Recent Growth of Child Population

The child population of the United States is now larger than at any time in our national history. In 1960, children under 21 years of age in the 50 States and the District of Columbia are expected to number some 73.3 million, as compared with 54.5 million in 1950. Two out of five persons in the total population of 1960 will be under 21 years of age, according to these estimates. If fertility levels of the recent past (1955-57) continue, children will number 91.3 million in 1970 and comprise 42.3 percent of the total population. The rapid growth of the child population since 1940 is shown in figure 1.

Mothers of the 1940's raised fertility rates to higher levels than in the decades just preceding. In the 1930's the crude birth rate (births per 1,000 population), following a long-time downward trend, rose to an average level of about 19. During the years of World War II the rate increased further to an average level of about 21 per 1,000, and in the post-war years, with few exceptions, reached 25 per 1,000.

In the early 1960's, the children born in the early post-war years will reach the age of marriage and establish new families. If they do so at about the rate of fertility of their parents, or even somewhat less, the growth in absolute size of the child population will exceed any experienced before in the United States.

In line with these assumptions, and with continuation of recent trends in mortality and immigration, during the 1960's the population under 21 is expected to increase by 18 million children, while adults in the age
range 21-64 years will increase by 12 million, and the older population (65 years and over) by 4 million. Adult population in these broad age groups, and the child population in 1960, are shown in figure 2, in comparison with projected numbers in 1970 for each of these groups.

The child-rearing responsibilities of the nation rest primarily in the age group 21-64 years, when productive work in the economy and the rearing of children engage the major efforts of the vast majority. If by 1970 the child population expands a fourth (18 million), while the age group 21-64 years of working adults increases more slowly, the weight of child-rearing responsibilities on the principal productive groups of the population will greatly increase. In 1960, the national ratio of children under 21 to adults 21-64 years of age is estimated at 791 children per 1,000 adults. In 1970, if fertility assumptions are correct, the number of children per 1,000 adults will reach 872, an increase of 10 percent over 1960, and 37 percent over the child-adult ratio for 1950 (636 per 1,000). Thus the decade we have reached may set a new record not only in number of children but also in weight of responsibilities in rearing the next generation of the nation's citizens.

Progress in reducing childhood mortality.—The annual death toll in childhood has been vastly reduced since the turn of the century. Growth in scientific knowledge, in its application through the medical arts and in public health practices, accompanied by a rising standard of living all have helped to make this possible.
Mortality during the preschool years dropped during the half century between 1900-02 and 1949-51 from 178 per 10,000 children 1-4 years old, to 14 per 10,000. In the same period mortality among children of grade school age, 5-14, decreased from 36 to 6 per 10,000. During the 1950's some further reduction in childhood mortality was accomplished. By 1957, mortality of the preschool group had declined to 11.2 per 10,000; of the group at grade school age, to 1.8 per 10,000.

Accidents continue to be the nation's number 1 killer in childhood. In 1957, deaths of 4,749 preschool children, or about one-third of the deaths in this age group, were due to accidents. Among children 5-14 years of age accidents caused 2 out of 5 deaths and took 6,452 lives. In the age group 15-19 years over half of the 11,608 deaths were from accidents.

Among diseases, influenza and pneumonia now ranks first as a cause of death in the preschool years, and second in importance at the older ages. Cancer is the leading cause of death among children 5-19. The death rate from cancer in the preschool years, 1.1 per 10,000, is even higher than at later ages in childhood (0.7 per 10,000, 5-14 years; 0.8 per 10,000, 15-19 years), although it is exceeded by the rates of death from influenza and pneumonia and from congenital malformations.

Deaths from diseases of the heart and acute rheumatic fever have declined greatly in relative frequency in the last two decades. Nevertheless they are third among leading causes of death at 15-19 years, and fourth in the age span 5-14 years.
Congenital malformations take their heaviest toll in childhood in the preschool years, when they rank second among leading causes of death, with a rate of 1.4 per 10,000. In the older age groups, 5-11 years and 15-19 years, they drop to third and fifth in rank, respectively, among leading causes.

**Trends in Crippling Conditions.**—Historically the term "crippled children" has meant children with orthopedic handicaps. Today, we recognize that the lives of children may be crippled by a variety of other kinds of handicaps as well, such as impairments in vision, hearing, and speech, heart defects, and defects in metabolism and in mental and neurologic functions, to mention only a few. It has become increasingly clear that promotion of optimum health in childhood calls for equal provision of comparable care for all handicapped children, regardless of whether the impediments to their progress are orthopedic or of another nature.

How many handicapped children of different ages are there in the United States? How many are born each year with impairments or potentially crippling defects? How many with particular kinds of handicaps? Precise answers to these questions are not at hand. The available data, while numerous, are not designed to fit well together. Differences in basic definitions of handicaps, in observational methods, and in statistical procedures stand in the way of combining satisfactorily many of the reported facts from special studies in local areas. The full story about health and handicapping among the nation's children still waits upon findings in future pediatric surveys.
Despite these limitations in our present knowledge, national estimates based on reports of local experience give a preliminary overview of the extent of handicapping in childhood in the United States. The numbers of children in the United States now suffering from certain major types of handicaps have been estimated on the basis of available studies on prevalence of these conditions in recent years. The numbers of children in 1960, and the projected numbers in 1970, are indicated below, and shown in figure 3.

<table>
<thead>
<tr>
<th>Condition</th>
<th>1960</th>
<th>1970</th>
</tr>
</thead>
<tbody>
<tr>
<td>Epilepsy (Under 21)</td>
<td>380,000</td>
<td>450,000</td>
</tr>
<tr>
<td>Cerebral palsy (Under 21)</td>
<td>370,000</td>
<td>465,000</td>
</tr>
<tr>
<td>Mentally retarded (Under 21)</td>
<td>2,160,000</td>
<td>2,720,000</td>
</tr>
<tr>
<td>Eye conditions needing specialist care (5-17)</td>
<td>10,200,000</td>
<td>12,500,000</td>
</tr>
<tr>
<td>Hearing loss (Under 21)</td>
<td>320,000 to 725,000</td>
<td>450,000 to 900,000</td>
</tr>
<tr>
<td>Speech handicaps (5-20)</td>
<td>2,580,000</td>
<td>3,270,000</td>
</tr>
<tr>
<td>Cleft palate and/or hare lip</td>
<td>95,000</td>
<td>120,000</td>
</tr>
<tr>
<td>Orthopedic (Under 21)</td>
<td>1,925,000</td>
<td>2,125,000</td>
</tr>
<tr>
<td>Rheumatic fever (Under 21)</td>
<td>880,000</td>
<td>1,100,000</td>
</tr>
</tbody>
</table>

The greatly increased numbers of children who may be affected by these conditions in 1970, if prevalence rates are about the same, is a reflection of the increased size of the child population.

These estimates are rough but the best we can make today. They refer also to only a limited number of conditions for which some information is available. These facts in themselves show that much more research is required to give us a true picture of our children’s health needs, and of effective ways to meet them promptly.
The National Health Survey has found that about 2.5 million children under 15 years of age have never seen a physician, and about a third of these were children under 5. There are large population groups whose children have relatively little or no health supervision, such as migratory workers, some Indian families, and families at low income levels.

Organized effort to find the children with health impairments might well show that there are even more of them than present estimates indicate. Recent efforts to seek out children suffering from mental retardation, for example, are showing that the number far exceeds that expected.

The handicaps that afflict children today often stem from conditions in fetal life, or during the mother's pregnancy and delivery. A major portion of pediatric practice is now taken up with care of children with congenital malformations, or with other disorders believed to be of genetic or developmental origin.

These children are casualties in the still hazardous process of developing and being born. Death risk to the infant in the perinatal period (just before, during, and after birth) has been greatly reduced in the last decade and a half. The decrease in perinatal mortality to 35 per 1,000 total births in 1957 has meant a saving of 15 infants in any 1,000 born, in comparison with the rate in 1942. The declining perinatal mortality rate is shown in figure 4.

As the death rate around birth has dropped, the nonfatal but handicapping effects of inherent deviations among the survivors in infancy, and insults and injuries to the fetus and newborn infant have become more
evident. Since the causes of congenital malformations and other abnormalities found at birth are still little understood, we are at present without specific means of prevention for this type of morbidity and handicap. These misadventures of the unborn infant in growing and coming into the world take a heavy annual national toll in child health, larger than that, for example, from injuries sustained by children under 15 from accidents. Annually during 1960-70, an estimated 100,000 infants may be born with congenital malformations of varying degrees of severity. This does not include congenital anomalies of metabolism, or neurological disorders such as epilepsy and cerebral palsy. The estimate assumes fertility levels will continue relatively high and the national incidence of malformations will be the same as that reported in a careful study made in a teaching hospital in New York City. The estimated frequency of malformations at different sites of the body is shown in figure 5.

In 1958, under the Federally aided State programs of services for crippled children, 85,958 children with congenital malformations received physician's services. This was 26.4 percent of all children served, as compared with 1950 when 20.6 percent of the children served (in 1950) had this diagnosis.

The problem of preventing congenital anomalies merits intensive and long term medical research, because of its broad impact and its threat to normal growth and development in childhood.

At the same time, strengthening and extending health services for mothers throughout their child-bearing years gives promise of improving the health of the newborn as well as the mother. Services which help in
the long run to reduce premature delivery may also bring about some re-
duction in the incidence of congenital malformations, to the extent that
both reflect some impairment of maternal health.

There is evidence that neurological damage, such as that causing
epilepsy, cerebral palsy, mental retardation, or disorders of vision, hearing
or speech, may result from complications of the mother's pregnancy or
delivery. More study is needed for better understanding of how much damage
is produced and how it may be prevented. Meanwhile, all expectant mothers
should have the kind of prenatal care which applies the preventive measures
now available.

For children with neurological handicaps, more services are needed to
bring them specialized help early in life. Most such conditions—especially
those affecting vision, hearing or speech—require the help of a variety
of specialists. These function most effectively when they serve as a team
in which the different disciplines can interact around the child.

Other crippling conditions of childhood result from a variety of
causes. Their prevention and treatment require services of many different
kinds.

Polio and rheumatic heart disease both result from
infection. Polio can now be reduced in frequency by immunization. But
great effort is needed to immunize all children, especially the most sus-
ceptible group, the children under school age.

The incidence of rheumatic fever has been reduced by a rising standard
of living and by use of antibiotics to prevent or control streptococcal

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infections. But the child who once has had this disease needs continuous medical attention to prevent recurrence and resulting heart damage. Too few such children are receiving effective prophylaxis. How can they and their parents be motivated to avail themselves of this protection?

Accidents in childhood are a major cause of impairments, as well as fatality, as shown in figure 6. According to the National Health Survey, 10 percent of impairments reported for children under 15 were due to accidental injuries; 36.3 percent in older children and young adults (age group, 15-24 years). Accidents injure 45,000 children under 15, a day, 38 fatally, and one third of the fatalities are in motor vehicle accidents. About 60 percent of child injuries are in home accidents.

Impairments to arms, fingers, and toes are the most common (see figure 5). Of all visual impairments reported in the National Health Survey for children under 15, 17 percent were the result of accidents; of hearing impairments, about 15 percent.

Impairments and crippling conditions at different ages. Some 2,158,000 impairments among children under 15 July 1957-June 1958 were reported in the National Health Survey. Over a third (36 percent) were orthopedic defects; over a quarter (26 percent) speech; and about another quarter, hearing and visual defects (15 percent and 8 percent respectively). In the next older age group, youth and young adults (15-24 years), nearly three out of five of the reported impairments were orthopedic. Visual and hearing impairments were of about the same relative importance as in the group under 15 years, jointly 22 percent.
Experience in the State programs of services for crippled children in 1958 showed certain broad differences in conditions for which physicians' services were provided, according to age. In the age group under 5, 43 percent of the children served were reported with primary diagnosis of congenital malformation or birth injury. The proportion was half as large for the children 5-11 years, and dropped to 16 percent in the age group 15-20 years. Among older children (5-20 years) on the other hand, diagnoses indicative of diseases of the ear and eye, of epilepsy, of rheumatic fever and heart disease comprised larger proportions of the groups served than was the case with children under 5. Effects of accidents account for an increasing proportion served as the children become older.

Uniformly early provision of care, with good follow up in the case of congenital malformations, might further reduce the need for care for these conditions in older children, when the age for optimum results may in some cases have past.

The rising proportions in older children with visual and hearing disorders and of children with convulsive disorders suggests the need for services reaching more of these children well before the school years.

Meeting Future Needs of Handicapped Children. Medical advances are constantly being made in diagnostic procedures, in surgery, in development of prostheses, and in other highly specialized restorative care for children with malformations and handicapping injuries and diseases. More often than not these highly specialized and effective kinds of care can make the difference between the child who comes to achieve his full potential
in constructive citizenship and the youngster who later participates little, if at all, because somehow the specific help he needed did not reach him, or continue long enough.

To find the children who need such help, to provide the many different kinds of highly skilled diagnostic, treatment, and family counseling services, which will at length in some ways overcome the handicaps, is the joint responsibility of parents, medical specialists, public health experts in the fields of maternal and child health and services for crippled children, and of voluntary agencies working with families and children.

Community-wide organized efforts help to insure availability of services and their maximum use. Figure 7 shows how organized community services can help the handicapped child throughout his developmental years to satisfying adult participation in community life.

Lack of good care for the handicapped child, at the critical times, reduces his chances for healthy growth and development, and it signifies for the community, in the future, fewer constructive services from these citizens who lost out in childhood.
REFERENCES


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(28) Rogers, Perry B. On Developing a Method of Testing Registration Completeness of Infant Deaths. (Unpublished report of a special investigation as part of the course "Field Training in Statistics," P.H. 222, University of North Carolina.)

Figure 1.
The child population is increasing rapidly.
Figure 2.
Child rearing responsibilities of working adults are on the increase.

- **Children under 21 years**
  - 1960: [Bar chart indicating 60 million people]
  - 1970: [Bar chart indicating 78 million people] (Increase: +18 million)

- **Working adults 21-64 years**
  - 1960: [Shaded bar chart indicating 100 million people]
  - 1970: [Shaded bar chart indicating 122 million people] (Increase: +22 million)

- **65 years and over**
  - 1960: [Shaded bar chart indicating 10 million people]
  - 1970: [Shaded bar chart indicating 14 million people] (Increase: +4 million)
Handicapped children in the United States will greatly increase in number, unless we have more effective methods of prevention.

![Figure 3: Diagram showing the number of children with various disabilities in 1960 and 1970.]

- **Epilepsy**: 450 in 1970, 360 in 1960
- **Cerebral Palsy**: 370 in 1960, 10,200 in 1970
- **Mentally Retarded**: 465
- **Eye Condition**: 2,720
- **Hearing Loss**: 12,500
- **Speech Handicap**: 700
- **Orthopedic**: 2580 in 1960, 540 in 1970
- **Rheumatic Fever**: 95 in 1960, 2,180 in 1970
- **Cleft Palate**: 2425
- **1970 Total**: 1100

Source: Provided by the Maternal and Child Health Library, Georgetown University
Reduction of perinatal mortality over the past decade and a half is saving the lives of 15 more infants out of a 1,000 born.

The graph illustrates the number of deaths per 1,000 births (live and still) from 1942 to 1957. The categories are:

- DIED BEFORE OR DURING BIRTH PROCESS
- DIED DURING NEONATAL PERIOD (Under 28 days after birth)

The added lives saved per 1,000 births are indicated by the shaded areas.
Figure 5.

Present incidence indicates....
400,000 congenital malformations annually among infants in this decade

<table>
<thead>
<tr>
<th>Type of malformation</th>
<th>Average annual number of malformations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heart &amp; Blood Vessels</td>
<td>36,500</td>
</tr>
<tr>
<td>Central Nervous</td>
<td>56,200</td>
</tr>
<tr>
<td>Digestive Tract</td>
<td>42,700</td>
</tr>
<tr>
<td>Genitourinary</td>
<td>45,100</td>
</tr>
<tr>
<td>Muscles &amp; Bones</td>
<td>138,700</td>
</tr>
<tr>
<td>Respiratory</td>
<td>10,100</td>
</tr>
<tr>
<td>Skin</td>
<td>76,300</td>
</tr>
<tr>
<td>Other</td>
<td>4,300</td>
</tr>
</tbody>
</table>

1960—1970
Figure 6.

45,000 children under 15 years of age are injured DAILY in accidents

Impairments
caused by injury alone

Nearly 3 out of 5 child injuries
occur at home

Each day 38 children are killed in accidents
1/3 due to motor vehicles
Figure 7

THE COMMUNITY MAKES THE CHOICE

WITH ORGANIZED COMMUNITY SERVICES

SOCIAL SERVICES

EDUCATION

JOB TRAINING

PRODUCTIVE CITIZEN

UNDIAGNOSED AND UNTREATED

EDUCATION IRREGULAR

REJECTED

LIMITED OPPORTUNITY

THE HANDICAPPED

THE CHILD

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