
 Additional servings givenMorning Snack: 1 quarter apple, 5 oz. orange juice Adequate food for additional servings  
 Additional servings givenLunch: 1 sandwich (2 T. sloppy joe), 1 bun,  
5 oz. milk, 1/2 cup gr. beans, 1 oz. cheese Adequate food for additional servings  
 Additional servings givenAfternoon Snack: 1/2 banana, 5 oz. orange juice Adequate food for additional servings  
 Additional servings given

## OBSERVATION SHEET

CENTER: 10B     Proprietary     VoluntaryFood Program:     School Breakfast  
                   School Lunch  
                   CommoditiesBreakfast: none Adequate food for additional servings  
 Additional servings givenMorning Snack: 1/3 cup hot cereal, 4 oz. fruit juice Adequate food for additional servings  
 Additional servings givenLunch: 2 1/2 T. beanie-weanies, 1/2 T. spinach,  
1 slice bread, 1/2 t. butter, 4 oz. milk,  
1/2 T. jello w/ bananas Adequate food for additional servings  
 Additional servings givenAfternoon Snack: 2 valentine cookies, 1/3 cup strawberry  
(homemade) ice cream Adequate food for additional servings  
 Additional servings given    4 oz. pink milk

## OBSERVATION SHEET

CENTER: 12C     Proprietary     VoluntaryFood Program:     School Breakfast  
                   School Lunch  
                   CommoditiesBreakfast: 1 slice french toast, 4 oz. grape &  
apple juice Adequate food for additional servings  
 Additional servings givenMorning Snack: none Adequate food for additional servings  
 Additional servings givenLunch: 4 oz. breaded steak, 1/2 cup mixed greens  
(spinach, turnip), 1/2 cup sweet potatoes  
1 slice pineapple w/ lettuce, 1 slice bread,  
1/2 t. butter, 6 oz. butter, brownies (home-  
made) Adequate food for additional servings  
 Additional servings givenAfternoon Snack: peanut butter cookies, 4 oz. milk Adequate food for additional servings  
 Additional servings given

## OBSERVATION SHEET

CENTER: 13C  Proprietary  VoluntaryFood Program:  School Breakfast  
 School Lunch  
 CommoditiesBreakfast: 6 T. oatmeal, 1/4 squares toast,  
8 oz. orange juice Adequate food for additional servings  
 Additional servings givenMorning Snack: none Adequate food for additional servings  
 Additional servings givenLunch: 3 T. beef stew w/ mixed vegetables,  
1/2 T. apple, lettuce, fruit cocktail  
salad, 2 saltines, 6 oz. milk Adequate food for additional servings  
 Additional servings givenAfternoon Snack: 1/4 orange (wedge), 5 oz. milk Adequate food for additional servings  
 Additional servings given

## OBSERVATION SHEET

CENTER: 14C  Proprietary  VoluntaryFood Program:  School Breakfast  
 School Lunch  
 CommoditiesBreakfast: 4 oz. orange juice, 6 T. oatmeal,  
cinnamon toast, 6 oz. milk Adequate food for additional servings  
 Additional servings givenMorning Snack: none Adequate food for additional servings  
 Additional servings givenLunch: 1 piece baked chicken, 1/2 cup rice,  
1/2 cup english peas, 1/4 cup apple sauce,  
1 slice bread, 1/2 t. butter, 4 oz. milk Adequate food for additional servings  
 Additional servings givenAfternoon Snack: 4 oz. tang, gingerbread (homemade) Adequate food for additional servings  
 Additional servings given

## OBSERVATION SHEET

CENTER: 15C  Proprietary  VoluntaryFood Program:  School Breakfast  
 School Lunch  
 CommoditiesBreakfast: 1/2 cup cream of wheat, 1/2 slice bacon,  
1 slice toast, 1/2 t. butter, 8 oz. milk Adequate food for additional servings  
 Additional servings givenMorning Snack: 5 oz. orange juice, 2 saltines Adequate food for additional servings  
 Additional servings givenLunch: 3 oz. meat loaf, 1/2 cup black-eyed  
peas, 1/2 cup sweet potatoes,  
raisin roll, 1/2 t. butter, 5 oz. choc. milk Adequate food for additional servings  
 Additional servings givenAfternoon Snack: peanut butter & jelly sandwich, Adequate food for additional servings 5 oz. milk  
 Additional servings given

## OBSERVATION SHEET

CENTER: 16C  Proprietary  VoluntaryFood Program:  School Breakfast  
 School Lunch  
 CommoditiesBreakfast: (homemade)  
1 hot roll, 1/2 t. butter, jelly,  
6 oz. milk Adequate food for additional servings  
 Additional servings givenMorning Snack: none Adequate food for additional servings  
 Additional servings givenLunch: 1 1/2 oz. roast beef, 2 T. mashed potatoes,  
1/2 cup or. beans, 1 slice bread,  
1/2 t. butter, 5 oz. milk Adequate food for additional servings  
 Additional servings givenAfternoon Snack: 1/2 tuna fish sandwich, 4 oz. fruit Adequate food for additional servings juice  
 Additional servings given

## OBSERVATION SHEET

CENTER: 17C     Proprietary     VoluntaryFood Program:  School Breakfast  
 School Lunch  
 CommoditiesBreakfast: 1/2 cup cereal, 4 oz. milk Adequate food for additional servings  
 Additional servings givenMorning Snack: none Adequate food for additional servings  
 Additional servings givenLunch: 3/4 cup potato & beef casserole, 1/2 cup  
of beans, 1 homemade muffin, 1/2 t. butter,  
4 oz. milk, 1/2 cup jello Adequate food for additional servings  
 Additional servings given  
(homemade)Afternoon Snack: spice cake w/nuts & raisins, 4 oz.  
grape juice Adequate food for additional servings  
 Additional servings given

## OBSERVATION SHEET

CENTER: 18C     Proprietary     VoluntaryFood Program:  School Breakfast  
 School Lunch  
 CommoditiesBreakfast: 3 oz. dry cereal, 4 oz. milk, 3 oz.  
fruit juice Adequate food for additional servings  
 Additional servings givenMorning Snack: 3 oz. orange juice, 1 slice toast, 1/2 t.  
butter Adequate food for additional servings  
 Additional servings givenLunch: 6 oz. rice & chicken, 1/2 cup mixed  
vegetables, 1 slice bread, 1/2 t. butter,  
3 oz. pineapple, 3 oz. milk Adequate food for additional servings  
 Additional servings given  
(homemade)Afternoon Snack: 2 chocolate chip cookies Adequate food for additional servings  
 Additional servings given

## OBSERVATION SHEET

CENTER: 19C     Proprietary     VoluntaryFood Program:  School Breakfast  
 School Lunch  
 CommoditiesBreakfast: 1 slice toast, 1/2 t. butter, jelly,  
1/2 banana, 4 oz. milk Adequate food for additional servings  
 Additional servings givenMorning Snack: none Adequate food for additional servings  
 Additional servings givenLunch: 1/2 cup beanie-weanies, 1/2 cup apple  
sauce, corn bread, 1/2 t. butter,  
1/2 cup spinach or carrots, 4 oz. milk Adequate food for additional servings  
 Additional servings given  
(powdered sugar)Afternoon Snack: 1 sq. graham cracker sandwich,  
4 oz. milk Adequate food for additional servings  
 Additional servings given

## OBSERVATION SHEET

CENTER: 20C     Proprietary     VoluntaryFood Program:  School Breakfast  
 School Lunch  
 CommoditiesBreakfast: 2 oz. Bulgur (whole wheat) or rice,  
4 oz. milk, 4 oz. orange juice Adequate food for additional servings  
 Additional servings givenMorning Snack: none Adequate food for additional servings  
 Additional servings givenLunch: 1/2 cup pinto beans, corn bread,  
1/2 t. butter, peach cobbler, 1/2 cup rice,  
1/2 cup broccoli, 4 oz. milk Adequate food for additional servings  
 Additional servings given  
(homemade)Afternoon Snack: 1 slice pumpkin bread, 6 oz. milk Adequate food for additional servings  
 Additional servings given

## OBSERVATION SHEET

CENTER: 21C     Proprietary     VoluntaryFood Program:  School Breakfast  
 School Lunch  
 CommoditiesBreakfast: 1 donut, 4 oz. orange & grapefruit juice, 4 oz. milk Adequate food for additional servings  
 Additional servings givenMorning Snack: 2 satines, 4 oz. milk Adequate food for additional servings  
 Additional servings givenLunch: 1 piece oven-fried chicken, 1/4 cup mashed potatoes, 1/2 cup cauliflower, broccoli mixed, 2 T. cranberry sauce, 1 roll, 1/2 t. butter, 4 oz. milk, 1 cup ice cream Adequate food for additional servings  
 Additional servings given  
(homemade)Afternoon Snack: peanut butter cookies, 4 oz. milk Adequate food for additional servings  
 Additional servings given

## OBSERVATION SHEET

CENTER: 22D     Proprietary     VoluntaryFood Program:  School Breakfast  
 School Lunch  
 CommoditiesBreakfast: none Adequate food for additional servings  
 Additional servings givenMorning Snack: 1/2 graham cracker Adequate food for additional servings  
 Additional servings givenLunch: 1/2 tuna fish sandwich, 4 a' carrot sticks, 2 T. fruit cocktail, potato chips, 3 oz. milk Adequate food for additional servings  
 Additional servings givenAfternoon Snack: 1 slice bread w/ 1 peanut butter, 1 t. jelly Adequate food for additional servings  
 Additional servings given

## OBSERVATION SHEET

CENTER: 23D     Proprietary     VoluntaryFood Program:  School Breakfast  
 School Lunch  
 CommoditiesBreakfast: none Adequate food for additional servings  
 Additional servings givenMorning Snack: 1 graham cracker, 4 oz. kool-aid Adequate food for additional servings  
 Additional servings givenLunch: 1/2 weiner, 1/2 cup mashed potatoes, 1/3 cup corn, small stick celery, 1/2 slice bread, 1/2 t. butter Adequate food for additional servings  
 Additional servings givenAfternoon Snack: 2 flitz crackers, 4 oz. milk Adequate food for additional servings  
 Additional servings given

## OBSERVATION SHEET

CENTER: 24D     Proprietary     VoluntaryFood Program:  School Breakfast  
 School Lunch  
 CommoditiesBreakfast: 1/2 slice buttered toast, 3 oz. milk Adequate food for additional servings  
 Additional servings givenMorning Snack: none Adequate food for additional servings  
 Additional servings givenLunch: 1/2 cup macaroni & cheese, 4 oz. gr. beans, 1/2 slice bread, 4 oz. fruit cocktail, 3 oz. orange juice Adequate food for additional servings  
 Additional servings givenAfternoon Snack: 1 soda cracker, 4 oz. kool-aid Adequate food for additional servings  
 Additional servings given

## OBSERVATION SHEET

CENTER: 25D  Proprietary  VoluntaryFood Program:  School Breakfast  
 School Lunch  
 CommoditiesBreakfast: none Adequate food for additional servings  
 Additional servings givenMorning Snack: 2 saltines w/peanut butter & cheese,  
 Adequate food for additional servings 4 oz. kool-aid  
 Additional servings givenLunch: 3 oz. beans & weiners, 2 oz. com,  
1 2" carrot stick, 1/4 slice bread,  
2 oz. pudding, 2 oz. milk Adequate food for additional servings  
 Additional servings given  
(commercial)Afternoon Snack: 1 cookie, 4 oz. kool-aid Adequate food for additional servings  
 Additional servings given

## OBSERVATION SHEET

CENTER: 26D  Proprietary  VoluntaryFood Program:  School Breakfast  
 School Lunch  
 CommoditiesBreakfast: none Adequate food for additional servings  
 Additional servings givenMorning Snack: 1 soda cracker, 3 oz. milk  
 Adequate food for additional servings  
 Additional servings givenLunch: 1/8 cup tuna noodle casserole, 1 t.  
gr. beans, 1 t. sweet potatoes,  
1/2 slice bread, 1/4 t. butter, 1 1" cube  
jello w/ fruit cocktail Adequate food for additional servings  
 Additional servings given  
(commercial)Afternoon Snack: 1 cookie, 3 oz. kool-aid Adequate food for additional servings  
 Additional servings given

## OBSERVATION SHEET

CENTER: 27D  Proprietary  VoluntaryFood Program:  School Breakfast  
 School Lunch  
 CommoditiesBreakfast: 1/2 cup sweetened dry cereal,  
4 oz. milk Adequate food for additional servings  
 Additional servings givenMorning Snack: 1/2 orange Adequate food for additional servings  
 Additional servings givenLunch: 1 oz. fish sticks, 1/2 cup gr. beans,  
1/2 slice bread, 1/4 t. butter,  
1/2 banana, 4 oz. milk Adequate food for additional servings  
 Additional servings givenAfternoon Snack: 1/4 apple, 1/2 cheese sandwich Adequate food for additional servings  
 Additional servings given

## OBSERVATION SHEET

CENTER: 28D  Proprietary  VoluntaryFood Program:  School Breakfast  
 School Lunch  
 CommoditiesBreakfast: 1/2 cup Fruit Loops, 3 oz. milk,  
1/2 slice bread, 1/4 t. butter Adequate food for additional servings  
 Additional servings givenMorning Snack: none Adequate food for additional servings  
 Additional servings givenLunch: 1/4 cup sauerkraut, 1/2 weiner, 1 t. com,  
1/2 slice bread, 1/4 t. butter, 2 t.  
choc. pudding, 4 oz. milk Adequate food for additional servings  
 Additional servings givenAfternoon Snack: 1 marshmallow Adequate food for additional servings  
 Additional servings given

## OBSERVATION SHEET

CENTER: 29D  Proprietary  VoluntaryFood Program:  School Breakfast  
 School Lunch  
 CommoditiesBreakfast: none Adequate food for additional servings  
 Additional servings given  
(commercial)Morning Snack: 1 cookie, 3 oz. Wyler's drink Adequate food for additional servings  
 Additional servings givenLunch: 1/2 peanut butter & jelly sandwich, 2 oz. pork & beans, 1" celery stick, potato chips, 2 oz. apple sauce, 3 oz. milk Adequate food for additional servings  
 Additional servings given  
(commercial)Afternoon Snack: 1 cookie, 3 oz. Wyler's drink Adequate food for additional servings  
 Additional servings given

## OBSERVATION SHEET

CENTER: 30D  Proprietary  VoluntaryFood Program:  School Breakfast  
 School Lunch  
 CommoditiesBreakfast: none Adequate food for additional servings  
 Additional servings givenMorning Snack: none Adequate food for additional servings  
 Additional servings givenLunch: 3 T. beans & weiners, 2 T. spinach, 1/2 cup pudding, 1/2 slice bread, 1/4 t. butter, 4 oz. milk Adequate food for additional servings  
 Additional servings givenAfternoon Snack: 1/2 apple Adequate food for additional servings  
 Additional servings given

## OBSERVATION SHEET

CENTER: 31D  Proprietary  VoluntaryFood Program:  School Breakfast  
 School Lunch  
 CommoditiesBreakfast: 3 oz. Fruit Loops, 2 oz. milk Adequate food for additional servings  
 Additional servings givenMorning Snack: none Adequate food for additional servings  
 Additional servings givenLunch: 1/2 weiner in 1/2 slice of bread, 2 T. gr. beans, cheese curls, 1/4 cup apple sauce, 4 oz. milk Adequate food for additional servings  
 Additional servings given  
(commercial)Afternoon Snack: 1 cookie, 4 oz. Kool-aid Adequate food for additional servings  
 Additional servings given

## OBSERVATION SHEET

CENTER: 32D  Proprietary  VoluntaryFood Program:  School Breakfast  
 School Lunch  
 CommoditiesBreakfast: none Adequate food for additional servings  
 Additional servings given  
(commercial)Morning Snack: 2 vanilla wafers, 3 oz. Kool-aid Adequate food for additional servings  
 Additional servings givenLunch: 3/4 cup goulash (macaroni, tomato sauce, small amt. hamburger), 1/3 cup english peas, 1/2 cup jello, 1/2 slice bread, 1/4 t. butter, 6 oz. milk Adequate food for additional servings  
 Additional servings given  
(commercial)Afternoon Snack: 2 cookies, 4 oz. Kool-aid Adequate food for additional servings  
 Additional servings given



## OBSERVATION SHEET

CENTER: 33D  Proprietary  VoluntaryFood Program:  School Breakfast  
 School Lunch  
 CommoditiesBreakfast: parents pay for breakfast Adequate food for additional servings  
 Additional servings givenMorning Snack: none Adequate food for additional servings  
 Additional servings givenLunch: 1/4 cup pork & beans, 2 T. spinach,  
2 T. cottage cheese, 1/2 slice bread,  
1/4 t. butter, 2 oz. milk Adequate food for additional servings  
 Additional servings givenAfternoon Snack: commercial candy - let children  
clip into large plastic container  
for handful of candy Adequate food for additional servings  
 Additional servings given

## OBSERVATION SHEET

CENTER: 34D  Proprietary  VoluntaryFood Program:  School Breakfast  
 School Lunch  
 CommoditiesBreakfast: none Adequate food for additional servings  
 Additional servings givenMorning Snack: 2 graham crackers, 3 oz. milk Adequate food for additional servings  
 Additional servings givenLunch: 3 oz. spaghetti & meat balls, 2 t. peas,  
2 oz. jello w/peaches, 1/2 slice bread,  
1/4 t. butter, 2 oz. milk Adequate food for additional servings  
 Additional servings givenAfternoon Snack: 4 oz. Hi-C Adequate food for additional servings  
 Additional servings given

## OBSERVATION SHEET

CENTER: 35D  Proprietary  VoluntaryFood Program:  School Breakfast  
 School Lunch  
 CommoditiesBreakfast: none Adequate food for additional servings  
 Additional servings givenMorning Snack: 1/2 cup Fruit Loops, 3 oz. grape juice Adequate food for additional servings  
 Additional servings givenLunch: 1/4 tuna fish sandwich, 2 oz. milk,  
2 soda crackers, 1/2 banana, 6 oz.  
canned vegetable soup Adequate food for additional servings  
 Additional servings given  
(commercial)Afternoon Snack: 1 peanut butter cookie, 4 oz. milk Adequate food for additional servings  
 Additional servings given

## OBSERVATION SHEET

CENTER: 36D  Proprietary  VoluntaryFood Program:  School Breakfast  
 School Lunch  
 CommoditiesBreakfast: none Adequate food for additional servings  
 Additional servings givenMorning Snack: soda crackers, 5 oz. kool-aid Adequate food for additional servings  
 Additional servings givenLunch: 4 T. chicken, noodles, 2 T. corn,  
1/2 slice bread, 1/4 t. butter, 5 oz.  
Tang, 3 oz. jello w/marshmallows Adequate food for additional servings  
 Additional servings given  
(commercial)Afternoon Snack: 3 choc. chip cookies, water Adequate food for additional servings  
 Additional servings given

## OBSERVATION SHEET

CENTER: 37D  Proprietary  VoluntaryFood Program:  School Breakfast  
 School Lunch  
 CommoditiesBreakfast: none Adequate food for additional servings  
 Additional servings given  
(commercial)Morning Snack: 2 cookies, water Adequate food for additional servings  
 Additional servings givenLunch: 2 T. gr. beans / hamburger meat,  
1/2 slice bread, 1/4 t. butter,  
4 oz. milk, 3 slices canned peaches Adequate food for additional servings  
 Additional servings given  
(commercial)Afternoon Snack: 2 oreo cookies, Kool-aid Adequate food for additional servings  
 Additional servings given

## OBSERVATION SHEET

CENTER: 38D  Proprietary  VoluntaryFood Program:  School Breakfast  
 School Lunch  
 CommoditiesBreakfast: none Adequate food for additional servings  
 Additional servings given  
(commercial)Morning Snack: cookies, 4 oz. Kool-aid w/ fruit  
cocktail juice Adequate food for additional servings  
 Additional servings givenLunch: 4 oz. chicken noodle soup, 1/2 sandwich -  
peanut butter/syrup, handful corn  
chips, 1/2 pear, 4 oz. milk Adequate food for additional servings  
 Additional servings givenAfternoon Snack: 4 oz. Kool-aid, popcorn Adequate food for additional servings  
 Additional servings given

## OBSERVATION SHEET

CENTER: 39D  Proprietary  VoluntaryFood Program:  School Breakfast  
 School Lunch  
 CommoditiesBreakfast: none unless they bring their  
own Adequate food for additional servings  
 Additional servings givenMorning Snack: 4 oz. orange juice or 4 oz. sugar  
smacks Adequate food for additional servings  
 Additional servings givenLunch: 1 T. spaghetti & meat sauce, 1 T. gr.  
beans, 1 T. jello, 1/2 slice bread,  
1/4 t. butter, 4 oz. milk Adequate food for additional servings  
 Additional servings given  
(commercial)Afternoon Snack: 4 oz. Kool-aid, 2 vanilla waters Adequate food for additional servings  
 Additional servings given

VITA

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Thesis: AN EVALUATION OF THE FOOD SERVED AT SELECTED DAY CARE CENTERS  
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