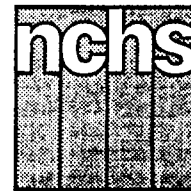


# Advance Data



From the CENTERS FOR DISEASE CONTROL/National Center for Health Statistics

## Health Insurance and Utilization of Medical Care for Chronically Ill Children With Special Needs

Health of Our Nation's Children, United States, 1988

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### Introduction

This is one of a series of reports, subtitled *Health of Our Nation's Children*, based on data from the National Health Interview Survey on Child Health (NHIS-CH), and conducted in 1988 by the National Center for Health Statistics. Included in this series are reports on child care arrangements; developmental, learning, and emotional problems; exposure to environmental cigarette smoke; and health insurance coverage.

Through NHIS-CH, data were collected on a nationally representative sample of children 17 years of age and under. The questionnaire addressed a broad range of health-related topics. A brief description of the sample design and data collection procedures are summarized in the Technical notes. A detailed description of the study procedures and survey questionnaire can be found in the 1988 edition of the annual report "Current Estimates From the National Health Interview Survey" (1). The National Institute of Child Health and Human Development and the Maternal and

Child Health Bureau jointly sponsored the survey.

The analyses reported here focus on the insurance coverage and health care utilization of chronically ill children with special needs, based on those who had one or more of the chronic conditions included in the NHIS-CH condition record; who were unable to perform age-appropriate roles; or who experienced pain, discomfort, or being upset often or all of the time due to the condition.

In recent years the characterization of "special populations" of children or those with "special needs" or "special health care needs" has been applied quite broadly to encompass those who may have serious physical, cognitive, developmental, learning, or emotional problems or disabilities; those who are socially or socioeconomically disadvantaged; and those who may be otherwise particularly "vulnerable" populations of children (2-7).

Characterizations of the elderly with special needs have tended to focus on those with chronic illness who experience serious limitations in activities of daily living (personal care tasks such as bathing or eating) or

instrumental activities of daily living (home management tasks such as shopping or managing money) (8-10). No uniform definitions or estimates of functionally impaired children are available at the national level. Using the same data set on which these analyses are based, Newacheck and his colleagues have published estimates of the number and prevalence of chronic conditions among children, and how estimates of the magnitude of impact may vary, depending on the criteria of severity or functional impairment employed (11,12).

The National Center for Health Statistics, other agencies within the Department of Health and Human Services, and the Census Bureau are planning an array of surveys to monitor the impact of the Americans with Disabilities Act (ADA) and other disability-related programs. These studies will provide valuable information on the characteristics of chronically ill and disabled children and nonelderly as well as elderly adults.

The National Child Health Assessment Planning Project (NCHAPP), Albert Einstein College



U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

Public Health Service  
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of Medicine, is developing a state-of-the-art definition and protocol for identifying children with "special health care needs," which will be used in connection with these and related data gathering efforts. The 1993-94 National Health Interview Survey (NHIS) on Disability will collect a subset of the required information on a national sample of children.

The analyses reported here focus on a subgroup of children with special needs—those with selected chronic illnesses who experienced major limitations in their usual activities and/or serious pain and discomfort due to these conditions. Their insurance coverage, utilization of physician and hospital services, and prescribed medicines are examined by age, sex, race, ethnicity, family structure, income, and place of residence. The results pinpoint chronically ill children with special needs who may have the least access to routine medical care.

## Data and methods

These analyses focus on children who were identified to have had one or more of a number of childhood conditions in the NHIS-CH condition record. Respondents were asked whether the child had ever had the condition; if so, whether they had it in the last 12 months; and for selected conditions, among those who had experienced it in the last year, whether it had lasted at least 3 months in the child's lifetime or if the interviewer judged it to be an obviously permanent condition. For conditions that met these criteria, the respondent was asked to answer a series of questions about whether the child had to miss any school, stay in bed, or otherwise limit usual activities, as well as how much pain, discomfort, or bother the child may have experienced during the past 12 months due to the condition. The respondent was also asked the number of nights, if any, the child had been hospitalized, the number of times a medical doctor or assistant was seen or talked to about the

child's condition, and if the child had used prescribed medicines for the condition during the past 12 months.

Chronically ill children were identified, based primarily on the information provided in the NHIS-CH condition record. The conditions included frequent or repeated ear infections, digestive allergies, frequent diarrhea or bowel trouble, diabetes, sickle cell anemia, anemia, asthma, hay fever or respiratory allergies, epilepsy or seizures, frequent or severe headaches, arthritis or other joint problems, other musculoskeletal impairments, cerebral palsy, heart disease, and other conditions requiring surgery or lasting more than 3 months. This generally includes the list of chronic conditions identified by Newacheck and Taylor, except for eczema or any kind of skin allergy, deafness and hearing loss, blindness and vision impairment, and speech defects, which were excluded because questions regarding condition-specific activity limitation were not asked for these conditions (1,11). Further, these analyses were limited to conditions the child had experienced in the past 12 months *and* (for selected conditions) deemed to be relatively permanent, based on whether the child was reported to have had them at least 3 months or that the interviewer assessed to be obviously permanent. Newacheck and Taylor also included conditions in their national prevalence estimates that a panel of physician judges deemed to *ordinarily* have a duration of more than 3 months (11).

Chronically ill children with special needs were those who had one or more of the designated conditions, who were unable to engage in usual childhood activities (such as playing with other children or participating in games or sports), or experienced pain, discomfort, or being upset often or all of the time, based on questions asked in the conditions record. In addition, based on questions asked in the main questionnaire, children with one or more of the chronic conditions (listed earlier) were considered to have

special needs, including those who reported that due to illness they were unable to perform or were limited in the kind or amount of their major activity (defined as playing for children under 5 years of age and going to school for those aged 5 to 17 years).

## Results

*Overall prevalence*—The highest prevalence (and the percent and number) of children with chronic illness included in the 1988 NHIS-CH conditions record included hay fever or respiratory allergies (9.2 percent or 5.8 million), frequent or repeated ear infections (9.0 percent or 5.7 million), or asthma (4.2 percent or 2.7 million) (table 1). Conditions experienced by 2-3 percent of children (or 1.3 to 1.8 million) included frequent or severe headaches (2.8 percent), digestive allergies (2.5 percent), frequent diarrhea or bowel trouble (2.0 percent), or other conditions (2.3 percent). Conditions that occurred in less than 2 percent of children (or less than 1 million) were heart disease (1.5 percent); musculoskeletal impairments (1.0 percent), not including arthritis or other joint problems (0.5 percent); anemia (1.1 percent); epilepsy or seizures (0.7 percent); cerebral palsy (0.2 percent); diabetes (0.1 percent); and sickle cell anemia (0.1 percent).

Around 9.6 million (or 15.2 percent) children under 18 years of age with these conditions were estimated to have special needs—defined as those for whom the condition caused problems, such as missing school, staying in bed or otherwise limiting their usual activities, or experiencing pain or discomfort often or all of the time in the last year. The chronic conditions for which more than half of the children experienced these problems were cerebral palsy (90.9 percent), frequent or severe headaches (76.3 percent), epilepsy or seizures (65.5 percent), asthma (65.3 percent), frequent or repeated ear infections (63.5 percent), arthritis or other joint problems (62.1 percent), and other

musculoskeletal impairments (59.0 percent).

**Subgroup prevalence**—The prevalence of chronically ill children with special needs was higher for males (15.8 percent) than for females (14.5 percent) (table 2). The rates were also higher among nonminority than among minority children: 16 percent for white children compared with 12.4 percent for black children and 15.6 percent for non-Hispanic children compared with 12.1 percent for Hispanic children. The prevalence rates for children who lived neither with both biological parents nor their biological mother (10.8 percent), as well as for children who had neither private insurance nor Medicaid coverage (13.1 percent), were lower than the rates for their counterparts. As has been reported in studies conducted on this and other NHIS data sets, the lower prevalence reported for these groups, as well as minorities, may be due to underreporting and differential nonresponse for children in these categories (14–16).

**Insurance coverage**—About three-fourths of the children had private insurance coverage (76.2 percent), 11 percent had Medicaid coverage, and 12.8 percent had neither private insurance nor Medicaid coverage (table 3). Black and Hispanic chronically ill children with special needs were much less likely to have private insurance and more likely to have Medicaid coverage than were white chronically ill children. Hispanic children (23.4 percent) were almost twice as likely as non-Hispanic children (12.0 percent) to have neither private nor public insurance coverage. Children in families with incomes of less than \$25,000 were much less likely to have private insurance coverage and substantially more likely to be uninsured (22.6 percent) compared with children from families with annual family incomes of \$25,000 or more (5.5 percent). Children who lived in central cities were also less likely to have private insurance (67.5 percent) and more likely to be

uninsured (15.8 percent) than were children who lived in more suburban areas—84.1 percent and 10.1 percent, respectively. Those who lived outside of metropolitan areas were also less likely to have private coverage (71.1 percent) and more likely to be uninsured (14.6 percent).

**Physician utilization**—More than 8 of every 10 (83.8 percent) chronically ill children with special needs had contact with a physician during the year (table 4). Those who did averaged about eight (7.9) visits. Children under 5 years of age (93.7 percent) were more likely to have seen a physician than were children 5 to 17 years of age (80.0 percent). Those who did not live with a biological mother or a biological mother and father were less likely to have seen a doctor (75.0 percent). Though not statistically significant, the proportion of uninsured children who had seen a physician (76.8 percent) tended to be lower than the proportion for those with private insurance (84.3 percent).

Among children who saw a physician, the mean number of visits was lower for children 5–17 years of age (7.3) compared with children under 5 years of age (9.1), for black (4.9) children compared with white (8.4) children, and for children who lived with their biological mother only (6.2) compared with children who lived with both parents (8.7). Mean visits were also lower for children in families earning less than \$25,000 (6.9) compared with families earning \$25,000 or more (8.9), as well as for children living in the central cities of metropolitan areas (7.0) compared with children living in more suburban areas (8.3).

**Hospital utilization**—Around 9 percent of the children had been hospitalized at least once during the year (table 5). Children under 5 years of age (12.3 percent) were more likely to have been hospitalized than were children aged 5–17 years (7.3 percent). Though the differences were not statistically significant, there was a tendency for minority and low-income children, who averaged

fewer visits to a physician in the past year, to be more likely hospitalized.

**Use of medicine**—Nearly 80 percent of the children had taken prescribed medicine for their condition during the past year (table 5). The percents taking medications were higher for younger children (89.5 percent) compared with older children (74.6 percent), for white children (80.1 percent) compared with black children (73.7 percent), and for children who lived with a biological mother and father (81.7 percent) or a biological mother (75.8 percent) compared with children who did not live with a biological mother and father or a biological mother (70.9 percent).

## Summary

In summary, a substantial proportion of Hispanic and low-income chronically ill children with special needs have neither private insurance nor Medicaid coverage. Those who averaged the fewest doctor visits during the past year for their condition (such as black or low-income children) also tended to be more likely to be hospitalized. Children who did not live with a biological mother or biological mother and father were least likely to have been to a physician or to be taking prescribed medications for their condition. These analyses pinpoint chronically ill children with special needs who are likely to have the least access to routine medical care. Further research is warranted to estimate the probable impact of the differential nonresponse and underreporting by minority and low-income respondents on these estimates.

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**Table 1. Number and percent of chronically ill children and those with special needs by condition: United States, 1988.**

[Data are based on household interviews of the civilian noninstitutionalized population. The survey design, general qualifications, and information on the reliability of the estimates are given in the Technical notes]

Condition	Children with condition		Children with condition who have special needs	
	Number in thousands	Percent	Number in thousands	Percent
Frequent or repeated ear infections . . . . .	5,735	9.0 (0.2)	3,580	63.5 (1.4)
Digestive allergies . . . . .	1,593	2.5 (0.1)	512	32.3 (2.9)
Frequent diarrhea or bowel trouble . . . . .	1,282	2.0 (0.1)	630	50.4 (3.5)
Diabetes . . . . .	64	0.1 (0.02)	32	50.6 (13.2)
Sickle cell anemia . . . . .	74	0.1 (0.02)	12	17.2 (8.1)
Anemia . . . . .	703	1.1 (0.1)	179	25.5 (5.1)
Asthma . . . . .	2,700	4.2 (0.2)	1,739	65.3 (2.1)
Hay fever or respiratory allergies . . . . .	5,830	9.2 (0.3)	2,300	40.4 (1.4)
Epilepsy or seizures . . . . .	422	0.7 (0.09)	269	65.5 (6.2)
Frequent or severe headaches . . . . .	1,796	2.8 (0.2)	1,280	76.3 (2.2)
Arthritis or other joint problems . . . . .	290	0.5 (0.06)	178	62.1 (6.3)
Other musculoskeletal impairments . . . . .	630	1.0 (0.09)	358	59.0 (5.2)
Cerebral palsy . . . . .	112	0.2 (0.04)	100	90.9 (6.0)
Heart disease . . . . .	958	1.5 (0.1)	298	32.2 (3.7)
Other conditions	1,455	2.3 (0.1)	812	57.9 (2.8)

NOTE: Numbers in parentheses are the standard errors of the estimates. These estimates are based on those children included in the NHIS-CH condition record; for further details, see the text.

**Table 2. Number and percent of chronically ill children with special needs by age, sex, race, Hispanic origin, family structure, family income, place of residence, and insurance coverage: United States, 1988.**

[Data are based on household interviews of the civilian noninstitutionalized population. The survey design, general qualifications, and information on the reliability of the estimates are given in the Technical notes]

<i>Characteristic</i>	<i>Number of children in thousands</i>	<i>Percent of children</i>
All children <sup>1</sup> . . . . .	9,636	15.2 (0.3)
<b>Age</b>		
Under 5 years. . . . .	2,868	15.6 (0.6)
5-17 years. . . . .	6,768	15.0 (0.4)
<b>Sex</b>		
Male . . . . .	5,126	15.8 (0.5)
Female . . . . .	4,510	14.5 (0.4)
<b>Race</b>		
White . . . . .	8,199	16.0 (0.4)
Black . . . . .	1,213	12.4 (0.8)
<b>Hispanic Origin</b>		
Hispanic . . . . .	877	12.1 (1.2)
Non-Hispanic . . . . .	8,587	15.6 (0.4)
<b>Family structure</b>		
Biological mother and father. . . . .	5,838	15.0 (0.4)
Biological mother only . . . . .	3,107	17.1 (0.7)
All other . . . . .	692	10.8 (0.9)
<b>Family income</b>		
Less than \$25,000 . . . . .	3,773	15.3 (0.6)
\$25,000 or more . . . . .	5,121	16.1 (0.4)
<b>Place of residence</b>		
<b>MSA</b>		
Central city . . . . .	2,745	14.5 (0.7)
Not central city. . . . .	4,468	15.2 (0.5)
Not MSA . . . . .	2,423	15.9 (0.7)
<b>Insurance coverage</b>		
Private insurance. . . . .	6,969	15.7 (0.4)
Medicaid . . . . .	1,006	16.5 (1.3)
Neither . . . . .	1,175	13.1 (0.9)

<sup>1</sup> Numbers for respective groups may not sum to total due to missing values.

NOTE: Numbers in parentheses are the standard errors of the estimates.

**Table 3. Percent distribution of type of insurance coverage for chronically ill children with special needs, according to age, sex, race, Hispanic origin, family structure, family income, place of residence, and insurance coverage: United States, 1988.**

[Data are based on household interviews of the civilian noninstitutionalized population. The survey design, general qualifications, and information on the reliability of the estimates are given in the Technical notes]

Characteristic	Number of children in thousands	Total	Insurance coverage		
			Private insurance	Medicaid	Neither
All children <sup>1</sup> . . . . .	9,150	100.0	76.2 (1.3)	11.0 (1.0)	12.8 (0.9)
Percent distribution					
Age					
Under 5 years . . . . .	2,713	100.0	75.3 (1.9)	11.9 (1.5)	12.8 (1.6)
5-17 years . . . . .	6,437	100.0	76.5 (1.5)	10.6 (1.2)	12.9 (1.0)
Sex					
Male . . . . .	4,895	100.0	75.2 (1.6)	11.3 (1.3)	13.5 (1.3)
Female . . . . .	4,254	100.0	77.3 (1.5)	10.7 (1.1)	12.1 (1.2)
Race					
White . . . . .	7,818	100.0	80.2 (1.2)	7.8 (0.8)	12.1 (0.9)
Black . . . . .	1,114	100.0	51.5 (4.5)	34.1 (4.4)	14.4 (2.2)
Hispanic origin					
Hispanic . . . . .	784	100.0	53.5 (5.0)	23.2 (3.7)	23.4 (3.1)
Non-Hispanic . . . . .	8,198	100.0	78.2 (1.2)	9.8 (0.9)	12.0 (0.9)
Family Structure					
Biological mother and father . . . . .	5,677	100.0	86.1 (1.3)	3.2 (0.7)	10.6 (1.0)
Biological mother only . . . . .	2,834	100.0	58.9 (2.3)	24.9 (1.9)	16.2 (1.9)
All other . . . . .	638	100.0	64.5 (4.5)	18.2 (3.8)	17.4 (3.5)
Family Income					
Less than \$25,000 . . . . .	3,414	100.0	52.7 (2.2)	24.7 (2.0)	22.6 (1.8)
\$25,000 or more . . . . .	5,003	100.0	93.2 (0.9)	1.4 (0.5)	5.5 (0.7)
Place of Residence					
MSA					
Central city . . . . .	2,557	100.0	67.5 (2.3)	16.7 (2.0)	15.8 (1.6)
Not central city . . . . .	4,287	100.0	84.1 (1.8)	5.8 (1.2)	10.1 (1.2)
Not MSA . . . . .	2,306	100.0	71.1 (2.0)	14.3 (1.8)	14.6 (1.8)

<sup>1</sup>Numbers for respective groups may not sum to total due to missing values.

NOTE: Numbers in parentheses are the standard errors of the estimates. Also, the total number of cases in this table is less than the total number of children with special needs due to missing values on insurance coverage.

**Table 4. Physician utilization for condition of chronically ill children with special needs, according to age, sex, race, Hispanic origin, family structure, family income, place of residence, and insurance coverage: United States, 1988.**

[Data are based on household interviews of the civilian noninstitutionalized population. The survey design, general qualifications, and information on the reliability of the estimates are given in the Technical notes]

Characteristic	Physician utilization	
	Children with 1 contact or more for condition in past year	Contacts per child per year for those with 1 contact or more
	Percent	Mean number
All children. . . . .	83.8 (0.9)	7.9 (0.5)
Age		
Under 5 years. . . . .	93.7 (1.4)	9.1 (0.6)
5-17 years. . . . .	80.0 (1.2)	7.3 (0.7)
Sex		
Male . . . . .	83.1 (1.3)	8.3 (0.9)
Female . . . . .	84.5 (1.2)	7.3 (0.5)
Race		
White . . . . .	84.1 (1.0)	8.4 (0.6)
Black . . . . .	84.5 (1.9)	4.9 (0.6)
Hispanic origin		
Hispanic . . . . .	81.2 (3.1)	6.5 (0.7)
Non-Hispanic . . . . .	84.0 (1.0)	8.0 (0.6)
Family structure		
Biological mother and father. . . . .	86.3 (1.0)	8.7 (0.8)
Biological mother only . . . . .	81.1 (1.8)	6.2 (0.4)
All other . . . . .	75.0 (3.4)	7.6 (1.0)
Family income		
Less than \$25,000 . . . . .	83.3 (1.6)	6.9 (0.5)
\$25,000 or more . . . . .	84.7 (1.1)	8.9 (0.8)
Place of residence		
MSA. . . . .		
Central city . . . . .	85.1 (1.6)	7.0 (0.6)
Not central city. . . . .	84.6 (1.4)	8.3 (0.7)
Not MSA . . . . .	80.8 (2.1)	8.0 (1.5)
Insurance coverage		
Private insurance. . . . .	84.3 (1.0)	8.0 (0.5)
Medicaid . . . . .	85.5 (2.5)	6.9 (0.8)
Neither . . . . .	76.8 (3.8)	8.2 (2.5)

NOTE: Numbers in parentheses are the standard errors of the estimates.

**Table 5. Percent of hospital utilization and use of medicine for condition of chronically ill children with special needs, according to age, sex, race, Hispanic origin, family structure, family income, place of residence, and insurance coverage: United States, 1988.**

[Data are based on household interviews of the civilian noninstitutionalized population. The survey design, general qualifications, and information on the reliability of the estimates are given in the Technical notes]

Characteristic	Hospital utilization	Use of medicine
	Children with 1 night or more for condition in past year	Children using medicine for condition in past year
	Percent	
All children. . . . .	8.8 (0.7)	79.0 (1.0)
Age		
Under 5 years. . . . .	12.3 (1.2)	89.5 (1.1)
5-17 years. . . . .	7.3 (0.9)	74.6 (1.3)
Sex		
Male . . . . .	9.6 (1.2)	79.3 (1.4)
Female . . . . .	7.9 (0.8)	78.7 (1.4)
Race		
White . . . . .	8.5 (0.8)	80.1 (1.0)
Black . . . . .	11.1 (1.9)	73.7 (3.1)
Hispanic origin		
Hispanic . . . . .	11.5 (4.2)	75.6 (3.5)
Non-Hispanic . . . . .	8.5 (0.7)	79.3 (1.0)
Family structure		
Biological mother and father. . . . .	8.2 (0.9)	81.7 (1.2)
Biological mother only . . . . .	9.8 (1.1)	75.8 (2.0)
All other . . . . .	9.0 (2.1)	70.9 (3.5)
Family income		
Less than \$25,000 . . . . .	10.6 (1.5)	78.3 (1.6)
\$25,000 or more . . . . .	7.4 (0.8)	79.5 (1.2)
Place of residence		
MSA		
Central city . . . . .	8.7 (1.1)	77.6 (1.8)
Not central city. . . . .	8.3 (1.0)	80.6 (1.4)
Not MSA . . . . .	9.8 (1.5)	77.7 (2.1)
Insurance coverage		
Private insurance. . . . .	8.0 (0.8)	79.6 (1.1)
Medicaid . . . . .	13.5 (3.2)	75.7 (3.0)
Neither . . . . .	5.4 (1.2)	77.6 (2.7)

NOTE: Numbers in parentheses are the standard errors of the estimates.

## Technical notes

The estimates presented in this report are based on data from the National Health Interview Survey (NHIS), an ongoing survey of households in the United States, conducted by the National Center for Health Statistics. Each week, a probability sample of the civilian noninstitutionalized population of the United States is interviewed by personnel of the U.S. Bureau of the Census. Interviewers obtain information about the health and other characteristics of each member of the households included in the NHIS sample.

NHIS consists of two parts: (a) a basic health questionnaire that remains the same each year and is completed for each household member, and (b) special topics questionnaires that vary from year to year and usually are asked of just one person in each family. In 1988 the special topics included acquired immunodeficiency syndrome (AIDS) knowledge and attitudes, medical

device implants, occupational health, alcohol, and child health. These data sets can be linked to provide additional sources for analysis.

The total sample interviewed for 1988 for the basic health questionnaire consisted of 47,485 households containing 122,310 individuals. The total response rate was 95 percent. For the National Health Interview Survey on Child Health (NHIS-CH), one sample child 17 years of age and under was selected from each family with children in that age range. Information about the sample child was collected by face-to-face interview with the adult member who knew most about the sample child's health, who in most cases was the child's mother. Interviews were completed for 17,110 children 17 years of age and under, 95 percent of those identified as eligible on the basis of the basic health questionnaire. The overall response rate for NHIS-CH was 91 percent, the product of the response rates for

the basic and the child health questionnaires.

Because the estimates presented in this report are based on a sample of the population, they are subject to sampling error. Standard errors are provided for each of the percents and means in this report to indicate the probable sampling errors of these estimates. The standard errors for this report were calculated using SUPER CARP, a software package designed to produce standard errors for estimates based on complex, multistage sample designs (16).

Persons for whom valid responses were not available for certain items were excluded from the analyses. Those variables for which estimates may be affected due to missing observations are noted in the text.

All differences discussed in this report are statistically significant at the 0.05 level unless otherwise noted. The *t*-test, with a critical value determined by the number of response categories for an individual variable, was used to test for all pairwise comparisons discussed.

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