Maternal/Infant Care: A Systems Approach to Organizational Structures and Services of Community Agencies

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Western Michigan University

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MATERNAL/INFANT CARE: A SYSTEMS APPROACH TO ORGANIZATIONAL STRUCTURES AND SERVICES OF COMMUNITY AGENCIES

by
Nancy B. Carlson

A Dissertation
Submitted to the
Faculty of The Graduate College
in partial fulfillment
of the
Degree of Doctor of Education

Western Michigan University
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Nancy B. Carlson
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CHAPTER I

OVERVIEW OF THE STUDY OF MATERNAL AND CHILD HEALTH SERVICES

Purpose and Background of the Study

The purpose of this study was to compare and contrast the organizational structures of several agencies offering services to mothers and their infants living in southwestern Detroit with the organizational structure of a special care nursery operating in southwestern Michigan. Secondly, the study was designed to compare and contrast services offered to these populations by these agencies. The ultimate goal was to develop a schematic model of a service delivery system to be used in southwestern Detroit to locate mothers and infants who had been classified as "high risk."

This study developed as the result of a unit program initiated at the Merrill-Palmer Institute in 1973. According to the Institute's 1974-75 catalog:

This is a program in preventive community mental health which is aimed at low-income families with children who have developmental problems of a physical and/or emotional nature, who have a risk of having such problems, or who may be falsely labeled as disabled because an assessment of their skills has not been sympathetic to the fact that they are being reared in a cultural tradition which is different from the so-called dominant culture. (p. 37)
The program goals were:

1. To use tools, and develop new ones, to allow for the earliest possible sensitive identification of children with developmental problems.

2. To provide supportive services to families of such children. (p. 37)

As the work of the unit progressed, it became increasingly apparent that locating the target population was difficult at best.

Although the actual number of referrals made to the project personnel may have been realistic in terms of their time limits, the number of referrals in no way reflected expectations. A substantial portion of children from 0 to 5 years of age display developmental disabilities ranging from mental retardation to abnormal fine motor coordination (Meier, 1973, p. 8; National Foundation/March of Dimes, 1974, p. 4). In short, the project did not generate the case load anticipated by the project staff.

Agencies of potential assistance in this venture had been identified prior to the start of the project. Meetings with agency directors and Merrill-Palmer personnel took place. All persons involved agreed that the project objectives were commendable. Once the project was underway, the Merrill-Palmer staff found that one problem was locating these infants and young children with developmental disabilities or with a high risk of having them. Another problem was locating mothers who because of some condition
(or conditions) were at risk of having their infants die at birth or soon after or having them live with developmental disabilities.

The infants sought in this study are described in the literature as "high-risk-infants." If their mothers are known to have conditions which make the outcome of their pregnancies more questionable than other mothers, they are described as "mothers-at-risk." The high-risk-infants are in need of intensive care at birth (National Foundation/March of Dimes, 1974, p. 15). At the beginning of this study, efforts were made to locate an infant intensive care unit serving the population in southwestern Detroit. Information regarding the existence of such a unit was not readily available at that time; therefore, a special care nursery located in a Kalamazoo hospital was included in this study. This nursery was one of the first such nurseries in operation in Michigan, and it was believed that the organizational structure and services rendered by this agency would have important implications in this study.

Importance of the Study

Historical background

Since the late 1800's, there has been much interest in the physical welfare of children. The first settlement house in the United States was established by nurses so
that medical care could be available to the residents of poor neighborhoods. These nurses were especially concerned with the health of children living in poor neighborhoods. In 1912, the United States Children's Bureau was established to protect the rights of children. The first study the bureau undertook that year was an investigation of the incidence and causes of infant mortality. The close relationship between infant death rate and the economic status of the family was noted even then.

A statute enacted in 1921 was the first legislation for the promotion of welfare and hygiene of maternity and infancy. This was the culmination of bills that had been introduced in 1919, 1920, and 1921. The bills for the expansion of the functions of the Children's Bureau caused bitter controversy (Zietz, 1969). Nevertheless, the concern for the welfare of children and their mothers has continued to grow throughout the world. This interest waned periodically and simultaneously with other world crises. Since the end of World War II the world has gone through many changes. Segments of the populations in many countries have let their governments know by different means that they are no longer content with the status quo. Whole countries have rebelled against their colonizations. Concerted efforts have been made to assist underdeveloped nations. Again there has been an increased concern for maternal and child health care throughout the world. The
most obvious reason for this interest is that it is not mere sentimentality to express the belief that the future of any nation or community depends on the survival of their children. It is a simple fact (Williams & Jelliffe, 1972).

**World interest**

In 1948, the first General Assembly of the World Health Organization (WHO) declared maternal and child health care to be one of the four priorities to which they would devote their efforts by establishing active programs. Since that time, WHO and the United Nations International Children's Emergency Fund (UNICEF) have been instrumental in evolving services for maternal and child health in such places as Africa, India, New Guinea, Malaya, Singapore, and Uganda, to name but a few (Schmidt, 1973).

Other countries, such as Sweden, China, the United Kingdom, Canada, Australia, Russia, and Yugoslavia, have seen fit to devote time, money, and personnel to the organization of maternal and child health care in their own or in developing countries.

**Status of children and children's services in the United States**

The United States has spent monies for maternal and child health services, but how much is difficult to ascertain (Kessner, Singer, Kalk, & Schlesinger, 1973, p. 123).
In 1969, when compared with 14 other modern industrialized countries, the United States ranked fifteenth in infant mortality rates (Fitzpatrick, Reeder, & Mastroianni, 1971, p. 12). Figures released in May 1974 by the statistical office of the United Nations state that the United States still ranked fifteenth in infant mortality rates in 1972 (National Foundation/March of Dimes, 1974, p. 9).

In areas where the mortality rates for children are high, there are other adverse conditions present. Williams and Jelliffe (1972) stated that "in regions where there is a high maternal and child mortality there is also ill-health, malnutrition, and shortage of amenities" (p. 24). In short, ill health begets ill health, and malnutrition begets malnutrition.

In the United States, as in other countries, high infant mortality rates still seem to be associated with low socioeconomic conditions. These conditions are associated also with low birthweight and prematurity at birth. Infants born prematurely and/or of low birthweight have a higher risk of having neurological defects, mental retardation, or other handicapping conditions. These, then, are the infants who are in need of medical and educational intervention at very early ages.

Birch and Gussow (1970) stated the problem somewhat differently: "A serious program for the abolition of school failure among disadvantaged children must also
include improvement in their economic condition, health, and nutritional status" (p. xi).

Through the years young children have been the focal points of many federal legislative enactments. A few examples of recent legislation are: the National Program for Early Education, 1967; the Handicapped Children's Early Education Act, 1968; and the Maternal and Child Health and Mental Retardation Amendments to Title V of the Social Security Act, 1963. Several states, including Michigan, have enacted legislation to provide for special education to begin at birth. Also, the Michigan League for Human Services (1973) reported:

Recommendations for development of a statewide network of intensive care centers for "high-risk" mothers and their infants, prepared by a task force of the State Health Planning Advisory Council . . . have been formally endorsed by Governor Milliken. The task force determined that such centers could cut in half mortality rates among premature infants, and reduce cases of mental retardation caused in the infant stages by as much as 20 to 30 percent. (p. 2)

All of these acts and many more seem to indicate a growing concern for the welfare of young children. Before one can make that assumption, however, one must consider the systems or nonsystems into which new programs are placed. Meier (1973) stated that "if we regard the health care system as a 'nonsystem' and if we look at it in terms of its chaos and fragmentation, it is because that is indeed the way it is" (p. 3).

The Joint Commission on Mental Health of Children has
published several reports. In one of these (1970), the commission reported what it considered to be the basic rights of every infant in the United States:

1. The right to be wanted.
2. The right to be born healthy.
3. The right to live in a healthy environment.
4. The right to the satisfaction of basic needs.
5. The right to continuous loving care.
6. The right to acquire the intellectual and emotional skills necessary to achieve individual aspirations and cope effectively in our society.
7. The right to receive care and treatment through facilities which are appropriate to their needs and which keep them as closely as possible within their normal social setting. (p. 9)

In this same report, the commission concluded from data available in the United States that "services for children and youth are grossly inadequate, antiquated, and poorly coordinated" (p. 9). Recommendations made by the commission included (1) the establishment of systematic prenatal care, (2) family planning, and (3) comprehensive pediatric and mental health services for children under 3 years of age.

Neal (1973) described the problem as follows: "Responsibility for children's services is normally divided among state departments of health, mental health, social services or welfare, and education" (p. 8). Such divisions usually
result in confusion which is heightened by the lack of coordination and communication between funding sources, by overlapping legislative enactments or no enactments, and inter- or intraprofessional jealousies often seen between or within agencies offering services to similar populations.

A new phenomenon that began in the late 1960's was the child advocacy movement. This movement is described in more detail in Child Advocacy: Report of a National Baseline Study (Kahn, Kamerman, & McGowan, 1973). Briefly, the authors explain the special focus of child advocacy as "intervention on behalf of children into or with those services and institutions that serve children or impinge on their lives" (p. 117). It will be interesting to see if this new approach to the coordination of services to children will have some positive impact or whether it will become yet another layer of confusion.

Need for a systems approach

That the knowledge, technology, and resources are available to systematically approach the fighting of wars, the making of dams, the collection of taxes, the making of monetary profits, and the winning of football games has been proven. It seems somewhat startling that the same techniques have not been used more extensively than they have to solve health problems. Churchman (1968) explains:

In principle, we have the capability of organizing the societies of the world to bring into
existence well-developed plans for solving the problems of poverty, health, education, war, human freedom and the development of new resources. . . . If we look over the problems, one aspect of them becomes quite obvious: these problems are interconnected and overlapping. The solution of one clearly has a great deal to do with the solution of another. (p. 4)

A system has been defined by Churchman as "a set of parts coordinated to accomplish a set of goals" (p. 29). Systems approaches have been used in special education (Lerner, 1973) and in the administration of social services (Kahn, 1973, pp. 142-147).

The systems approach was used in this study to compare and contrast the organizational structures of several agencies and their infants. It was used also to develop a schematic model of a services delivery system.

Definition of Terms

The use of these terms in this study is intended to convey the following meanings:

**High-risk-infant (HRI)—**an infant who because of prenatal, neonatal, and/or natal factors has a higher than usual potential of having developmental problems. The criteria used in this study for the classification of HRI's at birth are any of the following:

1. Low birthweight—below 4-1/2 pounds, or about 2,000 gms or below (Detroit Department of Health, 1972a).

2. High birthweight—above 10 pounds, or about 4,500 gms or above (Detroit Department of Health, 1972a).
3. APGAR rating of 7 or under at 5 minutes after birth—"Apgar rating" was so named for the person who developed the rating system, but "APGAR" was turned into an acronym for appearance, pulse, grimace, activity, and respiration to make it easier for delivery room staffs to remember. Each characteristic has a possible score of 2. Newborns are routinely scored at 60 seconds after birth and again at 5 minutes after birth (Apgar & Beck, 1972, p. 70).

4. Major congenital malformations such as cleft palate, spina bifida, etc.

5. Positive PKU—phenylketonuria is an inborn error of metabolism which can cause mental retardation if not corrected. The test name has been shortened to PKU and is done routinely at birth.

6. Disabling birth injuries.

7. Social problems, specifically parental rejection, etc.

8. Overt drug withdrawal symptoms.

9. Severe initial weight loss (10 percent), poor feeding prognosis, potential failure to thrive.

10. Discharge or release against medical advice before 36 hours.

The criteria used for the classification of HRI's at a time other than birth are any of the following:

1. Low developmental assessment scores.

2. Physical abnormality.

3. Abnormal physical growth.

4. Accidents.

5. Child abuse.

6. Social problems, specifically parental rejection, etc.
**Mother-at-risk (MAR)**—a mother who has or is likely to have conditions associated with childbearing which increase the hazards to her health or her child's health during pregnancy, delivery, or the infant's lifetime. The criteria used for the classification of MAR's in this study are those used by the Detroit Department of Health (1972b) and are any of the following:

1. Age 16 or under, or first delivery age 40 or over.
2. Symptoms of postpartum psychosis.
3. Drug addiction.
4. Severe maternal rejection.
5. History of child abuse or neglect.
6. Special cultural or ethnic problems.
7. Major postpartum complications, e.g., hemoglobin 8 gms or less, severe hemorrhage, eclampsia (convulsions during pregnancy).
8. Pre-existing physical handicap (deafness, blindness, hemiplegic or activity-limiting disease, sickle cell anemia, uncontrolled hypertension, uncontrolled diabetes, etc.).
9. Discharge or release against medical advice before 36 hours post-delivery.
10. No antepartum care by history.

**Parturition**—the act of giving birth. The following words used in this study are derived from the same Latin root word:

1. Antepartum—before birth, or prenatal.
2. Intrapartum—at birth and soon after birth.
3. Postpartum—after birth, including the first 6-8 weeks.

**Natal**—anything relating to birth. The following related words are also used:

1. **Prenatal**—before birth, or antepartum.
2. **Neonatal**—newborn up to the age of 1 month.
3. **Postnatal**—after the neonatal period and until the age of 1 year.
4. **Perinatal**—around birth, or from the twentieth week of gestation until the age of 1 month.
5. **Neonatology**—a branch of medicine dealing with the neonate.

**Parity**—the number of previous pregnancies. The following related words are also used:

1. **Primapara**—a woman in her first pregnancy.
2. **Multipara**—a woman in any pregnancy after her first.

**Birth order**—the number of previous pregnancies.

**Low birthweight**—any weight at birth which is below 4-1/2 pounds or 2,000 gms.

**Gravida**—a pregnant woman.

**Infant**—a baby up to the age of 1 year.

**Death rate**—the number of deaths occurring per 1,000 live births. The following death rates are considered in this study:

1. **Neonatal death rate (NDR)**—the number of neonatal deaths per 1,000 live births.
2. **Perinatal death rate (PDR)**—the number of perinatal deaths per 1,000 live births.
3. Infant death rate (IDR)—the number of infant deaths per 1,000 live births.

4. Postnatal death rate—the number of deaths per 1,000 live births which occur during the postnatal period.

5. Fetal death rate (FDR)—the number of deaths per 1,000 live births which occur before birth but after the twentieth week of gestation.

System—a group of items which regularly interact to form a whole. In this study, "system" shall mean the parts of the organizational structures of agencies and the services which these agencies offer to mothers and their infants. The following related words are also used:

1. Subsystem—part of the larger system.

2. Suprasystem—the larger system of which a system is a part.

Input—anything which goes into the system.

Process—anything that happens to the input of a system.

Output—anything that comes out of the system.

Theoretical Basis for the Study

The theoretical basis for this study is derived from the following assumptions:

1. The earlier families and children are given help in working through their problems, the greater the chance of preventing or minimizing the occurrence of additional problems.

2. There is a need for medical-social-educational agencies to coordinate their services to these families and their children.
3. A systems approach to the coordination or reorganization of services is an appropriate approach.

These assumptions are interwoven and are based on findings in the related literature in this study.

Meier (1973) described the crisis in health care that began to be apparent in the early 1960's, as the result of a growing concern about the distribution of health services. Consumers of these services began expressing a desire for more and better services until by the mid-1960's the United States was in the midst of a consumer revolution in the field of health. These same things apply to social and educational services. Medicare, Medicaid, Comprehensive Health Planning, Headstart, Neighborhood Health Centers are but a few of the programs for which legislation was passed in the mid-1960's. Meier stated: "We are still trying to digest the programs that were generated through this bumper crop of legislation" (p. 3).

McConnell (1970) stated that "some authorities estimate 60% to 80% of children in classes for retarded children are the cumulative products of environmental rather than physical or organic problems" (p. 1).

A systems approach to the coordination or reorganization of services seems appropriate and logical. Systems analysis was defined by Chorafas and quoted in Banghart (1969) as "an attempt to define the most feasible, suitable, and acceptable means for accomplishing a given purpose"
There are now a considerable number of experiments using systems theory methods (Kahn, 1973, pp. 142-146). Increased utilization of systems theory in future planning in medical-social-educational programs seems to be predictable as well as appropriate.

Questions to be Answered by the Study

The study addresses itself to the following questions:

1. What are the purposes, goals, and objectives of the agencies?
2. To whom or what organizations are these agencies responsible?
3. How are the agencies funded?
4. What services are offered to mothers and their infants by these agencies?
5. What fields of specialization are represented on the staffs of these agencies?
6. Which agencies offer services to MAR's?
7. Which agencies offer services to HRI's?
8. What criteria are used to designate a MAR?
9. What criteria are used to designate a HRI?
10. What follow-up procedures are used by these agencies to assure continuation of care to their patients?

Limitations of the Study

This study has geographical limitations. The agencies in Detroit serve the residents of southwest Detroit. The
boundaries of this area are the Detroit River on the south, the city limits on the west, West Warren Avenue on the north, and the John C. Lodge Freeway on the east. The area served by the special care nursery in Kalamazoo consists of nine counties: Allegan, Barry, Van Buren, Kalamazoo, Calhoun, Berrien, Cass, St. Joseph, and Branch.

This study is also limited in scope to the study of organizational structures and services offered to the target population.

Organization of the Dissertation

The organization of this dissertation is such that Chapter I serves as an overview of the basic problem, the purpose of the study, the importance of the study, the theoretical basis, limitations, and questions to be answered in the study.

Chapter II contains the review of related literature. It concerns the topics of infant mortality, high-risk-infants, mothers-at-risk, and systems theory and its application to the delivery of services.

Chapter III contains a description of the geographical areas concerned in the study, descriptions of the agencies involved, explanation of the instrumentation and data collection procedures, and an explanation and rationale of the report of the data collected which appears in Chapter IV.
Chapter IV is the presentation and analysis of the data and includes a narrative description of each agency as well as a systematic analysis of the organizational structures of each agency and of the services offered by each agency.

A summary of the study, a discussion of the findings, and recommendations are found in Chapter V.
CHAPTER II

RELATED LITERATURE AND RATIONALE

The purpose of this chapter is as follows: (1) to present an overview of the interrelatedness of mothers-at-risk, high-risk-infants, infant mortality, exceptional infants, medical care, and social and demographic factors; (2) to review the literature regarding maternal and infant care; and (3) to present a rationale for the use of a systems approach as a possible solution to the fragmentation of the delivery of services.

The literature regarding MAR's, HRI's, and infant mortality interrelates and overlaps. Much of the literature regarding special education and early intervention with exceptional infants also relates to these subjects because the outcomes of high-risk pregnancies are infants who, if they survive, usually are the high-risk-infants or exceptional infants in need of early intervention by educators as well as medical professionals. The circumstances associated with each topic are generally the same. One can view the literature as being a part of a system of related data. A mother-at-risk is considered at risk because the outcome of her pregnancy is dubious. The high-risk-infant is usually found to be the result of the pregnancy of a mother-at-risk. Natal mortality is found to be high in
populations where conditions are conducive to producing mothers-at-risk. Even though some infants die and some are at risk unexpectedly, i.e., born to mothers who were not considered at risk, the fact that the infants existed at all places their mothers at risk in any subsequent pregnancies.

Kessner et al. (1973) reported in a selected review of the epidemiology of infant mortality that the infant death rate in the United States in 1968 was 22.3 per 1,000 live births. The pattern of infant death was consistent throughout the first year of life; the younger the infant group studied, the higher the death rate. Infant death rates varied from 16.1 per 1,000 live births in the first weeks of life to 0.2 per 1,000 live births in the twelfth month. The number of infant deaths in 1968 was 131,556. This is a combined figure of 76,263 deaths per persons under 1 year of age and 55,293 registered deaths of fetuses with gestation periods of 20 or more weeks. By 1972, the infant mortality rate had decreased by 17 percent (National Foundation/March of Dimes, 1974, p. 9).

Factors Related to Natal Mortality and High-Risk-Infants

The generalizations that follow are related to natal mortality and were made to serve as a background for the review of the literature. They are factors which are exten-
sively documented in reports by Kessner et al. (1973) and Birch and Gussow (1970).

Maternal age affects infant mortality in that the lowest fetal death rates are found for mothers 20-24 years old; the lowest neonatal death rates are found in mothers 25-29 years old; and the lowest postneonatal death rates are found when mothers are 30-34 years old. Patterns of mortality rates are similar for whites and nonwhites; however, the rates at all ages are higher among nonwhites.

Mortality rates for infants increase with the mother's age and number of pregnancies (birth order). High birth orders are more common among women of lower socioeconomic status who also tend to have more children, start childbearing earlier, and continue childbearing later. It is assumed that the higher mortality rates may reflect nutritional, educational, and socioeconomic conditions.

Certain trends in infant mortality rates do appear along racial lines. Fetal and infant mortality rates have been consistently higher for nonwhites than for whites since the inception of national statistics. It is assumed that this is a socioeconomic factor rather than an innate physical difference. According to Birch and Gussow (1970), "The fact is that poverty does not appear to weigh equally on white and nonwhite" (p. 27).

Nonwhite infants have higher death rates than white infants for any cause of death except congenital malforma-
tions or hemolytic diseases. These differences are evident in virtually every state, irrespective of the relative proportion of nonwhite infants. The mortality does vary, being highest in the states where low socioeconomic conditions also prevail.

Birthweight is an extremely important factor in the study of infant mortality and HRI's. It is inversely related to infant death until the birthweight reaches 4,000 gms. Infants weighing below 2,500 gms or above 4,000 gms have an even higher risk of death. The risk of death for the neonatal period of babies weighing less than 2,500 gms at birth is 30:1. During the postneonatal period, the risk of death drops to 17:1. Length of gestation is considered simultaneously with birthweight because of their known relativity. The risk of death or of central nervous system disorders is not as great for low birthweight (LBW) babies of full gestation, because they are more likely to be physically mature even though small. LBW babies of less than full gestation are physically immature and have an additional risk imposed upon them.

Kessner et al. (1973) and Birch and Gussow (1970) have reported that the magnitude of the relative difference in mortality by birthweight and length of gestation exceeds that of any reported differences by age of death, geographic area, maternal age, birth order, race, socioeconomic status, or legitimacy.
About 8 percent of all live births are LBW babies, and these babies experience higher mortality rates. The absolute number of deaths among these infants exceeds that of the remaining liveborn infants. Babies weighing more than 4,000 gms at birth have a higher mortality rate than babies born of an optimum weight, but the magnitude is not as great as for LBW babies.

The LBW ratio is highest among infants of mothers under 20 years of age. Nonwhite infants weighing between 2,500 gms and 3,500 gms experience a death rate that is twice as high as for white babies of the same weight. The rate is about the same for both races when the baby is below 2,500 gms. LBW ratios increase with a declining socioeconomic level regardless of race. Also, as the mother's educational level increases, the proportion of LBW deliveries decreases.

Collaborative Perinatal Study

This study, which began in 1958 and involved 12 medical institutions, was designed to study cerebral palsy, mental retardation, and other neurological and sensory disorders. The project was a joint venture sponsored by the National Institute of Neurological Diseases and Stroke; the United States Public Health Services; the National Institute of Health; and the Department of Health, Education, and Welfare. Registration for the project ended in
1965 after a total of 55,908 pregnant women had been included. Data about these women, their pregnancies, and their children were recorded at each institution.

The planners of this study were gravely concerned about the large amount of reproductive wastage in our country. The risk of dying is at its height during the perinatal period and is not as high again until after the age of 65. The study, therefore, was designed to collect as much information as possible about each woman and her child in order to study factors of reproductive wastage.

Niswander and Gordon (1973) wrote the first major report from the data collected. They described the project as follows: "Collaborative Perinatal Project was designed to define parameters of the broad problem of fetal wastage, to identify possible etiologic factors, and to pinpoint possible areas for intervention or for further specific research" (p. 4).

The reader is cautioned that "while this report represents an important milestone in the progress of data analysis within the Collaborative Perinatal Study, it is only part of the process of the interpretation of the data" (p. x).

Extreme caution must be taken when referring to the Niswander and Gordon book. Their report does serve the purpose of giving the reader a perspective on the project, but it leaves much to be desired in terms of reporting.
statistically significant findings.

Mothers-at-Risk

An ex post facto study on available data from New York City's Department of Health was undertaken in an attempt to relate medical care, social characteristics, and demographic characteristics of different groups of women (Kessner et al., 1973). The women were classified according to the risk they faced of losing their infants to death. The data used in the study were vital statistics data on 140,000 births in New York City in 1968. The data included: the mother's race and nativity; mother's and father's education; time of subsequent prenatal care visits; the name of the hospital where the baby was born; the attendant at birth; specific medical information about the mother's health; the infant's health at birth; and selected details of the pregnancy, labor, and childbirth.

The main conclusion of the study was that the adequacy of care was strongly and consistently associated with infant birthweight and survival of the infant and that this association is pronounced throughout the first year of life. Kessner et al. (1973) state that New York City's mortality rate for 1968 could have been reduced by 33 percent had all pregnant women in the city received adequate care (p. 1).

Some further conclusions were that (1) the assignment of risk categories to pregnant women could be done with
minimal information about the women, (2) infants of women in different risk groups did experience differences in survival, and (3) the mothers' receipt of health services was associated with the survival of their infants. The data also emphasized that not only were black and Puerto Rican mothers in New York City subjected to higher risks and their infants to higher mortality rates than were their white counterparts, there was a gross misallocation between the risks and services given, particularly among black and Puerto Rican mothers (Kessner et al., 1973, pp. 1-4).

An epidemiological study, undertaken in Detroit in 1968 to identify certain characteristics of infants and their families, was developed by the Division of the National Institutes of Health and the Detroit Visiting Nurse Association (Smiley, Eyres, & Roberts, 1972). It was hoped that by studying the occurrence of infant illness and the failure by families to use preventive care following delivery of the infant, information would become available for predicting which mothers within the high-risk groups were at a higher risk than others so that available manpower could be utilized more efficiently.

A total sample population of 403 mothers completed the study, for which data-gathering instruments consisted of three questionnaires and additional data from hospital records. Each study participant was interviewed three times—once during her hospitalization for delivery, once
when her infant was 1 month of age, and once when her infant was 3 months of age. Basically, this study focused on the association of mothers' behaviors and attitudes with their infants' health but also included an examination of infant care practices of mothers.

In the sample population, the ratio by race was comparable to the racial distribution of total births during the year, with 88 percent being black. However, the study contained a lower percentage of unmarried mothers—32 percent lower than census tract records showed for the area. When divided according to income using the Office of Economic Opportunity guidelines, the composition of the sample population was as follows: 36 percent were low-income families eligible for free medical care; 46 percent were middle-income families who were not medically indigent, but who made less than $10,000 annually; and 11 percent were high-income families with an annual income of over $10,000.

A breakdown of the population by age showed 77 percent to be above 19 years of age. Of the sample, 82 percent had less than a high school education.

After summarizing the findings of the study, the authors concluded that infants who were reportedly sick during their first 3 months of life had a higher probability of having been born into low-income families and to young mothers with only a high school education. They
were more likely to have moved their residence, and their mothers probably had had to manage the housework alone during the first month after delivery. Their mothers tended not to take advantage of prenatal classes and to delay medical care for their pregnancy until the third trimester or not get care at all. Their mothers also tended to be unhappy, nervous mothers.

Other conclusions were that infants were less likely to receive well-child care if their mothers were low-income and had less than a high school education. Their mothers tended to be unmarried, older multiparas who reported more negative attitudes about pregnancy and more unplanned babies. They were frequent movers and non-utilizers of health care.

The findings seemed to indicate that knowledge of a woman's previous use of health care facilities, stability of residency, and the amount of help available in the home are important factors in planning and providing infant care. The inclusion of more supportive care and attention for the mother seemed to be indicated as a recommendation for care.

Maternal and Infant Care

The problems of health care in this country are becoming increasingly difficult to understand. Morrissey and Shiffman (Haselkorn, 1968) explained: "Health services
are fragmented and expensive, lack continuity, and are funded through a variety of sources with multiple criteria for eligibility" (p. 81). They also stated that "in no area of health services is the ineffectiveness of present patterns more obvious and dramatic than in the lack of comprehensive maternity services" (p. 82).

It is almost impossible to determine how much of the national medical and health dollar resources are committed to maternal and infant care. Medicaid program federal and state reports show that 11 million children and their mothers are covered for services, but there are no federal data existing that show how much of the Medicaid dollars purchase maternal and infant services.

Section 508 of the Social Security Act of 1964 makes provisions for maternal and infant care projects to be established to help reduce the incidence of mental retardation and other handicapping conditions as well as to help reduce infant and maternal mortality. Originally, the program was placed in the Children's Bureau of the Social and Rehabilitation Service in the United States Department of Health, Education, and Welfare (HEW). It was transferred to the Department of Health Services and Mental Health Administration in 1969 as the Maternal and Child Health Services Act.

From the outset, these projects' missions were:

1. To bring comprehensive maternal and infant health services to the poor, especially
inner-city and rural areas.

2. To emphasize
   a. an increase in the number of maternity clinics.
   b. the provision of a broad spectrum of diagnostic and consulting services.
   c. hospitalization during prenatal, labor and delivery for high-risk patients.
   d. intensive care for high-risk infants.
   e. the inclusion of public health nurses, medical social workers, nutritional services, dental care, homemaker services, drugs and transportation as services.
   f. the inclusion of family planning services, which was added in 1967. (Kessner et al., 1973, p. 132)

The content of care in the special projects is largely based on recommendations of the medical profession; therefore, it reflects what should be and not necessarily what is provided. The recommendations include provisions for family planning, genetic counseling, preconception care, antepartum care, intrapartum care, postpartum care, interconceptional care, normal and high-risk-infant care, and older infant care.

By the end of fiscal year 1971, there were 56 federal Maternal Infant Care (MIC) projects. During fiscal year 1971, there were 141,000 new maternity admissions, 42,600 new infant admissions, and 130,000 new family planning admissions. At that time, it was estimated that in 1972 there would be 140,000 new mothers admitted to the program and 49,000 new infants and that by 1973 there would be 152,000 new mothers and 53,000 new infants.
Patient eligibility varies from project to project in terms of services given, i.e., hospitalization is available only to women at very high risk in some projects.

MIC policy stated that prenatal care, postnatal care, family planning, and diagnostic services must be available to any woman living in the project area without a requirement or determination of financial eligibility.

These special projects are financed by a matching fund formula of 75 percent federal and 25 percent state funds. As of July 1, 1973, each state was required to have such a project. The funding was changed to come from state formula grants, thus shifting funds so that 38 states received increases and 14 states received decreases.

The impact of these projects has been somewhat encouraging. Among project populations there seem to be generally declining neonatal, infant, or perinatal mortality rates. To make any definite conclusion from present data may be hazardous, as there is a lack of control data.

Other trends seem to be that (1) since the onset of the federal MIC projects, the organization of comprehensive health care programs for mothers and infants has accelerated; (2) the federal projects have served as models for the delivery of maternal and infant health services in low socioeconomic areas; and (3) these projects seem to have promoted a team care approach and the utilization of new types of health care personnel.
One report concerning MIC projects includes information regarding several such projects (Child Development Staff, 1970). Maricopa County, in Arizona, has a project which is part of a comprehensive health delivery service. The total Maricopa County Health Department program endeavors to "provide comprehensive health services to all residents of Maricopa County and to co-ordinate the available services for the convenience of the consumers" (Child Development Staff, 1970, p. 37). The department does this through coordinating the services of the city/county health department, county hospital, Migrant Health Program, Office of Economic Opportunity Health Services, Public Health Service, the Maternal and Infant Care Project, and the Children and Youth Project. Since the county seat of Maricopa County is Phoenix and since most of these services are in the same building, part of the county population may have relatively accessible services. In order to meet the needs of the rural areas of the county, health care teams and their trailers of equipment are sent out into the countryside. Each team consists of a physician, a nurse, a dentist, a nutritionist, a social worker, and several health care aides.

Prenatal care is arranged through the MIC Project. Close coordination makes it possible for a public health nurse to assume the continuance of services that were initiated soon after the birth of the child. Vital informa-

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tion is centrally located, as are staff members who are familiar with specific patients and their records. In cases of prematurity or other identifiable risks to the infant, arrangements for the continuance of service are started before the baby leaves the hospital.

The programs have been very effective in reaching large numbers of otherwise neglected rural dwellers. The mobile units have also given rise to permanent health facilities with skeleton staffs in the communities as they have accepted the need for improved health delivery systems.

The MIC Project in Washington, D.C., is coordinated by the District of Columbia Department of Health. Receiving services annually are 45,000 women and children, at 15 locations. This project utilizes the resources of seven different hospitals for special maternity and child health needs as well as for distribution of birth control information and devices. Primary responsibility for the delivery of care is assumed by a team of nurses. The unique aspect of this program is that it provides a six-week course for mothers, which includes the reading of a training manual, group discussions, and the showing of films.

In Kentucky, five eastern counties have MIC projects. Pregnant women enrolled in the projects receive complete medical examinations, laboratory tests, prescribed medications, assistance with their diet during pregnancy, dental services, complete delivery and hospital services including

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transportation, postnatal examinations, care for their children, and referral for additional services as needed. The nurse who attends a mother at a project-accredited hospital at the time of her delivery makes follow-up visits to the home later to insure that the infant is receiving proper care and nutrition and is developing normally. Some of the projects in Kentucky have social workers and nutritionists affiliated with them. Homemakers are sometimes placed in the home temporarily to relieve stress situations if they arise. Family planning services are also available at most of the projects.

"The effects of the projects are measurable and observable" (Child Development Staff, 1970, p. 56). The number of hospital deliveries is up, while infant mortality rates have decreased. The number of deliveries made by unregistered midwives is also down in these areas. It is also claimed that there is evidence of increased interest in these areas in infant care among the mothers having children (Child Development Staff, 1970).

A different approach to maternal and child health care was seen in a report which described a project in Mississippi (Thiede, 1971). In 1968, Thiede took the stand that urgently needed health delivery systems should come from medical residents and students rather than from practicing physicians. He stated that "significant numbers of practicing obstetrician-gynecologists in the United States are
unwilling to care for socioeconomically deprived patients because: (1) these patients require too much time, and (2) their [the physicians'] other patients would not care to share the same waiting room" (p. 736). According to Thiede, these statements were made by physicians even when they were told that they would receive usual and customary fees for their services.

The solution, Thiede believed, was for medical schools to provide their residents, students, and faculty with insight into difficult problems of economically depressed persons in rural and urban areas. He proposed that this be done through participation in health care practices in the patients' communities.

Since it was decided that the most pressing health problem in Mississippi was in maternal and child care, a project for these services was initiated by the University of Mississippi, in five contiguous counties of the Mississippi Delta. The distance from the University Medical Center to a project site ranged from 65 to 175 miles. The project aims were: (1) to augment and upgrade the county health department; (2) to provide services to medically indigent pregnant and postpartum women and their infants; (3) to provide local physician services to high-risk mothers, as well as community in-hospital care; and (4) to train additional health workers in existing and new categories, i.e., nurse midwife, obstetrical technician, and health
aide (Thiede, 1971, pp. 736-737).

In four years (1967-1971), the University Medical Center moved from a position of no community involvement to a present commitment, to two maternal-infant care projects encompassing seven counties and four family planning programs involving nine counties. Some of the other positive changes noted by Thiede (1971) were that medical students are thinking and talking in terms of life-enriching health care instead of just life-saving care; there is a growing awareness among the students that perhaps a physician is responsible for standards of health care for all citizens in his community and not just in his own practice; residents are finishing the program with some thought of improving obstetrical-gynecology practice with the use of professional and paraprofessional assistants; some of the long-standing deterrents to good patient care in out-patient departments have been recognized and dealt with through the use of corrective action; and nursing services, pediatric, and obstetrical-gynecologic services have been stimulated to collaborate more closely than they did prior to the project (p. 739).

On the negative side, the vast amount of paper work involved in establishing such programs is discouraging. Each project experienced a period of turmoil allegedly brought on by the rapid influx of new personnel. Patients often became disillusioned and demoralized if and when the
Clinic services were discontinued, which sometimes happened because of staffing problems or medical student changeover. Some plans and decisions made at the top level of representation of agencies and organizations involved, including consumer participation groups, were neither accepted nor implemented at the effector level, which was frustrating to the staff. It was also demoralizing to the staff to run out of, or not have enough, funds to maintain or initiate program functions (Thiede, 1971, pp. 739-740).

Thiede remained optimistic about the future of such programs and maintained that many of the reasons for failures in other programs could be surmounted by developing and utilizing new types of nonphysician health personnel and by continuing professional education through innovative lifelong educational procedures.

In 1965, the Baltimore Maternal Infant Care Project was the first project opened under Social Security Act, Title V, 1963. The intention of this project was "to improve patient care and follow-up, to make more appropriate use of all available resources and to improve the system of communication" (Swallow, 1972, p. 85).

The legislation prescribed (1) responsibility for seeing that all mothers and infants receive the best possible care, (2) concentration on high-risk pregnancies, and (3) use of existing resources rather than creating new ones. The project director's contributions were summarized under
two concepts of MIC. The first was the "645 days" concept, which directed itself to the continuity of care between obstetrics and pediatrics. This continuity is essential through the 40 weeks of gestation, delivery, and the following months until the infant is 1 year of age.

The "cone" concept (Figure 1) was the second concept. It focused on the legislative mandate for MIC projects to concentrate on high-risk pregnancies in an effort to reduce mental retardation and reduce infant mortality rates caused by complications associated with childbearing. This plan is based on the relationship of the diagnostic profile of the mother to the diagnostic profile of the infant at birth and at 1 year of age.

Resolution of the mother's problems in turn reduces the problems of the infant. When shown systematically, as the mother's problems are resolved, the vertical expanse of the model decreases and gives the model a cone shape. The infant enters the care system with fewer problems, or toward the apex end of the cone. As the infant's problems are resolved during the first year of life, the cone reduces in size still further. Intensive, coordinated, and preventive services to a maternity and infant population should bring about a sizeable proportion of these populations requiring no more than basic general care. It may be impossible to resolve certain problems of some mothers and their infants in the 645 days between conception and the infants'
High Risk Recognized
PROBLEMS CORRECTED
No Longer High Risk

High Risk for Normal Pregnancy Experience
PROBLEMS SOLVED
New Problem Solved
New Problem Discovered

High Risk for Normal Growth and Development
Continuing High Risk
Problem Arises
New Risk

Figure 1. "Cone" concept (Swallow, 1972, p. 87).
first birthdays. The infants of such mothers may always be at risk for growth and development. In those cases, other community services may be required to enter the system in order to maximize the infants' potentials.

Neonatal Intensive Care Units

Neonatal Intensive Care Units (NICU) are also specific projects designed to reduce infant deaths and are financed through federal/state grants. These units have been very effective in reducing infant mortality, especially when they are coupled with intensive prenatal care.

According to a recent report from the University College Hospital in London, England (Kessner et al., 1973, pp. 139-140), infants with a birthweight below 1,500 gms who received NIC have been examined at intervals of 6 months, clinically assessed, and developmentally screened on each visit and psychometrically tested at 4 and 5 years of age. Of 68 children ranging in age from 9 months to 4 years at their last examination, 58 were considered to be normal in physical or mental development. Four were "of doubtful mental development but showed normal physical development, and five were of abnormal physical and mental development."

Usually, one-third to one-half of the children born of similar weights and who receive traditional newborn care are moderately to severely handicapped in some way at 4 to 5 years of age.
In the United States, eight NICU's receive direct federal project money. One NICU is located at the University of Mississippi Medical Center, which may be another positive result of the program discussed earlier. In most instances the units function as regional centers for other local hospitals. Each unit requires highly complicated and expensive equipment, specially trained nurses, and other personnel, which makes high operation costs a strong case for the regionalization of these centers. Even though only 8-10 percent of all infants born in any one year would need NIC, the infant mortality rates of those needing it can be reduced by 40-70 percent (Kessner et al., 1973, p. 143).

The importance of establishing NICU's was reflected in a policy statement for the improvement of maternal and infant care developed by the American Medical Association during 1969 and 1970. The Committee for Maternal and Child Care of the AMA believed that every community or geographic region in the United States must initiate programs to "identify the high-risk pregnancy in sufficient time to allow for delivery at those hospitals which were staffed, equipped, and organized for optimal perinatal care" (Butterfield, 1972, p. 53). The committee later added to their statement by stating that programs must be designed "which provide for the prompt transfer of a distressed infant to a more appropriately equipped facility when indicated. Arrangements for transport should be an integral part of the
planning for community centered programs" (Butterfield, 1972, p. 53).

A group was formed in the Midwest in the late 1970's, involving six states: Wisconsin, Minnesota, Iowa, Nebraska, North Dakota, and South Dakota. It was called the Great Plains Organization for Perinatal Health Care and consisted of obstetricians, pediatricians, nurses, and public health workers with an interest in the improvement of the health care of mothers and their newborn. Their aim was to establish a network of newborn centers with a strong emphasis on education of personnel. Funding sources were not discussed in Butterfield's article.

The Wisconsin Perinatal Association was started also in the late 1970's. This organization established High Risk Centers on a regional basis throughout the State of Wisconsin. The funding source was not reported. The centers offered prenatal care and NIC. Since the formation of these centers, the neonatal mortality in Wisconsin has been reduced from 16 percent to 9 percent of all live births among the participating institutions (Butterfield, 1972, p. 53). Infant mortality rates were not included.

These two organizations and the pilot programs in Wisconsin were instrumental for the reorganization of the Newborn Center at Children's Hospital in Denver. Originally, the Center was formed in 1965 to coordinate existing hospital services and facilities with community services to
develop a system that could respond to the newborn in need of special care (Butterfield, 1972, p. 54).

In describing the background and establishment of this center, Butterfield emphasized the importance of a team approach, the essential role of a system of transport, and the tremendous need to critically evaluate such programs.

It is of interest to note that in another article the reduction in the infant mortality rate in Denver is attributed to a comprehensive neighborhood health program (Chabot, 1971). This program is funded through six federal grants: MIC Projects, Family Planning Project, Children and Youth Project, Public Health Service Comprehensive Community Health Service Project, and Mental Health Project. The services described by both Butterfield (1972) and Chabot (1971) are indeed comprehensive, but neither author mentions the existence of the other program. Since both programs are operating in the same city, it leaves this reviewer wondering about the integrity of those involved with them when they claim to be interested in coordinating existing services and in critically evaluating programs. Neither project should be belittled for its efforts, for the reduction in the mortality rates is very impressive; but the possibility of reducing the rates even more dramatically by combining these projects should not be overlooked.
Systems Approach

The study of systems as a group of parts is not new. However, the study of systems as entities is new and necessary in this age of change and complex organizations. This relatively new approach to the study of the individual units of a system has evolved to a point where a wide number of disciplines have developed specific concepts from general systems theory for their own uses. Sociology, psychology, political science, education, anthropology, business, industry, aerospace technology, and medicine are only a few. The advancements in computer science have made the use of systems approaches even more feasible than it was at its onset. The systems approach is a rigorous approach to the basic similarities believed to exist between certain properties of all systems. It is also a method of introducing change systematically by the improvement of an existing system or the design of a new system.

There seems to be general agreement in the literature as to what constitutes a system. A system has been defined by Feyereisen, Fiorino, and Nowak (1970) as "a set of components organized in such a way as to constrain action toward the accomplishment of the purposes for which the system exists" (p. 38). Lerner (1973) has another description: "A system has been defined as a set of objects, together with relationships between the objects and between
the characteristics of these objects" (p. 16). In short, systems "are made up of sets of components that work together for the overall objective of the whole" (Churchman, 1968, p. 11).

When one reads about the movements in education, i.e., competency- or performance-based curricula, career ladders in training paraprofessionals or professionals, accountability, evaluation, institutional research, program development, etc., it is easy to see the commonalities they share with systems theory, organizational development, and/or operations research.

The systems approach has been utilized in the solution of health services problems. One study (Hoff, 1971) described its use to resolve the crisis of the health manpower shortage. Hoff reported that three phases were used in the project. The first phase consisted of the identification of the agencies' objectives, the determination of what must get done for optimum health for the patients, the identification of workers' tasks, an analysis of these tasks, and a reconstruction of the tasks in new career ladders. Any new workers deemed necessary were recruited from the neighborhood surrounding each agency. The second phase included the writing of behavioral objectives and the designing of training programs from job descriptions, performance standards, and training requirements established from the information collected in the first stage. The
third phase was to be the evaluation phase. Plans were made to evaluate the training programs, the effects on the trainees, the effects on the health and educational agencies, and the delivery of health services to consumers.

Herzlinger and Moore (1973) described how a management control system was adapted to a neighborhood health center. The authors related the structures which were used to produce the control data and the process through which these data were used to evaluate the system and to motivate the efficient performances of the center's personnel. According to Herzlinger and Moore, "Such a system . . . seems adaptable to the medical care setting and may be useful in modifying the inefficiencies that exist within the health system" (p. 416).

A systems approach was used in the development of a health delivery system in Harlem (Allen, Landman, & Pryles, 1971) for a children and youth project which was concerned with the completeness and the continuity of care to change the crisis-oriented delivery system that had existed. Each patient that entered the system went through the following sequence: registration, health assessment, care plan, short- or long-term treatment, and health supervision. Because the system was computerized, each visit could be recorded. Each no-show for a scheduled visit could also be recorded so that the appropriate follow-up action could be taken. Allen et al. stated: "We feel that this data
collection system is providing us with an ongoing, almost
day-to-day monitoring of our activities and accomplishments
which has been of great value in making administrative
decisions" (p. 2450).

In the Baltimore Project (Swallow, 1972), it was dis­
covered that in order to attain the "coning" effect in the
care of mothers and their infants, an adequate information
flow had to be established between the maternity center and
the various providers of care. Since the MIC legislation
required detailed reporting from the center and from var­
ious providers of care, there was an abundance of informa­
tion about the patients. The challenge was to process,
digest, and utilize it.

The record system had to be computerized eventually
so that there could be readily available evidence that each
patient was receiving every service she should. (For a
detailed account of the record system, see Crocetti, 1972a,
1972b.) Because of severe budgeting constraints, the record
system was not fully developed for two years. When it was
finally implemented, the system used was a production con­
trol system which had been used in industry for some 20
years.

Summary

The purpose of this chapter was as follows: (1) to
present an overview of the interrelatedness of mothers-at-
risk, high-risk-infants, infant mortality, exceptional infants, medical care, and social and demographic factors; (2) to review the literature regarding maternal and infant health care; and (3) to present a rationale for the use of a systems approach as a possible solution to the fragmentation of the delivery of services.

Factors related to natal mortality and high-risk-infants were presented. Further information about mothers-at-risk was given. A federal approach to maternal and infant health care was explained. A rationale for a systems approach was given.

The factors which relate to conditions of risk in mothers and infants indicate that certain elements of the population are more prone to reproductive wastage and that these conditions are preventable, to some degree, with adequate maternal and infant health care. The literature seems to indicate a vital need for adequate health care, including the following: (1) an integrated team approach; (2) a broad spectrum of services, from preventive to rehabilitative; (3) a coordinated health system with continuity at every level of care—physicians, hospitals, and health agencies; (4) integrated hospital-based services, so that ambulatory and acute facilities are part of the continuum; (5) the inclusion and training of various health aide personnel; (6) an increased awareness of the vast discrepancies in health services between different elements of the
population; and (7) continuing programs of evaluation in terms of quality and relevance to needs.
CHAPTER III

OVERVIEW OF THE STUDY

This chapter contains the purpose of the study, descriptions of the geographic areas and the organizations under consideration, questions to be answered by the study, instrumentation, methodology used in data collection, and the treatment of the data.

Purpose of the Study

The purpose of this study was to compare and contrast (1) the organizational structures of several agencies offering services to mothers and their infants living in southwestern Detroit with (2) the organizational structure of a special care nursery operating in southwestern Michigan. Secondly, the study was designed to compare and contrast services offered to these populations by these agencies. The ultimate goal was to develop a schematic model of a service delivery system to be used in southwestern Detroit to locate mothers and infants who have been classified as "high-risk."

Description of the Geographic Areas

The southwestern region of Michigan served by the Special Care Nursery consists of nine counties: Allegan,
Barry, Van Buren, Kalamazoo, Calhoun, Berrien, Cass, St. Joseph, and Branch. This area has a combined population of 796,912. According to Verway (1972), 48 percent of the area is urban and 52 percent of the area is rural (p. 544). Population density in this area averages 149 persons per square mile. Of the families residing here, 8.6 percent have incomes below the poverty level. Whites make up 94 percent of the population and nonwhites about 5 percent, while the remaining 1 percent is classified as "other." Industry in this area is mostly light industry.

Southwest Detroit is bounded by the city limits on the west, West Warren Avenue on the north, the John C. Lodge Freeway on the east, and the Detroit River on the south. The population is approximately 241,300. The population density averages about 6,000 persons per square mile. The residents of this urban region are generally of low income, with 25 percent of the families below the poverty level. About 50 percent of the residents are nonwhite. There is a heavy mixture of heavy/light industrial and commercial activity scattered throughout the region.

Description of Agencies Studied

The agencies in southwestern Detroit were chosen because of their proximity to Merrill-Palmer Institute, because they had been chosen by the faculty concerned with the Preventive Community Mental Health at the Institute,
or because they served the population which was to be the target population of the study. The Special Care Nursery was included because it was one of the first such nurseries operating in Michigan, and it was believed that the organizational structure and services rendered by this agency would have important implications in this study.

The agencies studied included (1) Pelham Community Health Center, (2) Detroit Maternal Infant Care (DMIC) Project—Hutchel Hospital, (3) Community Health and Social Services (CHASS), (4) Herman Kiefer Prenatal and Family Planning Clinic, (5) Southwest Crisis Center, and (6) Special Care Nursery.

Pelham Community Health Center

This center is a joint venture of Henry Ford Hospital, Southwest Detroit Hospital, Southwest Medical Associates, and Pelham Community Services and was opened in 1973. It is presently located in a school but soon will be housed in a new building. The purpose of this center is to provide medical and health care to residents of Pelham Community and to improve the accessibility of these services. Pelham Community is within the boundaries of southwest Detroit and is that area which is bounded by the John C. Lodge, Fisher, Jeffries, and Ford Freeways.
Detroit Maternal Infant Care (DMIC) Project--Hutzel Hospital

This project began in 1972 but was reorganized and merged with the Preschool and Adolescent Development (PRESCAD) Project in September 1973. Some members of the DMIC Project staff are housed at Hutzel Hospital. The goals of the city-wide project are:

1. To provide a program of comprehensive and continuing health care to high-risk mothers and children through improvement and expansion of existing facilities and services.

2. To reduce the incidence of complications which may cause physical and mental defects in mothers and children.

3. To demonstrate innovative methods of providing maternal and child health care services.

The DMIC Project is one of the 55 MIC Projects in the United States. Funding for DMIC comes from the federal government, with matching in-kind services provided by the Detroit Health Department. Of the agencies described in this chapter, CHASS and Hutzel Hospital are approved centers in the DMIC Project. Any medically indigent pregnant woman living within Detroit is eligible to apply for comprehensive maternity care if she resides within a DMIC target area.

Hutzel Hospital's Prenatal Care Unit is an outpatient department of Hutzel Hospital, which is a Detroit City Hospital. A brief description is included because two of the other agencies refer patients here for care. DMIC pays

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for the care received by its patients, and the Detroit Department of Health pays for the remainder of the patient care. Prenatal care is limited to women who have been designated as high-risk at another agency in Detroit and have been referred to Hutzel Hospital. The hospital offers the services of many medical specialties, i.e., heart, internal medicine, drug addiction clinics, etc. The women who are referred here usually have ultra-high-risk conditions.

Hutzel Hospital has no pediatric department because of its proximity to Children's Hospital, which is exclusively pediatric. Hutzel does have a normal newborn nursery and a newborn intensive care unit for infants who are at-risk at birth.

Community Health and Social Services (CHASS)

This agency opened in 1970 and is a joint venture of the State Health Department, Wayne County Department of Social Services, and the Detroit Health Department. CHASS is one of the DMIC Project Health Centers.

The agency serves the residents living within a geographic area bounded by the Detroit River to the south, Livernois Avenue to the west, Michigan Avenue and the railroad tracks to the north, and 6th Avenue to the east. It is in the southwest Detroit area but serves only part of that region.
CHASS was organized to deliver health and social services generally. Specifically, the agency provides acute and preventive medical and social services to reach the Spanish-speaking community.

**Herman Kiefer Prenatal and Family Planning Clinic**

This is a Detroit Department of Health unit established for the purpose of giving optimum and conclusive prenatal and family planning care to indigent women residing in Detroit. This unit is the matching in-kind service provided by Detroit so that federal funds may be obtained for the DMIC Project.

**Southwest Crisis Center**

The Southwest Crisis Center is part of the Southwest Detroit Comprehensive Community Mental Health Program, which has been operating since 1968. The Center has been in operation since 1972 and offers preventive mental health services and crisis intervention to anyone living in southwest Detroit. The organization was included in this study because the director had had requests from families for services or for help in locating services for their children who had problems of various descriptions. The organization volunteered a room in which the staff of Merrill-Palmer Institute could see these families.
Special Care Nursery

The Special Care Nursery at Bronson Methodist Hospital in Kalamazoo, Michigan has been in operation since 1969 and was established initially with funds given anonymously.

The purpose of the nursery is to provide in-patient intensive care to newborns and follow-up treatment for infants. The services of the nursery staff were reorganized and redefined to include an outreach component of regional education and professional assistance for follow-up procedures to infants in communities in nine counties in southwestern Michigan.

Questions to be Answered by the Study

This study was designed to answer the following questions:

1. What are the purposes, goals, and objectives of the agencies?
2. To whom or what organizations are these agencies responsible?
3. How are the agencies funded?
4. What services are offered to mothers and their infants by these agencies?
5. What fields of specialization are represented on the staffs of these agencies?
6. Which agencies offer services to MAR's?
7. Which agencies offer services to HRI's?
8. What criteria are used to designate a MAR?
9. What criteria are used to designate a HRI?
10. What follow-up procedures are used by these agencies to assure continuation of care to their patients?

Instrumentation

A questionnaire had to be prepared and validated for this study so that the purpose of the study might be fulfilled. The questionnaire was used as a basis for an interview with the director of a social agency in Kalamazoo. Changes were made in the questionnaire at the suggestion of the director interviewed.

The questionnaire was then distributed to a panel of experts, including (1) the director of the Merrill-Palmer Institute's unit for Preventive Community Mental Health for Infants and Young Children with Developmental Disabilities, (2) a faculty member whose specialty is family relations, and (3) a faculty member whose specialization is urban organizations. The final form used included the suggestions given by the panel members.

Phone calls were made to the directors of the agencies incorporated in the study. An appointment was made with each director for a personal interview.

At the time of the interview, the questionnaires and the study were discussed. The questionnaire was partially completed during the interview and completed after the interview. Questionnaires were then returned to the investigator via mail.
Treatment of the Data

Each questionnaire was analyzed in terms of the questions to be answered by the study. All items were discussed in narrative form and shown as a flow chart of a service delivery system.

The organizational structures of the agencies were compared and contrasted narratively and with the use of matrices.

Summary

This chapter contained descriptions of the geographic areas and the agencies under consideration, questions to be answered by the study, instrumentation, the methodology used in the data collection, and the treatment of the data.
CHAPTER IV

REPORT OF THE FINDINGS

This chapter contains the report of the findings. The presentation is given as a descriptive report of each agency, accompanied by a flowchart which depicts services available to the patient at the agency or through the agency. A summary of the findings of all the agencies is reported narratively and through the use of matrices which depict the comparison and contrasts between the agencies.

Description of Agencies

Pelham Community Health Center

Pelham Community Health Center was officially opened October 29, 1973 to provide primary medical and health care to Pelham Community. All professional services rendered at the center are reported monthly to a board of directors and to the director of the center. The board consists of 10 members, 6 of whom are elected as community and consumer representatives. One funding source for this agency is a Ford Foundation grant, which is dispensed through Henry Ford Hospital. Other funds come from patient fees paid through Medicaid, Medicare, private insurance programs, or by the patient. About 65 percent of the fees are paid through Medicaid. Since the area is basically a low-income
area, most of the remaining 35 percent of the fees come from a sustaining budget for fees from the Ford Foundation grant.

Services provided at the center include: office visits, adult and child physical checkups, maternity care—before and after birth, child development evaluations, immunizations and shots, social services, family planning and counseling, and nutritional counseling. Prenatal care is given by a nurse and by a physician. Any other services needed may be obtained through one of the affiliated hospitals: Henry Ford Hospital, Boulevard General Hospital, or Southwest Detroit Hospital. Henry Ford provides transport services between the center and that hospital.

The full-time staff consists of a medical services coordinator, a nurse clinician, and a practicing physician. Part-time staff consists of a social worker for 4 hours per week, a nutritionist for 4 hours per week, and an administrator-director for 10 hours per week.

No provisions are made for in-service or community education about mothers-at-risk or high-risk-infants. The agency makes no classification of MAR. Although no criteria were indicated for the classification of a HRI, responses on the questionnaire explained that these infants were referred to Henry Ford Hospital.

During the first two months in operation, 114 patients were seen. In the next six months, an average of 138
patients were seen each month.

Any resident of Pelham Community is eligible for treatment at the center. Figure 2 shows a flowchart of services available at or through the center. If the care indicated is available at the center, the patient remains there for care. If not, the patient is referred to one of the affiliated hospitals or to another appropriate agency. The patient may (1) continue to receive basic care being received at another agency, (2) be referred back to Pelham Community Health Center to receive follow-up care indicated by the other agency, or (3) return for special care as often as indicated by the other agency until dismissed.

Services are limited at Pelham Community Health Center, but they are relatively accessible to members of the community. A broader range of services is available to the community via a transport service to Henry Ford Hospital.

There are no immediate plans to increase the obstetrical services at the agency. Although the agency's questionnaire lacked answers to most questions concerning MAR's and HRI's, the high percentage of low-income families in the community makes it unlikely that there are none. Further exploration in this area is needed.
Figure 2. Flowchart of services available at Pelham Community Health Center.
The DMIC project housed at Hutzel Hospital is one of the 13 DMIC health centers located in Detroit. DMIC funds come from the federal government but are dispensed by the State Department of Public Health. Daily statistical reports are compiled and sent to the DMIC administrative office in Detroit as monthly reports. The monthly reports are sent to the Michigan Department of Public Health and returned to the DMIC administrative office as quarterly reports. The quarterly reports are forwarded to the regional HEW offices in Chicago.

Each participating center's administration works directly with the Concerned Citizens for Health of Wayne County, Inc., to insure the acceptability of services and to provide for community participation in the DMIC project.

DMIC project personnel that are housed at Hutzel Hospital are a public health nurse coordinator, a public health nurse, and a part-time nutritionist. The coordinator verifies that a patient is a project participant and sees that she receives the care that she is supposed to receive. The coordinator sees the mother—and the infant, if the mother delivers the infant at Hutzel Hospital—and refers the mother to the appropriate project health center for postpartum care and progress checks for the infant, or refers the mother to a public health nurse or directly to
another agency for special care. The coordinator alerts the DMIC health center that the mother has delivered and conveys pertinent information about the outcome of the pregnancy and/or recommendations that may have been made by Hutzel Hospital staff members.

The statistical reports received from DMIC for this study, pertaining to the number of DMIC patients seen at Hutzel Hospital Prenatal Care Clinic, show a decline in the number seen each quarter. The number of DMIC women seen dropped from 173 on the November 1973 report to 126 on the February 1974 report, and to 107 on the April 1974 report. This decline should probably be studied further.

The flowchart in Figure 3 reflects the services given at Hutzel Hospital or available through DMIC staff. It shows possible recommendations made to the mother at the time of her dismissal. She or the baby may be referred to the public health nurse for special care, or directly back to the DMIC health center. The infant may be transferred to another hospital for postneonatal intensive care. The special care agency may refer the mother and infant on to the DMIC health center for basic care, or the health center may refer the infant and mother to an agency for special care. The public health nurse may visit the home; she may refer the infant or mother for special care; she may refer the infant to a postneonatal intensive care unit, or to the DMIC health center. The intensive care unit for post-
Figure 3. Flowchart of services available at Detroit Maternal Infant Care (DMIC) Project—Hutzel Hospital.
neonates may dismiss the infant to the public health nurse, the health center, or to another agency for special care. The DMIC health center may refer the mother and/or the infant to the public health nurse, to another agency for special care, or to a postneonatal intensive care unit. Transportation and language could be a barrier to care at almost any point except when the public health nurse makes home calls, and then language might still be a barrier.

**Community Health and Social Services (CHASS)**

The Community Health and Social Services (CHASS) agency was organized in 1970 to deliver services by providing acute and preventive medical services to a designated area of southwestern Detroit, particularly to reach the Spanish-speaking community. CHASS delivers, coordinates, identifies, and develops programs to meet the health and social service needs of community residents.

CHASS is governed by a community governing board, which meets once a month and for special needs. This group provides consumer representation for CHASS. The agency is also governed by the Michigan Department of Public Health, the Detroit and Wayne County Departments of Health, and the Wayne County Department of Social Services, which are all funding sponsors of CHASS.

Services available at this agency for mothers and their children are Medicaid screening, nutritional coun-
selling, family planning, and nursing services. Detroit Maternal Infant Care (DMIC) project funds provide for obstetrical, maternal, and infant care for indigent women and their infants. Wayne County Department of Social Services provides funds for social services.

The staff consists of a full-time medical social worker, a junior public health nurse, an interviewer, a receptionist, a laboratory technician, and a physician's assistant. A public health nurse works with the agency for two hours a week and makes in-hospital visits to HRI's. An obstetrician/gynecologist joins the staff for six hours per week, and a pediatrician is available for four hours per week. Because of the mission of the agency, many of the staff members speak Spanish.

Reimbursement of expenses incurred by the staff to attend professional conferences and workshops for in-service training is provided, as is supervisory consultation. Staff members are responsible for educating the community about the agency. They participate by giving talks to civic groups and releasing information to mass media representatives.

About 264 patient contacts are made per month for obstetrical services. Approximately 64 women per month are counted as DMIC patients. The quarterly statistical reports show a trend toward more mothers receiving prenatal care during the second trimester than during the first or third.
This could suggest that they were being referred elsewhere to continue their prenatal care; since this agency indicated that they do not refer mothers unless they have a problem of drug abuse, however, it seems that the drop in numbers of women seen should be examined.

The prenatal care is given by the obstetrician, nurse, social worker, and nutritionist. It is unknown whether this is done as a team or as individuals. The CHASS staff considers mothers to be at-risk if they (1) are below the age of 16 or above the age of 40, (2) have a drug abuse problem, (3) have a history of difficult delivery or pregnancy, (4) have a nutritional deficiency, (5) have other physical or medical problems, or (6) have psychiatric problems. Women not speaking English are included in this category. Since all women who come to CHASS are assumed to meet at least one of these criteria, only women who have drug abuse problems are referred to Hutzel Hospital for prenatal care.

High-risk-infants are referred to CHASS at birth if the mother is registered in the DMIC project and delivered the infant at a project-approved hospital. The infants are not seen at CHASS until the mothers bring them for a progress check. The agency states that they are seen as often as necessary until they reach the age of 1 year. This care is paid for by the DMIC project.

Infants are considered at-risk if they (1) were born
prematurely, (2) are low-birthweight babies, (3) have a physical deformity, (4) fail to grow, (5) experience drug withdrawal symptoms or maternal rejection, or (6) are one member of a multiple birth outcome.

An infant may be referred to CHASS at any time and may be considered at-risk because of a low developmental assessment score, illness, physical abnormality, failure to grow, accidents, abuse, or because there is evidence of consistently poor quality of care. These infants are referred to a hospital or to another agency as needed. This care is paid for through funds other than DMIC if the infant's mother is not enrolled in the project.

Figure 4 shows a flowchart of services available at or through CHASS for MAR's and/or HRI's. Again, the philosophy at this agency is that all women who come for prenatal care probably meet at least one criterion for an at-risk classification, so most of the women receive prenatal care at CHASS. As the flowchart indicates, women who are known drug abusers are the most likely women to be referred to Hutzel Hospital for prenatal care, because they may also receive treatment for their drug problems. The prenatal care they receive at Hutzel is basically the same as that given at CHASS, with the addition of drug abuse treatment.

Because the average income is low among the residents in this area, it is assumed that if a woman could pay for
Figure 4. Flowchart of services available at Community Health and Social Services (CHASS).
prenatal care privately she would do so. Therefore, those women who come to CHASS for prenatal care are usually enrolled in the DMIC project. Thus a woman's prenatal care, family planning counseling, nutritional counseling, delivery, postpartum care, and care of her infant until the infant's first birthday are paid for through DMIC project funds. The constraints or barriers to care for residents in the CHASS area are transportation and language, which are also shown on the flowchart. Since this area of Detroit does not have a hospital with obstetrical services, a woman must cross the boundaries to deliver her baby in a hospital (Burbridge, 1971). The constraint of language poses a problem and is very real to a woman who is unable to assist in the birth process because she cannot communicate in English. This language barrier is enough to place the mother at-risk.

In order for DMIC to pay for the delivery, a woman must use one of the project-approved hospitals, all of which have intensive care nurseries.

After dismissal from the hospital, the appropriate action is taken. The public health nurse visiting in the home or a CHASS staff member may wish to refer the infant or mother to another agency for special care. The basic medical care for both is carried out at CHASS, however. The public health nurse is usually responsible for follow-up procedures to see that the mother and infant have

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received or are receiving the treatment indicated.

In the event that a mother delivers her baby at a hospital other than Hutzel, the flowchart may not be accurate. This study did not include other hospitals.

Herman Kiefer Prenatal and Family Planning Clinic

This is a Detroit Department of Health unit, established for the purpose of giving optimum and conclusive prenatal and family planning care to indigent women by providing health and social services and other resources. Reports from this agency are made to the Director of Detroit Public Health Nursing. To provide for consumer representation, patient questionnaires are distributed every six months. Details about these questionnaires were unavailable. Unit activities are provided for by funds from the City of Detroit, which represents the matching in-kind service needed for the DMIC project to receive federal funding.

The staff consists of two full-time social workers, one obstetrician, one licensed practical nurse, three registered nurses, one public health nurse, and one nutritionist. A part-time obstetrician is responsible for family planning services.

Prenatal care, nutritional counseling, and family planning are the services available at this unit. An
average of 812 patient contacts are made per month. An average of 51 mothers-at-risk per month are referred to Hutzel Hospital's Prenatal Care Department after their first visit to Herman Kiefer. Mothers are classified as "high-risk" if they (1) are under 16 or over 40 years of age, (2) have had numerous pregnancies, (3) are known drug abusers, or (4) have a history of premature delivery. The mothers who are referred to Hutzel from Kiefer may be enrolled in the DMIC project at a rate of three per day. The remainder of the mothers receive prenatal care through the Detroit Department of Health. In either case, the care is free to the mother. The advantage of being enrolled in the DMIC project is that the infant receives care at a DMIC project health center until the age of 1 year. The mother and her infant may not always receive care at one center, otherwise.

The flowchart in Figure 5 shows the services available at Herman Kiefer Prenatal and Family Planning Clinic. If the mother is enrolled in the DMIC project, the services reflect the policies of DMIC. If the mother was not enrolled in the DMIC program, the infant may be enrolled in the Preschool and Adolescent Development (PRESCAD) Project, which is another federal program and provides services to children from the ages of 0 to 21 years for residents of Wayne County.

The mothers who are residents of southwest Detroit
Figure 5. Flowchart of services available at Herman Kiefer Prenatal and Family Planning Clinic.
may find transportation a barrier to care at Herman Kiefer or at Hutzel Hospital, since neither is located in southwest Detroit.

Southwest Crisis Center

The Southwest Crisis Center was established to help the residents of southwest Detroit cope with stresses in their lives and to offer continuing care to those who have been released from institutional care and have returned to their own neighborhoods. This center comes under the jurisdiction of the Wayne County Department of Social Services. The funds to operate the center are coming from a newly awarded National Institute of Mental Health grant obtained by the center but dispensed by the county. An open-ended board governs the center locally. The board now consists of 44 members, all of whom reside or work in southwest Detroit. The board receives a report on the center's total program once per month, or more often if necessary. The state receives monthly statistical reports, as does the county.

The center houses various neighborhood gatherings, i.e., Weight Watchers, Ethnic Potluck meals, meetings for mothers, etc. It is much like a community building, where everyone is welcome and groups are formed to meet the needs of community members.

Individual counseling is available, as are advocacy,
interpreter, and outreach services. The staff consists of a director who is also a social worker, a director of day treatment, and a coordinator of activities. Others involved in center activities are community mental health workers. These workers may be ex-patients and/or represent many levels of training. Basically, they are chosen because they are good at listening to other people's problems. They are encouraged to acquire additional training when possible.

While specific services are not offered to pregnant women, they have available crisis intervention services just like any other resident of the community.

Services available at the Southwest Crisis Center are shown in Figure 6. The input component of this flowchart is somewhat different from those found in the other flowcharts. In this case, "patient is seen" is replaced with "person is welcome on a drop-in basis." This change was made to convey the difference in atmosphere found at this center. The differences in the functions of the Southwest Crisis Center and the functions of a medical agency should also be noted. Informality seems to be the key for services delivered at this center.

Advocacy, outreach, group fellowship, and/or individualized intervention are the services available at the Southwest Crisis Center. For mothers-at-risk, the center has much potential for offering a supportive atmosphere.
Figure 6. Flowchart of services available at Southwest Crisis Center.

Crisis Center:
- Group/individual intervention
- Supportive and/or interest groups—educational & social
- General use of facility—radio, TV, record player, etc.
- Interpreters available
- Advocacy—to locate needed services, financial aid, etc.
- Outreach—home visits

Person Welcome on Drop-in Basis

Referred if Necessary

Return or Continue at Center

Medical

Educational

Social Service
which the other agencies do not appear to have.

**Special Care Nursery**

The Special Care Nursery is part of the total inpatient health care program system of Bronson Methodist Hospital, Kalamazoo, which is a teaching hospital. The nursery is one of 15 such units in Michigan, none of which are federally funded.

The original mission of the unit was to provide intensive special care to newborns who were born at Bronson Methodist Hospital and whose status at birth indicated the need for such service. As those concerned with newborns in surrounding counties became aware of the unit because of the public relations work done by the staff of the unit, it became apparent that newborns in adjacent counties were in need of intensive care, also. Infants are transported to Bronson from other hospitals in the counties of Allegan, Barry, Calhoun, Cass, Berrien, Kalamazoo, Branch, Van Buren, and St. Joseph. Occasionally, the unit has admitted newborns from other counties and even other states.

A specially equipped ambulance is used for transporting infants to Bronson Hospital. The ambulance belongs to a private company, but the equipment and specially trained staff are provided by the hospital.

The unit is governed by the board of directors of the hospital, the hospital administration, and the pediatric
division of the hospital. The hospital employs a patient representative who is considered to be the consumer participation component of the entire hospital.

Because the unit is part of the hospital's total program, its operating funds come mainly from patient fees. This includes Medicaid and private insurance payments. Until the fall of 1974, when the State of Michigan's Crippled Children Services Division agreed to pay for all patients admitted to the intensive care unit, there were no provisions for medically indigent families. An estimated 5 percent of the patients admitted were from medically indigent families. Costs incurred by them had been absorbed by the hospital.

The staff of the unit consists of 3 neonatologists during the week daytime hours, with 1 of the 3 being on call nights and weekends. There are 6 registered nurses and 6 licensed practical nurses on duty at all times throughout the week. There are 53 available nursing staff members. All staff have received training in such a unit. Most have received on-the-spot training at Bronson Methodist Hospital.

One of the hospital's medical social workers is assigned to the unit for one day a week. A developmental specialist, who works directly with the neonates to stimulate the growth of developmental behaviors, is employed one day per week. This specialist also trains family members and professional personnel on how to enhance this growth.
The Kalamazoo County Health Department assigns a public health nurse to neonates whose families reside in Kalamazoo County. The public health nurse sees the infant in the hospital and later in the infant's home for progress checks. Progress checks are also scheduled and held at Bronson Methodist Hospital.

The outreach component of the unit was designed to check the progress of infants who reside in counties other than Kalamazoo. The progress clinics have been held on the basis of patient population and cooperation of the outlying communities. This has meant that clinics for six to eight infants have been in Niles, Benton Harbor, Berrien Springs, and St. Joseph, and are held once a month. The team that makes this outreach visit consists of the medical social worker, a neonatologist, a nurse, and a developmental specialist. This team provides in-service training to appropriate community personnel as well as direct treatment of the infants.

In addition to this educational component for the staff, the staff provides for training for student nurses, students of other health-related services, interns and resident physicians. The staff also participates in the lecture series held at Bronson Methodist Hospital for interested professionals and students. This series is part of the regular teaching function of the hospital. One staff member has given guest lectures to members of coedu-

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cational high school family living classes. Staff members are encouraged to attend conferences and seminars held in other communities when these are related to neonatology.

As the name of the unit implies, the clientele served are newborns or neonates and infants up to the age of 3 months who need intensive care. Criteria used to classify a newborn as a HRI are any one of the following: prematurity, low birthweight for gestational age, breech presentation, any infant born to a MAR, a low APGAR rating five minutes after birth or post-gestational period. For older infants, the criteria are low developmental assessment scores, illness, physical abnormality, or unusual physical growth measures.

The unit has a 28-crib capacity, but plans have been made to increase this to a crib capacity of 48 by 1975. The estimated average of patients served by the unit is 62 per month.

After the infant is dismissed from the hospital, the unit provides progress checks at the hospital when the infant is 6 months of age or earlier if necessary. These checks may occur until the child is about 5 years old. Public health nurses may provide progress checks in the home, or a team of staff members may visit a given community to check infants living in or near that community who were once patients in the Special Care Nursery. The latter is the outreach provision made by this agency.
Referrals of infants from the unit have been made to the Migrant Workers Association, special education units, public health departments, State Crippled Children Services, physical therapists, occupational therapists, speech and hearing clinics, and ophthalmologists. These referrals indicate that this agency interacts with a variety of public and private agencies.

Follow-up procedures used to check the disposition of the referrals include phone calls to other agencies, reports from other agencies, or written requests for reports.

Figure 7 is a flowchart which represents the services offered through or at the Special Care Nursery. The fact that the patient in this agency must be admitted and dismissed by a physician should be noted. There is an important but subtle factor present. The infants in the Special Care Nursery are patients of a physician who has admitted them to the nursery as part of the continuum of treatment indicated. The patients in the other agencies are not always considered to be the patient of one physician and may not be afforded the luxury of a continuum of treatment. It should also not be taken for granted that because a patient is a patient at an agency that someone is not responsible for planning a continuum of treatment. One should be aware of the possibility that this may not occur; however.

Dismissal from the Special Care Nursery may mean that the infant has been taken out of a risk category, in which
Infant Admitted for Intensive Care by Physician

Special Care Nursery—Birth to 3 Months

Infant's Care is Transferred

Figure 7. Flowchart of services available at Special Care Nursery.
case it is assumed that normal infant care is resumed or initiated. If the infant is not removed from the risk category but is well enough to be dismissed, the infant care may be transferred to a public health nurse for follow-up treatment and referrals. The infant may be transferred to another agency for special care or may be referred for a progress check in the community outreach clinic planned by the Special Care Nursery staff, by the infant's physician, or in the Special Care Nursery progress check. Any of these referrals may trigger further referrals, depending on what care is indicated.

**Summary of flowcharts**

Flowcharts of services offered to mothers and their infants were shown and discussed in the first section of this chapter. None of the agencies exists in a vacuum. Each of them must refer patients to another agency at some time, because none of them offers a complete range of services.

Of the Detroit agencies, CHASS, Pelham Community Health Center, Herman Kiefer Prenatal and Family Planning Clinic, and Hutzel Hospital are agencies where mothers might receive prenatal care. Hutzel Hospital is the only agency studied that is involved with the birth of the infant and/or with the care of the newborn, but this care is not continued there. As may be seen in Figure 8, there
Figure 8. Summary of relationships between Detroit agencies.
is little interaction between the agencies serving southwestern Detroit. Herman Kiefer Prenatal and Family Planning Clinic refers patients to Hutzel Hospital, but this is not reciprocal. CHASS and DMIC Project Center at Hutzel Hospital are part of the same city-wide project, and they interact reciprocally. CHASS and Pelham Community Health Center interact with Southwest Crisis Center. Because they do interact with a center that has provisions for the formation of educational groups, this interaction has the potential for the addition of an educational component to be utilized by the medically oriented agencies. Comparisons of the Detroit health agencies and the Kalamazoo agency show that the referrals made by the latter include referrals other than medical. The Kalamazoo agency has a developmental specialist on the staff, and the Detroit agencies do not provide for this educational component.

The possibility of a language barrier implies a possible breakdown in communication. Because a communication or language barrier could arise whenever two people interact, a language barrier is indicated in this study only when Spanish-speaking persons are involved with an agency that did not report an interpreter on its staff.

Transportation could be a barrier to service even if an agency is within walking distance of its target clientele. In this study, only the most obvious transportation barriers of distances involved are indicated.
Matrices of Organizational Structures and Services

Matrices are used in a systems approach to the study of situations in order to provide "rapid information for the investigator" (Hare, 1967, p. 21). In the matrices that follow, information may be obtained about organizational structures and services found in the agencies in this study. Each matrix represents one section of the questionnaire used as a data-gathering instrument in this study.

The purposes of the organizations are shown in Matrix 1. Providing prenatal and family planning care to an indigent population is the sole mission of Agency 4, but it is only one part of the missions of Agencies 2 and 3. Agency 1 offers prenatal care, but not specifically for indigent mothers. Although the services of the agencies are related and are often the same as shown by the flowcharts and in later matrices, the purposes as shown in Matrix 1 were stated differently because the question was open-ended. This matrix does not indicate readily the special populations served by some agencies.

The numbers in all matrices represent the following agencies: (1) Pelham Community Health Center, (2) Detroit Maternal Infant Care (DMIC) Project—Hutzel Hospital, (3) Community Health and Social Services (CHASS), (4) Herman Kiefer Prenatal and Family Planning Clinic, (5) Southwest
Crisis Center, and (6) Special Care Nursery (Bronson Methodist Hospital).

Matrix 1

Purposes of the Agencies

<table>
<thead>
<tr>
<th>Purpose (as Stated)</th>
<th>Agency</th>
</tr>
</thead>
<tbody>
<tr>
<td>To provide prenatal &amp; family planning care to an indigent population</td>
<td>x</td>
</tr>
<tr>
<td>To provide coordination of comprehensive &amp; continuing health care to MAR's &amp; HRI's</td>
<td>x</td>
</tr>
<tr>
<td>To provide primary medical &amp; health care to a designated area (including prenatal care)</td>
<td>x</td>
</tr>
<tr>
<td>To improve accessibility of health care services to a designated area</td>
<td>x</td>
</tr>
<tr>
<td>To provide acute &amp; preventive medical &amp; social services to a designated area</td>
<td>x</td>
</tr>
<tr>
<td>To help residents of a designated area cope with stress</td>
<td>x</td>
</tr>
<tr>
<td>To offer continuing care for residents of a designated area who have returned to their neighborhood after institutional care</td>
<td>x</td>
</tr>
<tr>
<td>To provide intensive special care to newborns</td>
<td>x</td>
</tr>
<tr>
<td>To provide progress checks for infants after dismissal from special care</td>
<td>x</td>
</tr>
</tbody>
</table>

Matrix 2 represents the components of the agencies that are concerned with governance. The organizational
Matrix 2
Organizational Governance

<table>
<thead>
<tr>
<th>Reporting Pattern</th>
<th>Agency 1</th>
<th>Agency 2</th>
<th>Agency 3</th>
<th>Agency 4</th>
<th>Agency 5</th>
<th>Agency 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Board of directors</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Professional advisory board &amp; accrediting agency</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Community governing body</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consumer representative group</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Federal agency</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>State government agency</td>
<td></td>
<td></td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>County government agency</td>
<td></td>
<td></td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Municipal government agency</td>
<td></td>
<td></td>
<td>x</td>
<td></td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Foundation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Executive director or project director</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
</tbody>
</table>

Policies and missions of an agency are affected by the regulating body or bodies. Usually, the regulating body or bodies require some kind of report. Therefore, by showing the reporting patterns of the various agencies, Matrix 2 indicates the body or bodies that have input in regulating the operations of these agencies. The regulators represent different levels of government and nongovernment that affect the policies and missions of the agencies serving mothers and their infants.

The number of reports required of Agency 5 may reflect the relatively recent consumer and legislative interest in mental health programs. The number of agencies reporting
to executive directors or project directors may represent attempts at decentralization.

Four of the agencies indicated that they report to community governing boards, but only two of these also reported to consumer representative groups. There is a subtle but important distinction between these groups. One cannot assume that consumers are represented by a community governing board.

Matrix 3 shows how these agencies are funded. Although five agencies receive federal funds, only one agency reports to the federal government. Agencies 1 and 6 receive patient fees through Medicaid. Agencies 2 and 3 receive federal funds as part of a larger project. These four agencies report to the federal government indirectly through an executive director or project director. Agency 5 receives

Matrix 3
Funding Sources

<table>
<thead>
<tr>
<th>Source</th>
<th>Agency 1</th>
<th>Agency 2</th>
<th>Agency 3</th>
<th>Agency 4</th>
<th>Agency 5</th>
<th>Agency 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federal funds</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>State funds</td>
<td></td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>County funds</td>
<td></td>
<td></td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Municipal funds</td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Private donations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Patient fees</td>
<td></td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Foundations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
</tr>
</tbody>
</table>
funds from a federal grant directly and reports directly to the federal government.

Agencies 1 and 6 are funded by patient fees, but only Agency 1 reports to a consumer representative group. Agency 1 is also part of a public community service agency, while Agency 6 is part of a private community service agency.

Services available for mothers and their infants are shown in Matrix 4. None of these agencies provides all of the services. Agency 3 provides all services except those

Matrix 4

<table>
<thead>
<tr>
<th>Service</th>
<th>Agency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre- &amp; postnatal</td>
<td>x  x  x  x</td>
</tr>
<tr>
<td>MAR's, pre- &amp; postnatal</td>
<td>x  x  x</td>
</tr>
<tr>
<td>Infant care--immunizations, height, weight, etc.</td>
<td>x  x</td>
</tr>
<tr>
<td>HRI's at birth</td>
<td>x  x</td>
</tr>
<tr>
<td>HRI's at time other than birth</td>
<td>x  x  x</td>
</tr>
<tr>
<td>Medicaid screening</td>
<td>x  x</td>
</tr>
<tr>
<td>Social services</td>
<td>x  x  x  x  x</td>
</tr>
<tr>
<td>Nutritional services</td>
<td>x  x  x</td>
</tr>
<tr>
<td>Family planning services</td>
<td>x  x  x</td>
</tr>
<tr>
<td>Outreach provisions</td>
<td>x  x  x</td>
</tr>
<tr>
<td>Transportation provisions</td>
<td>x  x  x</td>
</tr>
<tr>
<td>Advocacy provisions</td>
<td>x  x  x  x</td>
</tr>
<tr>
<td>Interpreters available</td>
<td>x  x  x</td>
</tr>
</tbody>
</table>

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for the newborn. Agency 3 also receives funds from more government agencies than the other agencies, which may indicate that by combining resources more services become available in one location.

These newborns need special care in a specially equipped nursery. Besides being costly, these need to be housed where additional services are available if needed. This is reflected in Matrix 4.

Five agencies provide social services, which indicates that this service is recognized as an essential part of medical care. Nutritional and family planning services seem to be high in priority for the services to low-income urban populations, but these same priorities may be present in the agencies serving other populations not included in this study.

Because none of these agencies serves MAR's, HRI's at birth, and HRI's at a time other than at birth, it seems that close communication between these agencies regarding these populations would be essential.

The outreach represented for Agency 6 is outreach into other communities, while the other outreach provisions represent home visits.

Medicaid screening for children under 6 years of age routinely includes the following: Denver Developmental Assessment; vision and hearing screening; lab work to detect sickle cell anemia, lead poisoning, and diabetes; physical

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assessment; and referrals to dentists and/or physicians as indicated. Some agencies do these same tests, but the process is not labeled "Medicaid screening." These have been included here.

Matrices 4, 5, and 6 need to be considered together. Collectively they represent available services, available staff, and numbers of persons seen for services. When

Matrix 5
Staff Specializations

<table>
<thead>
<tr>
<th>Specialist*</th>
<th>Agency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Medical treatment</td>
<td></td>
</tr>
<tr>
<td>Ob/gyn</td>
<td>1/7</td>
</tr>
<tr>
<td>Neonatologist</td>
<td></td>
</tr>
<tr>
<td>Pediatrician</td>
<td></td>
</tr>
<tr>
<td>Family practice physician</td>
<td></td>
</tr>
<tr>
<td>Registered nurse</td>
<td>1</td>
</tr>
<tr>
<td>Licensed practical nurse</td>
<td></td>
</tr>
<tr>
<td>Public health nurse</td>
<td>1-1/2</td>
</tr>
<tr>
<td>Laboratory technician</td>
<td></td>
</tr>
<tr>
<td>Physician's assistant</td>
<td></td>
</tr>
<tr>
<td>Other treatment</td>
<td></td>
</tr>
<tr>
<td>Social worker</td>
<td>1/10</td>
</tr>
<tr>
<td>Nutritionist</td>
<td>1/10</td>
</tr>
<tr>
<td>Developmental specialist</td>
<td></td>
</tr>
<tr>
<td>Community mental health worker</td>
<td></td>
</tr>
<tr>
<td>Non-treatment</td>
<td></td>
</tr>
<tr>
<td>Administrator</td>
<td>1/4</td>
</tr>
<tr>
<td>Receptionist</td>
<td></td>
</tr>
<tr>
<td>Interviewer</td>
<td></td>
</tr>
</tbody>
</table>

*Each number represents a full- or part-time specialist based on a 40-hour week.
### Matrix 6

**Average Number of Persons Served per Month**

<table>
<thead>
<tr>
<th>Classification</th>
<th>Agency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>MAR</td>
<td>135</td>
</tr>
<tr>
<td>HRI—birth to 3 months</td>
<td></td>
</tr>
<tr>
<td>HRI at time other than birth</td>
<td></td>
</tr>
<tr>
<td>Prenatal care, non-risk category</td>
<td></td>
</tr>
</tbody>
</table>

<sup>a</sup>This number represents MAR's classified at this agency at their first visit but referred to another agency for prenatal care.

<sup>b</sup>The "x" appears because the actual count was part of a total population seen for medical care.

Examined together, many discrepancies become apparent. As noted before, five agencies provided for social services; when seen in the light of these three matrices, however, the conclusions drawn previously become changed. The numbers served and the number of staff provided for in the first four agencies for any service suggest staff shortages, which, in turn, suggests possible shortage of money and/or space.

An unusual answer to the question of other specialists is the answer given by the CHASS staff. The receptionist and interviewer are important members of this staff.

All three agencies in Matrix 7 seem to agree that pregnancy below age 16 or above age 40 constitutes a high...
risk. The same is true of having a drug abuse problem. As may be seen, all other criteria are used by only two out of three agencies.

Matrix 7
Criteria Used for Mother-at-Risk Classification

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Agency 1</th>
<th>Agency 2</th>
<th>Agency 3</th>
<th>Agency 4</th>
<th>Agency 5</th>
<th>Agency 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below age 16 or over age 40</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Numerous pregnancies</td>
<td></td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequent pregnancies</td>
<td></td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drug abuse</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>History of difficult delivery</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>History of premature delivery</td>
<td>x</td>
<td></td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>History of difficult pregnancy</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nutritional reasons</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical handicap or medical conditions</td>
<td></td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Psychiatric and/or social</td>
<td></td>
<td></td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Matrix 8 shows some differences in the thinking of the agency staffs. They agreed on all criteria which were listed on the data-gathering instrument. The discrepancies came under the category of "other." Agency 6 staff, which does not serve a population with a high percentage of low income, listed the following as risk categories: born to a MAR, breech presentation, and post-gestational. Agencies 2 and 3 staffs, which do serve a population with a high percentage of low income, listed "maternal rejection,"
Matrix 8
Criteria Used for High-Risk-Infant Classification at Birth

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Agency 1</th>
<th>Agency 2</th>
<th>Agency 3</th>
<th>Agency 4</th>
<th>Agency 5</th>
<th>Agency 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prematurity for gestational age</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low birthweight</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical abnormality</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low APGAR rating</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Born to a MAR</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Maternal rejection</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Drug withdrawal symptoms</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Multiple birth</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Breech presentation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Post-gestational</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
</tr>
</tbody>
</table>

"drug withdrawal symptoms," and "multiple birth" as criteria of risk at birth. Since these criteria were added by the staffs, it may be assumed that these occur often enough to be considered risks. The staffs of Agencies 2 and 3 may not be able to think of all infants born to MAR's as at-risk, because it would be impractical to care for the number of infants this would involve. Agency 6 staff may in fact consider maternal rejection and drug withdrawal symptoms as risks, but do not see these cases often enough to view them as obvious problems.

Matrix 9 shows some of the same kinds of discrepancies in answers given; in this case, however, "accidents" and "child abuse" are listed on the questionnaire. "Consistent

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poor quality of care" was added to the questionnaire by the staff of Agency 3. Since this agency is the center for medical services in the community, these cases—child abuse and accident—would be more likely to come to the staff's attention than they would in Agency 6.

Matrix 9
Criteria Used for High-Risk-Infant Classification Other than at Birth

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Agency 1</th>
<th>Agency 2</th>
<th>Agency 3</th>
<th>Agency 4</th>
<th>Agency 5</th>
<th>Agency 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low developmental scores</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Illness</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical deformity</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unusual growth measures</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accidents</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Child abuse</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Consistent poor quality of care</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
</tr>
</tbody>
</table>

Responses in Matrix 10 show that only two of the agencies have an educational component. Agency 3 also has the broadest range of services, more funding sources, and a more diverse staff than the other Detroit agencies in this study. The educational component of Agency 6 reflects the need for training a large staff for 24-hour service and that this unit is part of a teaching hospital.

Referrals that the agency staffs make are shown in Matrix 11. All of the agencies make medical referrals,
Matrix 10

Educational Components for Staff and Community

<table>
<thead>
<tr>
<th>Component</th>
<th>Agency 1</th>
<th>Agency 2</th>
<th>Agency 3</th>
<th>Agency 4</th>
<th>Agency 5</th>
<th>Agency 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>In-service</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Professional conferences</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seminars</td>
<td></td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Workshops</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supervisory consultation</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Observation, lectures, readings</td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>In-service provided for other professions</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education in the community</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Talks to civic groups</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Talks to high school students</td>
<td></td>
<td></td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mass media releases</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

but only two make referrals to educational agencies or agents. Both of these agencies reported having an educational component for patients within their own delivery system. The Southwest Crisis Center provides for educational groups for their patients as needed or desired by the patients, and the Special Care Nursery has a developmental specialist on its staff.

None of the agencies in Detroit referred patients for special education or corrective therapies. These services may not be as visible or as easily accessible as they are to the staff of Agency 6. If referrals for the patients in the Detroit agencies are made, they may be made by other
sources than those studied. Also, the services in question do not always have as high a priority for persons who are concerned with more basic needs.

Matrix 11

Referrals to Other Agencies

<table>
<thead>
<tr>
<th>Referral</th>
<th>Agency 1</th>
<th>Agency 2</th>
<th>Agency 3</th>
<th>Agency 4</th>
<th>Agency 5</th>
<th>Agency 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Special education, other educational agencies</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td>.x</td>
</tr>
<tr>
<td>State Crippled Children Services</td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical, occupational, and/or speech therapies</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Public health nursing</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Migrant Workers Association, other social service agencies</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td>x</td>
</tr>
</tbody>
</table>

Public health nurses seem to be very important elements in the delivery of health care. Since they make home visits, they may be a key link between the agency and the patient. They also may provide care for persons who otherwise would receive none.

Matrix 12 shows the follow-up procedures used by the agencies studied. Follow-up procedures are important for assuring that care is being continued. The procedures used may indicate the degree of involvement that an agency has with its clientele. They give legitimacy to decisions and plans made for further treatment of a patient by giving
information about whether or not recommendations have been followed. They also provide a possible source for evaluation of services given.

Matrix 12

Follow-up Procedures Used by Agencies

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Agency 1</th>
<th>Agency 2</th>
<th>Agency 3</th>
<th>Agency 4</th>
<th>Agency 5</th>
<th>Agency 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phone calls to another agency</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>House phone calls</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Home visits</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Report(s) received from another agency</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public health nurse reports</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
</tr>
</tbody>
</table>

The possible procedures for follow-up were probably limited by the questionnaire itself. "Report(s) received from other agencies" was the most frequent response. The success or failure of this method is unknown, which is a weakness of the data-gathering instrument. Past experience of this investigator indicates that the receipt of reports may itself need a follow-up procedure; therefore, this practice needs more study.

Summary of matrices

The last section of this chapter has dealt, narratively and with the use of matrices, with the organizational structures and services offered by the agencies in the study.
In summary, the matrices showed that four agencies were organized, at least in part, to give prenatal and family planning care to indigent mothers.

Four agencies reported to community governing boards, but only two of these reported to a consumer representative group. The distinction between these groups was mentioned.

Five of the six agencies studied receive federal funds, but only one agency reports directly to the federal government. The agency which receives funds from the most sources also offers a greater variety of services. The disadvantage to this is that this agency also makes more reports.

Suggested staff shortages were reported for the Detroit agencies. The need for communication between agencies was mentioned, also.

There were differences between responses from agencies regarding the criteria used for designating any of the risk categories.

All agencies studied made medical referrals for their patients. Only two agencies made educational referrals for them. Four of the five agencies offering medical services themselves made referrals to public health nurses. Only two agencies responded to the educational components part of the questionnaire, but both of these agencies reported an extensive educational component for staff members.
CHAPTER V
SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

This chapter contains a summary of the study. The results of the study are discussed under the headings of "Conclusions" and "Recommendations."

Summary of the Study

The purpose of this study was to compare and contrast the organizational structures of several agencies that offer services to mothers and their infants living in southwestern Detroit with the singular organizational structure of a special care nursery operating in southwestern Michigan. Secondly, the study was designed to compare and contrast services to these populations by these agencies. The ultimate goal was to develop a schematic model of a service delivery system to be used in southwestern Detroit to locate mothers and infants who have been classified as "high-risk."

The five agencies serving mothers and infants who live in southwest Detroit offer a variety of services. Their funds come from varied sources, and they are governed in somewhat different manners. The agency studied in Kalamazoo is a special care nursery which is part of a total hospital health program. It is funded and governed in a traditional hospital manner. This agency serves as a
regional neonatology intensive care unit for southwestern Michigan.

Conclusions

The following conclusions were made as a result of the data gathered for this study:

1. The agencies in this study did not agree on the criteria to be used to classify an expectant mother as a "MAR," nor did they agree when the classification of "MAR" warranted a referral to another agency. These discrepancies were puzzling, because the agencies serve patients who are similar in socioeconomic status. The discrepancies also could account for variations in organizational structures and services offered.

2. As the agencies under study are currently organized, only a small percentage of indigent pregnant women living in southwestern Detroit could possibly obtain free prenatal care. Two agencies stated that their purposes were to serve an indigent population. Only one of these is within the boundaries of southwestern Detroit. A third agency, which is located within the boundaries and which offers prenatal care, is not organized financially to serve an indigent population. Considering the population size of the target area and the percentage of families of low socioeconomic status, it is obvious that prenatal care may be obtained by a limited number of indigent pregnant women.
living in southwestern Detroit.

(3) Of the Detroit agencies studied, only one had a full-time administrator. This fact may account for that agency offering a wider variety of services and having a broader financial base than the other Detroit agencies.

(4) The Kalamazoo agency arranged for services for HRI's for a longer period of time than the Detroit agencies. Although this agency was funded by private sources, it interacted with more public agencies than did the others, had a larger staff available, and its staff saw the infants for more intensive care.

(5) Having an educational specialist represented on the staff of an agency seemed to make a difference in the number of referrals that were made to other educational agencies. Flowcharts of the Detroit agencies giving medical and social services did not include referrals to educational agencies, nor did those agencies have educational specialists represented on their staffs.

(6) The quality and extent of care given by the staffs varied from agency to agency. The data collected revealed many discrepancies in the time spent and the number of staff members available for the delivery of services involving nutritional counseling, family planning, and prenatal care.

(7) The Merrill-Palmer Institute project from which this study grew sought to find infants with a high risk of
having developmental disabilities and to serve them and their families. The originators of that project were familiar with the agencies in the study and related to each. However, they experienced difficulty in receiving referrals of infants from these agencies. It was not until the matrices were developed from the research that it became clear which agencies were the appropriate ones to work with in order to locate HRI's.

The general conclusions from this study were that the quality and quantity of services to MAR's and HRI's are highly uneven and discontinuous across agencies. Organizational structures and funding strategies appear to make significant contributions to the discontinuity and unevenness in the delivery of health care services to MAR's and HRI's.

Recommendations

The following recommendations are made as the result of this study:

(1) Objectives for maternal and infant care, in general, should be such that they include lifelong health and education in a community. They also should include immediate implications for the mother and her infant. Therefore, funding for maternal and infant care should be based on long-term financing which is not subject to termination without appropriate evaluative measures having been
utilized. Whether or not this financing is through public or private funds or a combination of the two should not be such an important issue that such care is withheld.

(2) Minimum standards for prenatal care for all women set by the American College of Obstetricians and Gynecologists state that prenatal care should be initiated in the first trimester and should include at least 13 visits throughout the gestation period. This care should be a planned program of history-taking, physical examinations, education, and medical management (Kessner et al., 1973).

(3) Former clients who live in the community should be recruited and utilized as outreach workers. They could provide information to woman residents regarding what services are available and respond to questions about why and how they should be obtained. Recruiting workers from the community would decrease the transportation and language barriers. It should also increase the number of women who initiate prenatal care in the first trimester and continue to obtain prenatal care throughout their pregnancy. The ease with which community women are recruited could serve as an indicator of the effectiveness of the services. The number of women who continue to receive prenatal care throughout pregnancy could be utilized in this same manner.

(4) Training of auxiliary personnel as health aides and outreach workers should be done in the community in which they are to work. On-the-job training should occur
within the agency providing health care services. This arrangement of curriculum presentation might prove helpful in increasing the quality and quantity of services delivered.

(5) Maternal and infant health care systems for MAR's and their infants should be joined with other public and private systems of services such as special education and service units, nurseries, day care agencies, nutritional programs, and the like. This might be accomplished through an advisory committee structure representing the variety of systems serving MAR's and their infants. Figure 9 depicts a schematic model of such a committee. This model could also be used for locating the mothers and infants who have been classified as "high-risk." The advisory committee would have representation from each of the four agencies involved with the project. The Merrill-Palmer project staff could assist in the educational components during the prenatal and the infancy periods. Crisis Center facilities could be utilized for group meetings for the mothers at either level. Merrill-Palmer staff could also be utilized to train former clients who live in the neighborhood to work as outreach workers. The training could take place at the Crisis Center.

The functions of the advisory committee would include coordination of services of the agencies, planning a curriculum for the educational component, exchange of informa-
Figure 9. Model for locating and coordinating services to mothers and infants with high-risk classifications.
tion pertinent to the clients seen, and the development of a record-keeping program to ensure that mothers and infants were receiving the services they need and to provide an elementary evaluation of the system.

(6) Specialist and/or consultant teams should be sent with appropriate equipment into communities on regularly scheduled bases. Since Catholic churches, public schools, and banks were built in strategic locations in communities, the teams should be located in these buildings whenever possible.

(7) Fieldwork teams, consisting of persons having different tasks and some shared tasks, should be developed. Some members would assist others who are more highly trained. Most team members would have duties to carry out on their own, which would be subject to a plan established by a specialist or consultant and subject to some form of supervision. Health teams should have a shared responsibility for the people in the area they are serving.

(8) For increased continuity of care, a systematic procedure for record-keeping should be developed. Also, patients should be seen by appointment, by the same caretaker who would be present for each service contact including delivery.

(9) Information obtained from record-keeping procedures should be utilized as a basis for program development and for elementary evaluation. This procedure would
increase opportunities for program improvement, emphasis, or other modifications.

(10) The American Academy of Pediatrics' standards for infant care should be used for the delivery of services to all infants but especially for services to HRI's. These standards include monthly visits until the infant reaches the age of 6 months and bimonthly visits thereafter until the infant reaches its first birthday. The medical component for service should include medical and developmental history, physical examinations, detection and reporting of deviations, and suitable immunizations. The educational or social services components should include consultations with the parents, advice about feeding, nutrition, immunizations, accident prevention, specific corrective techniques, general health protection information, and interpretation of child development.

Most of these recommendations are incorporated in Figure 10, which is a modification of Figure 1 (see Chapter II, p. 39). The left side of the cone is devoted to reducing the risk of the mother's pregnancy, while the right side of the cone depicts the decreasing of developmental risk to the infant. The educational component may continue after the first year, as do basic medical and social services care. The three components on either side of the cone are intertwined, and at times difficult to separate. The actual medical management of the pregnancy
Figure 10. Modification of "cone" concept (adapted from Swallow, 1972, p. 87).
should be carried out by an appropriately trained person. This would not need to be a physician, but the physician should probably plan and supervise a program of care. The educational component could include nutritional information, family planning information, and other pertinent curricula. Materials for this component are available from a variety of sources and in a variety of media forms. Social services could include help in finding necessary funds for day-to-day living, supportive therapy and/or group meetings, and whatever else is indicated for the well-being of the mother.

The right side of the cone, the components which deal with the infant, could follow the recommendations made by the American Academy of Pediatrics as well as actual sensory stimulation of the infant. Also, information should be made available to the mother so that she can proceed with sensory stimulation at home.

In summary, the main objective of the continuation of the three components for a period of 645 days is to enhance the development of the infant and to decrease the chances of the high-risk conditions of the mother for future pregnancies whenever possible.
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Books


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**Periodicals**


Crocetti, A. F. 80,000 IBM cards. Annals of New York Academy of Sciences (196), April 7, 1972, pp. 91-93. (b)


Miscellaneous Citations


Detroit Department of Health. Priorities for referring newborns for public health nursing service. Detroit Department of Health, DMIC-87, May 1972. (a)

Detroit Department of Health. Priorities for referring prenatal patients for public health nursing service. Detroit Department of Health, DMIC-89, May 1972. (b)


Mosley, D. Medical services: Nursing profession and the urban poor. (ERIC Document Reproduction Service No. ED 085 433)


APPENDIX

The purpose of this questionnaire is to obtain information for a study which is designed to compare and contrast organizational patterns of agencies serving the pre- and postnatal needs of mothers-at-risk and infants who may be at risk medically and/or developmentally.

As a guide to the interviewer and the respondent, the following definitions are established:

Administrator.—An administrator is one who implements policy decisions and/or coordinates activities in order to accomplish some common purpose or simply achieves cooperation in the pursuit of shared goals. Operationally, the administrator is that person who implements policy decisions or who coordinates the activities of an agency.

Outreach.—Outreach is the act of going beyond a specified place. Operationally, outreach is any service to clientele of the agency which is carried on outside the physical confines of the agency.

Personnel.—Personnel is the body of persons employed in any work. Operationally, personnel is limited to those persons engaged in serving the clientele of the agency directly or who are responsible for serving the clientele.
AGENCY DATA SHEET

1. Interview Identification
   a. Person interviewed ____________________________
   b. Position of person interviewed ________________
   c. Professional training of person interviewed:
      Highest level of training or degree held _______
      Field of training ______________________________
      Date completed ______________________________
      Length of time position held __________________

2. Agency Identification
   a. Name ______________________________________
   b. Purpose _____________________________________
   c. Goal(s) ______________________________________
   d. Objectives ___________________________________
   e. Length of time agency has been in operation _____

3. Organizational Structure, Policy, and Governance
   a. If you report to any of the following, please list what is reported and how often.
      Board of directors ____________________________
      Professional advisory board ____________________
      Lay advisory board __________________________
      State office _________________________________
Municipal office  
Federal office  
National accrediting agency  
Foundation (specify)  
Other (specify)  

b. What provisions are made for consumer representation in the policies of your agency?  

4. **Funding Sources**
   a. Name the specific fund(s) used to finance your agency's program:

<table>
<thead>
<tr>
<th></th>
<th>Operating</th>
<th>Capital</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federal</td>
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<td>State</td>
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<tr>
<td>Municipal</td>
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<td>United Fund</td>
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<td>Fees</td>
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<tr>
<td>Other (specify)</td>
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</tr>
</tbody>
</table>

b. Are there any restrictions which prevent your agency from using any of the above funding sources?

   yes___ no___

c. If answer is "yes," please explain.  

   ________________
   ________________
   ________________

d. What services are available at your agency and how are they funded?

Medicaid screening  
Medicare  
Outreach  
Obstetrics  

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Maternal infant care ____________________________
Advocacy ____________________________
Interpreters ____________________________
Other (specify) ____________________________

5. **Fields of Specialization**

   a. List separately each person on the staff:

<table>
<thead>
<tr>
<th>Field</th>
<th>Hours per week</th>
<th>Client Contacts per week</th>
<th>Outreach hours per week</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social worker</td>
<td></td>
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<td></td>
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<tr>
<td>Obstetrician/gynecologist</td>
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<tr>
<td>Pediatrician</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Neonatologist</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Registered nurse</td>
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</tbody>
</table>

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<table>
<thead>
<tr>
<th>Hours per week</th>
<th>Client Contacts per week</th>
<th>Outreach hours per week</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Act.</td>
<td>Est.</td>
</tr>
<tr>
<td>Licensed practical nurse</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Visiting nurse</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Administrator</td>
<td></td>
<td></td>
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<tr>
<td>Other (specify)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

6. **Physical Facility**

a. Is the location of your agency easily accessible by public transportation?  yes___ no___

b. Is there ample parking available?  yes___ no___

c. Is transportation provided by the agency?  yes___ no___

d. Do you consider the present facility adequate to serve the purpose of the agency?  yes___ no___

e. Are there plans for changing the facility?  yes___ no___

f. If answer is "yes," please describe.  ________________________________

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g. Are there plans for moving the facility?  yes  no
h. If answer is "yes," please explain. _______________________________________

7. Educational Component
a. In-service provided for personnel
   Observation
   Lectures
   Readings
   Seminars
   Field trips
   Professional conferences
   Workshops
   Other ___________________________________

b. Education in community
   Talks to civic groups
   Mass media
   Other ___________________________________

c. Who is responsible for education in the community? ___________________________________

d. Is time given to personnel to engage in the activities listed in "a" and "b" of this question?  yes  no

e. Is reimbursement given to staff members to engage in the activities listed in "a" and "b" of this question?  yes  no
8. **Clientele**

a. Number of clients seen at your agency per month from July 1973 through June 1974. Please give actual number if possible.

<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>July</td>
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<td>August</td>
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<tr>
<td>June</td>
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</tbody>
</table>

b. Number of clients seen for prenatal care and number of mothers-at-risk. Please give actual number if possible.

<table>
<thead>
<tr>
<th>Month</th>
<th># Seen</th>
<th># at Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>July</td>
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<tr>
<td>August</td>
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c. Number of clients seen that were 24 months or under 24 months of age. Give actual number if possible.

<table>
<thead>
<tr>
<th></th>
<th># Seen</th>
<th># at Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>July</td>
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<td>August</td>
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</table>

d. During what month of pregnancy were mothers, being seen for prenatal care, first seen at your agency?

1 2 3 4 5 6 7 8 9

e. During what month of pregnancy were at-risk mothers first seen at your agency?

1 2 3 4 5 6 7 8 9

9. Mothers-at-Risk

a. Are women referred to your agency to verify pregnancy? yes   no

b. Are women referred to your agency for prenatal care? yes   no
c. If a woman is classified as "mother-at-risk," what criteria are used to determine this classification? (Please check.)

Below the age of 16  
Above the age of 40  
Numerous pregnancies  
Frequent pregnancies  
Drug abuse  
History of difficult delivery  
History of premature delivery  
History of difficult pregnancy  
Diabetes  
Other (specify)  

---

d. Is one criterion enough to classify a woman "at-risk"?

yes___ no___

e. If answer is "no," please explain.

---

f. If a woman is classified as "at-risk," is she referred to another agency?

yes___ no___

g. If answer is "yes," please specify.

---

h. Prenatal care at your agency is given by (check):

Obstetrician  
Nurse  
Other (specify)  

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10. **High-Risk-Infants**

  a. Are high-risk-infants referred to your agency at birth?  
     yes  no  

  b. If answer is "yes," please specify by whom or what agency?  

  c. What criteria are used to determine if an infant is at-risk at birth? (Please check.)  
    - Prematurity  
    - Low birthweight  
    - Physical abnormality  
    - Low APGAR rating  
    - Other (specify)  

  d. Is one criterion enough to classify an infant as "high-risk"?  
     yes  no  

  e. If answer is "no," please explain.  

  f. Are high-risk-infants referred to your agency at a time other than at birth?  
     yes  no  

  g. If answer is "yes," please check appropriate age:  
    - 1-7 days  
    - 1-4 weeks  
    - 5-8 weeks  
    - 2-3 months  
    - 4-6 months  
    - 7-9 months  
    - 10-12 months  
    - 13-15 months  
    - 16-18 months  
    - 19-21 months  
    - 22-24 months
h. What criteria are used to determine a classification of "high-risk-infant" at a time other than at birth?

Developmental scores
Illness
Physical abnormality
Accidents
Child abuse
Other (specify) ____________________

i. Are infants who are determined to be at-risk at birth referred to your agency for progress checks after birth?

yes ___ no ___

j. If answer is "yes," please specify:

At what age
How often
Until what age

k. Are high-risk-infants from your agency referred to any other agency?

yes ___ no ___

l. If answer is "yes," please specify what agency.

____________________________________