Identification of Needs in High Risk Prematures Significant to Public Health Nursing Follow-Up

Vida Francis

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IDENTIFICATION OF NEEDS IN HIGH RISK
PREMATURES SIGNIFICANT TO PUBLIC
HEALTH NURSING FOLLOW-UP

by

Vida Francis

A Thesis in Partial Fulfillment
of the Requirements for the Degree
Master of Science in the Field of Nursing

June, 1963
I certify that I have read this thesis and that in my opinion it is acceptable in scope and quality as a thesis for the degree of Master of Science.

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CHAPTER I

STATEMENT OF THE PROBLEM

I. INTRODUCTION

Considerable time and effort have been allotted to the study of prematurity. Although fewer children are dying of infections and other preventable diseases today, prematurity remains among the ten leading causes of death in the United States and the leading cause of neonatal deaths.¹

Special programs have been developed in many parts of the country for premature infants; however, priority has been given to those with lower birth weights due to high morbidity and mortality rates. In the Los Angeles area, only the premature infants born in county hospitals are referred to the health department for nursing follow-up. An investigation and evaluation of the home environment is made by the public health nurse before the premature infant of lower birth weight is discharged from the hospital.

II. THE PROBLEM

Need for the Study

The high risk premature infants compose about one per cent of the total live births and 17 per cent of all premature births.² In


those infants who survive the neonatal period, the morbidity rate is high.

Many of the experts on prematurity stress the importance of intensive follow-up after discharge from the hospital and the role that the public health nurse can play in the subsequent well being of these infants. The researcher was unable to find any nursing studies pertaining to specific needs of premature in the home.

From this researcher's experience, it appears that public health nurses have not given adequate consideration to priority of high risk premature infants and have only made home visits as required by agency policy for any premature. If nursing studies are conducted to identify requisite areas in high risk premature infants, the quality of nursing supervision given could be improved.

Purpose of the Study

The purpose of this study was to identify the needs in a select group of high risk premature infants after discharge from the hospital.

Hypothesis

It was hypothesized that there are needs of the high risk premature infant significant to public health nursing follow-up.

Assumptions

For the purpose of this study it was assumed that (1) by virtue of their physical condition, high risk premature have identifiable needs because of the greater variety and wider range in care problems; (2) mothers can remember significant information regarding care of these premature and are able to verbalize their concerns.
Limitations

The study had the following limitations: (1) the premature infants studied were under one year of age and receiving medical supervision in a premature clinic; (2) interviews were conducted with the mothers of infants living within ten miles of the clinic; (3) all information was obtained during one home visit.

III. METHOD OF THE STUDY

The descriptive survey method was selected for this study. A review was made of the 250 records of premature infants enrolled in the Premature Clinic during the past year. Of this number, forty-six had birth weights of 1,500 grams or less. Other requirements were that the infants studied be under one year of age and currently receiving medical supervision at the Premature Clinic. Fourteen infants were in this category.

Prior to the visit, letters were sent to the mothers of these infants regarding the study and stating when the researcher would call. During the home visit, an interview schedule was used in an attempt to identify care needs. Interpretation and recommendations were based on the classification and analysis of these responses.

IV. DEFINITION OF TERMS

Premature. An infant who weighs 2,500 grams or less at birth regardless of the period of gestation (five pounds eight ounces).³

Needs. Those aspects of infant care essential to growth and development including the response of the mother to the infant.

**High Risk Premature.** An infant with a birth weight of 1,500 grams or less (three pounds four ounces). ⁴

**Public Health Nursing Follow-up.** Visits and interviews with mothers of premature infants in which the nurse gives health supervision and anticipatory guidance.

V. SUMMARY

Prematurity is still the leading cause of neonatal deaths. Since research is one means of improving patient care, nursing research is essential in this area. The purpose of this study was to identify needs in a group of high risk premature infants after discharge from the hospital. It was hypothesized that there are needs of the high risk premature infant significant to public health nursing follow-up.

The descriptive survey method with an interview schedule was used to obtain the data. Two hundred-fifty records of premature infants were reviewed to find the number of high risk infants enrolled at the Premature Clinic. Infants were selected for participation in the study on the basis of age and geographic location.

CHAPTER II

REVIEW OF LITERATURE

I. INTRODUCTION

As early as 1935, study was being given to the problem of prematurity. At that time, the American Academy of Pediatrics defined a premature infant as "one who weighs 2500 grams or less at birth regardless of the period of gestation."¹

Although fewer of these children die of infections and other preventable diseases today than in the past, prematurity has remained the leading cause of deaths during the neonatal period and has not kept pace with the downward trend of infant mortality.² Neonatal deaths occur approximately twenty times more frequently in premature than in full term infants.³

The review of literature was conducted on the problem of prematurity for the following reasons: (1) to note the current trends in incidence, mortality, and morbidity; (2) to note the physiological characteristics of premature infants; (3) to note the findings of studies that have been done; and (4) to note the role of public health nurses described in the literature.


II. TRENDS IN MORTALITY AND MORBIDITY

In 1935, there were 14.9 deaths per 1,000 live births due to prematurity. Mortality had declined to 10.3 per 1,000 live births by 1948.\(^4\) During this fourteen year period, a decrease of 28 per cent occurred in premature deaths as compared to a reduction of 35 per cent from all other causes of neonatal mortality.\(^5\) Prematurity was responsible for 40 per cent of the infant deaths and 60 per cent of the neonatal deaths during 1958.\(^6\) Investigation has shown a higher incidence and slower decline of the mortality and morbidity rates among minority ethnic groups. Mortality occurs in 50 to 60 per cent of the births between 1,000 and 1,500 grams and in 90 per cent of the births below 1,000 grams.\(^7\)

Further surveys of rates reveal that illnesses and deaths remain higher in premature infants than in full term ones after the first month of life. There is a high susceptibility to infections and the illnesses that occur are more severe. An average of one in four premature infants is admitted to the hospital during the first two years of life compared to one in ten full term infants.\(^8\)


\(^5\)Ibid.


The current incidence of prematurity in the United States is approximately 7.6 per cent. Seventeen per cent of this number are high risk premature infants.

III. PHYSIOLOGICAL CHARACTERISTICS

The differences between full term infants and pre- matures have been called "physiological handicaps." The fetal body systems develop rapidly during the last trimester of pregnancy. Because these infants were born two to three months early, their immature systems cause many handicaps depending on the degree of prematurity. Included are:

1. Difficulty in establishing and maintaining respiration: respiratory distress syndrome is the highest single cause of premature deaths. Weakness of the muscles prevents proper expansion of the lungs during respiration. Weak gag and cough reflex are present. Cry may sound like a whine.

2. Regulating body temperature: the body is not able to adjust to changes in environmental temperature. This can cause a high incidence of infections and also dehydration.

3. Renal function impairment: low urinary output and edema, especially in the lower extremities, are present. If vomiting occurs, dehydration may follow.

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10 Jeans, loc. cit.


4. Nutritional problems associated with feeding and absorption: the stomach may not be able to digest the food causing vomiting or distention. Intake may be inadequate due to the small stomach capacity.

5. Hematologic difficulties: tendency for anemia and hemorrhage.

6. Low resistance to infection: the body is unable to produce the necessary immune responses. Frequent and persistent upper respiratory infections.

7. Trauma to the central nervous system: prolonged bleeding time, changes in activity, twitching may be present.

IV. STUDIES OF PREMATURENESS

Since the majority of studies on prematurity have not been limited to the high risk infant, it is not known to what extent the conditions mentioned occur specifically in this group.

Morbidity

Prematures studied by Douglas and Mogford were admitted to the hospital twice as frequently as full term infants during the first two years of life and their stay was three to four times as long. The Joint Committee of the Institute of Child Health studied premature infants born during a certain period of time and matched them with a control group of full term infants born during the same time. In the premature group, there was a higher rate of morbidity and mortality extending beyond the neonatal period. Surviving premaures spent three and one-half times as many days in the hospital during the first two years compared to the control group.


In Dallas, Texas, a study was made of 534 premature infants born during 1954. Of this number, 463 survived the neonatal period. During the first two years, twelve died of infections and other preventable conditions, one-fourth were hospitalized with upper respiratory infections, diarrhea, anemia, and malnutrition.15

Defects

A diversity of congenital defects and conditions, some preventable, may besiege the premature infants that live. Among the common defects are slight to severe brain damage or retardation, cerebral palsy, eye defects, and emotional difficulties.

Knoblauch conducted a study on 500 prematures. One hundred seventy-seven of these infants had 200 minor defects, 49 per cent hernias, 16 per cent malnutrition, two-thirds major eye, cardiovascular, or central nervous system anomalies.16

Seventy-three children with birth weights of 1,000 grams or less were studied by Dann and Levine. They were found to have a high incidence of eye defects, especially strabismus and myopia. Their intelligence quotients ranged from 59 to 142. The average intelligence of the prematures was 94 while that of the controls was 107. Seventeen had quotients below 80. Among forty-three of these infants not available for examination, nineteen were known to be mentally retarded.


and five in institutions.  

Longitudinal studies of neurological and intellectual status have been done at John Hopkins University by Harper. He reported that prematures had a lower intellectual status than the control group and were also less neurologically normal. The infants weighing 1,500 grams and less were more handicapped than the higher weight prematures. At five years of age, 24 per cent of the prematures were retarded severely, 37 per cent were dull, and 39 per cent were within normal range.  

Douglas administered tests in reading, vocabulary, and intelligence to premature infants and controls when eight years old. Prematures scored less than controls in each test being proportionately the most handicapped in reading. In these infants the handicap did not increase with either falling birth weights or decreasing length of gestations.  

Growth and Development  

Other researchers have investigated and compared the growth and development of premature infants. Douglas and Mogford state that 36 per cent of the prematures that they studied had caught up with or surpassed the control group in weight and 44 per cent in height by four years of age.  

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17 Margaret Dann and others, "The Development of Prematurely Born Children with Birth Weights of 1,000 Grams or Less," Pediatrics, 22:1037-1052, December, 1958.  
They also observed that after two years of age the premature infants appeared as healthy as those born at full term.

Prematures that survived and appeared to be normal have been studied by Hess, Mohr, and Bartelme. Their research points out that the premature infant can develop normally physically and mentally as compared to full term infants; however, both males and females with birth weights of 1,500 grams or less tended to grow more slowly.\(^\text{21}\)

In a later study, Rickham substantiated this finding.\(^\text{22}\)

Knoblach found that the prematures she studied tended to be lighter in weight although many were within the normal range for weight and height.\(^\text{23}\)

**Personality and Achievement**

A small study of personality and achievement was carried out on twenty-two premature infants who were eight to nineteen years of age by Howard and Forrell. Prematurity appeared to be neither beneficial or detrimental to intelligence but may have influenced the mental efficiency. In physical appearance, heights and weights were normal except for three. Six of the children had defects such as hypothyroidism, congenital absence of tooth buds, scoliosis,


\(^{23}\) Knoblach, *loc. cit.*
cryptorchidism, and keratitis. Social adjustment was greatly affected. Over one-half were unsatisfactory or below average in personality adjustment. This was attributed to prematurity, over-protection by parents, and poor physical endowment. Eight of the children were aggressive and twelve of them submissive and passive.24

In a paper read at a meeting of the British Association of Pediatric Surgeons in 1957, Rickham referred to the research of Hess in following premature infants for several decades after their discharge from the hospital. Of 370 infants whose birth weight had been below 1,250 grams, 5 per cent had died and 85 to 90 per cent were still living and were average or above in intelligence.25

In contrast, a group of prematures observed between ten and twelve years of age showed a somewhat shorter stature and a much more serious reduction of coordination, sensory-motor perception, and other needs for normal learning.26 These children had been considered normal by their parents during childhood.

Drillien conducted a study in England on the incidence of mental and physical handicaps in school-age children of birth weights below 1,360 grams. Fifty of these prematures are now school age. Recent examination showed 30 per cent of them to be uneducable in


25Rickham, loc. cit.

normal school, due to physical or mental handicap or both. Twenty-five per cent were dull, requiring special educational treatment within the normal school, and 25 per cent were considered low average, average, or superior in ability. Fifty-three per cent had one or more physical defects and 78 per cent behavioral problems.27

Physicians conducting research at New York Hospital Clinic concluded that with good post natal care, including close home supervision by public health nurses and others, premature infants in general present no greater difficulties than do full term ones.28 Gessell supports these findings with this statement: "Premature birth in itself does not markedly distort, hasten, or retard the course of mental development when the age of the infant is reckoned from the time of conception."29

V. PUBLIC HEALTH NURSING ASPECTS

Nursing research appears to be nil regarding the relationship of public health nursing visits to the health of the premature infant and whether or not family needs are being met. A study by Dr. Perkins at the University of Colorado School of Medicine considers this problem briefly. A group of 144 premature infants admitted to the Premature


28 Levine, op. cit., p. 312.

Center were studied. Sources of information included hospital and
clinic charts, summary cards from the health departments, questionnaires
to mothers, inquiries to vital statistics, and inquiries to individuals.
Eighty-six of the prematures were followed for one year. A comparison
of the number of illnesses was made between those infants with and
without public health nursing visits.

The findings showed no consistency in variability of the per-
centage of patients with few illnesses and the number of nursing visits.
There was no significant difference between age at date of last public
health nursing visit and number of illnesses with age at onset of
last illness.\(^\text{30}\)

Age of onset was compared with the time of the last public
health nursing visit. Seventeen (85 per cent) of the twenty infants
who had no nursing visits after six months of age were subsequently
ill. In the infants who had their last nursing visit during six to
twelve months of age, only twenty-nine (57 per cent) of the fifty-one
had illnesses after six months of age. Perkins felt that the difference
between 85 per cent and 57 per cent was a significant difference and
concluded that the public health nurse was more alert to the child
after an illness had occurred and that she may have assisted in
preventing further illness.\(^\text{31}\)

As a member of the health team, the public health nurse plays
a singular role in the follow-up program of the high risk premature

\(^{30}\) Georgia Perkins, "A Year's Follow-up Study of Illness in a
Sample of Premature Infants," American Journal of Public Health,

\(^{31}\) Ibid.
infant. The first responsibility of the nurse is to prepare the family for the infant's discharge from the hospital. This preparation should begin during the post partum period and continue, at intervals, until the family has achieved competence and assurance.

Understanding of the varying emotional needs of the parents of premature babies is the most important factor in the supportive and educational relationship which the nurse can offer in a most unique fashion.32

Often the mother has conflicting feelings—pride and love counterbalanced by anxiety over the infant's condition and apprehension regarding her maternal capabilities. These feelings are intensified by the supportive role that the mother plays during the high risk premature's long hospital stay. The father also needs support and understanding so that he can assist his wife rather than resent the amount of time that she will spend in caring for the infant.

As time nears for the infant's discharge, the nurse can assist the parents in preparing the physical environment of the home. Some time may be allowed for demonstrations and practice of infant care to increase the mother's self-confidence.

When the infant's weight nears 2,500 grams, the nurse again visits the home to ascertain that the family is prepared, and that they are free of infections. After the infant's discharge, the parents' concerns and questions center around physical, mental, and emotional development of the infant. These queries give ample opportunity for the nurse to frequently stress the importance of medical supervision.

Since the high risk premature infant may be born from six to nine weeks early, the mother may need to be reminded that an allowance must be made for the degree of prematurity. Questions may arise regarding the frequency of feedings. One mother may overfeed in an attempt to help the infant "catch up" faster and another may underfeed the infant because of his "delicate" condition and a fear of causing digestive disorders.

The parents should not be led to believe that any difficulties that occur are due to their incompetence. Some of these high risk infants do require frequent feedings until an adequate schedule to suit their nutritional needs has been established. Others may require much more attention and cuddling than infants of higher weights.

Most of the premature infants who weigh at least 1,500 grams, and many of those who weigh less, develop normally. The public health nurse can again stress the need for medical supervision in this area, and also act as a liaison between the physician and parents.

The nurse can assure the parents of the importance that the home atmosphere, which they provide for the high risk infant, plays in emotional development. Freedom, responsibility, love, and discipline are as necessary for this child as he grows older as for the full term one in preparation for building independence and learning to cope with society.

Parents are sometimes responsible for those personality characteristics noted in their premature infants: thumbsucking, maternal over-dependence, negativism, emotional instability, difficulty
in establishing successful toilet training, and learning to pronounce words correctly.33

In the final analysis, the success that the public health nurse displays in assisting the parents of high risk premature infants to become self-confident and competent will be determined by the relationship that she fosters and her ability to accept these parents as they are. The time that is spent with each family will depend on its individual needs.

VI. SUMMARY

Attention has been focused on prematurity for almost thirty years. Mortality rates have declined from 14.9 deaths per 1000 live births in 1935 to a current incidence of approximately 7.6 per cent in the United States. Seventeen per cent of this number are high risk premature infants. A higher incidence and slower rate of decline is present in minority ethnic groups.

Extensive studies have been made of the physiological handicap of the premature. Many of the researchers stress the importance of intensive follow-up for these infants after hospital discharge and state that if carried out, premature infants in general present no greater difficulties than do full term infants. However, because of the number of defects and severe illnesses that occur in many low weight prematures, the findings may not apply to these infants.

33 Jeans, op. cit., p. 237.
Although the important role that public health nurses can play in this program has been cited, nursing research appears nil in this area. This study was conducted to identify needs in a group of high risk premature infants.
CHAPTER III

COLLECTION AND TABULATION OF DATA

I. INTRODUCTION

The purpose of this study was to identify needs in a select group of high risk premature infants after discharge from the hospital. These needs were based upon physiological and emotional requirements of both infant and mother. Ten mothers of high risk premature infants were interviewed during home visits.

II. METHOD OF STUDY

The descriptive survey method was used in this study. Brown describes it as:

All studies purporting to present facts concerning the nature and status of a group of persons, a set of conditions, a class of events, a system of thought, or any other kind of phenomenon under study may be classified as descriptive investigations.¹

The review of literature was conducted on the problem of prematurity to note the current trends in incidence, mortality, and morbidity; the physiological characteristics of premature infants; the findings of studies that have been done; and the role of the public health nurse as described in the literature.

The sample was selected from the only Premature Clinic in the Los Angeles area. Permission to conduct the study was obtained from the physician in charge of the Premature Clinic and the hospital administrator.

Selection and Development of the Tool

An interview schedule was used to obtain the data. Mothers of high risk premature infants were asked ten questions relating to physical and emotional aspects of care.²

It was felt that open-ended questions would elicit free responses and that when asked for their opinions, mothers would reveal their feelings or relate how they had managed in a similar situation. A check list of possible problems, as noted from the review of literature and the researcher's experience, was used to facilitate recording the responses.

Questions one through five dealt with physical aspects of care. Information was sought regarding problems that existed following the infant's discharge from the hospital. Inquiries were made about feeding patterns, breathing, crying, and frequency of bowel movements to determine the nature of the problems and to assist the mother in being specific about any difficulties that had occurred.

Questions six through eight dealt with emotional aspects of care. Information was sought regarding the mother's knowledge that the infant might be born prematurely, reactions to leaving the infants at the hospital, and feelings of adequacy in caring for them. These answers would assist in clarifying the factors that could affect the physical aspects of care.

Questions nine and ten endeavored to find out whether coming to a premature clinic and receiving public health nursing visits had been supportive factors that had assisted mothers in caring for their high risk premature infants.

²See Appendix.
The interview schedule was tested on one person at the time of a clinic visit. No revisions were made in the schedule.

Selection and Description of the Sample

The setting of the study was the Premature Clinic established by Los Angeles County General Hospital and Los Angeles City Health Department within the Pediatric Department of the White Memorial Hospital. It is a clinic that may be attended by any premature infant with no charge. Mothers of prematures born at Los Angeles county hospitals and the White Memorial Hospital are given referrals to the Premature Clinic at the time of the infant's discharge.

The functions of the Premature Clinic are the same as other Child Health Conferences under the jurisdiction of Los Angeles City Health Department:

...physical examination, immunizations for dangerous communicable diseases, appropriate referral for correction of abnormalities or deformities and consultation for advice to parents on their care, feeding, growth, and development.\(^3\)

In addition, growth and development charts are kept on each premature infant.

Two hundred fifty premature infants were enrolled at the Premature Clinic between March 1, 1962, and February 28, 1963. Other prematures in the Los Angeles area receiving medical supervision are under the care of private physicians, Child Health Conferences, or hospital clinics.

The records of infants attending the Premature Clinic are filed in the clinic, thus making them readily accessible for study.

\(^3\)Los Angeles City Health Department, Annual Report, 1955-1956 (Los Angeles: Los Angeles City Health Department, 1958), p. 15.
Records of infants who have not attended the clinic within six months of their last visit are closed and sent to the hospital record room.

The information sheet of each record was reviewed to determine the number of high risk premature infants attending the clinic. These high risk prematures composed one-fifth of the total or fifty infants. Of this number, two infants were over one year of age and twenty-eight were no longer attending the clinic.

The sample was chosen from those infants registered during the year on the basis of the following characteristics: (1) a premature infant with a birth weight of 1,500 grams or less; (2) under one year of age; (3) currently receiving medical supervision at the Premature Clinic.

The majority of families using this service are low income. The average travel distance is five to ten miles. Although some travel from fifteen to twenty miles, those living these distances or using public transportation tend to drop out and utilize services closer to their living area.

**Characteristics of the Sample**

The mothers interviewed appeared to be of upper-low and low-middle class status. The number of premature infants varied in different families, as indicated in Table I.

All of the infants studied had remained in the hospital for six to seven weeks after birth. Mothers tended to enroll their infants at the Premature Clinic within three to eight weeks after hospital discharge. Table II shows the ages of infants at the time...
### TABLE I

**NUMBER OF PREMATURE BIRTHS OCCURRING IN FAMILIES STUDIED**

<table>
<thead>
<tr>
<th>Number of Families</th>
<th>Number of Prematures</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>1</td>
<td>9</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>1</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td><strong>Total 14</strong></td>
<td><strong>Total 26</strong></td>
<td></td>
</tr>
</tbody>
</table>

### TABLE II

**AGES OF INFANTS AT TIME OF FIRST CLINIC VISIT**

<table>
<thead>
<tr>
<th>Age of Infant</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 1/2 months to 3 months</td>
<td>9</td>
<td>64.3</td>
</tr>
<tr>
<td>3 1/2 months to 4 1/2 months</td>
<td>5</td>
<td>35.7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>14</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>
of their first clinic visit. At the time of this study, the infants participating were from three to ten months of age, and had made from one to six clinic visits.

In the review of literature, it was revealed that there is a higher incidence and lower decline of prematurity in minority ethnic groups due to low socio-economic and educational factors. Figure 1 represents the percentage of races represented by infants having the specified characteristics.

III. COLLECTION OF DATA

The original plan was to interview the twenty mothers of infants with the requisite study characteristics during their visits to the clinic. This was not feasible since so few high risk infants were present at each clinic session. It was then decided that home visits would be made for the interviews. The sample was limited to the fourteen infants living within a ten mile radius of the clinic in order to keep within the time limitations of the one conducting the study.

Letters were sent to the mothers of these infants informing them of the study and stating when the home visit would be made. Of the fourteen visits attempted, three mothers were working and one mother had recently transferred her infant to a Child Health Conference near her home. This left ten infants in the actual sample.

Because of the small sample, this research is considered a pilot study. The interview schedule was tried out on one mother during a clinic visit. The nurse weighing the infant told the mother

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4Jeans, op. cit., p. 240.
FIGURE 1

PERCENTAGE OF ETHNIC GROUPS IN INFANTS STUDIED
that another nurse would like to talk with her about her baby. The interviewer introduced herself and led the mother to an examining room.

An explanation was given regarding the purpose of the study, the need for note taking, the assurance of anonymity for the mother, and the opportunity for asking questions. Following the interview, the mother was thanked for her participation. Any additional notations were made after the interview had been terminated. The same procedure was followed during the home visits. All data was obtained during one interview. No mother refused to participate in the study.

IV. SUMMARY

The descriptive survey method was used in this study. The information sheet of two hundred fifty premature records were reviewed to find infants meeting requirements for the study. The sample was selected from premature infants under one year of age with birth weights of 1,500 grams or less currently receiving medical supervision and living within a ten mile radius of the clinic.

Permission to conduct the study was obtained from the physician in charge of the Premature Clinic and the hospital administrator.

The interview schedule was tried out on one mother at the time of a clinic visit. No revisions were made. Nine mothers were interviewed during home visits. A total of ten infants was studied.

Open-end questions were used in an effort to elicit opinions from mothers of high risk premature infants regarding problems
relating to physical and emotional aspects of care. A check list was
used to facilitate recording the responses and notations were made
on additional information obtained.

Because of the small sample, this research is considered a
pilot study.
CHAPTER IV

ANALYSIS AND INTERPRETATION OF DATA

I. QUESTIONS RELATING TO PHYSICAL ASPECTS OF CARE

The purpose of this study was to identify needs in a group of high risk premature infants after discharge from the hospital. The interview schedule was constructed to elicit some of the needs of the high risk premature. It was assumed that mothers of these infants could verbalize their concerns and remember significant information regarding care of their infants.

The mothers whose infants were now seven to ten months of age had difficulty remembering what care problems had existed unless they were still present.

Problems of High Risk Premature Infants after Discharge from the Hospital

The ten mothers gave fifteen responses to the question: "What problems have you had with the care of your infant?" These were divided into problems within the first months after discharge from the hospital--those occurring in one to three months and later problems--those occurring or continuing after three months. Three mothers stated that there had been no problems; however, one of these infants was soon to have surgery for an inguinal hernia. The remaining seven mothers responded that problems in the first months after discharge included feeding, constipation, noisy breathing, frequent colds, rash and colic. Later problems were usually ones that had persisted, such
as constipation, noisy breathing, frequent colds. One infant’s sleeping pattern had changed during the previous two weeks. Table III shows the responses that mothers gave about care problems of their high risk premature infants. The findings in this small sample may indicate that a variety of problems persist in the high risk premature infant after discharge from the hospital.

**Feeding Patterns**

In response to the question: "In your opinion, how often do mothers of prematures feed their babies during those first weeks home from the hospital", all of the mothers responded, "I did ____." or asked, "Do you want to know what I did?" All of the mothers had been instructed to feed their infants every three to four hours. Eight of the mothers fed their infants at intervals of two and one-half to four hours. Two mothers shortened the time to one and one-half to two and one-half hours because their infants were "hungry all the time." Table IV shows the feeding patterns of these infants in their first weeks after discharge from the hospital. In this small sample, the findings show that the mothers were flexible in feeding their infants and that some high risk premature infants may need to be fed at more frequent intervals.

**Crying Patterns**

The statement was made that "Premature babies seem to cry more than full term infants. How much did your baby cry?" All ten mothers replied that their infants seldom cried except when hungry or when needing to be changed.
TABLE III

PROBLEMS OF TEN HIGH RISK PREMATURE INFANTS
AFTER DISCHARGE FROM THE HOSPITAL

<table>
<thead>
<tr>
<th>Problems</th>
<th>First Months</th>
<th>Later Months</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Feeding</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Constipation</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Colic</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Noisy Breathing</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Sleeping</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Frequent Colds</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Rash</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>
### Table IV

**Feeding Intervals of Ten High Risk Prematures in First Weeks After Hospital Discharge**

<table>
<thead>
<tr>
<th>Hours</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 1/2 hours to 2 1/2 hours</td>
<td>2</td>
</tr>
<tr>
<td>2 1/2 hours to 3 hours</td>
<td>4</td>
</tr>
<tr>
<td>3 1/2 hours to 4 hours</td>
<td>4</td>
</tr>
</tbody>
</table>
This question was asked after hearing of a comparative study in progress on the crying patterns of infants. Those with neurological findings (more common in high risk premature) did more crying. In this pilot study, the infants cried no more than full term ones according to the mothers.

Bowel Patterns

"Many mothers worry if the baby doesn't have a bowel movement every day. How often did your baby have a bowel movement?" Nine mothers responded that their infants usually had daily bowel movements. One mother stated that her infant had a bowel movement every two days and that she had worried about it until the physician told her that the infant's "intestines were small."

In this small sample, bowel patterns were not of concern to these mothers of high risk premature infants because bowel movements occurred daily.

Breathing Patterns

An attempt was made to find out if the infants' breathing was of concern to these mothers. The question was asked, "Why do mothers of premature find themselves getting up during the night to see if their infants are all right?" If the mother did not mention breathing, a follow-up question was asked, "What concerned you about his or her breathing?" Two mothers responded that they did not think this statement was so, and that they did not get up at night unless the infant cried. None of the ten infants studied stayed in a room separate from their parents. Either the infants slept with the mother or a crib was placed at the side of the bed so that the mother
could just raise up and check on the infant. The mothers of the two infants with noisy breathing responded without the follow-up question. They stated that they frequently listened and checked to see that the infant was still breathing or to be sure that no cover was over the head. These mothers also mentioned that the infant had difficulty breathing at birth. The other six mothers answered that they checked to see that their infants are covered well or whether they needed to be changed. These mothers said that they only checked their infants if a cold was present or if the infant catches colds easily.

The findings in this small group indicate that these mothers of high risk premature infants were not concerned about their infants' breathing unless told that there was difficulty breathing at birth or unless the infant had noisy respirations.

II. QUESTIONS RELATING TO EMOTIONAL ASPECTS

Because the mother's ability to adjust emotionally to her high risk premature infant will affect her capabilities and assurance in caring for the infant and also the infant's response to her, questions were included in the interview schedule that pertained to the emotional aspects.

Mothers' Knowledge that the Infant Would Be Born Prematurely

"At what period in your gestation did you know that your infant might be born prematurely?" Two mothers responded that they "felt" that their infants would be born prematurely. For one of these mothers, this was the fifth premature delivery due to medical complications during each pregnancy. The other mother had one prior delivery
of a stillborn premature infant. The remaining eight mothers stated their surprise at delivery during the seventh or eighth month of gestation. It was interesting to note that four of these eight mothers had previously delivered prematurely from one to four times. Table V shows the mothers' responses to expectation of a premature birth and the number of prior premature deliveries.

**TABLE V**

**MOTHERS' KNOWLEDGE THAT INFANT WOULD BE PREMATURE BY NUMBER OF PRIOR PREMATURE DELIVERIES**

<table>
<thead>
<tr>
<th>Number of Mothers</th>
<th>Premature Delivery</th>
<th>Prior Premature Deliveries</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Expected</td>
<td>Not Expected</td>
</tr>
<tr>
<td>3</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>x</td>
<td></td>
</tr>
</tbody>
</table>

In this small sample, it seems that prior premature births did not influence the mothers' expectations for a full term pregnancy except when medical complications had occurred in those premature gestations.

**Apprehension About the Infant's Condition after the Mother's Discharge from the Hospital**

"To what extent did you worry about the condition of your baby when you came home from the hospital and left him or her there?" Since
all of the infants remained in the hospital from six to seven weeks after birth, the mothers saw their infants only one or two times each week through the nursery window. Some of the mothers called daily to inquire about their infant's condition and others called two or three times a week. All of the mothers stated that they were less apprehensive after the first month had past. Seven mothers were very upset during the first month. They expressed concern as to whether the infant was getting adequate medical attention; worry because the infant had difficulty breathing at birth; concern because the infant had lost weight since birth and had not regained it by the time of the mother's discharge; and disbelief that so small an infant could live. One mother stated that she was moderately upset because her infant was not gaining rapidly, but as soon as he began to gain she was no longer worried. One of these mothers was hospitalized for four weeks after delivery and went to the nursery daily to look at her infant. The other mother felt confident because her baby was "gaining rapidly." Table VI gives the responses of the mothers as to their concerns when they came home and left their infants at the hospital.

The findings in this pilot study indicate that after discharge from the hospital mothers were most concerned about the physical condition of their hospitalized high risk premature infants. Mothers stated that this apprehension lessened after the first month.

Feelings Regarding Capability to Care for the Infant

"Many mothers of prematures wonder if they can give the required care to such a small baby. How did you feel?" Four responded that they felt incapable of caring for their infants. Three of these mothers
**TABLE VI**

EXTENT OF CONCERN THAT MOTHERS EXPRESSED FOR THEIR INFANTS DURING NEONATAL PERIOD IN HOSPITAL

<table>
<thead>
<tr>
<th>Stated Concerns</th>
<th>Number</th>
<th>Great Concern</th>
<th>Moderate Concern</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical condition</td>
<td>4</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Care inadequate</td>
<td>1</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Size</td>
<td>2</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Slow weight gain</td>
<td>1</td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>No concern</td>
<td>2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
were primiparas and the other one's own mother had stayed with her after the birth of her first child. These mothers also said that they turned to their mothers, friends who had premature infants, or the public health nurse to help them. If the infant did well in the first week after discharge from the hospital, the mothers soon felt competent. One primipara "felt hopeful." She was living with her mother and was sure that assistance would be given as necessary. Five mothers responded that they felt capable. These were mothers that had three or more children, one or more of which was also premature. The mothers did not express more concern for the infants that were of lower weights.

It seems that this small sample indicates that the mother's concern about her capabilities occur mostly in the interval before the infant is discharged from the hospital. Mothers who have cared for premature infants previously feel "experienced."

Benefits Received from the Premature Clinic

Are the mothers that bring their infants to the Premature Clinic interested only in the physical care that their infants receive at the clinic or also in any support that they may gain? When asked, "How has coming to a Premature Clinic helped you," all ten mothers remarked about the immunizations or physical examinations that their infants received. One mother voiced that it was no different than the Child Health Conferences that she had attended with her other children. A follow-up question was asked, "How has this helped you personally?" Four mothers responded that they liked to talk with other mothers who
also had premature infants and that they could compare their baby's
growth and development with another baby that was about the same size
at birth. Two mothers did not feel that they received any benefits
from the Premature Clinic and the remaining four were unable to answer
the question because only one or two clinic visits had been made at
the time of the interview.

These responses were not sufficient in number to interpret but
it appeared that the main concern of these ten mothers was the physical
care that their infants received at the Premature Clinic.

Benefits Received from the Public Health Nurse's Visits

"How has your public health nurse helped you?" The anticipated
responses were instructions regarding care of the infant or supportive
care for the mother. One primipara who had no relatives near and had
just recently moved into the area felt that the public health nurse
had given both support and supervision as needed. She frequently
called the nurse and requested a home visit or received information
over the telephone. The other nine mothers responded that they had
only had two visits from the public health nurse—one before the
infant's discharge from the hospital and another within the first week
after the infant came home. Two of these mothers stated that the public
health nurse could have reassured them and given information about
growth and development; however, these mothers made no effort to contact
the nurse. Three were utilizing relatives or friends who had premature
infants for this purpose. Five voiced no need for public health
nursing visits.
The responses, for the most part, show that the number of visits made by public health nurses to the participants in this pilot study were few, and that some mothers who felt they could utilize this nursing service made no attempt to request that visits be made.

III. SUMMARY

In this study, the descriptive survey method was used to identify needs in a group of high risk premature infants after discharge from the hospital. An interview schedule was used to obtain necessary data. Analysis was made of the responses that the ten mothers contributed regarding physical and emotional aspects of care.

Analysis of the responses revealed that mothers were able to verbalize their concerns but that they tended to forget what problems existed after a short period of time. Problems expressed centered around feeding, constipation, frequent colds, and noisy respirations. Most of the mothers did not expect to deliver prematurely even though half of them had previously done so. The greatest concern of mothers when they left the hospital was the physical condition of the infant. Mothers who had no other children felt less capable of caring for the infant than those who had other infants. Mothers were mainly interested in the physical care that their infants received at the Premature Clinic. Most of these mothers stated that since they were capable of caring for their infants there was no need for public health nursing visits. If sought for by the mother, the Premature Clinic and the public health nursing visits may be supportive factors.
CHAPTER V
SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

I. SUMMARY

In the past thirty years, attention focused on the problem of prematurity has brought about a noticeable decline in the incidence and mortality rates. Special programs have been centered on those prematures of lower birth weights because fewer survive and many of them that live have frequent and more severe illnesses. In spite of these efforts, prematurity remains the number one cause of death during the neonatal period.

The review of literature revealed that in 1935 there were 14.9 deaths per 1000 live births due to prematurity.\(^1\) The current incidence in the United States is approximately 7.6 per cent.\(^2\) Seventeen per cent of this number are high risk premature infants.\(^3\) Due to low socio-economic and educational levels, there is a higher incidence and slower decline of prematurity in minority ethnic groups.

Extensive studies have been carried out on the differences, physiological characteristics, between premature and full term infants. Many of the researchers have concluded that with good follow-up care after hospital discharge, including close home supervision,

\(^1\)U.S. Children's Bureau, *Mortality from Premature Birth and Associated Causes of Death*, loc. cit.


\(^3\)Jeans, *op. cit.*, pp. 238-254.
that premature infants in general present no greater difficulties than
do full term infants. However, because of the number of defects and
severe illnesses that occur in many low weight prematures, the findings
often do not apply to these infants.

The important role that public health nurses can play in the
follow-up program has also been cited by the experts; however,
research conducted by nurses appears to be nil in this area.

Since research is one means of improving patient care, this
study was conducted in an effort to identify needs in a group of high
risk premature infants after their discharge from the hospital. It
was hypothesized that there are needs of the high risk premature
infant significant to public health nursing follow-up.

The descriptive survey method and an interview schedule was the
selected manner for obtaining necessary data. Permission was granted
by the doctor in charge of the Premature Clinic and the hospital
administrator. The sample was chosen from high risk premature
infants attending the Premature Clinic at the White Memorial Hospital.
The study included infants with the following characteristics: (1) a
birth weight of 1500 grams or less (three pounds, four ounces);
(2) under one year of age; (3) currently receiving medical supervision
at the clinic. Participants were limited to those living within a
ten mile radius of the clinic. Twenty infants had these requisites;
however, six lived farther than ten miles from the clinic. Fourteen
visits were attempted. Three mothers were working and one had
recently transferred the infant to another clinic. This left a sample
of ten infants.
Ten mothers answered questions regarding physical and emotional aspects of care. The mothers appeared to be of upper-low and low-middle socio-economic status. Ninety per cent were of minority ethnic groups. Half of these mothers had previously delivered premature infants. All of the infants remained in the hospital six or seven weeks after birth and were enrolled at the clinic between ten and fourteen weeks of age.

Because of the small sample, this research is considered a pilot study. From the responses given, it appears that mothers of high risk premature infants are able to verbalize their concerns but tend to forget them when the problems no longer exist.

The most frequently expressed problems after hospital discharge were feeding difficulties, constipation, frequent colds, and noisy respiration. Feeding difficulties did not persist after the first month or two.

Frequency of feedings did not appear to be of great concern. Eight of the mothers said that their infants had been satisfied on a schedule of two and one-half to four hours. Two of the infants required more frequent feedings, from one and one-half to two and one-half hours.

Nine-tenths of the infants had daily bowel movements. One-tenth every other day. This was of concern to the mother until the physician explained and reassured her that this was "normal" for her infant.

Four-fifths of the mothers expressed no concern about their infant's breathing. The one-fifth who expressed concern did so because the infants had noisy respirations and had difficulty breathing at birth.
All of the mothers responded that their high risk premature infants seldom cried unless hungry or needing to be changed.

Eight of the mothers had not anticipated a premature delivery, although half of them had other premature infants. The two mothers that had anticipated this premature birth did so because of medical complications in prior premature gestations. This factor appeared to have caused considerable apprehension during the pregnancy.

The majority of mothers, when discharged from the hospital, were most concerned about the physical condition of their infants. This anxiety seemed to be decreased after the infant had survived for one month.

Three-fifths of the mothers felt capable to care for their high risk premature infants. They had either had experience with other premature infants or had someone easily accessible that could assist them. The majority of mothers who did not feel adequate were primiparas; however, these anxieties were greatest during the month to six weeks that the mothers were anticipating the infant's discharge from the hospital.

All of the mothers were aware of the physical care that their infants received at the Premature Clinic. Four felt that they received some group support from association with other mothers who have premature infants and similar concerns. Another four were unable to answer the question since there had only been one or two clinic visits prior to the time of the interview.

One-fifth of the mothers felt that they received adequate guidance and support from the public health nursing visits. Four-fifths
felt that the nursing visits were so few that they were unprofitable. These mothers tended to seek advice and support from relatives or friends.

I. CONCLUSIONS

Because of the small sample, this research was considered a pilot study. The conclusions are stated on a tentative basis.

The findings may indicate that mothers who enroll their infants at the Premature Clinic do so because they are referred rather than from a knowledge of or expectations for specialized services or support.

The majority of the mothers do not seem to be aware of ways in which the public health nurse can assist them. Most of those who felt that a nurse could be of assistance showed no initiative in utilizing this service even though they were aware of its existence. This may indicate that these mothers expect the nurse to seek them out.

Responses indicate that mothers need support after discharge from the hospital regarding their infants, in spite of their feelings of capability to care for the infants. Others need guidance for building or improving their capabilities. Mothers also need knowledge about normal growth and development for the high risk premature infant other than that given by the doctor at the time of the clinic visit.

Mothers that had previously delivered prematurely did not seem to anticipate another premature delivery unless medical complications had been present. Lack of counselling may be a factor in these repeated premature gestations.
It was hypothesized that high risk premature infants have needs significant to public health nursing follow-up. In this pilot study, the hypothesis can neither be accepted or rejected for the following reasons: (1) the sample was too small to make the findings significant; (2) all of the infants participating in the study were "normal" (it is not likely that a large sample would have only "normal" infants); (3) public health nurses, as indicated by the responses, did not seem to be adequately assisting mothers to meet the physical needs of their high risk premature infants. Nursing follow-up may have resulted in the reduction of persisting problems.

III. RECOMMENDATIONS

If public health nurses are to play an important role in the intensive follow-up program recommended by the experts on prematurity, they must be aware of, anticipate, and meet needs of the mother as well as the high risk premature infant. Mothers need to be educated regarding the role of the public health nurse and use initiative in securing her services as necessary.

Based on the tentative findings in this pilot study the following recommendations are suggested:

1. That a similar study be conducted with an adequate size sample of infants to two years of age and that interviews take place at three month intervals on the same infants.

2. That studies be conducted to identify the expectations of mothers of high risk premature infants receiving public health nursing visits.
3. That studies be conducted to identify the expectations of mothers of high risk premature infants attending the Premature Clinic.

4. That comparative studies be conducted to evaluate whether the needs of high risk premature infants differ from those of premature infants of higher birth weights.

5. That studies be conducted to identify the needs of mothers between the time of their discharge from the hospital and that of the infant.

6. That a study be conducted to establish the role that a public health nurse can play in reducing the rate of repeated premature gestations.

7. That studies be conducted to identify successful means of carrying out group education for mothers of premature infants.

8. That comparative studies be conducted on the needs of "normal" high risk premature infants and those who are not "normal."
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Hospital No. ___________________________
Name ________________________________

How much did your baby weigh?
Was this your first premature?

A. Physical Aspects

1. What problems have you had with the care of your baby?
   When you first came from the hospital--
   Later--
   feeding____ constipation____
   crying____ breathing____
   sleeping____ concern over appearance____
   other:

2. In your opinion, how often do mothers of premature babies feed their babies during those first weeks home from the hospital?
   1½ - 2 hrs._____ 2½ - 3 hrs._____ 3½ - 4 hrs._____ 

3. Premature babies seem to cry more often than full term infants. How much did your baby cry? day____ night____ seldom____
   frequently____ very frequently____

4. Many mothers worry if the baby doesn't have a BM every day. How often did your baby have a BM? daily____ every other day____
   every three days____

5. Why do mothers of premies find themselves getting up during the night to see if their baby is all right?
   What concerned you about (his/her) breathing?
   Note:

B. Emotional Aspects

1. Some others know beforehand that their baby may be born prematurely. At what period in your gestation did you know that your infant might be born prematurely? 28 - 30 weeks_____ 31 - 35 weeks_____
   36 - 38 weeks____

2. To what extent did you worry about the condition of your baby when you came home from the hospital and left (him/her) there?
   Note:

3. Many mothers of premature babies wonder if they can give the required care to such a small baby. How did you feel?
   Note:
4. How has coming to a premature clinic helped you? Baby___ Mother___
   How did this help you personally?
   Note:

5. How has your PEN helped you? physical care___ supportive___
Loma Linda University

Graduate School

IDENITIFICATION OF NEEDS IN HIGH RISK
PREMATUDES SIGNIFICANT TO
PUBLIC HEALTH NURSING FOLLOW-UP

by

Vida Francis

An Abstract of a Thesis
in Partial Fulfillment of the Requirements
for the Degree Master of Science
in the Field of Nursing

June, 1963
ABSTRACT

Experts in the field of prematurity have stressed the need for an intensive follow-up program for premature infants after discharge from the hospital and cited the important role that public health nurses can play. It was hypothesized that there are needs of the high risk premature infant significant to public health nursing follow-up.

The descriptive survey method and an interview schedule was the selected manner for obtaining necessary data. The sample was chosen from high risk premature infants attending the Premature Clinic at the White Memorial Hospital. The selected infants had birth weights of 1,500 grams or less, were under one year of age, and currently receiving medical supervision at the clinic. The participants were limited to those living within ten miles of the clinic. Ten mothers answered questions regarding physical and emotional aspects of care.

Because of the small sample size, this research was considered a pilot study. From the responses given, it appears that mothers are able to verbalize their concerns but tend to forget them when the problems no longer exist.

The problems most frequently expressed were feeding difficulties, constipation, frequent colds, and noisy respirations. Eight mothers had not anticipated premature gestations although half of them had delivered other prematures. When mothers were discharged from the hospital, they were most concerned about the physical condition of their hospitalized infants. Apprehension decreased after the infants had survived for one month. Three-fifths of the mothers felt capable of caring for their high risk prematures. Those that did not feel
capable were most anxious during the time that they were waiting for the infant's discharge. All mothers were desirous of the physical care that their infants received at the Premature Clinic. Four also gained support from association with mothers having similar concerns. Only one-fifth of the mothers felt that they received adequate guidance and support from public health nursing visits.

From the findings for this pilot study, tentative conclusions were drawn. Mothers who enroll their infants at the Premature Clinic do so because they are referred rather than from a knowledge of or expectations for specialized services or supportative reasons. Mothers are not aware of ways in which they can utilize public health nursing services. Insufficient counselling may be a factor in the lack of understanding by these mothers with repeated premature gestations.

It was hypothesized that high risk premature infants have needs significant to public health nursing follow-up. In this pilot study, the hypothesis can neither be accepted or rejected for the following reasons: (1) the sample was too small to make the findings significant; (2) all of the infants participating in the study were "normal" (it is not likely that a large sample would have only "normal" infants); (3) public health nurses, as indicated by the responses, did not seem to be adequately assisting mothers to meet the physical needs of their high risk premature infants. Nursing follow-up may have resulted in the reduction of persisting problems.