Parental Employment and Health Insurance Coverage Among School-Aged Children With Special Health Care Needs

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A B S T R A C T

Objectives. This study examined parental employment and health insurance coverage among children with and without special health care needs. Special needs were defined as conditions likely to require a high amount of parental care, potentially affecting parental employment.

Methods. Data from the 1994 National Health Interview Survey were analyzed for 21 415 children aged 5 to 17 years, including 1604 children with special needs. Logistic regression was used to estimate the effect of special needs on the odds of full-time parental employment and on the odds of a child's being uninsured, having Medicaid, or having employer-sponsored insurance.

Results. Parents of children with special needs had less full-time employment. Their children had lower odds of having employer-sponsored insurance (adjusted odds ratio [OR] = 0.7) than other children. Children with special needs had greater odds of Medicaid coverage (adjusted OR = 2.3–5.1, depending on family income). Children with and without special needs were equally likely to be uninsured.

Conclusions. Lower full-time employment among parents of children with special needs contributes to the children's being less likely to have employer-sponsored health insurance. Medicaid covers many children with special needs, but many others remain uninsured. (*Am J Public Health.* 2000;90:1856–1860)

Adequate access to health care is important for child health and development, and it is particularly critical for children with special needs. Children with disabilities require more health services and have higher medical expenditures than other children,[1–3] including children with cognitive problems.[4] Health insurance is an important determinant of access to care. Insured children are more likely than uninsured children to have a usual source of health care,[5] to receive needed care,[6] and to have visited a physician in the past year.[7] This association holds true for children with special needs.[8–10] One analysis found that despite their need for health services, children younger than 18 years with special needs were about as likely to be uninsured as other children and had more unmet health care needs.[11]

Parental employment may facilitate health insurance coverage. However, a child's disability may affect a parent's ability to work. One study found that married mothers of disabled children spent more time on household work than did mothers of other children.[12] A study of 221 families applying for handicapped children's services found that time required to care for the child was associated with fewer hours of parental employment.[13] Analysis of a large national 1976 survey found that having a disabled child reduced the likelihood of employment among single mothers, although not the number of hours worked among those employed.[14] In contrast, an analysis of 2-parent families in the same survey found a stronger negative effect of child disability on the number of hours worked than on the probability of employment.[15]

Family income is another determinant of health insurance coverage; children with chronic health conditions are more likely to live in families of lower socioeconomic status.[2,16] These parents are more likely to have low-income jobs. Employers with predominately low-wage employees are less likely to offer health insurance to workers than are employers with higher-paid employees.[17]

Parents of children with special needs may have an incentive not to work, or to work fewer hours, so that their children may qualify for Medicaid coverage, Supplemental Security Income (SSI), covering aged, blind, and disabled individuals, or both. Public insurance coverage is important for children with special needs. A small study of mobility-impaired children found that public programs paid for much of these children's health care and special equipment.[18] Another study indicated that children with limitations in daily activities were more likely to have public and less likely to have private health insurance than children without such limitations.[19] In 1994, the time of this study, children with disabilities were automatically eligible for Medicaid if they received benefits from SSI. Income requirements for SSI are less strict than for many other programs, and recertification is required only once a year. Thus, children receiving SSI may have higher family incomes than other children with Medicaid coverage.

We hypothesized that having a child with special needs would reduce the employment of parents and that children with special needs would therefore rely heavily on public rather than employer-sponsored insurance. Some previous studies have examined the impact of a child's disability on parental employment; others have examined health insurance coverage among children with special needs. This analysis combines both issues, using a large, nationally representative survey on health and disability to classify children's special-needs status. This study also expands on previous research by linking data for each child to data available for his or her parents, allowing us to

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analyze the contribution of parental employment to child health insurance.

Methods

This analysis used data from the 1994 National Health Interview Survey (NHIS). The NHIS, a national household survey of the civilian, noninstitutionalized population, is conducted by the National Center for Health Statistics.[20] This analysis included data from the core questionnaire and supplements on disability, health insurance, and family resources. The disability supplement (NHIS-D) included questions on a wide range of aspects of disability.[21] Data for children and parents were linked; 96% of children were successfully linked to 1 or 2 parents. Most of the unlinked children (2.9% of the children in the sample) were living with a relative other than a parent, while there was insufficient information for linkage for the remaining 1.5% of children.

We used the NHIS-D to define special needs among children aged 5 to 17 years. Children younger than 5 years were excluded because several limitations included in the definition, such as needing help with activities of daily living, were not appropriate measures for younger children, and because many cognitive and emotional problems may not be recognized until children reach school age. In addition, parents of school-aged children are most likely to be working and therefore most likely to experience an impact of child disability on employment. Special needs were defined as conditions that might require high amounts of parental time, limiting parental ability to work. The definition is more restrictive than that used in some other studies[11,22] and thus defines fewer children as having special needs, because it excludes problems less likely to require large amounts of parental time (e.g., the child uses a hearing aid, but when wearing the device the child does not have trouble understanding normal conversation). The parents of children defined as having special needs in this report responded that their child had 1 or more of the following:

• *Impairment indicators*: uses a mobility aid; has an artificial limb; has serious trouble seeing even with glasses, hearing even with a hearing aid, communicating, chewing, swallowing, or digesting; needs special equipment to breathe; has trouble with or uses equipment for an activity of daily living; or receives physical or occupational therapy or another procedure for a condition that is expected to last at least 12 months.

• *Chronic illnesses:* cerebral palsy, cystic fibrosis, muscular dystrophy, spina bifida, or hydrocephaly.

TABLE 1—Characteristics of Children With and Without Special Needs: National Health Interview Survey, 1994

	Children With Special Needs (n=1604)		Children Without Special Needs (n=19811)	
	%[a]	SE	%[a]	SE
Family income as % of poverty[b]				
<200%	56.8	1.6	46.8	0.6
≥200%	43.2	1.6	53.2	0.6
Adult education, y				
<12	15.4	1.2	12.3	0.5
12	36.6	1.5	33.3	0.5
13–15	26.4	1.3	25.0	0.5
≥16	21.6	1.2	29.3	0.6
Race/ethnicity				
Non-Hispanic White	69.4	1.4	68.1	0.7
Non-Hispanic Black	15.1	1.1	13.0	0.5
Hispanic	12.1	1.0	14.1	0.5
Other	3.4	0.6	4.7	0.3
Family structure				
Two parents	65.3	1.5	77.7	0.5
Single parent	34.7	1.5	22.3	0.5
No. of parents in home who work full-time				
2	20.7	1.3	30.1	0.6
1	46.1	1.5	50.2	0.6
0	33.2	1.4	19.7	0.5
No. of parents in home who work full-time, by family structure				
Two parents				
Two work full-time	34.0	1.9	40.1	0.7
One works full-time	54.0	1.9	52.3	0.7
Neither works full-time	12.0	1.3	7.6	0.4
Single parent				
Works full-time	40.5	2.5	51.4	1.1
Doesn't work full-time	59.5	2.5	48.6	1.1

[a]Values are weighted percentages. Percentages may not sum to 100 owing to rounding.
[b]Two hundred percent of the federal poverty line in 1994 was $30 282 for a family of 4.

• *Cognitive, emotional, or school-related problems*: Down syndrome, mental retardation, autism, a serious delay in behavioral or emotional development, difficulty getting along with others owing to a physical or emotional problem, unable to attend a regular school owing to a chronic condition, or attending a school or day camp for children with special needs.

By this definition, 7.4% (n=1604) of children aged 5 to 17 had special needs; 958 had an impairment, 72 had chronic illnesses, and 845 had cognitive, emotional, or school-related problems. Some children fell into more than 1 of these categories.

To compare employment among parents of children with and without special needs, we used logistic regression to calculate the odds of a child's having at least 1 parent who does not work full-time, adjusting for highest education (in years) among adults in the family (<12, 12, 13–15, ≥16) and for race/ethnicity (non-Hispanic White, non-Hispanic Black, or Hispanic; children from other racial and ethnic groups were excluded because numbers were too small for reliable estimates). SUDAAN[23] was used for logistic regression analyses. Separate models were constructed for single-parent families (odds that the parent does not work full-time) and 2-parent families (odds that fewer than 2 parents work full-time). Reduced odds of full-time parental employment might suggest that some parents of children with special needs work less because of the child's special needs. Parental education rather than income was used as the socioeconomic predictor in this model, because education predicts employment, whereas income results from employment.

Three logistic regression models were run to determine the odds of a child's having no insurance, Medicaid coverage, or employer-sponsored health coverage. The reference group for each of these models was all children not in the category of interest. Adjusted models included potential confounders of the relationship between special-needs status and health insurance. The independent variable was whether the child had special needs. Additional predictors of insurance type included in the adjusted model were race/ethnicity (non-

Hispanic White, non-Hispanic Black, or Hispanic), family structure (1 or 2 parents in the home), and annual family income as a percentage of poverty (<200%, ≥200%). Income was imputed for 15% of children. Missing values for annual family income were imputed with a hot-deck approach.[24] Interaction terms were included in adjusted models if they were significant.

Children who had both Medicaid and employer-sponsored insurance (1% of children) were defined as having employer-sponsored coverage. Children with special needs were more likely than others to have dual coverage (3% compared with 1%). It is likely that some parents elected to enroll in both Medicaid and employer-sponsored insurance to provide fuller coverage to meet the child's range of needs. Such a decision is likely to relate to the nature of the employer-sponsored coverage available—for example, whether the employer-sponsored insurance includes preventive care or whether only catastrophic coverage is available.

The relationship between special-needs status, parental employment, and health insurance coverage is complex. In multivariate models, parental employment lies in the causal pathway between the child's special needs and health insurance coverage. Therefore, models examining the effect of special-needs status on health insurance, which might include the role of parental employment, did not adjust for employment. However, to examine the effect of special-needs status on health insurance apart from the influence of employment, we ran separate models that excluded children who did not have at least 1 parent employed full-time.

There were 23 181 children aged 5 to 17 years in the 1994 NHIS, and the disability supplement was completed for 21 415 children. Children were excluded from all analyses if no information on disability was available (n = 1766) and from logistic regression analyses if no parent in the home could be identified (n = 864), if race/ethnicity was not Hispanic, non-Hispanic White, or non-Hispanic Black (n = 904), or if information on health insurance coverage was missing (n = 644); this left 19 003 children available for multivariate analysis, and 1427 of these children had special needs. Of these children, 2864 were uninsured, 3111 had Medicaid coverage, 11 988 had employer-sponsored insurance, and 1040 had another type of insurance.

TABLE 2—Adjusted Odds Ratios for Parental Full-Time Employment Among Children With and Without Special Needs: National Health Interview Survey, 1994

	OR	95% CI
Two-parent families: odds of having fewer than 2 full-time working parents		
Special-needs status		
Child has special needs	1.27	1.07, 1.51
No special needs[a]	1.00	
Race/ethnicity		
Hispanic	1.25	1.05, 1.48
Non-Hispanic Black	0.53	0.43, 0.64
Non-Hispanic White[a]	1.00	
Adult education, y		
<12	1.88	1.45, 2.45
12	1.07	0.93, 1.23
13–15	0.82	0.71, 0.94
≥16[a]	1.00	
Single-parent families: odds the parent does not work full-time		
Special-needs status		
Child has special needs	1.66	1.33, 2.07
No special needs[a]	1.00	
Race/ethnicity		
Hispanic	1.38	1.04, 1.82
Non-Hispanic Black	1.67	1.36, 2.06
Non-Hispanic White[a]	1.00	
Adult education, y		
<12	7.88	5.41, 11.48
12	2.68	1.92, 3.73
13–15	1.93	1.35, 2.76
≥16[a]	1.00	

Note. OR = odds ratio; CI = confidence interval.
[a]Reference group.

Results

Children with special needs had lower family incomes than other children, and their parents had lower education levels (Table 1). Special-needs children were less likely to be living with 2 parents than were other children. Ninety percent of children with single parents lived with their mothers. Parents of special-needs children were less likely to work full-time than other parents, regardless of family structure.

Parental Employment

Logistic regression was used to estimate the odds that children with special needs were less likly to have parents working full-time than were children without special needs (Table 2). Both in 2-parent and in single-parent families, children with special needs were significantly more likely than other children to have a parent who did not work full-time (adjusted odds ratio [OR] = 1.27 in 2-parent families and 1.66 in single-parent families). The size of the parent's employer, another predictor of health insurance coverage, did not differ significantly between employed parents of children with and without special needs (data not shown).

Health Insurance

Children with special needs had a higher rate of Medicaid coverage and a lower rate of employer-sponsored insurance than other children (Table 3). Among low-income families, children with special needs appeared to be less likely than other children to be uninsured.

In unadjusted logistic regression models, the odds of having Medicaid coverage for children with special needs were 2.65 times (95% confidence interval [95% CI] = 2.29, 3.07) those for children without special needs (data not shown). The odds of being uninsured were not significantly different for children with and without special needs. Children with special needs were significantly less likely than other children to have employer-sponsored insurance (unadjusted OR = 0.63; 95% CI = 0.55, 0.72).

Demographic variables did not fully explain the association between special-needs status and Medicaid coverage (Table 4). Special-needs status interacted significantly with family income ($P = .002$). Children with special needs were more likely to have Medicaid coverage; the adjusted odds ratio was about 2.3 for children in families with low income and over 5 for children in families with high income. The model for uninsurance showed a significant interaction between special-needs status and income ($P = .003$). Among children in low-income families, those who had special needs were less likely than other children to be uninsured, although the difference was not significant; among children in higher-income

TABLE 3—Health Insurance Coverage Among Children With and Without Special Needs, by Family Poverty Status: National Health Interview Survey, 1994

	Children With Special Needs (n=1218)		Children Without Special Needs (n=14576)	
	%[a]	SE	%[a]	SE
All incomes				
Employer-sponsored private coverage	53.6	1.6	64.8	0.6
Medicaid	28.7	1.5	14.1	0.5
Uninsured	13.8	1.0	15.3	0.4
Other type	3.8	0.6	5.9	0.3
<200% of poverty[b]				
Employer-sponsored private coverage	30.8	2.0	39.6	1.0
Medicaid	48.0	2.2	29.9	0.9
Uninsured	18.3	1.6	25.4	0.8
Other type	2.9	0.8	5.1	0.4
≥200% of poverty				
Employer-sponsored private coverage	81.9	1.8	85.7	0.6
Medicaid	4.7	1.0	0.9	0.1
Uninsured	8.3	1.2	6.9	0.4
Other type	5.0	0.9	6.6	0.4

[a]Values are weighted percentages. Percentages may not sum to 100 owing to rounding.
[b]Two hundred percent of the federal poverty line in 1994 was $30282 for a family of 4.

families, those with special needs were more likely than other children to be uninsured, although the difference, again, was not significant. For employer-sponsored coverage, where there were no interactions, children with special needs continued to show reduced odds of having employer-sponsored insurance (adjusted OR=0.74).

To examine the effect of special needs on health insurance apart from the effect on parental employment, we computed models that excluded children whose parents were unemployed or worked part-time (data not shown). In these models, there was no longer a significant difference in employer-sponsored insurance between children with and without special needs (adjusted OR=0.84; 95% CI=0.69, 1.02). The odds of having Medicaid coverage were slightly increased among children with special needs compared with other children, while the odds of being uninsured did not differ substantially between special-needs children and other children.

Discussion

This analysis found that parents of children with special needs were less likely than other parents to be employed full-time. The lower parental employment among children with special needs appears to contribute to the children's lower coverage by employer-sponsored insurance. The difference in employer-sponsored insurance coverage between children with and without special needs was no longer significant when children whose parents were not employed full-time were excluded, suggesting that the disparity in employer-sponsored coverage was partly due to less full-time employment among parents of children with special needs.

This could come about for several possible reasons. For example, some parents may have lost jobs because they needed to stay home with their children; as a result, children would have lost employer-sponsored insurance coverage and would likely then qualify for Medicaid. In other cases, parents of children who received Medicaid via the SSI program may have felt secure in

TABLE 4—Adjusted Odds Ratios for Health Insurance Coverage Among Children With and Without Special Needs, by Socioeconomic and Demographic Variables: National Health Interview Survey, 1994

	Medicaid		Uninsured		Employer-Sponsored	
	OR	95% CI	OR	95% CI	OR	95% CI
Interaction: family income and special needs						
Family income <200% of poverty[b]						
Child has special needs	2.32	0.88, 6.13	0.71	0.37, 1.39		
No special needs[a]	1.00		1.00			
Family income ≥200% of poverty						
Child has special needs	5.05	3.16, 8.08	1.25	0.91, 1.71		
No special needs[a]	1.00		1.00			
Family structure						
Single parent	3.71	3.17, 4.33	0.79	0.68, 0.92	0.44	0.39, 0.49
Two parents[a]	1.00		1.00		1.00	
Race/ethnicity						
Hispanic	1.82	1.50, 2.22	1.90	1.60, 2.24	0.49	0.42, 0.58
Non-Hispanic Black	2.27	1.90, 2.71	0.86	0.70, 1.05	0.72	0.62, 0.84
Non-Hispanic White[a]	1.00		1.00		1.00	
Special-needs status						
Child has special needs					0.74	0.63, 0.87
No special needs[a]					1.00	
Family income						
<200% of poverty					0.14	0.13, 0.16
≥200% of poverty[a]					1.00	

Note. OR=odds ratio; CI=confidence interval.
[a]Reference group.
[b]Two hundred percent of the federal poverty line in 1994 was $30282 for a family of 4.

leaving the workforce, knowing the child's medical expenses would be covered. The lower coverage by employer-sponsored insurance could have resulted in some cases from children's being denied insurance owing to preexisting conditions. Another possibility is reverse causality between special needs and unemployment: low incomes among unemployed parents may increase the chance of a child's experiencing a chronic health condition and special needs.

The greater use of Medicaid among children with special needs than among other children was expected owing to their lower family incomes, their greater receipt of SSI, and perhaps because parents of these children feel a stronger impetus to enroll them in the Medicaid program. In addition, Medicaid may provide greater coverage for health care or medical devices than private plans, giving parents another reason to enroll and potentially decreasing parental likelihood to work.

One limitation of this study was some difficulty in classifying family structure; parents could be biological, adoptive, or step. However, only 4% of children could not be linked to at least 1 parent, so misclassification is unlikely to have substantially affected the estimates. An additional limitation of this study was that children living in institutions were excluded, since the NHIS draws its samples from the noninstitutionalized population. Thus, this sample likely excludes some of the most severely impaired children.

The results of this study were consistent with previous findings. Newacheck and colleagues[11] found that children with special needs were as likely to be uninsured as other children, similar to the findings of this study. Other studies have shown that children with activity limitations have greater public and less private coverage than other children.[19] An earlier study found Medicaid to be an important payment source for children with special needs.[18]

A health care system based on parental employment is problematic for families in which parents cannot work full-time because of a child's impairments. Many parents of children with special needs rely on Medicaid because they do not have employer-sponsored insurance. In the past, many families obtained Medicaid via the Aid to Families with Dependent Children (AFDC) program. Parents of disabled children may have difficulty caring for their children under the work requirements of the Temporary Assistance to Needy Families (TANF) program.

Many Medicaid recipients were transferred into managed care during the 1990s.[25] Public care may come to resemble private services as Medicaid patients join HMOs. The ability of managed care organizations to care for disabled children has not been fully evaluated.[26] One report found that disabled individuals often prefer a fee-for-service system with a gatekeeper rather than capitated care, which may restrict access to specialized services.[25]

With lower parental full-time employment and less employer-sponsored coverage among children with special needs, Medicaid provides an important safety net, although many children with special needs remain uninsured. Insurance and health services use among children with special needs should be monitored as policy changes take effect that may alter Medicaid coverage. □

Contributors

Both authors planned the study, analyzed the data, and contributed to the writing of the paper.

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