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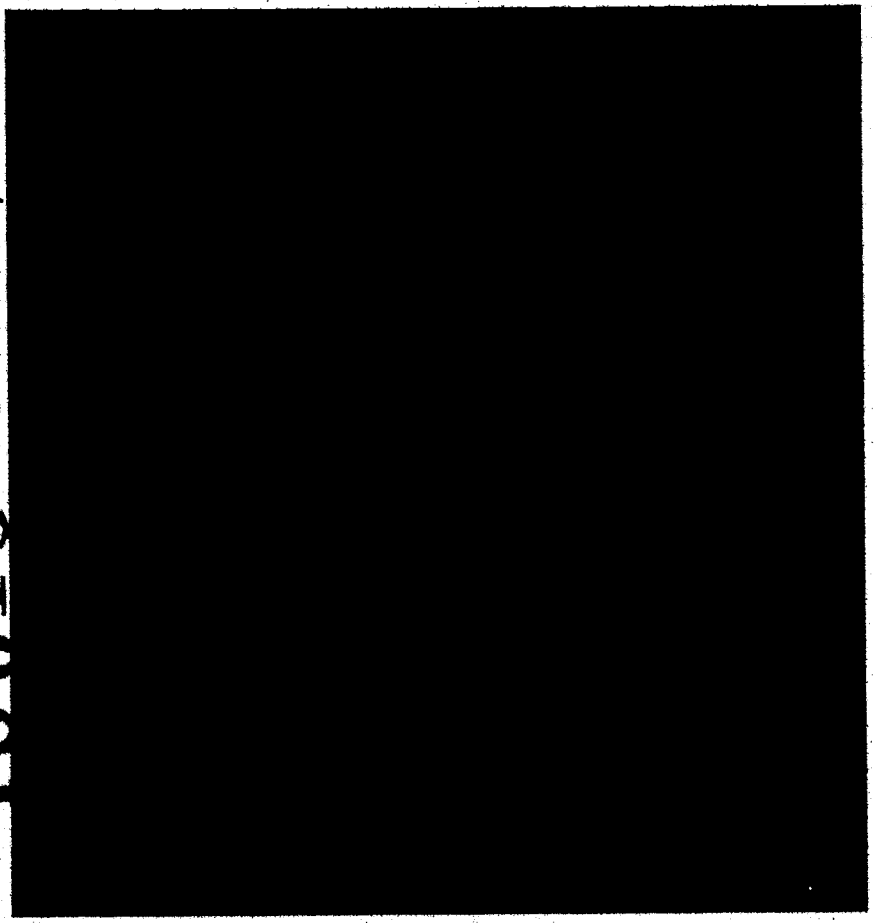
ABSTRACT

One of a series designed to help parents care for their children and themselves by promoting good mental health, this pamphlet provides information about preterm babies. In nine brief sections, readers find various information, including a description of the preterm infant, a discussion of causes of preterm birth and low-weight babies, and a review of innovations in the care of preterm infants. Guidelines for parents visiting the intensive care nursery, advice related to stresses on mothers and fathers of premature babies, and tips for calming babies are offered. Also provided is a discussion of long-term outcomes for premature infants receiving treatment in intensive care nurseries and an examination of the importance of parents' attitudes and behaviors, and parent/child interaction, for the premature infant's well-being and development. The final section focuses on potential health problems to which the preterm infant is vulnerable. Additional sources of information are listed. (RH)

National Institute of Mental Health

caring about KIDS

Pre-term babies



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Caring About Kids is a series of pamphlets produced by the Division of Scientific and Public Information, National Institute of Mental Health, to help parents care for their children and themselves in ways that promote good mental health. Although primarily intended for fathers and mothers, the subject matter of *Caring About Kids* will sometimes be useful to others, such as other relatives, school teachers, and babysitters, who play important roles in the lives of children.

Caring About Kids uses either "she" or "he" throughout an entire pamphlet. The choice of gender is alternated from pamphlet to pamphlet, but the information in each pamphlet is applicable to children of *both* sexes.

Single free copies of *Caring About Kids* can be received by writing to:

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10 percent of all white babies and 20 percent of all black babies are born prematurely.

What Is a Pre-term Baby?

Pre-term babies are babies born too soon. Doctors call them pre-term or premature babies because they have not had their full term of 38–42 weeks in their mother's womb. Babies born before the end of the 37th week of pregnancy are considered pre-term.

At one time, all low-weight babies were thought to be pre-term. Now doctors know it is not weight but time in the womb that defines a pre-term. Some pre-term babies weigh as much as 5 pounds, 8 ounces. Some full-term babies weigh as little as 5 pounds, but they are physically mature enough to breathe and suck normally shortly after birth, which pre-term babies often are not. Because they are born too soon, many of their biological systems, such as those involving the lungs and liver, are not developed enough to work properly on their own. This can result in jaundice or breathing difficulties after they are born.

Although biological immaturity is the main concern in caring for pre-term babies, weight also indicates how well a baby will do after birth—the smaller the baby, the greater the risks involved and the more intensive the care needed.

Some hospitals set aside an area in their regular nurseries for their larger and healthier "premies." Very small or sick babies are placed in intensive care nurseries where specially trained nurses care for them under the supervision of neonatologists, doctors who specialize in treating newborns.

If a hospital is not equipped with an intensive care nursery, it may transfer the baby to a specialized center shortly after birth. Some women who begin labor too early are sent directly to a specialized center to deliver their babies.

Among babies who die in their first month of life, approximately two-thirds weigh less than 3 lbs. at birth.

Causes of Pre-term Birth and Low-Weight Babies

Doctors do not always know the cause of a particular pre-term or low-weight birth, and, in most cases, there was probably little the doctor or mother could have done to prevent it.

According to Dr. Carl A. Keller, an epidemiologist with the National Institutes of Health, the most accurate predictor of pre-term birth is the mother's past obstetrical history. Women with histories of difficult pregnancies, spontaneous abortions, or stillbirths are more apt to give birth prematurely than women who have had full-term babies. Why some women cannot carry to full term is not always clear. The cause may be biological, chemical, genetic, or a combination of factors.

The incidence of pre-term and low-weight babies is higher among teenagers than other age groups. Again, the reasons are not clearly understood, although some doctors believe they may be poor eating habits and lack of medical care during pregnancy. Improper diet and inadequate medical care are major contributors to pre-term and low-weight birth.

Some chronic medical conditions, while not necessarily related to pre-term birth, tend to complicate pregnancies and require medical attention to reduce the risk to mother and child. These include hypertension, diabetes, toxemia, thyroid dysfunction, kidney disorders, congenital heart conditions, and respiratory problems.

A major issue often facing doctors is the prescribing of drugs for women during pregnancy. Women with chronic medical problems may need to take drugs on a regular basis, while some women require medication to treat conditions caused by the pregnancy. Others may need drugs to induce or safeguard the pregnancy. Contrary to past belief that the placenta, the membrane surrounding the fetus, protects the unborn infant from most drugs taken by the mother, there is now evidence that drugs as well as nutrients are passed from mother to child through the placenta.

Because of the difficulties involved in testing the effect of prescription drugs on the human fetus, questions about their potential harm or safety remain unanswered. More research is

needed to determine how safe various drugs taken by pregnant women are for their unborn babies, and, until such findings are available, pregnant women should take drugs only when necessary and only under a doctor's care.

While the effects of many prescription drugs are not known, recent research findings show that babies of drug-addicted and alcoholic mothers are more likely to be born pre-term, suffer birth defects, and often even undergo drug withdrawal immediately after birth.

Because smoking is associated with low birthweight, Dr. Keller believes it is best for pregnant women to stop or reduce smoking. He reports that more poor women who smoke have low-weight babies than do women in higher economic brackets who smoke. He believes that perhaps certain conditions associated with low birthweight and poverty—inadequate nutrition and medical care—are compounded by the effects of tobacco. According to the 1979 Report of the Surgeon General, the risk of miscarriage and infant death increases directly with increased levels of smoking during pregnancy.

A woman's being exposed to measles or contracting certain infections during pregnancy can cause pre-term birth, mental retardation, or birth defects in her baby. Conditions inherited from either parent may play a role, or the mother's body chemistry may not permit full-term pregnancy.

Proper medical care is the best insurance of a mother's health and her baby's welfare, although there are cases where doctors cannot solve the mysteries of difficult pregnancy or pre-term birth. From the time she suspects she is pregnant until she gives birth, a woman should have regular obstetrical examinations.

When necessary—if a woman has had a previous miscarriage, for example—doctors use various procedures to check on the progress of a pregnancy. These procedures include amniocentesis, ultrasonography, and X-rays. Amniocentesis involves placing a needle into the womb through the mother's abdomen to withdraw amniotic fluid which is analyzed to determine the presence of conditions that place the child in jeopardy. Ultrasonography uses sound waves to trace a picture of the unborn child, providing information about how the baby is physically developing. Neither of these procedures is very risky to mother or child when done properly, but they are not routine procedures.

Regular X-rays of the mother's abdomen are also thought to be minimally risky. On occasion, if a woman does not yet know she is pregnant and is having digestive problems, a doctor may order abdominal X-rays such as a G.I. (gastrointestinal) series or pylogram (kidney) studies. These types of X-rays are threatening to normal fetal development and should be avoided if there is a possibility the woman is pregnant.

Of course, there are times when a woman's health indicates the

need for medical procedures or medications. In such cases, being aware of the pregnancy, the doctor should discuss in detail the risks and benefits of the treatment or medication with the patient. The advice of a clinical pharmacist also may be beneficial.

The importance of proper care during pregnancy cannot be underestimated. Sensible eating habits; abstinence from addicting drugs; conservative use of alcohol and cigarettes; and regular obstetrical checkups are all basic and necessary protections which a mother can offer her unborn child.

Recent medical advances improve outlook for pre-term babies.

Medical Science Makes a Difference

In recent years, revolutionary advances have been made in the care of pre-term babies. With the help of medical technology, babies born at or before 27 weeks and weighing less than 2 pounds often survive.

Because of medical advances, many pre-term babies are saved and are less vulnerable to physical and mental problems. Seventy-five percent of all premature babies grow up without serious problems, according to Dr. Arthur Parmelee, Head of the Division of Child Development, Department of Pediatrics, University of California at Los Angeles.

Perhaps the most dramatic advances in neonatal medicine have been techniques to help pre-term babies breathe. Carefully controlled amounts of oxygen can be delivered directly to the incubator or through a plastic hood placed over the baby's head. When a baby needs extra help to expand underdeveloped lungs,

pressure is applied through the hood or through a plastic tube placed into the baby's mouth and windpipe. Babies with breathing problems (usually referred to as Respiratory Distress Syndrome or Hyaline Membrane Disease) are carefully monitored to assure that they receive needed pressure and oxygen. Because of new respiratory techniques, pre-term babies are less vulnerable to the permanently damaging physical and mental conditions caused by lack of oxygen.

All babies, including the smallest and sickest, need loving, human contact.

Visiting the Intensive Care Nursery

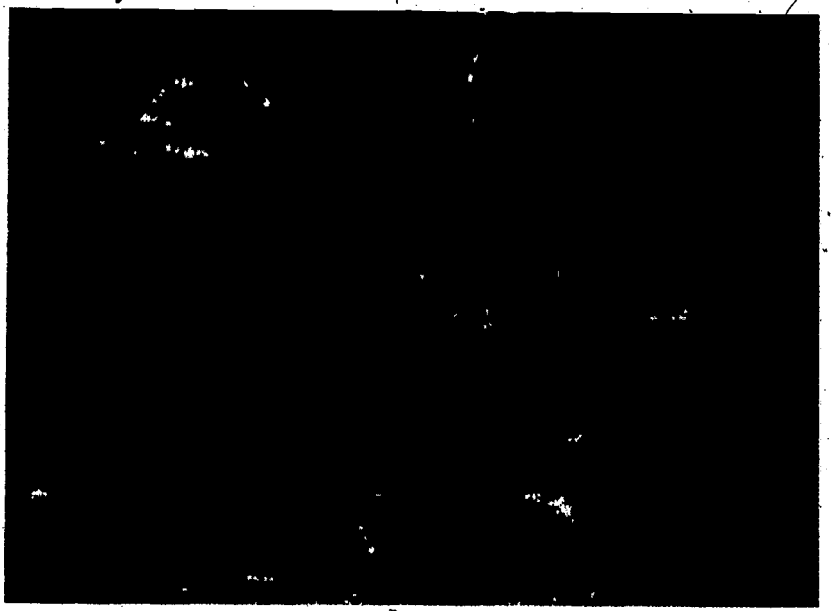
It is important for parents to visit their babies in the intensive care nursery as often as possible in the weeks or months before their baby is well enough to bring home. Doctors now know that the sooner babies and parents make contact with each other, the better for both. Babies, even the sick and tiny ones, seem to benefit from the stimulation derived from human contact. Pre-term babies appear to gain weight more readily when they are touched, talked to, held, and rocked. Also parents who spend more time with their babies in the hospital usually are more comfortable caring for them at home.

Parents who are unprepared for their first visit to the intensive care nursery may feel they are entering a world of science fiction. Unbelievably tiny babies lie in incubators amid bright lights, mechanical noises, and various life-support systems. Babies with breathing difficulties receive oxygen through hoods placed around their heads or plastic tubes inserted in their windpipes or noses. Those that suffer jaundice caused by immature liver function require special lights around the incubator. Very small or sick babies have their heart rates, breathing, and blood pressures continually monitored by machines that sound an alert to nursery staff at the first sign of trouble.

Because a pre-term baby often is too immature to suck a nipple, he may require specialized feeding procedures. The baby may initially receive nourishment and medication intravenously; later on, milk—even breast milk pumped from a mother who wishes to nurse—can be fed from a feeding tube inserted into the baby's stomach through its mouth.

It's easy to understand that parents' first visits to their pre-term baby can be upsetting. The strange surroundings and obvious efficiency of nursery staff may cause them to feel inadequate and comfortable. Sensitivity on the part of staff can do much to

overcome a parent's initial nervousness. With staff encouragement and assistance, and when their babies are strong enough, parents can learn to handle and feed their babies in preparation for the days ahead when they will have their babies at home. Likewise, parent's involvement with their babies often has an encouraging effect on staff. It has been observed that staff tend to respond more favorably to babies whose parents are actively interested in their care.



Parents of pre-term babies often experience extra stresses.

The Stresses

Parents of premature babies may experience strong, conflicting emotions after the birth of their child. Feelings of fear about their baby's condition or about their ability to care for the child are alternately replaced by feelings of hope and pride. Disappointment may occur when the anticipation of a chubby, cuddly baby is dashed by the reality of the small and skinny premature one, whose head may appear too big for his body and whose body is covered with fine hair and delicate skin.

Parents sometimes feel angry, wondering why their baby was born prematurely, or they may blame themselves and experience intense guilt. Then there are moments of gratitude and joy that wash away such feelings.

Dr. Klaus Minde, a psychiatrist and pediatrician at the Hospital for Sick Children, Toronto, Canada, finds that mothers of pre-term babies often experience erratic mood changes for months after

delivery—feelings of depression and worry interchanging with happiness and relief.

Leaving her baby in the hospital for weeks or months after returning home adds to a mother's concern. If she is employed or has other children, hospital visits can be difficult to manage. The visit may be a greater problem if the baby is being treated at a special center at some distance from home. Although telephone contact with the nursery is helpful, it is not as reassuring as being with her baby.

Fathers have their share of problems, too. Aside from dealing with their own worries, they are the prime source of comfort and support for their wives who are often physically and emotionally drained. During the first critical days of the baby's life, a father may become closely involved with the infant's condition and care. His initial concern for his wife's welfare turns to the baby, and he may have more contact with the medical staff than she does during the first few days. If the mother is incapacitated or is in another hospital, she may feel left out or jealous. As time goes by and the mother becomes actively involved with the baby, the father may feel left out and jealous, particularly if he feels his needs are being neglected.

Emotional ups and downs are normal responses to stress, and parents may find coping easier if they can communicate their feelings and respond to each other with sympathy and understanding.

The need for emotional support continues after the baby is brought home. While there is joy and relief, there are also ongoing pressures and worries. Because pre-term babies are biologically younger and less developed than full-term babies, they require more attention and more feedings.

Later in children's lives there may be no obvious differences between pre-term and full-term babies, but in the first year of life, 1 month can make a difference in how babies look and act. For example, pre-term babies' visual responsiveness may be more sluggish and their heads more floppy because their muscles are not as developed. In time, the pre-term babies' muscles mature, but, if parents compare them with development of full-term babies born around the same time, they may become unnecessarily worried and frustrated.

When pre-term babies reach their expected due date, their faces look more mature than the faces of full-term babies born at the same time. Some parents may find reassurance in their baby's mature face; others may be misled to expect their babies to behave more maturely than they are yet biologically capable of and become disappointed.

In addition to other stresses, research indicates that parents find the crying of pre-term babies more irritating than that of full-term babies.

These problems may make pre-term babies vulnerable to child abuse. Studies show that a fairly high proportion of abused children were born prematurely. Studies also indicate that parents who abuse their children often were the victims of abuse when they were children and, in their turn, become abusing adults, particularly when under stress. Abusing parents often do not have the close ties to family, friends, and community that might provide them help when they have problems.

Because of the stresses involved in having and caring for a pre-term baby, parents may wish to seek help. Hospital-based social workers are often available to help parents cope with stress and to arrange other needed services, such as financial aid or home visits from a public health nurse.

Another source of information and assistance is a mutual-help group with which parents of pre-term babies meet regularly to share experiences and knowledge. Dr. Minde reports that parents participating in such a group, which is organized and assisted by a staff nurse, are providing better care for and appear more at ease with their babies than parents who do not participate in the group. When such groups are not organized by hospital staff, parents may want to take the initiative and form a mutual-help group.

Calling on willing family members and friends for needed relief is also good for a new parent. If money is not a problem the services of a capable babysitter may help tremendously. The important issue is that parents acknowledge their need for help and ask for it freely, without guilt, before reaching the end of their rope.

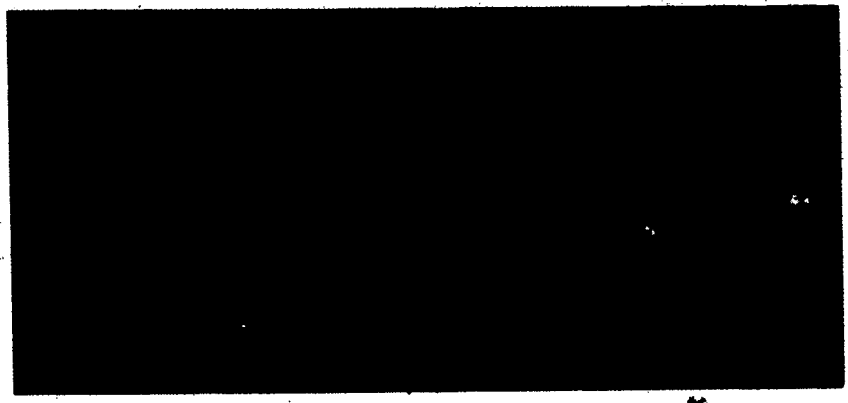
Researchers have found that swaddling, an age-old baby-wrapping technique used in many different cultures, effectively calms babies.

Tips for Calming Babies

In a recent study, Dr. Sarah Friedman and her research colleagues at the National Institute of Mental Health found that pre-term babies, at the time they would have been born if carried to full term, are more irritable and less easy to soothe than full-term newborns. As time goes by, some parents may find that their pre-term babies become easier to soothe. All parents, whether their babies be pre- or full-term, are interested in baby-calming techniques.

One of the simplest and most effective calming techniques is swaddling which involves wrapping a baby securely from shoulders to feet with a small blanket or sheeting, much in the way that Indian mothers wrap their papooses. While parents may feel uncomfort-

able about restricting the movement of their infants' arms and legs in this way, Drs. Earle L. Lipton, Alfred Sternschneider, and Julius B. Richmond found that swaddling for limited times seems to soothe babies.



No one is sure why swaddling is such an effective calmer. Possibly it gives a baby a sense of security to be tightly enwrapped, or maybe it is the sensory stimulation of the blanket or sheet on the baby's skin. Researchers have found that various other types of sensory stimulation—certain sounds and movements, for instance—seem to calm babies. Although parents may not have realized they were stimulating their baby's senses by holding, rocking, singing, and talking to them, they have long used these techniques to soothe their infants.

Another relatively simple way of calming babies has been discovered by parents who use a modern version of the papoose carrier. Today's mothers and fathers can be seen going about their activities with an apparently contented baby snuggled in a carrier strapped to the parent's back or chest. Mothers are reporting that the carriers are not only convenient toters but seem to be effective calmers. Apparently the carriers offer a baby a combination of comforts—closeness to the parent along with the sensory stimulation of swaddling and physical motion.

Pre-term babies are younger than full-term babies born on the same day.

The Long View

Scientists cannot yet predict accurately the future functioning of a pre-term, low-weight, or seriously ill newborn. Medical advances have been too recent to determine the long-term outcomes for children who have had the advantage of treatment in intensive care nurseries, but recent findings give parents reason to be optimistic. The majority of children studied, who now range in age from 2 to 9 years, are free of serious problems.

Because doctors cannot predict accurately a particular baby's future, parents may suffer needless worry when they ask a question such as, "Will my child be retarded?" The physician's honest answer of "Possibly" or "I don't know yet" may be heard by stressed parents as a "yes" instead of a "maybe." It may or may not help parents who are worried about the future of their own baby to know that 75 percent of premature babies develop normally.

Doctors have found it important to repeat needed information on a number of occasions: Information that cannot be understood at first may be heard and understood at some later date when the parents are under less strain. Likewise, parents may have to ask the same questions more than once to get needed information.

Also, parents who are told that their pre-term babies will catch up may become worried when they observe that their babies are developmentally slower than other babies born around the same time. They may not realize that their babies are really younger than full-term babies who were born on the same day. A pre-term baby's development should be considered on the basis of conceptual age rather than birthdate. According to Drs. Jane Hunt and Leanne Rhodes of the University of California at San Francisco, the baby that is born 2 months before term is always 2 months younger than the full-term baby born on the same day, and allowances should be made for this difference. Furthermore, all children — pre-term and full-term — develop at their own rates. The most important thing to look for in children is steady developmental progress rather than specific age-related accomplishments.

On the average, children who were born before term are more apt to remain physically smaller than their full-term peers. Nevertheless, inherited genes and proper nutrition become the most important determinants of the child's physical size.

While size has little to do with children's capabilities, adults tend to baby small children and expect too much from those who are large for their age. Children have a tendency to live up to adults' expectations and do best when they are expected to behave according to their capabilities rather than their size.

Appropriate stimulation can enhance development of pre-term children.

Parents Can Make a Difference

Studies of pre-term babies indicate that those who suffer severe medical complications tend to be more sluggish, less responsive, and more irritable than those who have had normal medical histories.

Also, researchers have conjectured that pre-term babies, who must remain hospitalized for relatively long periods of time, may be deprived of the benefits of mutual stimulation between parent and child. That is, pre-term babies and their parents have less opportunity to learn from and teach each other through social interactions. For example, when a baby cries or smiles, parents respond in specific ways — they may feed, hold, talk to, or smile at their babies. Babies learn from their parents' responses that they are loved, that they have some control over their world, and that specific behaviors elicit specific responses. Parents, in turn, learn about their babies' needs and personalities through observation of and contact with them. Thus, through a process of mutual discovery, parents and babies learn to interact with each other.

If a baby has suffered severe medical complications and has had to remain in the hospital for weeks or months, the mutual learning process between parent and infant may be delayed or blunted. The lack of responsiveness and irritability of the baby may make him

more difficult to care for. Nevertheless, many parents have found ways to overcome the difficulties.

Researchers have found that an important factor in how well the pre-term infant develops—any baby, for that matter—is very much dependent on the parents' attitudes and behaviors. Those parents who persistently try to make eye contact with their babies, who talk to them during feedings, who hold them and rock them, and who, in general, interact more with their babies eventually are rewarded by their babies' response and healthy development.

This is not to say that parents should exhaust or frustrate themselves trying to interact with their babies. They need to keep in mind that their baby may not be biologically ready to respond. On the other hand, some extra effort by parents to stimulate their babies may prove advantageous for the babies' future development.

Some pre-term babies will have future problems.

Helping the Child With Problems

Even with today's medical technology, some pre-term infants will have future problems. The percentage of children with severe problems such as blindness, cerebral palsy, or serious mental retardation has been sharply reduced by modern intensive care medicine, just as survival rates have increased for those with very low birth weights and other severe complications. However, according to recent research findings, serious problems continue to be reported for about 4 percent to 8 percent of infants whose birth weight is less than 3 1/3 pounds.

Some pre-term infants, particularly those with respiratory diseases, may be vulnerable to later respiratory problems such as bouts of pneumonia. Others, particularly those with lowest birth weights or other severe neonatal problems, may be more likely to develop milder disabilities such as hyperactivity, language lags, or learning disorders that may require special attention. In general, the most severe problems can be recognized soon after birth, but the milder problems are not obvious until early childhood.

To avoid unnecessary anxiety, parents should have their child checked regularly by a pediatrician or at a local health clinic. If they are concerned about the early development of their infant, parents may want to get the help of a specialist who can evaluate development on a regular basis. Where necessary, community mental health centers can offer help for both parents and children. A listing of community mental health centers is available from the National Institute of Mental Health, Public Inquiries, 5600 Fishers Lane, Rockville, MD 20857.

Other sources of mental health assistance can be received from the local chapter of the Mental Health Association. Information about the Association can be received by writing to the Mental Health Association, 1800 North Kent Street, Arlington, VA 22209.

Additional Sources of Information

The Hospital for Sick Children
Room 1218
555 University Ave.
Toronto, Ontario, Canada. MSG1x8
Request a copy of *The Premature Infant — A Handbook for Parents*, $3.00 per copy.

Council for Exceptional Children
National Education Association
1920 Association Drive
Reston, VA 22091

Developmental Disabilities Office
Room 3070, 330 C St., S.W.
Washington, DC 20201

President's Commission on Mental Retardation/OHD
7th & D St., S.W.
Washington, DC 20201

Family Service Association of America
401 M St., S.W.
Washington, DC 20460

Society for Protection of the Unborn Through Nutrition (SPUN)
17 N. Wabash, Suite 603
Chicago, IL 60602

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