CRS Report for Congress

Children's Health: Insurance Coverage, Community Clinics, and Access to Care

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CRS

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Summary

In an average month, about 10 million children in the United States have no health insurance, and almost a quarter of these children have no place where they regularly go for medical care. Their families face significant barriers to gaining timely access to medical care, both in financial terms and because they must find a health professional from whom to seek care. Consequently, uninsured children are significantly less likely to have contact with a physician in any given period of time than are insured children or children without insurance who have a regular source of medical care. These findings hold up even when we control for variables like the health of the child and the family's income.

In response to congressional requests, CRS conducted an analysis of patterns of use of primary health care services among both insured and uninsured children. The focus of this analysis was the extent to which uninsured children use community and migrant health centers as their usual source of care. Community health centers provide primary health care services to uninsured and low-income persons at more than 2,200 sites across the country. Almost half of the patients treated at community health centers are under 20 years old, and approximately one-quarter of these children are uninsured.

In summary, we found that:

- Only 5% of uninsured children use a community health center as their usual source of medical care and 24% percent of uninsured children have *no* usual source of medical care.

- An uninsured child with a regular source of medical care is three times as likely to see a physician in any given three-month period as an uninsured child with no usual source of care.

- In 1994, the families of 2.7 million children delayed seeking medical care for their children because of the cost of care. Forty-four percent of these children had no health insurance coverage.

- Uninsured children in the West use community health centers more than those in other regions. Uninsured children in central cities, other metropolitan areas, and rural areas all use community health centers at about equal rates.

- Use of community and migrant health centers by uninsured children is directly related to the ratio of health centers to total population and the average number of health centers per county; consequently, *use of community health centers by uninsured children might be increased by efforts to improve their access to community health centers.*

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In the United States, most children are covered by health insurance and most have a usual source of medical care. In any given month, however, approximately 10 million children have no health insurance coverage and nearly 2.5 million of these children do not have a regular source of medical care.[1] Their families face significant obstacles to obtaining professional medical care when it is needed. Many medical treatments are priced beyond the financial resources of most families, and families without a person or place from whom they usually get medical care have the added difficulty of finding a provider of services when such care is needed. Consequently, uninsured children without a usual source of medical care are much less likely to have seen a physician in any given period of time than insured children or children without health insurance who have a usual source of medical care.[2]

In the 105th Congress, improving access to health care services for uninsured children has been the subject of hearings in both the House and Senate, and the recently enacted Balanced Budget Act of 1997 (P.L. 105-33) will provide up to $24 billion over the next five years to fund children's health insurance coverage, provide health care services directly to those in need, and to expand children's eligibility for Medicaid. Approximately $20 billion of these funds will be made available as matching grants to the states to pay for children's health insurance and provide direct health care services. States may use up to 10% of the grant amount for direct services, including funding of community clinics. The Congressional Budget Office has estimated that the health insurance and Medicaid provisions of the Balanced Budget Act (BBA) will reduce the number of uninsured children by about two million by the year 2002. Even if the number of children newly covered by insurance were to exceed this estimate, a significant number of children are likely to remain uninsured.

During the recent discussions in Congress about children's health insurance, the Congressional Research Service (CRS) was asked whether uninsured children's access to health care services could be improved through greater use of community

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[1] In 1995, 86% of children had some form of health insurance, either public, private, or both, and in 1994 83% of children were reported to have a usual source of medical care. In 1994, 95% of insured children were reported to have a usual source of care, compared to 76% of uninsured children. (CRS tabulations from the March 1996 Current Population Survey and the 1994 Health Interview Survey.)

[2] In 1994, for example, an uninsured child with a usual source of care was three times as likely as an uninsured child with no usual source of care to have had contact with a physician during any given three-month period. (CRS tabulation from the 1994 National Health Interview Survey).

and migrant health clinics. In response to that request, CRS undertook a study of patterns of use of primary health care services by insured and uninsured children. We used data collected through the National Health Interview Survey and administrative information from the Health Resources and Services Administration to conduct this analysis. By integrating these two data sets, we were able to construct a statistical model to measure the relationship between ease of access to community and migrant health centers and use of these centers as a usual source of medical care among uninsured children in each state.

In summary, we found that:

- Only 5% of uninsured children use a community health center as their usual source of medical care and 24% percent of uninsured children have *no* usual source of medical care.

- An uninsured child with a regular source of medical care is three times as likely to see a physician in any given three-month period as an uninsured child with no usual source of care.

- In 1994, the families of 2.7 million children reported that they delayed seeking medical care for their children because of the cost of care. Forty-four percent of these children had no health insurance coverage.

- Uninsured children in the West use community health centers more than those in other regions. Uninsured children in central cities, other metropolitan areas, and rural areas all use community health centers at about equal rates.

- Use of community and migrant health centers by uninsured children is directly related to the ratio of health centers to total population and number of centers per county; consequently, *use of community health centers by uninsured children might be increased by efforts to improve their access to community health centers.*

Uninsured Children's Access to Medical Care: Defining the Problem

Data from the 1994 National Health Interview Survey put the problem of access to medical care among uninsured children into perspective. The figures on the following pages compare children without health insurance to those who were privately insured and children whose primary source of health insurance coverage in 1994 was Medicaid.

Uninsured Children Are Less Likely to Have a Usual Source of Medical Care than Children with Health Insurance. In 1994, 24% of all uninsured children age 18 and younger -- 2.4 million children -- did not have a usual source of medical care. In contrast, only 4% of children covered by private health insurance and 7% of children covered by Medicaid did not have a usual source of medical care. (Figure 1).

Figure 1. Children's Usual Source of Medical Care

Private = 42.2 million
Medicaid = 11.7 million
Uninsured = 10.1 million
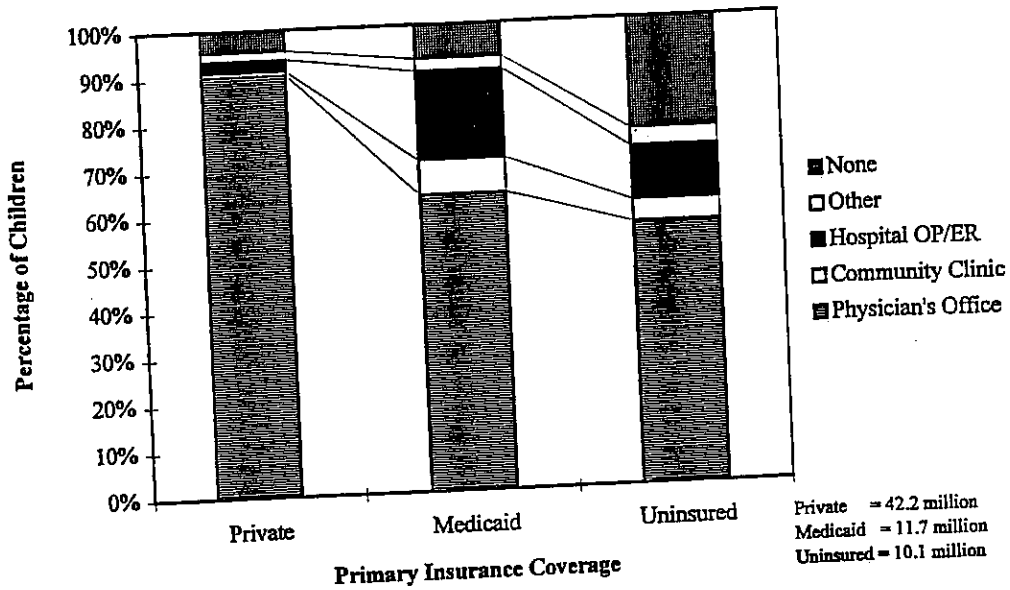
Figure 2. Percentage of Children with a Medical Condition
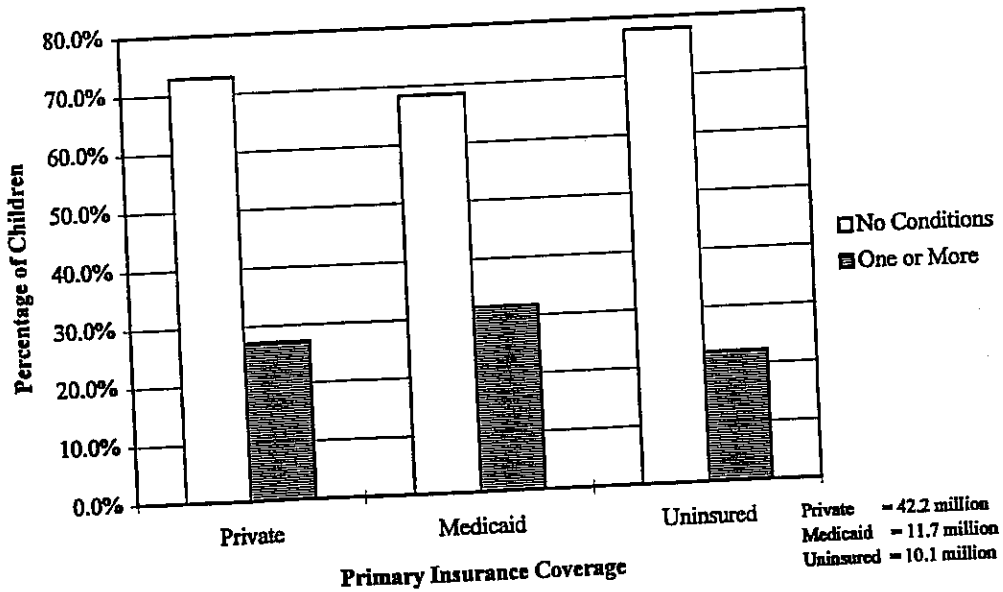
Private = 42.2 million
Medicaid = 11.7 million
Uninsured = 10.1 million

Source: CRS analysis of data from the
1994 National Health Interview Survey.

Note: Excludes children whose primary
coverage is CHAMPUS or unknown.

Uninsured Children Are Less Likely to Use a Private Physician as their Usual Source of Care. Among all children, the most commonly reported regular source of medical care was a private physician or private clinic. Uninsured children, however, were less likely than either privately insured children or children covered by Medicaid to use a private physician or private clinic as their usual source of medical care. Only 56% of uninsured children used a private physician or private clinic as their usual source of care, compared to 90% of privately insured children and 64% of children covered by Medicaid. (Figure 1).

Uninsured Children Report Fewer Medical Conditions than Insured Children. Children covered by Medicaid were more likely than others to have reported an acute or chronic medical condition in 1994 with 32% reporting one or more conditions. Among privately insured children, 27% reported that they had one or more medical conditions. Only 22% of uninsured children reported that they had at least one acute or chronic medical condition; however, because uninsured children are less likely than insured children to have a usual source of medical care, they may be more likely than insured children to have an undetected medical condition.[3] (Figure 2).

Uninsured Children Get Less Medical Care than Insured Children.

1. Physician Contacts During an Average Three-Month Period. Uninsured children were less likely to have seen or spoken with a doctor in an average three-month period in 1994 than children covered by private health insurance or Medicaid.[4] Among those with Medicaid, 52% had contact with a physician in any given three-month period throughout the year, compared to 45% of privately insured children and 30% of children without health insurance. (Figure 3).

2. Physician Contacts by Children with a Medical Condition. Among children with one or more medical conditions, those without health insurance were least likely to have seen a physician during a typical three-month period, and children with Medicaid were most likely to have had contact with a physician.[5] Among Medicaid-covered children with at least one medical condition, 72% saw a physician

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[3] These distributions may also show the effect of *adverse selection:* some children with medical conditions may have been uninsured until the illness or injury that caused their condition, at which point their parent or guardian may have sought insurance coverage. We cannot test this hypothesis with the HIS, which tells us health status and health insurance coverage only at a single point in time.

[4] This question covers contacts with a physician in any circumstance other than as a hospital inpatient. Thus, it includes visits to physicians' offices, to hospital outpatient departments and emergency rooms, to public health clinics, and house calls by physicians.

[5] Medical conditions are self-reported on the Health Interview Survey. Reported conditions are then categorized by the National Center for Health Statistics according to the *International Classification of Diseases, 9th Edition* (ICD-9). Because children without health insurance are less likely to have had contact with a physician over any given period of time than are children with health insurance, they are more likely to have an undiagnosed medical condition.

Figure 3. Physician Contacts in a Three-month Period

Uninsured Children

3 or more times
4%

Once or Twice
26%

No Contacts
70%
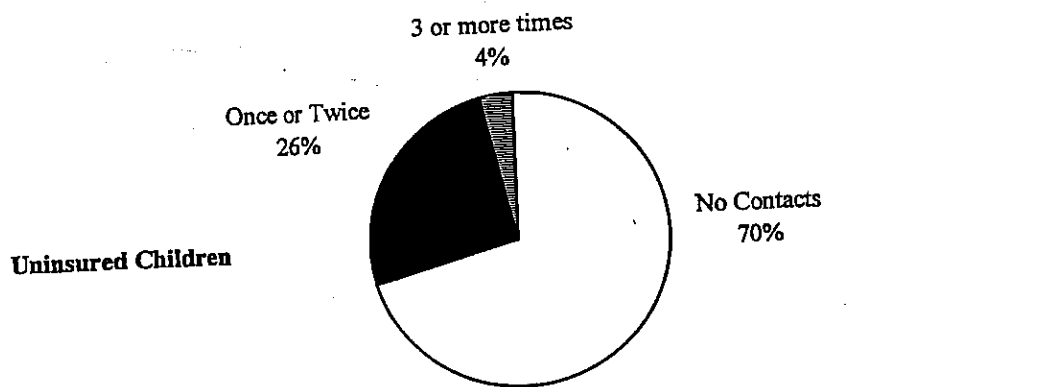
Total = 9.9 million children.

Privately Insured Children

3 or more times
7%

Once or Twice
38%

No Contacts
55%
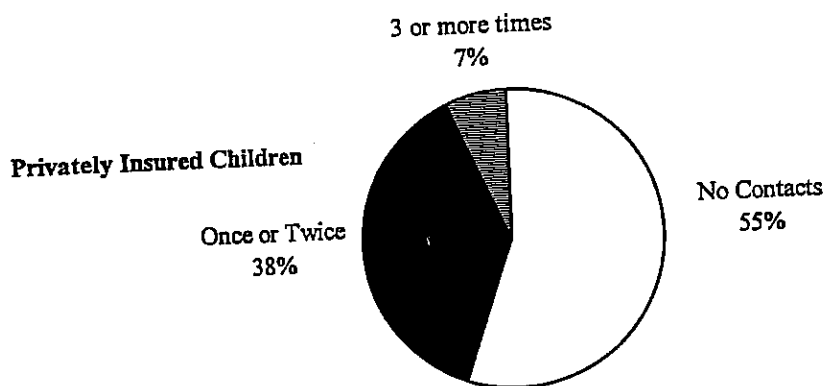
Total = 41.3 million children.

Medicaid-Covered Children

3 or more times
10%

Once or Twice
42%
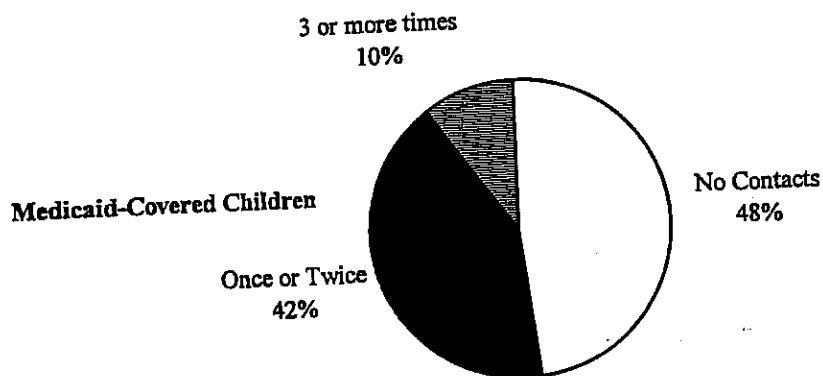
No Contacts
48%

Total = 11.3 million children.

Source: CRS analysis of data from the 1994 National Health Interview Survey.

Note: Excludes children whose primary coverage is CHAMPUS or unknown.

Figure 4. Children with a Medical Condition: Physician Contacts
In a Three-month Period
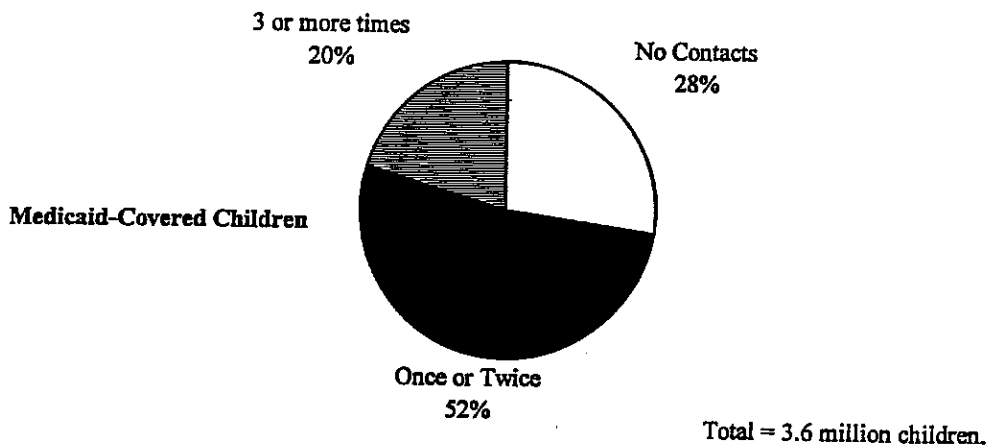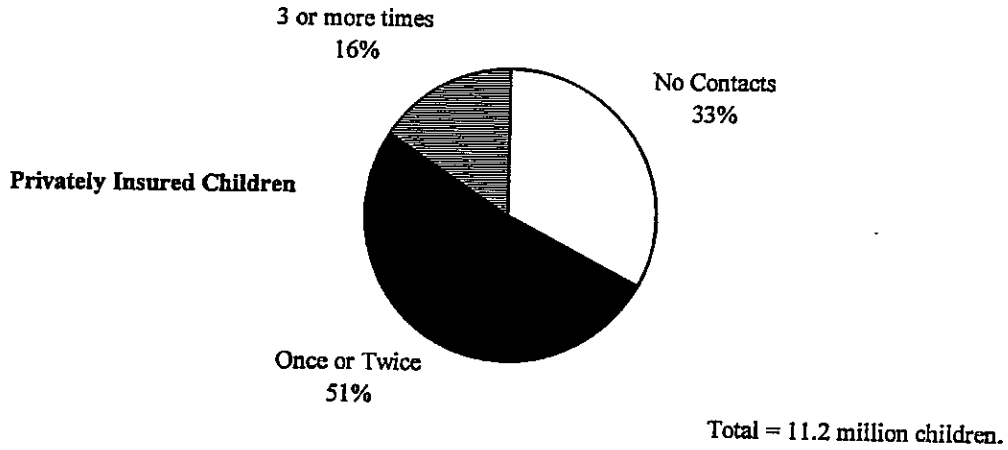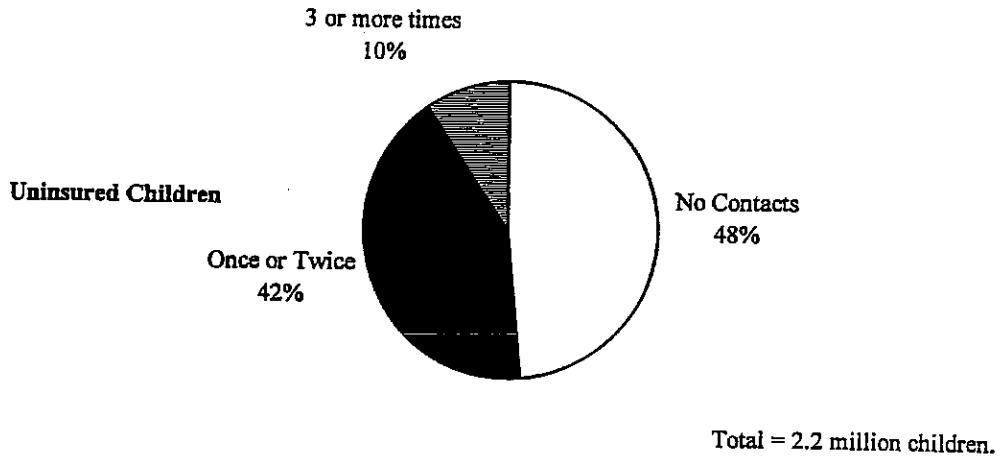
3 or more times
10%

Uninsured Children

Once or Twice
42%

No Contacts
48%

Total = 2.2 million children.

3 or more times
16%

Privately Insured Children

No Contacts
33%

Once or Twice
51%

Total = 11.2 million children.

3 or more times
20%

Medicaid-Covered Children

No Contacts
28%

Once or Twice
52%

Total = 3.6 million children.

Source: CRS analysis of data from the
1994 National Health Interview Survey.

Note: Excludes children whose primary
coverage is CHAMPUS or unknown.

Figure 5: Children with a Usual Source of Care and a Medical Condition:
Physician Contacts in a Three-month Period
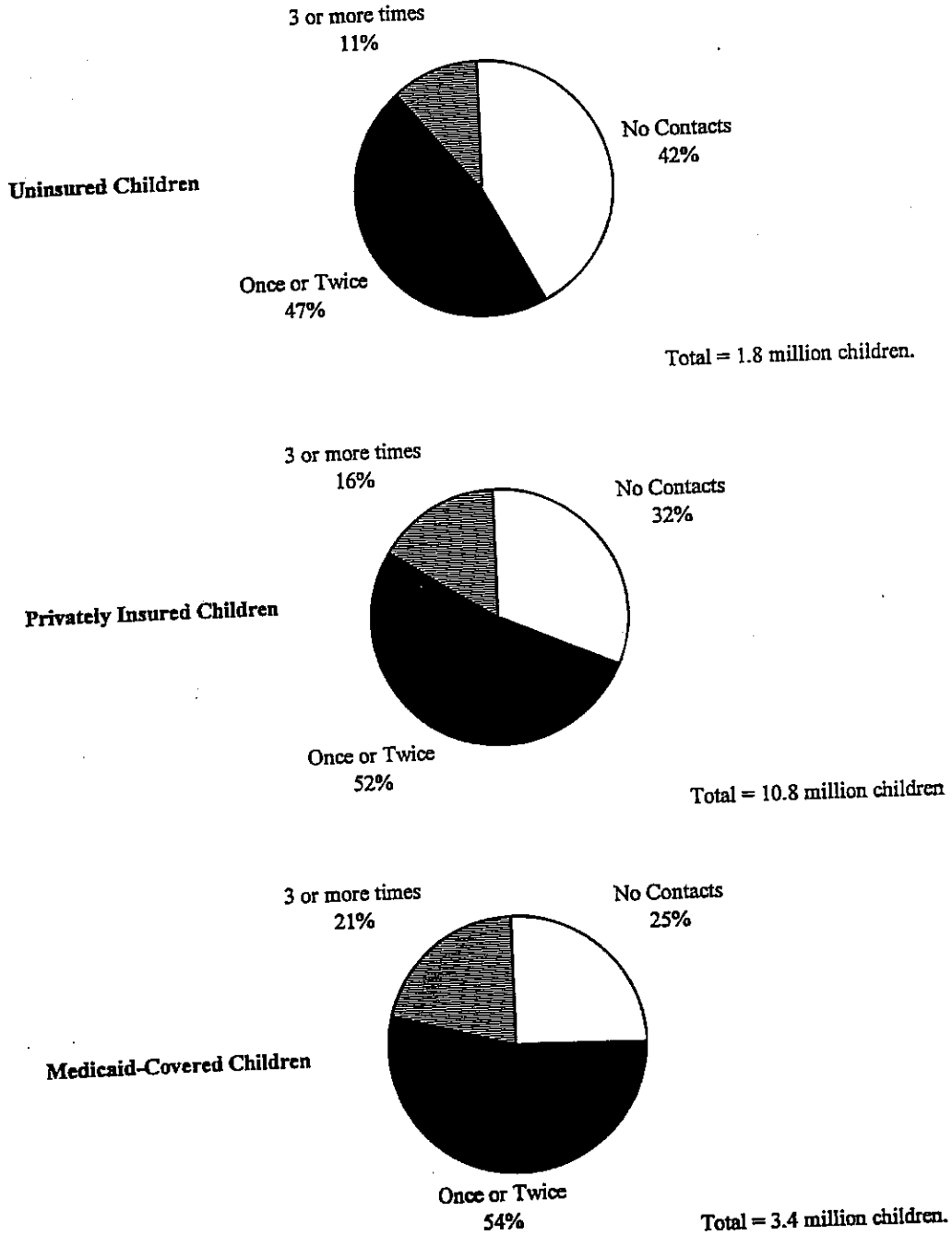
3 or more times
11%

No Contacts
42%

Uninsured Children

Once or Twice
47%

Total = 1.8 million children.

3 or more times
16%

No Contacts
32%

Privately Insured Children

Once or Twice
52%

Total = 10.8 million children

3 or more times
21%

No Contacts
25%

Medicaid-Covered Children

Once or Twice
54%

Total = 3.4 million children.

Source: CRS analysis of data from the
1994 National Health Interview Survey.

Note: Excludes children whose primary
coverage is CHAMPUS or unknown.

in any given three-month period, as did 67% of privately insured children. In contrast, only 52% of uninsured children with one or more medical conditions saw a physician during an average three-month period during 1994. (Figure 4).

3. Physician Contacts by Children with Both a Medical Condition and a Usual Source of Medical Care.

Even in the group of children who reported having *both* a usual source of medical care *and* one or more medical conditions, uninsured children were less likely than those who were covered by private insurance or Medicaid to have seen a physician during an average three-month period. During 1994, 75% of children with one or more medical conditions who were covered by Medicaid had at least one contact with a physician during an average three-month period. Among privately insured children with one or more medical conditions and a usual source of care, 68% saw a physician in the three months prior to the Health Interview Survey. Among uninsured children, 58% of those with both a usual source of care and one or more medical conditions reported one or more physician contacts in a typical three-month period. (Figure 5).

Uninsured Children Are More Likely to See A Physician if They Have a Usual Source of Medical Care. Among uninsured children, 35% of those who had a usual source of medical care reported having contact with a physician in any given three-month period during 1994. Of those without a usual source of medical care, however, only 11% of uninsured children saw a physician in an average three-month period. Insured children -- whether covered by private insurance or by Medicaid -- also were more likely to have seen a physician some time in the last three months if they had a usual source of care than if they did not have a source of care. (Figure 6).

Figure 6. Physician Contacts by Insurance Coverage and Usual Source of Medical Care

Primary Source of Health Insurance
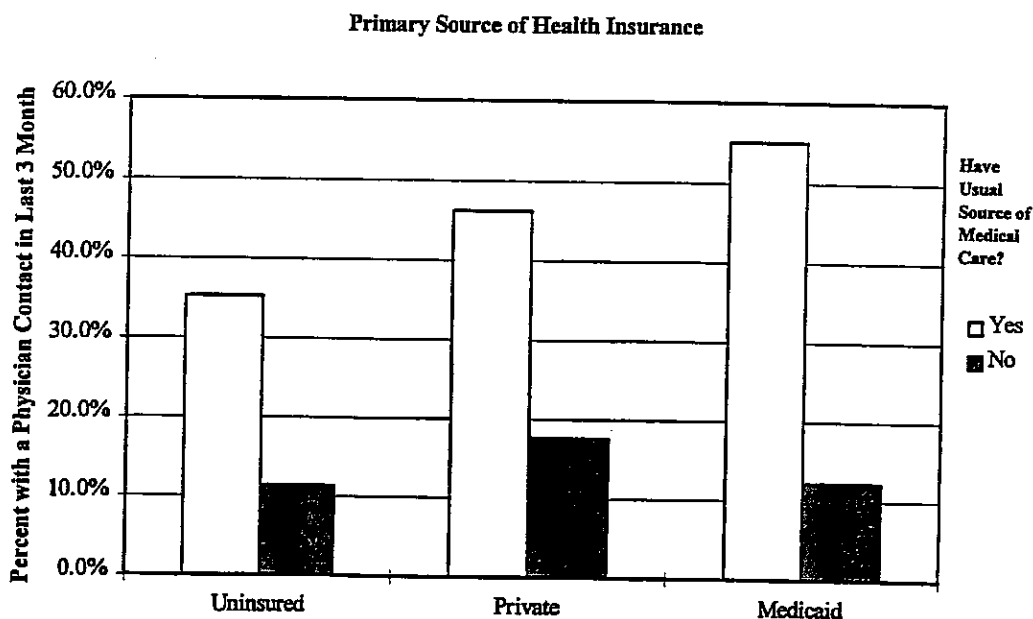
Total = 57.3 million children with a usual source of medical care and 4.5 million children with no source of care.

Source: CRS analysis of data from the 1994 National Health Interview Survey.

Uninsured Children Are More Likely to Report Cost as a Reason for Delaying Medical Care. Families of uninsured children are significantly more likely than families of children covered either by private health insurance or by Medicaid to have said that they delayed seeking medical care because of its cost. The families of 11% of uninsured children cited cost as a reason for delaying medical care, compared with just 3% of children with private health insurance and 2% of those covered by Medicaid. *In 1994, the families of 2.7 million children reported that they delayed seeking medical care for their children because of its cost. Forty-four percent of these children (1.2 million) were uninsured.*

Uninsured Children in the South, the West, and in Central City Areas Are Less Likely to Report Having a Usual Source of Medical Care. In the nation as a whole, 24% of uninsured children did not have a regular source of medical care in 1994. In both the Northeast and the Midwest, approximately 19% of uninsured children reported having no usual source of medical care. In the South, 24% of uninsured children had no regular source of medical care, while in the West 28% had no usual source of care. (Table 1).

Uninsured children in central cities were least likely to have a usual source of medical care in 1994, while those in rural areas were most likely to have a usual source of care. In central cities, 29% of uninsured children reported having no usual source of medical care, compared to 24% of uninsured children in non-central city urban areas. In rural areas, just 16% of uninsured children reported that they did not have a usual source of care. (Table 2).

Table 1. Uninsured Children by Region of Residence and Usual Source of Medical Care, 1994

Usual Source of Medical Care

Region	None	Community Clinic	Private Physician	Outpatient or E.R.	All Other	Total
Northeast	261,000	54,000	851,000	180,000	49,000	1,395,000
Row Pct.	18.7%	3.9%	61.0%	12.9%	3.5%	100%
Midwest	306,000	52,000	1,047,000	138,000	29,000	1,572,000
Row Pct.	19.5%	3.3%	66.6%	8.8%	1.8%	100%
South	999,000	128,000	2,460,000	426,000	181,000	4,194,000
Row Pct.	23.8%	3.1%	58.7%	10.2%	4.3%	100%
West	845,000	239,000	1,328,000	432,000	130,000	2,974,000
Row Pct.	28.4%	8.0%	44.7%	14.5%	4.4%	100%
U.S., Total	2,411,000	473,000	5,686,000	1,176,000	389,000	10,135,000
Row Pct.	23.8%	4.7%	56.1%	11.6%	3.8%	100%

Table 2. Uninsured Children by Urban/Rural Residence and Usual Source of Medical Care, 1994

Usual Source of Medical Care

Urban/Rural Residence	None	Community Clinic	Private Physician	Outpatient or E.R.	All Other	Total
Central City	1,009,000	135,000	1,637,000	630,000	112,000	3,523,000
Row Pct.	28.6%	3.8%	46.5%	17.9%	3.2%	100%
Other Metro Area	1,037,000	239,000	2,465,000	381,000	198,000	4,320,000
Row Pct.	24.0%	5.5%	57.1%	8.8%	4.6%	100%
Rural Area	365,000	99,000	1,584,000	165,000	79,000	2,292,000
Row Pct.	15.9%	4.3%	69.1%	7.2%	3.4%	100%
U.S., Total	2,411,000	473,000	5,686,000	1,176,000	389,000	10,135,000
Row Pct.	23.8%	4.7%	56.1%	11.6%	3.8%	100%

Source: CRS analysis of data from the 1994 National Health Interview Survey.

Community Health Centers Treat Mostly the Poor and Uninsured

Community and migrant health centers provide a wide range of primary and preventive health services to low-income and uninsured individuals. In addition to medical treatment of illness and injury, community health centers provide immunizations, well-child care, nutrition counseling, and other health-related services. The community and migrant health centers that receive grants from the Health Resources and Services Administration (HRSA) of the United States Public Health Service are used by more than six million people each year, more than 40% of whom have no health insurance, and about two-thirds of whom have family incomes below the federal poverty threshold.[6] Nationwide, about 45% of the people who use community and migrant health centers are under 20 years of age, and approximately one in four of these children (about 750,000) are uninsured.

HRSA provides funds to over 600 grantees operating more than 1,600 community and migrant health centers across the country.[7] More than 120 other clinics have been designated as federally qualified health center (FQHC) "look-alike" sites that are eligible to receive reimbursement from Medicare and Medicaid for persons enrolled in either of those two programs. In addition, approximately 480 more clinics around the country that receive no funds from HRSA, Medicare, or Medicaid are staffed in part by members of the National Health Service Corps. Altogether, HRSA provides resources to more than 2,200 clinic sites that deliver health care services to low-income and uninsured persons.

Relatively Few Uninsured Children Use Community Health Centers as Their Usual Source of Medical Care. Although hundreds of thousands of uninsured children are served by community and migrant health centers each year, they comprise less than 10% of all uninsured children. Moreover, in the 1994 Health Interview Survey, just 5% of all uninsured children were reported as using a community health center as their *usual* source of medical care, while 12% were reported as using a hospital outpatient department or emergency room as the place where they usually received medical care.[8] At the same time, nearly one in four uninsured children reported that they had no person or place where they usually went for medical care. (Figure 1).

We do not know from these data why so few parents of uninsured children use community health centers as a regular source of medical care for their children. Some of these families may have previously established relationships with private

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[6] When services provided in all venues are counted, including sites other than community clinics, grants from HRSA help to fund services for more than ten million people annually.

[7] Authorization for federal funding of health centers can be found in Section 330 of the Public Health Service Act, as amended. P.L. 104-299 consolidated Sections 329, 330, 340, and 340A of the Public Health Service Act.

[8] The HIS asks whether the individual's usual place of medical care is a community, migrant, or rural health center. The data shown in Table 3 include community and migrant clinics, FQHC "look-alike sites," and clinics staffed by the National Health Service Corps.

physicians or they may be experiencing brief spells without health insurance.[9] For others, a community health center may not be located nearby, or the family may not be aware of the availability of medical care from these centers.

Uninsured Children in the West Are More Likely to Use a Community Clinic than Uninsured Children in Other Regions. Use of community health centers as a usual source of care varies little by region with one exception: the West. Eight percent of uninsured children in the West use a community health center as their usual source of medical care, compared with fewer than 4% of those in the Northeast, Midwest, and South. Children in the West also use hospital outpatient departments and emergency rooms as their usual source of care at a higher rate than children in other regions; nevertheless, they also are more likely to have *no* usual source of medical care than children in any other region. Only 45% of uninsured children in the West use a private physician or clinic as their usual source of medical care, compared to 67% in the Midwest, 61% in the Northeast, and 59% in the South. (Table 1).

Use of Community Health Centers Varies Little by Urban/Rural Residence. Use of community health centers varies little among uninsured children in rural and urban areas, with only 4% to 5% of those in central cities, other metro areas, and rural areas using a community health center as their usual source of care. Uninsured children in central city areas are less likely to use a private physician or private clinic as their usual source of care and more likely to use a hospital outpatient department than are children in other areas. Uninsured children in rural areas are more likely than others to use a private physician or clinic as their usual source of care, and they are less likely to use a hospital outpatient department or emergency room. (Table 2).

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[9] Brief transitions in and out of health insurance coverage during the year are relatively common, as a result of changes in parents' employment or other family circumstances. Consequently, the number of children who experience a period without insurance of at least one month duration (the number *ever uninsured*) is larger than the number of children who are uninsured for the whole year or the number who are uninsured during an average month. Nevertheless, of the children who are uninsured *at any given point in time*, a majority have been uninsured for more than one year. For example, in 1994, of the children who were uninsured during an average month, 61% reported that they had last been insured more than a year ago or that they had never been insured.

The Distribution of Community Health Centers Varies by State and Region.

The statistics in Table 3 help explain possible differences in demand for and supply of community health center services in each state. These statistics include:

- the population of each state in 1994,
- the average number of uninsured children in each state over the period from 1993 to 1995,
- the number of community health centers in each state as of September 1994,
- the unduplicated number of areas in each state that have been designated as medically under-served areas (MUAs) or health-provider shortage areas (HPSAs) by the Health Resources and Services Administration.[10]
- the number of uninsured children in each state divided by the number of community health centers,
- the number of community health centers per 100,000 state residents, and
- the average number of clinic sites per county in each state.[11]

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[10] The clinics enumerated in this table include community and migrant health centers that receive grants through HRSA's Bureau of Primary Health Care (called Federally Qualified Health Centers), FQHC "look-alike" sites, and sites staffed by the National Health Service Corps. Areas designated as both MUAs and HPSAs are each counted only once in Table 3.

[11] This is the number of clinic sites divided by the number of counties. A total of 827 of the nation's 3,140 counties (26%) are served by health care resources provided through HRSA's Bureau of Primary Health Care.

Table 3. Population, Uninsured Children, Clinic Sites, and Medically Under-Served Areas, by State

	State population, 1994	Uninsured children (1993-5 Avg.)	Community health clinics	Medically under-served areas	Uninsured children per Clinic	Clinics per 100,000 residents	Average clinics per county
Northeast	51,382,000	1,414,000	340	194	4,159	0.66	0.71
Connecticut	3,275,000	78,000	18	6	4,333	0.55	2.25
Maine	1,239,000	37,000	30	16	1,233	2.42	1.88
Massachusetts	6,041,000	128,000	35	12	3,657	0.58	2.50
New Hampshire	1,135,000	29,000	5	9	5,800	0.44	0.50
New Jersey	7,903,000	229,000	29	16	7,897	0.37	1.38
New York	18,153,000	576,000	94	58	6,128	0.52	1.52
Pennsylvania	12,062,000	300,000	99	59	3,030	0.82	1.48
Rhode Island	994,000	25,000	20	5	1,250	2.01	4.00
Vermont	580,000	12,000	10	13	1,200	1.72	0.71
Midwest	61,408,000	1,545,000	448	847	3,449	0.73	0.32
Illinois	11,759,000	312,000	99	82	3,152	0.84	0.97
Indiana	5,755,000	171,000	19	58	9,000	0.33	0.21
Iowa	2,831,000	83,000	20	77	4,150	0.71	0.20
Kansas	2,551,000	80,000	6	82	13,333	0.23	0.06
Michigan	9,492,000	217,000	78	69	2,782	0.82	0.94
Minnesota	4,568,000	80,000	33	73	2,424	0.72	0.38
Missouri	5,279,000	141,000	47	99	3,000	0.88	0.41
Nebraska	1,624,000	43,000	19	79	2,263	1.17	0.20
North Dakota	639,000	14,000	8	49	1,750	1.25	0.15
Ohio	11,104,000	288,000	71	58	4,056	0.64	0.81
South Dakota	723,000	21,000	25	60	840	3.46	0.38
Wisconsin	5,083,000	95,000	23	61	4,130	0.45	0.32
United States	259,782,000	9,671,000	2,236	2,742	4,325	0.86	0.71

Note: The number of clinics includes clinics that receive grants from HRSA, "FQHC look-alike" sites, and sites staffed by members of NHSC.

The number of MUAs is an unduplicated count of areas designated as medically under-served areas or health-provider shortage areas by the Health Resources and Services Administration.

Source: CRS analysis of data from the Census Bureau and the Health Resources and Services Administration.

Table 3, cont. Population, Uninsured Children, Clinic Sites, and Medically Under-Served Areas, by State

	State population, 1994	Uninsured children (1993-5 Avg.)	Community health clinics	Medically under-served areas	Uninsured children per clinic	Clinics per 100,000 residents	Average clinics per county
South	90,145,000	4,063,000	942	1,301	4,313	1.04	0.95
Alabama	4,220,000	182,000	106	67	1,717	2.51	1.58
Arkansas	2,453,000	121,000	36	75	3,361	1.46	0.48
Delaware	708,000	20,000	7	2	2,857	0.99	2.33
Florida	13,958,000	603,000	116	66	5,198	0.83	1.73
Georgia	7,058,000	291,000	64	151	4,547	0.91	0.40
Kentucky	3,828,000	128,000	40	103	3,200	1.04	0.33
Louisiana	4,316,000	245,000	27	64	9,074	0.63	0.42
Maryland	5,000,000	147,000	29	16	5,069	0.58	1.21
Mississippi	2,670,000	129,000	78	82	1,654	2.92	0.95
North Carolina	7,070,000	202,000	68	96	2,971	0.96	0.68
Oklahoma	3,257,000	202,000	10	46	20,200	0.31	0.13
South Carolina	3,643,000	143,000	65	46	2,200	1.78	1.41
Tennessee	5,176,000	167,000	80	93	2,088	1.54	0.84
Texas	18,413,000	1,245,000	125	241	9,960	0.68	0.49
Virginia	6,551,000	188,000	39	101	4,821	0.59	0.29
West Virginia	1,824,000	50,000	52	52	962	2.85	0.95
West	56,847,000	2,649,000	506	400	5,235	0.89	0.35
Alaska	603,000	18,000	7	19	2,571	1.16	0.28
Arizona	4,079,000	237,000	25	15	9,480	0.61	1.67
California	31,408,000	1,670,000	146	57	11,438	0.46	2.52
Colorado	3,662,000	117,000	59	55	1,983	1.61	0.94
Hawaii	1,178,000	22,000	3	3	7,333	0.25	0.60
Idaho	1,134,000	46,000	38	37	1,211	3.35	0.86
Montana	856,000	26,000	12	51	2,167	1.40	0.21
Nevada	1,462,000	72,000	12	16	6,000	0.82	0.71
New Mexico	1,655,000	129,000	55	32	2,345	3.32	1.67
Oregon	3,087,000	98,000	37	33	2,649	1.20	1.03
Utah	1,909,000	67,000	24	26	2,792	1.26	0.83
Washington	5,338,000	127,000	80	37	1,588	1.50	2.05
Wyoming	476,000	20,000	8	19	2,500	1.68	0.35
United States	259,782,000	9,671,000	2,236	2,742	4,325	0.86	0.71

Note: The number of clinics includes clinics that receive grants from HRSA, "FQHC look-alike" sites, and sites staffed by members of NHSC.
The number of MUAs is an unduplicated count of areas designated as medically under-served areas or health-provider shortage areas by the Health Resources and Services Administration.

Source: CRS analysis of data from the Census Bureau and the Health Resources and Services Administration.

Use of Community Health Centers by Uninsured Children: Statistical Model and Estimates

In the nation as a whole, there were 2,236 community and migrant health center sites, FQHC "look-alike" sites, and sites staffed by members of the National Health Service Corps in 1994. The *number* of community health centers, however, takes no account of the potential effects of population and geography on access to health center services. For example, for a given number and distribution of people within a state, a greater number of community health centers means fewer people competing for the resources of each health center and -- in most cases -- more communities with a health center. In the statistical model described below, we used two ratios, the number of community health centers per 100,000 state residents and the average number of health centers per county as *relative measures* of access to community health center services in each state.[12] We expected to find that, other things being equal, the higher these ratios, the greater the likelihood that an uninsured child would use a community health center as opposed to having no usual source of medical care. This is exactly the result that we found.

Ideally, to investigate uninsured children's access to community health centers, we would use data collected from households about the distance to the nearest health center, the means of transportation available to the family, and the family's awareness of the services provided by these centers. Unfortunately, there are no data available that allow us to examine the location of uninsured children relative to the nearest community health center. Using both administrative data from the Health Resources and Services Administration and data collected from households by the Public Health Service, we were able to construct proxy indicators of the *relative accessability* of community health center services among uninsured children across the fifty states.[13] We then used statistical measurement techniques to estimate the relationship between access to community health centers and the probability that an uninsured child will use a community health center as his or her primary source of medical care rather than having no usual source of care.

Uninsured Children: Estimated Probability of Using a Community Center. In 1994, the families of 473,000 uninsured children reported that their children used a community health center as their usual source of medical care and 2,411,000 uninsured children were reported to have no usual source of care. (Tables 1 and 2). Thus, of 2,884,000 uninsured children who either used a community health center as their usual source of care or who had no usual source of care, 16.4% used

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[12] Neither clinics per county nor alternative measures of relative clinic density such as clinics per square mile measure the *dispersion* of clinics within a state. Unfortunately, this shortcoming is inherent in the available data.

[13] The data from HRSA's Bureau of Primary Health Care summarize the distribution of community health centers by state. The family-level information about uninsured children was collected from a nationally representative sample of U.S. households through the National Health Interview Survey.

a clinic, and 83.6% had no usual source of care.[14]   In Table 4, we present the probability of an uninsured child using a community health center as his or her usual source of care relative to having no usual source of care as estimated by our regression model. We chose to limit the sample to those who use a community health center and those who have no usual source of care because it focuses attention on the two possible outcomes of greatest interest in this analysis. We also show in Table 4 the change in this estimated probability associated with increasing the number of community health centers per 100,000 state residents and the average number of health centers per county.

The estimates presented in Table 4 are based on the "average" characteristics of representative subsets of children. For example, for a 10 year-old uninsured child with no medical conditions living in a low-income, two-parent, high-school educated family in a rural area of the South, the estimated probability of using a community health center as his or her usual source of care is .111 (about one in nine). For a 10 year-old uninsured child with no medical conditions living with a low-income, single, high-school educated mother in a central city in the Northeast, the probability of using a community health center as his or her usual source of care is estimated to be .205 (about one in five).

By changing the value of a given variable in the regression model, we can estimate the resulting change in the probability that an uninsured child would use a community health center as his or her usual source of care, as opposed to having no usual source of care.[15] The resulting changes in the estimated probability indicate that use of community health centers as a regular source of care by uninsured children is *highly elastic* with respect to increases in the ratios of community health centers to population and centers per county.[16] For example, in the first case above -- a child living in a rural area of the South -- increasing the ratio of health centers per 100,000 state residents and health centers per county each by 50% would raise the estimated likelihood of the child using a community health center as his or her usual source of care from .111 to .196, an increase of 76%. Doubling each ratio would raise the estimated probability to .323, an increase of 190%. Likewise, in the second case above -- a child in a central city in the Northeast -- increasing the ratios of both health centers per 100,000 persons health centers per county by 50% would raise the estimated probability of using a community health center from .205 to .378, an

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[14] Note that the probability of using a community health center among *all* uninsured children is approximately .05. This represents the probability of using a community health center relative to using any other source of care (including a private physician) or having no source of care. In the example above, we show the probability of using a community health center relative only to having no usual source of care.

[15] See Appendix II for a detailed specification of the logistic regression model.

[16] An elasticity measures the percentage change in one variable for each percentage change in another variable. For example, in economics the *price elasticity of demand* is the percentage change in the quantity demanded of a good divided by the percentage change in the unit price of the good.

increase of 84%. Doubling each ratio would raise the estimated probability of using a community health center to .589, a 187% increase.[17]

Implications for Public Policy. Our regression results imply that doubling the number of uninsured children who used a community health center as their regular source of care during 1994 would have required increasing the number of community health centers by approximately 60%, or an additional 1,300 community health centers. HRSA's share of operating costs for this number of additional community health centers would have exceeded $400 million in fiscal year 1994.[18] Given existing budgetary constraints, an expansion of the number of community health centers on this scale is unlikely. It is significant nonetheless that use of community health centers as a regular source of medical care by uninsured children is directly related to relative measures of access, such as community health centers per 100,000 persons and health centers per county. *This result suggests that use of community health centers also may respond to improved access to existing facilities.*

The Health Resources and Services Administration and individual clinics already conduct many activities to make it easier for uninsured children, as well as others, to use the health and medical services provided by community health centers. Expansions of these activities might include:

- Providing more information directly to the community about the services available at community health centers through promotional activities and public service announcements in print, radio, and television,

- Increasing outreach to families through other institutions in the community, such as schools, hospitals, and welfare offices, and

- Expanding transportation services for persons unable to arrange their own transportation.

To suggest that with sufficient resources more might be done along these lines implies no criticism of HRSA's efforts to date. It merely acknowledges that both the number of children in need of better access to primary care and the constraints of limited budgets make maximization of existing resources all the more imperative. In 1994, while 1.7 million children reported using a community health center as their usual source of medical care, 12.5 million children — both insured and uninsured — reported that they had no usual source of care, including 2.4 million children who were uninsured. These figures represented 17% of all children and 24% of uninsured children, respectively. The statistical analysis conducted by CRS suggests that use of community health centers among uninsured children is directly

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[17] These estimates are simplifications in that these ratios would rarely change by exactly the same percentage. In most states, population is increasing and the number of counties is constant. A significant increase in one ratio, however, would almost inevitably be accompanied by a significant increase in the other.

[18] CRS estimate based on HRSA budget reports to the House and Senate Committees on Appropriations.

related to ease of access to those centers. Given that millions of American children have no regular source of medical care, improving children's access to community health centers could be a relatively low-cost means of helping to ensure that they receive timely and appropriate medical care and preventive health services.

Table 4. Estimated Probability of Using a Community Health Center

Estimated Probability of Using a Community health center as Usual Source of Medical Care
Relative to Having No Usual Source of Care for
Uninsured Children Ages 18 and Younger

Analysis Variable	Mean	Parameter Estimate	Standard Error	Odds Ratio
Intercept		-0.2237	0.5634	.
Northeast	0.1078	-0.6095	0.3753	0.544
South	0.3875	-0.4851	0.3147	0.616
West	0.3817	-0.4489	0.3107	0.638
Central City	0.3999	-0.3736 **	0.1899	0.688
Rural Area	0.1623	0.4332 *	0.2410	1.542
State Poverty Rate	0.1628	-13.5423 ***	3.6756	0.000
Age of Child	10.349	-0.0714 ***	0.0152	0.931
Father Absent	0.2908	0.6409 ***	0.1814	1.898
<12 Years Education	0.3355	0.4648 **	0.1898	1.592
Some College	0.2983	-0.6114 ***	0.2293	0.543
Income Under $25,000	0.6128	0.0186	0.1782	1.019
Income Over $50,000	0.0334	-1.6510 *	0.9441	0.192
Medical conditions (sq.)	0.3752	0.0707 *	0.0398	1.073
Clinics/100,000 people	0.8218	0.7265 ***	0.1525	2.068
Clinics per county (avg.)	1.3730	0.7531 ***	0.1620	2.124

Estimated probability of
using a community health center
as usual source of medical care:

1) Child in a rural area in the South: P =   0.111

2) If clinics per 100,000 people and
clinics per county each rise by 50%:   P =   0.196

3) If clinics per 100,000 people and
clinics per county both double: P =   0.324

1) Child in a central city in the NE: P =   0.204

2) If clinics per 100,000 people and
clinics per county each rise by 50%:   P =   0.380

3) If clinics per 100,000 people and
clinics per county each double: P =   0.593

*   Significant at   >= 10%.
**   Significant at   >= 5%.
***   Significant at   >= 1%.

Source: Estimated by CRS.

APPENDIX I: DATA

The National Health Interview Survey (HIS). The HIS is a national household survey representing the civilian noninstitutionalized population of the United States. The survey is conducted throughout the year by the Bureau of the Census on behalf of the National Center for Health Statistics. The core interview of the HIS collects basic demographic data, such as age, race, sex, and family structure. The health insurance supplement collects detailed information about the health insurance coverage of persons in the household and the access-to-care supplement asks a series of questions about sources of medical care used during the previous year. The HIS also collects data on health status, medical conditions, and activity limitations that are the result of health conditions. The reference periods for the survey questions vary from the two weeks prior to the interview to the previous twelve months. The HIS is unique among national household surveys conducted by the federal government in the breadth, depth, and timeliness of the health and medical data that it collects.[19]

The 1994 HIS comprised 116,179 persons in 48,584 households.[20] Of these individuals, 33,911 were age 18 or younger. The health insurance questions on the HIS refer to the month prior to the interview date. The HIS is in the field each week and inquires about health insurance coverage in the preceding month, providing a measure of the average monthly health insurance coverage of the population over the course of the calendar year. The HIS asks about insurance coverage during a single month, so persons who report being covered by multiple types of insurance are likely to have been covered by these plans simultaneously.[21]

Data on health insurance coverage were not reported for 3,824 children in the 1994 HIS sample, representing 11.3% of persons age 18 and younger covered by the survey. Unlike the Current Population Survey (CPS) health insurance coverage is not imputed for records with missing data on the HIS.[22] Rather than impute health insurance coverage for records on which these data were missing, we set the value for the variable indicating health insurance coverage to "missing" for these records in the regression model.

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[19]Although the Current Population Survey has information about insurance coverage and sources of income, it has little data on health status and none on use of health care services. The Survey of Income and Program Participation collects economic, demographic, and some health status information but is based on a sample less than half the size of the HIS, making subsample analysis subject to larger estimation error.

[20] Like all sample surveys, the HIS is subject to error that may result if the characteristics of the sample differ from those of the general population, or if persons responding to the survey provide inaccurate responses. Error can be minimized, but not eliminated, by careful sample selection, survey design, and survey administration.

[21] This Current Population Survey asks about health insurance coverage during the previous calendar year. Persons reporting more than one type of coverage on the CPS may have had more than one type of coverage simultaneously or they may have been covered by these insurance plans at different times over the course of the year.

[22] Imputation is a process by which the most probable response for a missing data item is estimated by using data from records on which all the relevant questions were answered.

Table 5. Family Income and Insurance Coverage of Children, 1994 HIS

	Private	Medicaid	CHAMP	Uninsured	Unknown	Total
<$10,000	429	2,254	15	717	320	3,735
$10-24999	2,622	2,093	183	1,842	664	7,404
$25-49999	7,716	361	206	1,027	753	10,063
>$50,000	6,498	79	77	331	622	7,607
Unknown	1,973	885	55	724	1,465	5,102
Total	19,238	5,672	536	4,641	3,824	33,911

The Health Interview Survey *Access to Care Supplement* asks the following questions about each person's usual source of medical care:

1a. Is there a particular person or place that [-----] USUALLY goes to when [-----] is sick or needs advice about health?

_____ YES _____ NO _____ There is more than one. _____ Don't know.

b. Is there ONE of those places that [-----] goes to MOST OFTEN when [-----] is sick or needs advice about health?

_____ YES _____ NO _____ Don't know.

5a. What kind of place is it -- a clinic, a health center, a hospital, a doctor's office, or some other place?

     1. Doctor's office or private clinic
     2. Company or school health clinic/center
     3. Community/migrant/rural clinic/center
     4. County/city/public hospital outpatient clinic
     5. Private/other hospital outpatient clinic
     6. Hospital emergency room
     7. HMO (Health Maintenance Organization)/Prepaid group
     8. Psychiatric hospital or clinic
     9. VA hospital or clinic
   10. Military health care facility
   98. Some other place (   )
   99. Don't know.

APPENDIX II: METHODS

Application of Regression Analysis. Evaluating the relationship between an uninsured child's economic and demographic characteristics and his or her use of community health centers as a regular source of medical care requires that we move from simple descriptive statistics to a more complex method of analysis. One such method, multivariate regression analysis, allows us to examine the relationship between changes in a specific set of characteristics or behaviors called *independent variables* and changes in an observed characteristic or behavior of interest, called a *dependent variable* or a *response variable*. Regression analysis informs us about the relationship between a change in the average value of the dependent variable and a change in a given independent variable, when all of the other independent variables remain unchanged. A regression can tell us whether the dependent variable and an independent variable increase or decrease together, or whether they move in opposite directions. It also tells us whether the change in the average value of the dependent variable associated with a given change in the value an independent variable is large or small.

One must be cautious about inferring that changes in the value of independent variables *cause* changes in the dependent variable. The dependent variable might be affected by some other factor or factors that are not included in the regression model, but that change simultaneously with one or more of the independent variables included in the model. This problem is especially acute in the social sciences because controlled experiments are not usually possible and because human behavior is subject to innumerable influences.

Using a Logistic Regression to Estimate a Binary Dependent Variable. When the relationship between the independent variables and the response variable is linear, a regression technique called ordinary least squares (OLS) can be used to estimate the formula for the line that "best fits" through these data points.[23] The relationship between a response variable and a set of independent variables, however, is not always linear. This is obviously the case when the response variable can have a value of only (1) "yes" or (2) "no." Statisticians have developed several techniques for estimating the relationship between such binary response variables and the independent variables that are associated with each value of the response variable. Such methods were first developed in the medical sciences and have since been adopted in economics and the social sciences.

One of the most commonly used statistical techniques for studying the relationship between a set of independent variables and a binary response variable is through a logistic regression model, also called a "logit" model. In a logistic regression, the coefficients represent the change in the log of the odds ratio (the "logit") of the dependent variable as a result of a one unit change in the independent variable. One

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[23] In statistical parlance, a regression line minimizes the sum of the squared residuals, i.e., the sum of the squares of the distance between the data points and the line drawn through these points.

method of presenting the results of a logistic regression, therefore, is in the form of an odds ratio. The odds ratio is the ratio of the odds that an event will occur given that some condition is true (e.g., x = 1) to the odds that an event will occur given that this condition is not true (e.g., x = 0). An odds ratio of 2.0 for the variable sex (where male = 0 and female = 1) would indicate that the event defined by the response variable is twice as likely to occur for females as for males, other things being equal. In the case of independent variables that can have a range of values (continuous as opposed to categorical variables), the coefficients represent the change in the log of the odds ratio of the dependent variable as a result of a *one unit* change in the independent variable. Many statistical software packages generate the odds ratio as a standard output variable of a logit program.

To analyze the change in the dependent variable rather than its logit requires transforming the equation. One form of this transformation allows the results of a logistic regression to be interpreted as the *estimated probability* of an event for a person with a defined or "baseline" set of characteristics. This probability can then be re-estimated, changing the values for each independent variable one at a time. The baseline characteristics may represent the mean values for all persons in the sample (or the mode, where appropriate), or any other combination of characteristics defined by the independent variables. The difference between the estimated probabilities can then be interpreted as the marginal effect of a change in a specific independent variable when the values for all of the other independent variables are held constant. The probability that an uninsured child uses a community health clinic as their usual source of care is given by the exponential expression:

$$P = \frac{1}{1 + e^{-BiXi}}$$

where

e = the base of natural logarithm (2.71828),

B_i = a vector of logit coefficients,

X_i = a vector of independent variables representing a set of observed characteristics of the child, the child's family, and characteristics of their state of residence.

Specification of the Regression Model. To test the relationship between a range of personal, family, and community characteristics and the probability that an uninsured child uses a community health center as his or her usual source of care, we developed a logistic regression model using household data from the 1994 National Health Interview Survey (HIS) and administrative statistics from the Bureau of Primary Care Services of the Health Resources and Services Administration. The 1994 HIS included the records of 33,911 children age 18 or younger, of whom 4,641 (13.7% of the total) reported that they were not covered by health insurance in the month preceding the interview. Of this number, 1,246 either used a community

health center as their usual source of care or had no usual source of care.[24] The dependent or response variable in the regression model was whether the child used a community health center as his or her usual source of care. Thus, the dependent variable could have only two possible values: "yes" if the child used a community health center as a usual source of care and "no" if he or she did not have a usual source of care.

We tested the following variables to estimate their effect on the likelihood that an uninsured child age 18 and younger either 1) used a community health center as his or her usual source of medical care or 2) had no usual source of medical care:

- Region of residence
- Rural/metropolitan/central city residence
- Percentage of people in poverty in the child's state of residence
- Education of the responsible adult family member
- Family income in the past twelve months
- Presence or absence of the child's father
- Age of the child
- The square of the child's reported number of acute and chronic health conditions[25]
- Number of community health clinics per 100,000 people in the child's state of residence
- Average number of community health clinics per county in the child's state of residence

Region of Residence. Frequency distributions showed that the proportion of children using a community health center as their usual source of care was less than 4% in the Northeast, Midwest, and South, and about 8% in the West. We included three regional variables indicating residence in the Northeast, South and

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[24] 33 of these observations were dropped from the regression due to missing values for the response or explanatory variables.

[25] We would hypothesize that the likelihood of having a usual source of care is directly related to the number of medical conditions, but that beyond some number, each additional condition has little effect on this probability. Using the square of the number of conditions accounts for the diminishing marginal effect of each additional condition. It may be suggested that while a child's health status can affect the likelihood that he or she has a usual source of care, the opposite may be true as well: having a usual source of care can affect a child's health status. We tested for potential endogeneity bias by reversing the equation. When all children 18 and younger are included, there is a highly significant negative relationship between having a usual source of medical care and the number of medical conditions reported. However, among the subset of children in this analysis -- those who either had no usual source of care or who used a community health center -- we found no statistically significant relationship between use of a community health center and the reported number of medical conditions or its square. This result not surprising. A t-test showed that there is no significant difference in the mean number of conditions among the 977 cases reporting no usual source of care and the 236 cases that reported using a community health center.

West, respectively, omitting the Midwest as the basis for comparison with the other regions. Among uninsured children with no usual source of medical care or who used a community health center, none of the three regional indicators was statistically significant.

Urban/Rural Place of Residence. Cross-tabulations showed little difference in use of community health centers among children in rural areas, central cities, and other metropolitan areas. The regression, however, showed that children in central cities were significantly less likely to use a community health center than those in non-central city urban areas, and children in rural areas were more likely than those in non-central city urban areas to use a community health center as their usual source of care.

Percentage of State Population Living in Poverty. The proportion of a state's population living below the poverty threshold is correlated with a number of indicators of the average health and well-being of the state's residents. We found that a state's poverty rate was significantly and negatively related to the probability that an uninsured child used a community health center as opposed to having no usual source of care. The higher the percentage of people in poverty in a state, the greater the likelihood that the child had no usual source of medical care.

Age of the Child. The percentage of children with health insurance declines with age. Some studies have found that per capita health expenditures for children are "U-shaped," falling between the ages of 6 and 12 and then increasing after that point. We entered the child's age in years as a continuous variable in the regression model, and found that each additional year of a child's age was significantly and negatively related to the probability that he or she used a community health center compared to the probability of having no usual source of care.

Presence or Absence of the Child's Father. Most children in the U.S. live either in two-parent families or with only their mother. Both family incomes and rates of insurance coverage are lower among families headed by single women than among two-parent families. To test the influence of family structure on use of community health centers, we created a binary variable with a value of one if the father was not present in the household and zero otherwise.[26] Absence of the child's father was significantly and positively related to the probability that an uninsured child used a community health center as a usual source of medical care as opposed to having no usual source of care. The relationship was positive and significant whether the mother was the only adult with whom the child lived or whether adult relatives other than the child's father also were present in the household.

Education of the Responsible Adult Family Member. The years of schooling completed by the responsible adult family member were indicated in the model by three categories: less than 12 years, 12 years exactly, or more than twelve

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[26] In an alternative specification of the model, we included a continuous variable indicating the number of persons in the family. The coefficient for this variable had a positive sign, but it was not statistically significant and it was dropped from the final model.

years.[27] Compared to living with a responsible adult with exactly 12 years of education, living with an adult family member who had *less* than twelve years of school was *positively* and significantly related to the probability that an uninsured child used a community health center rather than having no usual source of medical care. Having a responsible adult family member with *more* than twelve years of education was *negatively* and significantly related to the likelihood that an uninsured child used a community health center rather than having no usual source of care.

Family Income. Family income is reported on the Health Interview Survey in categories, and income from all sources is counted together. For families with annual income of less than $20,000, income is reported in increments of $1,000. From $20,000 to $50,000, income is reported in $5,000 increments. All families with income in excess of $50,000 are grouped in the same income category. There are no income data for about 20,000 of the 116,000 person-records on the 1994 HIS.

In the regression model, we created three categorical variables for family income: under $25,000; $25,000 to $49,999, and $50,000 or more.[28] Family income from $25,000 to $49,999 was the omitted category. Income of more than $50,000 had a significant negative relationship to the likelihood that an uninsured child used a community health center rather than having no usual source of medical care.

Number of Community Health Centers in the Child's State of Residence. As proxy measures for relative ease of access to community health centers, we included two state-level variables to test their relationship to the probability that an uninsured child used a community health center as his or her usual source of medical care as opposed to having no usual source of care. These were the number of public health clinics per 100,000 state residents and the average number of clinics per county. We expected that both ratios would be positively related to the probability of using a community health center as a usual source of medical care, and this proved to be so. Both the number of community health centers per 100,000 state residents and the number of clinics per county were significantly and positively related to the estimated probability that an uninsured child used a community health clinic rather than having no usual source of medical care.[29]

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[27] These three groups accounted 13%, 35%, and 52%, respectively, of all children for whom the responsible adult family member answered the questions on years of school completed.

[28] Median family income in the United States in 1994 was $38,782. That year, 30.6% of families had income of less than $25,000; 32.3% of families had income from $25,000 to $49,999; and 37.1% of families had income of $50,000 or more. Source: Census Bureau tabulations from the March 1995 Current Population Survey.

[29] Similar results were obtained using clinics per square mile in place of clinics per county, although both the parameter estimate (0.47) and the odds ratio (1.6) were smaller.

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