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NATIONAL LONGITUDINAL
TRANSITION STUDY 2

THE INDIVIDUAL AND HOUSEHOLD CHARACTERISTICS OF YOUTH WITH DISABILITIES

A Report from the National Longitudinal Transition Study-2 (NLTS2)

Prepared for:

Office of Special Education Programs
U.S. Department of Education

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Prepared for:

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Prepared by:

Mary Wagner, Camille Marder, Phyllis Levine, Renée Cameto, Tom W. Cadwallader, and Jose Blackorby, with Denise Cardoso and Lynn Newman

SRI Project P11182

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A project as ambitious as NLTS2 can be undertaken only as a team effort. The authors wish to express their sincere thanks to the many people associated with NLTS2 whose names do not appear in this report:

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And especially to the more than 9,000 young people whose stories we tell here, and to the parents and guardians who care for them, for their willingness to share with us something of their experiences. Even from the distances imposed by survey research, the challenges they face and the courage and abilities they show in confronting them are clear.

EXECUTIVE SUMMARY

Understanding the individual characteristics of youth with disabilities is a crucial foundation for serving them well. Youth approach their educational experiences from a complex history and background that is shaped by demographic characteristics, such as age, gender, and ethnicity; by family background and circumstances, such as parents' education, expectations, and household economic status; and, importantly, by the nature of their disabilities and how well they function in a variety of domains. All of these factors help structure the involvement of youth at home, at school, and in the community. Thus, they are essential elements of the context for many major life experiences of youth.

This report examines the individual characteristics of youth with disabilities and the households in which they are being raised; it addresses the following questions:

- What are the demographic characteristics of youth (Chapter 2)?
- What are the characteristics of their households (Chapter 3)?
- What are their identified disabilities and treatment histories (Chapter 4)?
- What are their functional abilities in the physical, sensory, and communication domains (Chapter 5)?
- What daily living and social skills do they exhibit (Chapter 6)?

Answers to these questions are drawn from information collected as part of the National Longitudinal Transition Study-2 (NLTS2), funded by the Office of Special Education Programs of the U. S. Department of Education. NLTS2 includes more than 11,000 youth who represent all students who were ages 13 through 16 on December 1, 2000, were receiving special education, and were in at least seventh grade. Information from NLTS2 represents youth with disabilities in the NLTS2 age range nationally, and youth in each of 12 federal special education disability categories. Findings in this report reflect information gathered from parents and guardians[1] of NLTS2 youth through telephone interviews and a mail survey conducted in 2001. They are presented for youth with disabilities as a whole and for those who differ in their primary disability category, age, gender, household income, and race/ethnicity.

Demographic Characteristics of Youth with Disabilities

Primary disability. In the 2000-2001 school year, students who received special education constituted 13% of all 13- to 16-year-olds who were enrolled in school. Almost two-thirds of them were classified as having a learning disability (62%). Youth with mental retardation and emotional disturbances each were about 1 in 10 students with disabilities. Another 5% of youth were classified as having other health impairments, and 4% were identified as having speech impairments. The seven remaining disability categories together comprised about 5% of youth

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[1] For simplicity, parents and guardians are referred to as parents.

This is an executive summary of Wagner, M., Marder, C., Levine, P., Cameto, R., Cadwallader, T. W., & Blackorby, J. (with Newman, L., & Cardoso, D.). (2003). *The individual and household characteristics of youth with disabilities. A report from the National Longitudinal Transition Study-2 (NLTS2).* Menlo Park, CA: SRI International. Available at www.nlts2.org.

with disabilities. Thus, when findings are presented for youth with disabilities in this age group as a whole, they are heavily influenced by the experiences of those with learning disabilities.

Age. NLTS2 represents youth who were 13 through 17 years old when data were collected; however, most youth for whom data were collected were in the 14- to 16-year-old age range, with the exception that youth with speech/language impairments had a larger proportion of younger students than other categories.

Gender. Whereas about half of youth in the general population are boys, two-thirds of youth who are receiving special education services are boys. Boys make up approximately 55% of youth with hearing impairments, mental retardation, or visual impairments. In contrast, they are about three-fourths of youth with emotional disturbances and 85% of youth with autism.

Race/ethnicity. African Americans are somewhat overrepresented among youth with disabilities relative to the general population. However, this overrepresentation is disproportionately concentrated in a few disability categories; African Americans make up a particularly large proportion of youth with mental retardation relative to their proportion in the general population. In contrast, the percentage of Hispanic students is particularly small among students with other health impairments, autism, or mental retardation.

Characteristics of Youth's Households

Many youth with disabilities have additional factors in their lives that may compound the challenges they face:

- They are more likely than youth in the general population to live in a one-parent household and to have parents with relatively low levels of education.
- Approximately twice as many youth with disabilities as youth in the general population live in households whose head is not employed.
- Approximately one-quarter of youth with disabilities live in poverty, significantly more than the 20% of youth in the general population whose households are below the federal poverty line.
- Almost 1 in 10 youth with disabilities do not have health insurance coverage.

These factors are particularly prominent among youth with mental retardation or emotional disturbances and are least common among youth with disabilities with autism or other health impairments.

Disability Profiles

Additional disabilities. According to parents, within each primary disability classification, there are youth who also had one or more of virtually every other kind of disability. For example, parents of approximately 30% of youth whose primary disability classification is emotional disturbance, other health impairment, traumatic brain injury, or multiple disabilities, and more than half of those with mental retardation report that their adolescent children have learning disabilities.

ADD/ADHD. Parents of more than one-third of youth report that their children have attention deficit disorder (ADD) or attention deficit/hyperactivity disorder (ADHD). Approximately three-fourths of youth whose primary disability classification is other health impairment—the category within which ADD/ADHD typically is subsumed—are reported by parents to have the disorder, but ADD/ADHD also is reported for between 12% and 63% of youth in other disability categories.

Age at identification of and first service for disability. Almost one-third of youth and their families have been dealing with their disability and its impacts since before the youth reached school age. More than half of 13- to 17-year-olds whose disabilities were identified before age 3 are reported to have received early intervention services; fewer of those whose disabilities were identified before age 6 participated in preschool special education programs. The majority of youth with disabilities first were served when they reached school, even when their disabilities had been identified earlier. This gap between identification and services was apparent even for such disabilities as autism and hearing impairments

Youth's Functioning

Health, physical functioning, vision, hearing, and communication all influence youth's abilities to learn, interact with others, and participate successfully in the educational process. Some youth in all disability categories experience limitations in one or more of these domains.

- Although youth with disabilities as a whole are about as healthy as their peers in the general population, those with mental retardation, orthopedic impairments, multiple disabilities, or deaf-blindness are less likely than youth in other categories to be in excellent or very good health.
- One in four youth with disabilities take medication for conditions related to their disabilities. Most of the medications prescribed are to affect behavior, mood, or emotions. Although the rate of using such medications is highest among youth with emotional disturbances, other health impairments, or autism, some youth in all disability categories take them.
- Approximately one-tenth of youth with disabilities do not have full use of all limbs and/or have a hearing loss, and more than 10% do not have normal vision even with corrective lenses.
- Communication limitations are more widespread; almost one-third are reported by parents to have problems in one or more of the areas related to conversing, speaking, or understanding others. Substantial percentages of youth with hearing, visual, or orthopedic impairments; autism; multiple disabilities; or deaf-blindness experience moderate to severe problems in two or more of these domains.

Daily Living and Social Skills

Youth with disabilities are a heterogeneous group with a range of competencies and limitations.

Daily living skills. The vast majority of youth with disabilities are able to perform the tasks that are fundamental to self-care. Functional cognitive skills present significantly greater challenges; only about half of youth have mastered fully the basic functional cognitive skills of telling time, reading common signs, counting change, and looking up telephone numbers and using the phone. Approximately 65% usually or always do the household chores NLTS2 investigated.

Social skills. Although most parents of youth with disabilities perceive their children to be fairly socially skilled, compared with youth in the general population, youth with disabilities are more likely to receive low ratings on some aspects of social skills. Almost one in five youth are reported by parents to have poor social skills, and one in six are described as not sensitive to others' feelings. Youth receive the highest scores for assertion and cooperation; fewer youth with disabilities are rated high regarding their self-control abilities.

Emerging Themes

Several insights have emerged regarding distinguishing features of youth across the domains addressed in this report.

Disabilities: more than a label. An overall look at the characteristics of youth who receive special education services masks the dramatic differences between youth with different kinds of disabilities. Youth with different primary disability classifications differ at least as much from each other as from the general population of youth. Further, on every factor considered here, greater differences are noted between youth with different disability categories than between youth who differ in age, gender, or other characteristics. For example, although virtually no youth with learning disabilities, speech impairments, or emotional disturbances have difficulties with fundamental self-care activities, about one in five youth with orthopedic or multiple impairments do. Limitations in functional cognitive skills affect about one-third of youth with emotional disturbances but at least 80% of youth with mental retardation or multiple disabilities, including deaf-blindness. Poor social skills are reported rarely for youth with visual impairments but parents of one-fourth of youth with emotional disturbances and 30% of youth with autism say their adolescent children are not socially adept.

Parents' reports about youth clearly demonstrate that there are dimensions of their disabilities that are not captured by their primary classification for special education. For example, by definition, all youth who are classified as having speech impairments share some limitation in the communication domain. However, their range of functioning is quite broad; 52% are reported to speak normally, whereas 7% have significant speech limitations or do not speak at all. And for some, speaking ability is not their only limitation. Parents report that 41% of youth in the speech impairment category also have learning disabilities and that 19% have ADD/ADHD. Three percent are reported to have a hearing loss, a similar percentage are reported to have a visual impairment, 6% do not have normal use of all limbs, and 5% have fair or poor health. The range of additional disabilities and functional limitations illustrated by youth with speech impairments is characteristic of every other disability category. Clearly, youth with this broad range of functional limitations face more than the challenges suggested by their primary disability alone.

Age and gender differences in functioning and behavior. Most of the skills and abilities addressed in this report, including physical, sensory, communication, and social skills, do not vary significantly by age for 13- to 17-year-olds. However, there are a few age-related differences regarding youth's behaviors. Specifically, older youth with disabilities are less likely than the youngest youth represented in NLTS2 here to take psychotropic medications, particularly stimulants—a common treatment for ADD/ADHD. Older youth also are more likely to take on household responsibilities.

Although adolescence is a time in which most youth develop a strong gender identity, boys and girls with disabilities do not differ in many aspects of their functioning—their physical, hearing, communications, and social abilities are reported by parents to be very similar. However their disability profiles differ in important ways. Despite being about half of the general population of students enrolled in schools, boys make up significantly more than half of youth in every disability category. Boys are particularly large percentages of youth with emotional disturbances, other health impairments, or autism and are much more likely than girls to be reported as having ADD/ADHD. Because of the prominence of these disabilities among boys, they are much more likely than girls to take psychotropic medications (especially stimulants). Boys also are more likely than girls to have mastered basic functional cognitive skills, such as telling time and counting change.

Differences also are noted in areas in which social, cultural, and familial values, norms, and expectations can shape activities and preferences. For example, boys are reported to excel in athletic and mechanical abilities, whereas girls are much more likely to be reported as having aptitude for the performing arts, strong organizational skills, and to do a specified set of household chores frequently.

Money matters. Youth with disabilities are much more likely than youth in the general population to be poor. Therefore, some of the common correlates of poverty are quite prevalent among youth with disabilities. They are more likely than youth in the general population to live with one parent and to have a head of household who is poorly educated and not employed. Youth with disabilities in low-income households are more likely than others to be in poor health and to be without health insurance. Factors such as these and the poverty they signify have been shown to relate powerfully to poor child development.

Differences in economic status contribute to differences in experiences and achievements, including the fact that poor youth with disabilities are less likely than their wealthier peers to have had those disabilities identified at early ages or to have received services for them that might have ameliorated some of their negative consequences. In addition, parents of lower-income youth are less likely to have been the first to recognize their children's disabilities or to have requested services for them in school; school staff and other professionals were most often the sources of disability identification and requests for service. However, income limitations do not appear to pose barriers to accessing early intervention or preschool special education services; there are no differences between income groups in the rate at which children received those services.

The negative developmental impacts of poverty and, perhaps, of late disability identification and treatment are clear among low-income youth with disabilities in some functional domains. Poorer youth with disabilities are significantly more likely than others to have limitations in communication and in social skills, and to have limitations in vision even when they use glasses or contacts. Poorer youth also are less likely than others to have mastered basic functional cognitive skills, such as reading common signs and counting change, and are less likely to be reported by parents as having strong computer skills. In contrast, upper-income youth are more likely than their lower-income peers to be identified as having ADD/ADHD.

The complexity of racial/ethnic differences. African Americans make up a somewhat larger proportion of youth with disabilities than of youth in the general population. Much of the differential representation of African Americans among youth with disabilities may relate to the fact that they are more likely to be poor than their white counterparts. Within a given family income level, the proportions of white, African American, and Hispanic youth are very similar among youth with disabilities and the general population of youth.

The parental and household characteristics that accompany poverty, such as single-parent households and parents with less education, are more prevalent among African American and Hispanic youth with disabilities than among white youth. Poor health also is more prevalent among students of color. African American students with disabilities also are more likely to be unable to speak clearly, and to have poor assertion skills. Mirroring income differences, white youth are much more likely than youth of color to be reported as having ADD/ADHD, to have had their disabilities recognized and addressed earlier, and for their parents to have been the first to identify their disabilities and request services for them. But not all income-related differences translate into differences between white youth and their African American and Hispanic peers. For example, uncorrected vision problems among poor youth with disabilities are not more common for African American or Hispanic youth than for white youth.

Diversity on many dimensions. The initial look at the characteristics and functioning of youth with disabilities reveals a tremendous diversity in challenges and strengths. The multiple dimensions of their aptitudes and functional limitations and the complex variations among youth who differ in disability classification, age, gender, income, and race/ethnicity calls for a broad vision of what may constitute effective instruction and services and of the nature of the results youth will achieve. Given the great range in the functioning of youth, educational programs and transition practices will need to be diverse, flexible, and carefully tailored if they are to meet the diversity of needs youth present. Indeed, NLTS2 findings affirm the original cornerstones of IDEA and special education values and practice generally: youth are entitled to specially designed instruction and transition services that meet their individual needs.

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1. INTRODUCTION

By Mary Wagner and Camille Marder

In 1975, the United States Congress passed landmark legislation that has affected the lives of children and youth with disabilities and their families in countless and far-reaching ways. P.L. 94-142, the Education for All Handicapped Children Act (EHA), was pivotal in moving children and youth with disabilities into the mainstream of public education so that they are better able to achieve their full potential.

By 1983, a large number of students with disabilities had experienced much of their school careers under the provisions of EHA and were facing the transition from high school to young adulthood. A concern for the obstacles facing youth with disabilities in making this transition successfully had projected transition issues, service provision, and research into the policy spotlight at the federal, state, and local levels (Will, 1984). In response, Congress mandated that the Office of Special Education Programs (OSEP) of the U.S. Department of Education conduct a longitudinal study of secondary school students with disabilities in transition to adulthood, which would paint a national picture of their experiences.

The National Longitudinal Transition Study of Special Education Students (NLTS), conducted by SRI International for OSEP from 1984 through 1993, was a response to that mandate. Findings from NLTS were used by many audiences for a variety of purposes, including shaping the evolution of federal special education policy through various amendments to EHA, now known as the Individuals with Disabilities Education Act (IDEA).

IDEA underwent significant revision in 1997 in the process of congressional reauthorization. The ensuing Individuals with Disabilities Education Act Amendments of 1997 (P.L. 105-17) was an effort to build on the “significant progress” under earlier legislation “by:

- Raising expectations for children with disabilities;
- Increasing parental involvement in the education of their children;
- Ensuring that regular education teachers are involved in planning and assessing children’s progress;
- Including children with disabilities in assessments, performance goals, and reports to the public;
- Supporting quality professional development for all personnel who are involved in educating children with disabilities.” (U.S. Department of Education, 1997)

IDEA ’97 also stresses the importance of solid information about the experiences and achievements of children and youth with disabilities as a foundation for improving practice and accountability within schools. The legislation authorizes the “production of new knowledge” [Sec. 672(b)(1)] through a variety of federal activities, including “producing information on the long-term impact of early intervention and education on results for individuals with disabilities through large-scale longitudinal studies” [Sec. 672(b)(2)(H)].

In carrying out the responsibility for producing this new information, OSEP is building on the foundation of NLTS and implementing a portfolio of longitudinal studies that span the age range of children and youth, enabling the studies to address the critical question of how experiences of children and youth shape their later achievements. The National Longitudinal Transition Study-2 (NLTS2) is a part of that portfolio. It focuses on the characteristics, experiences, and achievements of secondary-school-age youth with disabilities nationally. Over a 10-year period, the study will document multiple dimensions of the experiences and achievements of those youth as they transition to early adulthood.

This document is one of a series of reports of findings from NLTS2 that will emerge over the next several years. It presents information gathered from parents and guardians[1] of NLTS2 students through telephone interviews and a mail survey conducted in 2001.

An Overview of NLTS2

Information from NLTS2 represents youth with disabilities nationally. The more than 11,000 students who were selected and eligible for the NLTS2 sample represent all students who were ages 13 through 16 on December 1, 2000, were receiving special education, and were in at least seventh grade. In selecting students, NLTS2 first stratified all districts within the United States by geographic region, student enrollment, and the poverty level of the student population. A random sample of districts was selected from the strata; invitations to participate also were sent to all state-supported special schools serving students with disabilities. Rosters of all students receiving special education in the NLTS2 age range were requested from all sampled districts. Students then were selected randomly from each disability category. Students with less common disabilities were oversampled to achieve sufficient sample sizes for analyses. A total of 11,276 students were in the initial eligible NLTS2 sample. (See Appendix A for a discussion of the design of NLTS2, including a more complete description of the sample and how it was selected.)

Findings represent the national population of youth with disabilities as a whole and youth in each of 12 federal special education disability categories. Past research has shown that youth with disabilities differ from youth in the general population in important ways, and that they differ from each other just as significantly on many dimensions (see, for example, Wagner, Marder, & Blackorby, 2002; Wagner et al., 1991). For example, youth with visual impairments have markedly different experiences than do youth with mental retardation in school and in their postschool years (Wagner, 1993; Wagner, D'Amico, Marder, Newman, & Blackorby, 1992). A key value of NLTS2 is its ability to depict these important disability-related differences by presenting findings that represent all youth in each disability category nationally.

Another extremely valuable aspect of NLTS2 is its longitudinal design. The teenage years and early twenties are a time of enormous physical, psychological, social, and emotional change. The transition from adolescence to adulthood is influenced by myriad factors, including family characteristics and expectations; community norms and resources; evolving peer and familial relationships; and crucial educational, vocational, and personal choices. NLTS2 is documenting the changes that take place during this important developmental stage and identifying early experiences that contribute to more positive results as youth with disabilities age, progress in school, and chart a course into early adulthood.

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[1] For simplicity, parents and guardians are referred to here as parents.

NLTS2 brings to bear information that represents the perspectives of parents, schools, and youth themselves on a wide range of topics. The study's conceptual framework (Exhibit 1-1) shows the comprehensive array of issues about which NLTS2 is providing information. Reporting on the characteristics of youth and their households is a fundamental step in a progression of analyses and reports that will go on to depict youth's secondary school programs and services. Among the key issues that are being addressed regarding secondary education are youth's access to the general education curriculum, transition planning, course-taking, standardized testing, and employment-related services. NLTS2 also is examining the experiences of youth outside of school, including their involvement in friendships and social activities, the labor market, risk behaviors and the criminal justice system, and marriage and family formation (Wagner, Cadwallader, & Marder, 2003). Postsecondary education and adult services and their contributions to employment and financial independence also will be addressed as youth enter adulthood. The achievements of youth in and out of school will be of crucial concern, as will identifying the aspects of youth, households, school programs, adult services, and nonschool experiences that contribute to more positive results for youth as they age.

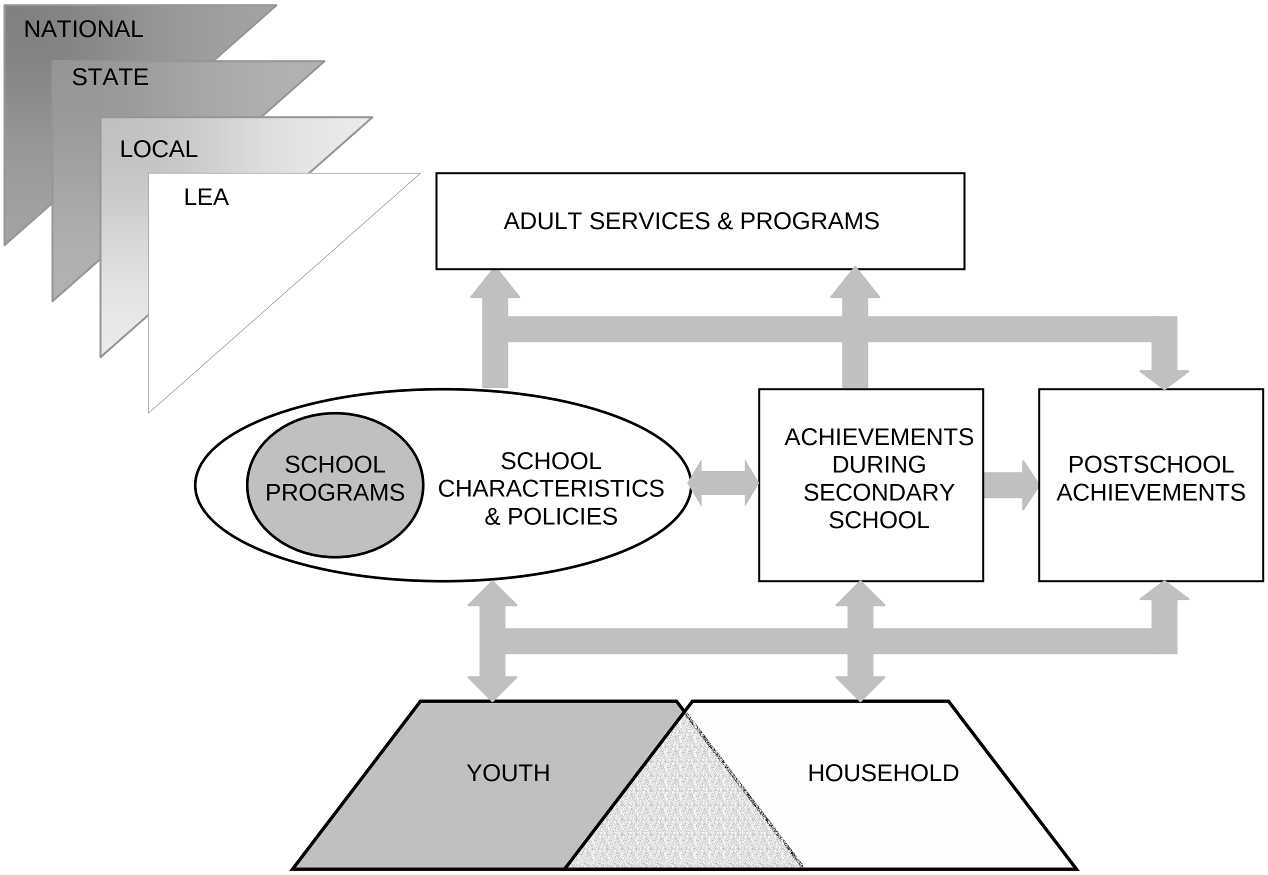

Exhibit 1-1
NLTS2 CONCEPTUAL FRAMEWORK

To support this ambitious analysis agenda, NLTS2 includes five waves of data collection. The first wave of interviews and surveys with parents was conducted in 2001. Additional waves will be conducted with the same parents in 2003, 2005, 2007, and 2009. Youth who are able to respond to telephone interview questions also will be interviewed in those years; those who cannot respond to questions by phone but can provide information about themselves will be sent questionnaires by mail. Direct assessments of students' academic performance in reading and mathematics and their content knowledge in science and social studies, as well as student interviews assessing their self-concept and self-determination skills, will be conducted once for each youth when he or she is 16 or 17. School staff surveys that capture important aspects of students' schools and individual educational programs were conducted in spring 2002 and will be repeated in 2004 for youth who still are in secondary school at that time. High school transcripts (or course summary forms for students who do not have transcripts) will be collected to document students' secondary school course-taking and performance.

NLTS2 is designed so that much of its data will be comparable to data collected by the original NLTS. Thus, in addition to painting a detailed picture of youth with disabilities today, NLTS2 will show how secondary school special education and the transition process have changed in the decade and a half since NLTS. The rich, wide-ranging view of youth with disabilities as they transition to adulthood provided by NLTS2 will support informed policy-making and improved practice for youth with disabilities.

Focus of This Report

This report examines the individual characteristics of youth with disabilities and the households in which they are being raised. Understanding youth's individual characteristics is a crucial foundation for serving them well. Youth approach their educational experiences from a complex history and background that is shaped by demographic characteristics, such as age, gender, and ethnicity; by family background and circumstances, such as parents' education, expectations, and household economic status; and, importantly, by the nature of their disabilities and how well they function in a variety of domains. All of these factors help structure the involvement of youth at home, at school, and in the community. Thus, they are essential elements of the context for many major life experiences of youth. In important ways, an understanding of that context will inform an understanding and interpretation of their experiences.

This look at youth with disabilities addresses the following questions:

- What are the demographic characteristics of youth?
- What are the characteristics of their households?
- What are their identified disabilities and treatment histories?
- What are their functional abilities in the physical, sensory, communication, social, and independence domains?
- What aptitudes do youth bring to the educational process?
- How do these factors differ for youth with different characteristics and from those of youth in the general population?

Findings that address these questions are presented in several ways. First, the means of continuous variables (e.g., the average age of youth) or the overall frequency distributions of categorical variables (e.g., the percentage of youth living with both parents) are presented. Then the distribution of each item is presented for important subgroups of youth, including those who differ in their primary disability category and in key demographic characteristics.

When interpreting findings presented in this report, readers should remember the following issues:

- **Findings in this report represent the national population of students with disabilities.** All of the descriptive statistics presented in this report are weighted to represent the national population of students with disabilities in the NLTS2 age range, as well as youth in each disability category individually.
- **Standard errors indicate the precision of the statistical estimates.** For each mean or percentage in this report, a standard error is presented (usually in parentheses). The standard error indicates the precision of the estimate; for example, having a standard error of 2 for a variable with a weighted estimated value of 50% means that the value for the total population, if it had been measured, would lie between 48% and 52% (i.e., plus or minus 2 percentage points of 50%) 95 times out of 100. Thus, small standard errors allow for greater confidence to be placed in the estimate, whereas larger ones require caution.
- **Small sample sizes tend to lower the precision of statistical estimates.** Although NLTS2 data are weighted to represent the population, the precision of estimates can be influenced heavily by the actual number of youth in a given group (e.g., disability category or racial/ethnic group). This influence is shown by differences in the sizes of standard errors. For example, NLTS2's sample includes relatively few youth with deaf-blindness (n=156), so estimates for that group have relatively large standard errors. Therefore, the reader should be cautious in interpreting results for this group and others with small sample sizes.

Organization of This Report

Chapter 2 presents information on the disability classifications and demographic characteristics of youth with disabilities. Chapter 3 presents information about the households in which youth live, including household composition, parents' education and employment, and socioeconomic status. This parent-reported information illustrates important ways in which youth with disabilities are both similar to and different from their peers in the general population, as well as ways that they differ from each other.

Chapter 4 identifies the nature of the disabilities experienced by youth, the ages at which youth were identified as having disabilities and began to receive services for them, and several aspects of youth's experiences with service programs, as reported by parents. Chapter 5 delves into the health and functional skills of youth in the physical, sensory, and communication domains. Youth's daily living skills, social skills, and aptitudes are considered in Chapter 6. Chapter 7 summarizes key findings. Appendix A describes methodological issues related to the study design, sample, and analysis procedures; Appendix B lists unweighted sample sizes for the exhibits in the report.

2. DEMOGRAPHIC CHARACTERISTICS OF YOUTH WITH DISABILITIES

By Camille Marder, Phyllis Levine, and Mary Wagner

The nature of a student's disability can be a powerful influence on his or her experiences, both in school and out of school. Especially during adolescence, other fundamental characteristics also help shape individuals' development, relationships, experiences, and achievements. At this time of life, a single year of age can make a major difference in both competence and independence. Gender is a defining human characteristic at any age, and during adolescence, when people are exploring their sexuality and gender roles, it can shape their experiences and choices in powerful ways. Race/ethnicity and language background can be associated with rich cultural traditions, patterns of relationships within families and communities, and strong group identification. All of these factors can generate important differences in values, perspectives, expectations, and practices.

Thus, understanding the demographic makeup of youth with disabilities is crucial in interpreting NLTS2 findings for youth with disabilities as a whole and for youth with particular disability classifications. It also is a foundation for interpreting comparisons between youth with disabilities and those in the general population.

This chapter reports the variety of disabilities among middle- and high-school-age youth with disabilities and describes other traits that may partially explain their experiences.[1] First, the disabilities and demographic characteristics of youth with disabilities as a whole are presented and their demographic characteristics compared with those of youth in the general population. Then demographic differences of youth in different primary disability categories are discussed.

Primary Disabilities of Youth

In the 2000-01 school year, students who received special education constituted 13% of all students enrolled in grades 7 through 10.[2] Exhibit 2-1 depicts the primary disability classifications assigned by schools to those students (Office of Special Education Programs, 2002).

Almost two-thirds of students receiving special education in this age group are classified as having a learning disability (62%). Youth with mental retardation and emotional disturbances comprise 12% and 11% of students, respectively. Another 5% of youth are classified as having other health impairments, and 4% are identified as having speech impairments. The seven remaining disability categories each are 1% or fewer of students; together they comprise about 5% of youth with disabilities. Thus, when findings are presented for youth with disabilities in this age group as a whole, they are heavily influenced by the experiences of youth with learning disabilities.

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[1] Analyses similar to those reported in this chapter were conducted for elementary and middle school students as part of the Special Education Elementary Longitudinal Study (SEELS) and are reported in Marder and Wagner (2002).

[2] General student enrollment is available by grade level rather than age. Grades 7 through 10 were used in calculating the general student enrollment (National Center for Education Statistics, 2001).

Exhibit 2-1
PRIMARY DISABILITY CATEGORIES OF YOUTH WITH DISABILITIES AGES 13 THROUGH 16

Primary Disability Classification	Federal Child Count [a] Number	Federal Child Count [a] Percentage	NLTS2 Weighted Percentage
Learning disability	1,130,539	61.8	62.0
Speech/language impairment	76,590	4.2	4.0
Mental retardation	213,552	11.7	12.2
Emotional disturbance	203,937	11.2	11.4
Hearing impairment	22,001	1.2	1.3
Visual impairment	8,013	.4	.5
Orthopedic impairment	21,006	1.2	1.2
Other health impairment	98,197	5.4	4.6
Autism	14,637	.8	.7
Traumatic brain injury	6,379	.2	.3
Multiple disabilities	34,865	1.2	1.8
Deaf-blindness	340	<.1	.2
TOTAL	1,838,848	100.0	100.0

[a] Data are for youth ages 13 to 16 who were receiving services under IDEA, Part B, in the 2000-01 school year in the 50 states and Puerto Rico (Office of Special Education Programs, 2002).

It is important to note that, although this report often refers to students receiving special education as “students with disabilities,” the population of students with disabilities actually is larger than those receiving special education services. For example, parents of children under 18 in the general population report that 6% of those children have a visual impairment, 13% have a hearing impairment, and almost 16% have a speech impairment (National Center for Health Statistics, 2001). Yet, youth who receive special education primarily for those impairments taken together constitute fewer than 3% of all students (Office of Special Education Programs, 2002). This difference points up the fact that many children and youth experience some degree of disability that does not constitute a significant challenge to their ability to learn in traditional school settings and thus does not qualify them for special education.

The weighted distribution of primary disability categories assigned to NLTS2 youth by schools and districts very closely approximates that of the youth with disabilities in the nation. Thus, as stated in Chapter 1, weighted findings presented in this report provide an accurate picture of the characteristics, experiences, and achievements of youth with the range of disabilities highlighted in Exhibit 2-1.

Age and Grade Level

The middle and high school years are times in which most youth experience tremendous growth in many domains. Knowing a youth’s age provides an important context for understanding his or her experiences, but it also is important to recognize that there are wide differences in the ages at which youth mature in various ways. Although there are characteristics that are typical for adolescents of particular ages, the ages and rates at which young people change and reach milestones vary widely.

Although the youth included in NLTS2 were ages 13 to 16 when they were selected, by the time data were collected from parents, some of the 13-year-olds had turned 14 and some 16-year-olds had turned 17. Therefore, findings are reported here are for 13- through 17-year-old youth (Exhibit 2-2).

Exhibit 2-2
AGE AND GRADE LEVEL OF YOUTH REPRESENTED IN NLTS2

	Percentage	Standard Error
Age		
13 or 14	32.0	1.4
15	23.0	1.2
16	26.0	1.3
17	19.0	1.1
Grade level		
7	11.5	1.0
8	24.3	1.3
9	24.5	1.3
10	24.1	1.3
11 or above	14.1	1.1
Ungraded	1.2	.3

Source: NLTS2 Wave 1 parent interviews.

The students' grade levels[3] mirror the distribution of age, with fewer students in seventh grade (12%) and the upper grades (14% in grade 11 or above) than at other grade levels. One percent of students are not assigned to a grade level. Subsequent reports from NLTS2 will describe school programs for students at these different grade levels.

Each age cohort represents all youth receiving special education services at that age, regardless of the age at which they were identified. Thus, for example, 13-year-olds include students identified as eligible for special education at age 13 and all those identified at earlier ages who still are receiving services at age 13. However, they do not include any students who received special education at earlier ages but are no longer receiving services at age 13 (e.g., a 6-year-old whose articulation impairment was ameliorated through speech therapy by age 10).

Further, each age cohort does not include students who left school at earlier ages. For example, the cohort of students selected for the sample between their 16th and 17th birthdays does not include students who left school before they turned 16. Early school leavers are not equally distributed across the disability categories; for example, youth with emotional disturbances are more likely to drop out early than youth with sensory impairments (Wagner, 1991). Thus, the disability mix shifts across the age cohorts because some disabilities are more prevalent for younger students and others do not emerge until later, and because youth with some types of disabilities are more likely than others to leave school early.

Youth are distributed across the age groups in a similar pattern within each disability category (Exhibit 2-3), with one exception. Almost half of 13- to 17-year-olds with speech impairments are ages 13 or 14, making them significantly younger as a group than youth in most other disability categories ($p<.001$). This pattern suggests that youth with speech impairments are more likely to be identified as having a disability or to begin receiving services earlier than others, or that their need for special education services is ameliorated as they age.

Gender

Whereas youth in the general population are split about evenly between boys and girls, almost two-thirds of youth with disabilities in the NLTS2 age range are boys (Exhibit 2-4). Some research has suggested that the higher proportion of boys among students receiving special education results from schools using identification and assessment practices that inaccurately identify boys as having some kinds of disabilities more often than girls (Shaywitz & Shaywitz, 2001). However, the National Early Intervention Longitudinal Study (NEILS), which includes a nationally representative sample of children with disabilities or developmental delays or who are at risk of delay and who are ages birth to 30 months, found a similar proportion (61%) of boys

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[3] Grade levels are for the 2000-01 school year. By the time data were collected from parents at the end of that school year, 1% of youth were no longer enrolled in school, although they continue to be included in NLTS2.

Exhibit 2-3
AGE AND GRADE LEVEL OF YOUTH REPRESENTED IN NLTS2, BY DISABILITY CATEGORY

	Learning Disability	Speech/ Language Impairment	Mental Retardation	Emotional Disturbance	Hearing Impairment	Visual Impairment	Orthopedic Impairment	Other Health Impairment	Autism	Traumatic Brain Injury	Multiple Disabilities	Deaf-Blindness
Percentage reporting age as:												
13 or 14	32.8	45.1	27.3	29.8	30.3	29.7	28.3	31.9	32.6	25.5	26.1	35.7
	(2.1)	(2.3)	(2.1)	(2.1)	(2.5)	(3.2)	(2.5)	(2.1)	(2.8)	(4.2)	(2.3)	(4.6)
15	23.0	22.4	23.9	22.5	20.5	20.3	25.4	22.9	23.9	22.2	21.4	22.2
	(1.9)	(1.9)	(2.0)	(2.0)	(2.2)	(2.8)	(2.4)	(1.9)	(2.5)	(4.0)	(2.2)	(4.0)
16	26.0	19.9	27.3	26.1	27.7	26.0	24.3	26.2	25.4	32.3	31.2	20.1
	(2.0)	(1.8)	(2.1)	(2.1)	(2.4)	(3.1)	(2.4)	(1.9)	(2.6)	(4.5)	(2.5)	(3.9)
17	18.2	12.7	21.5	21.6	21.6	24.0	22.0	18.9	18.1	19.9	21.3	22.0
	(1.7)	(1.5)	(1.9)	(1.9)	(2.2)	(3.0)	(2.3)	(1.7)	(2.3)	(3.9)	(2.2)	(4.0)
Percentage reporting grade level as:												
7	10.8	16.5	12.9	7.8	10.9	10.0	11.0	10.9	9.9	9.3	10.0	15.3
	(1.5)	(1.8)	(1.7)	(1.4)	(1.8)	(2.1)	(1.7)	(1.5)	(1.6)	(2.7)	(1.6)	(3.7)
8	23.8	31.8	21.2	23.3	22.6	19.1	23.7	23.4	22.5	22.9	16.7	21.8
	(2.1)	(2.3)	(2.0)	(2.1)	(2.4)	(2.8)	(2.3)	(2.0)	(2.3)	(3.8)	(2.0)	(4.2)
9	24.5	22.0	25.3	28.2	22.7	20.7	23.5	27.9	23.6	20.6	23.7	21.3
	(2.1)	(2.0)	(2.1)	(2.3)	(2.4)	(2.9)	(2.3)	(2.1)	(2.3)	(3.7)	(2.3)	(4.1)
10	25.1	18.0	24.3	24.6	25.5	21.5	23.8	22.6	20.5	32.4	21.2	17.6
	(2.1)	(1.9)	(2.1)	(2.2)	(2.5)	(2.9)	(2.3)	(2.0)	(2.2)	(4.3)	(2.2)	(3.8)
11 or above	15.3	11.3	11.8	14.4	15.4	22.7	12.1	14.6	11.8	12.2	10.5	8.4
	(1.9)	(1.6)	(1.7)	(1.9)	(2.2)	(3.0)	(2.9)	(1.7)	(1.9)	(3.0)	(1.7)	(2.9)
Ungraded/ multigrade	.6	.5	4.6	1.7	2.9	6.0	5.8	.7	11.6	2.7	17.9	11.7
	(.4)	(.3)	(1.2)	(.6)	(1.0)	(1.7)	(1.5)	(.5)	(1.9)	(1.4)	(2.2)	(3.2)

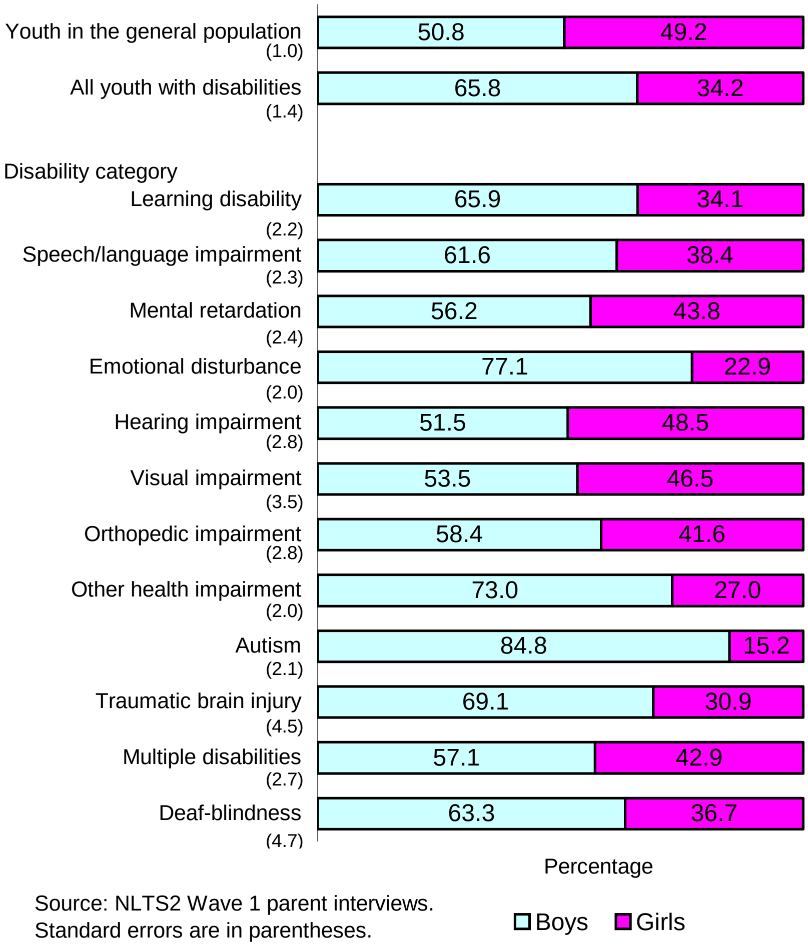
Source: NLTS2 Wave 1 parent interviews.

Standard errors are in parentheses.

among infants and toddlers with disabilities (Hebbeler et al., 2001). Thus, the disproportionate number of boys among children with disabilities appears at very early ages, before school practices come to bear. The pattern holds constant across the age range of students represented in NLTS2 and is consistent with patterns identified among youth with disabilities in elementary school and early middle school (Marder & Wagner, 2002). It also appears about equally in all racial/ethnic groups. Whatever the reason for the disproportionate number of boys among youth with disabilities, it is important to understand that the experiences of youth with disabilities as a group disproportionately reflect the experiences of boys.

Boys make up between 62% and 73% of most disability categories, but 77% of youth with emotional disturbances and almost 85% of youth with autism are boys. In contrast, among youth with mental retardation or hearing or visual impairments, the percentages come close to the distribution of boys and girls in the general population, with boys comprising 52% to 56% of these groups. Thus, youth with different disability classifications can be expected to differ in their experiences and achievements because of their different gender balance as well as their disability differences.

Exhibit 2-4
GENDER OF YOUTH,
BY DISABILITY CATEGORY



Source: NLTS2 Wave 1 parent interviews.
Standard errors are in parentheses.

Racial/Ethnic Background

Research has provided considerable evidence that disability is "linked to the conditions of poverty, family structure, and minority status. Analyses of national data consistently find nonrandom rates of occurrence for illness, injury, and chronic health conditions across racial and ethnic boundaries" (Center on Emergent Disability, 2001; see also Bradsher, 1995; Fujiura, 1998). A recent comprehensive report about minority participation in special education and gifted education has documented a host of personal, social, and environmental factors that are linked to a higher rate of disability among minority and low-income individuals and households, suggesting the complex intertwining of these factors for youth with disabilities (National Research Council, 2002).

Youth with disabilities differ in some respects from youth in the general population in terms of their racial/ethnic backgrounds (Exhibit 2-5). The phenomenon of overrepresentation of minorities in special education, currently a focus of considerable research and policy interest, is apparent for African American youth, who make up 16% of youth in the general population but 21% of youth with disabilities ($p<.001$). In contrast, white youth make up a smaller percentage of youth with disabilities than they do of the general population (62% vs. 66%, $p<.05$). However, comparisons of similar-age youth with disabilities represented by NLTS and NLTS2 indicate that, over time, the racial/ethnic distribution of youth with disabilities has become more similar to that of the general population (Wagner, Cameto, & Newman, 2003).

Exhibit 2-5
RACE/ETHNICITY OF YOUTH WITH DISABILITIES AND YOUTH IN THE GENERAL POPULATION

	Youth with Disabilities [a]	Youth in the General Population [b]
White	62.1 (1.5)	66.1 (.9)
African American	20.7 (1.3)	15.8 (.7)
Hispanic	14.1 (1.1)	12.8 (.7)
Other	2.7 (.5)	5.2 (4.)

[a] Sources: NLTS2 Wave 1 parent interviews and data provided by school districts.

[b] Data for 13- through 17-year-olds from the National Household Education Survey, 1999.

Standard errors are in parentheses.

Such differences in the distributions of the various racial/ethnic groups occur across the age range of children and youth with disabilities. Although African Americans comprise 15% of the general population of infants and toddlers, they make up 21% of infants and toddlers with disabilities (Hebbeler et al., 2001). Similarly, African Americans are 17% of the general population of youth ages 6 through 13 but are 19% of students with disabilities of the same ages (Marder & Wagner, 2002). Differences in the proportion of Hispanics among youth with disabilities and youth in the general population are not statistically significant.

The disproportionality of minorities among youth with disabilities is concentrated in a few categories. The racial/ethnic composition of most disability categories does not differ significantly from the general population of youth. However, African Americans make up significantly larger proportions of youth with mental retardation (33%), emotional disturbance (25%), and autism (24%) than their proportion of the general population, and Hispanics make up a significantly larger proportion of youth with hearing impairments (17%) and significantly smaller proportions of youth with mental retardation (10%), other health impairments (8%), and autism (9%) than their proportion of the general population (Exhibit 2-6). These racial/ethnic differences between disability categories may contribute to differences in the experiences of youth, apart from their differences in disability.

Exhibit 2-6
RACE/ETHNICITY, BY DISABILITY CATEGORY

	Learning Disability	Speech/ Language Impairment	Mental Retardation	Emotional Disturbance	Hearing Impairment	Visual Impairment	Orthopedic Impairment	Other Health Impairment	Autism	Traumatic Brain Injury	Multiple Disabilities	Deaf-Blindness
Percentage whose race/ethnicity was: [a]												
White	62.3 (2.3)	64.7 (2.3)	54.8 (2.4)	61.4 (2.4)	59.9 (2.8)	62.1 (3.4)	64.3 (2.6)	76.6 (2.0)	62.0 (2.6)	68.5 (4.2)	65.6 (2.5)	62.4 (4.7)
African American	18.4 (1.9)	17.7 (1.8)	33.3 (2.3)	25.0 (2.2)	17.5 (2.1)	20.2 (2.8)	15.5 (2.0)	13.3 (1.6)	23.7 (2.3)	17.9 (3.5)	18.4 (2.1)	14.7 (3.4)
Hispanic	16.2 (1.8)	14.2 (1.7)	9.6 (1.4)	10.2 (1.5)	17.3 (2.1)	14.0 (2.4)	16.4 (2.0)	7.7 (1.2)	8.9 (1.5)	10.0 (2.7)	11.6 (1.7)	19.5 (3.9)
Asian/Pacific Islander	1.0 (.5)	2.1 (.7)	1.2 (.5)	1.4 (.6)	4.1 (1.1)	3.0 (1.2)	3.2 (1.0)	1.2 (.5)	4.0 (1.0)	2.3 (1.4)	1.8 (.7)	2.9 (1.6)
American Indian/ Alaska Native	1.3 (.5)	.9 (.5)	.5 (.3)	1.6 (.6)	1.2 (.6)	.3 (.4)	.4 (.3)	.7 (.4)	.7 (.4)	1.2 (1.0)	2.3 (.8)	.0 (.0)

Sources: NLTS2 Wave 1 parent interviews and data provided by school districts.

[a] Table does not include youth reported as having multiple or “other” backgrounds.

Standard errors are in parentheses.

Language Used at Home

English and Spanish are the only languages in which the NLTS2 parent interview and family survey were conducted. Consequently, youth who use primarily languages other than English or Spanish in the home are almost certainly underrepresented in the study. Among the population represented, parents of 92% of youth report that English is the language used at home most of the time (Exhibit 2-7). Because of the language constraint imposed in data collection, it is not surprising that almost all youth who do not use English in the home use Spanish (5%). Another 3% of youth reportedly use a language other than English or Spanish at home most of the time, and sign language is most often used at home by fewer than 1% of students.

Exhibit 2-7
PRIMARY LANGUAGE USED IN THE HOMES OF YOUTH WITH DISABILITIES, BY RACE/ETHNICITY

	All	White	African American	Hispanic
Percentage who primarily use at home:				
English	92.1	97.8	94.8	68.7
	(.9)	(.6)	(1.5)	(4.1)
Spanish	4.9	.5	2.9	28.0
	(.7)	(.3)	(1.1)	(4.0)
Sign language	.5	.6	.1	.4
	(.2)	(.3)	(.2)	(.6)
Other [a]	2.5	1.1	2.2	2.9
	(.5)	(.4)	(1.0)	(1.5)

Sources: NLTS2 Wave 1 parent interviews and data provided by school districts.

[a] Includes students who do not use spoken language.

Standard errors are in parentheses.

English is the predominant language at home for youth in all racial/ethnic categories; however, its prominence ranges from 98% of white youth to 69% of Hispanic youth, 28% of whom use Spanish at home most of the time.

The proportion of youth who use English most of the time at home is close to 90% or greater for all disability categories except hearing impairment and deaf-blindness (Exhibit 2-8). Among those students, 22% and 13%, respectively, use sign language most of the time at home. Between 3% and 7% of youth in most disability categories use primarily Spanish at home.

Exhibit 2-8
PRIMARY LANGUAGE USED AT HOME, BY DISABILITY CATEGORY

	Learning Dis-ability	Speech/ Language Impairment	Mental Retar-dation	Emotional Distur-bance	Hearing Impair-ment	Visual Impair-ment	Ortho-pedic Impair-ment	Other Health Impair-ment	Autism	Trau-matic Brain Injury	Multiple Disabili-ties	Deaf-Blind-ness
Percentage who primarily use at home:												
English	92.0	88.9	93.7	94.8	70.0	90.0	91.4	94.9	90.1	91.3	90.0	77.9
	(1.3)	(1.5)	(1.2)	(1.1)	(2.6)	(2.1)	(1.6)	(1.0)	(1.6)	(2.5)	(1.6)	(4.3)
Spanish	5.3	7.1	3.6	3.6	5.0	6.7	6.7	3.4	4.1	5.0	4.0	6.2
	(1.1)	(1.3)	(.9)	(.9)	(1.2)	(1.7)	(1.4)	(.9)	(1.1)	(1.9)	(1.1)	(2.5)
Sign language	.0	.0	.7	.3	21.8	.2	.1	.2	.2	.2	1.2	13.0
			(.4)	(.3)	(2.4)	(.3)	(.2)	(.2)	(.2)	(.4)	(.6)	(3.5)
Another language	2.7	4.0	1.9	1.3	3.2	3.0	1.9	1.6	5.6	3.5	4.9	2.8
	(.8)	(1.0)	(.7)	(.6)	(1.0)	(1.2)	(.8)	(.6)	(1.2)	(1.6)	(1.2)	(1.7)

Source: NLTS2 Wave 1 parent interviews.

Standard errors are in parentheses.

Summary

The findings reported in this chapter demonstrate that, as a group, youth with disabilities are both similar to and different from their peers in the general population. Considerably greater variation is apparent when we look at youth within each primary disability category. Even in such fundamental aspects as gender and racial/ethnic background, youth with different primary disabilities differ considerably from each other.

Although students receiving special education include youth in 12 primary disability categories, two-thirds are classified as having learning disabilities as their primary disability. NLTS2 represents youth who were 13 through 17 years old when data were collected; however, most youth for whom data were collected were in the 14- to 16-year-old age range, with the exception that youth with speech/language impairments had a larger proportion of younger students than other categories. Two-thirds of the youth represented are boys; however, boys make up approximately 55% of youth with hearing impairments, mental retardation, or visual impairments. In contrast, they are 77% of youth with emotional disturbances and 85% of youth with autism.

African Americans are somewhat overrepresented among youth with disabilities relative to the general population, although less now than earlier. This overrepresentation is consistent across the age range of children and youth with disabilities; however, it is disproportionately concentrated in a limited number of disability categories. African Americans make up a particularly large proportion of youth with mental retardation relative to their proportion in the general population. In contrast, the percentage of Hispanic students is particularly small among students with other health impairments, autism, or mental retardation.

This overview of some fundamental features of the national population of youth with disabilities that is represented by NLTS2 begins to lay a foundation for understanding the flow of findings that will be produced by the study in the coming years. Understanding the differences between youth with disabilities and the general population, and between youth with different kinds of primary disabilities, is essential to interpreting other differences between those groups in their experiences and achievements, both in and outside of school.

The next chapter extends the effort to profile youth with disabilities by examining important characteristics of the households from which they come.

3. HOUSEHOLD CHARACTERISTICS OF YOUTH WITH DISABILITIES

By Camille Marder, Phyllis Levine, Mary Wagner, and Denise Cardoso

A child's household is his or her first educational setting. It is in the home that children form their first emotional attachments, achieve their early developmental milestones, and acquire the foundation for their subsequent growth and learning. During adolescence, most youth wrestle with a desire for independence while at the same time feeling a need to stay connected with family and home. Thus, as they grow up, what children need from their families and others who share their households may change, but their values, expectations, and preferences continue to be shaped, in large part, by their experiences at home.

As volatile and challenging as adolescence may be for all youth, the disabilities of students receiving special education may make them particularly vulnerable during the middle school and high school years. Attributes frequently associated with some disabilities, such as late-onset puberty, social immaturity, physical lag, and cognitive impairment, can compound an already stressful period for image-conscious adolescents seeking peer approval. As a result, adolescents with disabilities may have a heightened need for attention, support, resources, and advocates at home. Coincidentally, their disabilities and the needs that accompany them may create added demands and stresses for others in their households. How families respond to these complex dynamics can influence the family system itself, the nature of the adolescent years, and the transition to adulthood and independence.

This chapter examines several key characteristics of the households of youth with disabilities. It begins with their living arrangements and the people who make up their households.[1] For youth who live with parents, it then considers their parents' education levels and employment status. The chapter concludes with a discussion of the economic status of youth's households and its interrelationship with ethnicity and disability.

Household Composition

The composition of students' households can have important implications for their economic security, emotional support, and, potentially, many aspects of their development. These factors, in turn, may affect their experiences and performance both in and out of school. This section focuses on three aspects of the households of youth with disabilities. It begins by addressing the fundamental question of with whom youth live—with parents, other family members, or legal guardians, or in foster care or institutional settings. It then considers the number of members of their households and, finally, whether households include other members with disabilities.

Living Arrangements

The importance of the role parents play in the development of their children should not be underestimated. Fathers and mothers contribute in different, but crucial ways to giving children

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[1] Analyses similar to those reported in this chapter were conducted for elementary and middle school students as part of the Special Education Elementary Longitudinal Study (SEELS) and are reported in Wagner, Marder, and Cardoso (2002).

Exhibit 3-1
LIVING ARRANGEMENTS OF YOUTH WITH DISABILITIES AND YOUTH IN THE GENERAL POPULATION

	Youth with Disabilities [a]	Youth in the General Population [b]
Percentage of youth living:		
With parents	92.4 (.9)	95.9 (.5)
With two parents	61.4 (1.6)	73.8 (1.0)
With one parent	31.1 (1.4)	22.5 (1.0)
Not with parents	7.6 (.9)	4.0 (.5)
With relative(s)	5.3 (.7)	3.2 (.4)
With a legal guardian (not a relative)	1.1 (.3)	c
In foster care	1.0 (.3)	c
In a residential school or institution	<.1 (.1)	c
In another arrangement	.2 (.1)	.5 (.2)
Percentage with:		
One or more other household members with a disability	39.7 (1.6)	NA
One or more adults with a disability in household	20.9 (1.3)	NA
One or more other children with a disability in household	26.4 (1.4)	NA

[a] Source: NLTS2 Wave 1 parent interviews.

[b] Computed by using data from the National Longitudinal Study of Adolescent Health, 1996.

[c] Youth living with a legal guardian, in foster care, or in a residential school or institution are included in the "other arrangement" category.

NA=Not available.

Standard errors are in parentheses.

and youth the emotional and physical resources they need to grow into healthy, well-adjusted members of their families, schools, and communities. Compared with youth raised in two-parent households, youth raised in single-parent families often experience significantly poorer outcomes in several domains (Shonkoff & Phillips, 2000). Yet, the composition of America's households has changed dramatically in recent decades, with a marked decline in traditional two-married-parent households and an accompanying increase in single-parent, blended, and multigenerational families (Fields & Casper, 2000).

Although approximately 90% of youth with disabilities live with one or both parents, these youth are less likely than youth in the general population to live with both parents (Exhibit 3-1; 61% vs. 74%, p<.001) and more likely to live with one parent (31% vs. 22%, p<.001). Youth with disabilities also are more likely than youth in the general population to live with neither parent (8% vs. 4%, p<.001) and to live with other family members (5% vs. 3%, p<.01). Few youth with disabilities live in other types of arrangements.

NLTS2 findings suggest that disability is not always an individual trait but can concentrate in families. Two out of five youth with disabilities live in households in which at least one other member has a disability.

Household Size

The size of households can influence many experiences at home. For example, having more adults in a household can improve the economic status of a family by increasing earnings and potentially can provide greater ongoing supervision and support for youth, whereas more children can place greater demands on households' emotional and economic resources.

Exhibit 3-2
SIZE OF HOUSEHOLDS OF YOUTH WITH DISABILITIES AND YOUTH IN THE GENERAL POPULATION

	Youth with Disabilities [a]	Youth in the General Population [b]
Percentage of households with:		
Two or three members	30.3 (1.5)	25.2 (1.0)
Four members	31.1 (1.5)	34.0 (1.1)
Five or six members	30.2 (1.5)	32.4 (1.1)
Seven or more members	8.4 (.9)	8.4 (.6)
Percentage of households with:		
One adult	25.0 (1.4)	19.0 (.9)
Two adults	60.0 (1.6)	65.3 (1.1)
More than two adults	15.0 (1.1)	15.8 (.9)
Percentage of households with:		
One child [c]	26.4 (1.4)	22.8 (1.0)
Two or three children	58.3 (1.6)	62.2 (1.2)
Four or more children	15.4 (1.2)	15.0 (.8)

[a] Source: NLTS2 Wave 1 parent interviews.

[b] Computed by using data from the National Longitudinal Study of Adolescent Youth, 1996.

[c] Children are defined as persons less than 18 years old.

Standard errors are in parentheses.

About equal numbers of youth with disabilities live in households with two or three members, four members, or five or six members (approximately 30%). Few (8%) live in larger households. Consistent with the percentages of youth who live with one parent or two parents shown in Exhibit 3-1, 25% of youth with disabilities live in households with one adult, and 60% live in households with two adults. Fifteen percent live in households with more than two adults.[2] Approximately one-fourth of youth with disabilities are the only children in their households, about 60% live in households with two or three children, and 15% live in households with four or more children.[3]

These patterns are fairly similar to those of youth in the general population. However, youth with disabilities are somewhat more likely to live in households in which there is only one adult (25% vs. 19%, p<.001) and less likely to live in households in which there are two adults (60% vs. 65%, p<.01). They also are more likely than youth in the general population to be the only child in their household (26% vs. 23%, p<.05).

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[2] The fact that a larger percentage of youth live with two or more adults than live with two parents is accounted for by the fact that not all adults in the household are necessarily parents. Thus, a youth may live with a single parent but with two adults by living, for example, with his or her mother and an aunt, uncle, or grandparent.

[3] In this chapter, children are defined as persons less than 18 years old.

Disability Differences in Household Composition

Average household size does not vary significantly across most disability categories, nor do living arrangements (Exhibit 3-3). However, youth with mental retardation, emotional disturbances, or other health impairments are exceptions to the general pattern. Youth with mental retardation or emotional disturbances are the least likely to live with two parents (49% and 55%, respectively, p<.05 compared with youth with learning disabilities), and youth with other health impairments are the most likely to live with both parents (72%, p<.01 compared with youth with learning disabilities). Youth with learning disabilities (9%), visual impairments (10%), or mental retardation (11%) are the most likely to live with a never-married parent (p<.05 compared with youth with other health impairments).

Between 5% and 10% of youth in most disability categories do not live with their parents. Regardless of disability category, most of these youth live with relatives. Youth with mental retardation or emotional disturbances are particularly likely to live with relatives (6% to 8%), legal guardians (2%), or foster parents (2% to 3%). Along with youth with other health impairments, they also are particularly likely to have one or more other people in the household with a disability (43% to 46%).

Exhibit 3-3
HOUSEHOLD COMPOSITION, BY DISABILITY CATEGORY

	Learning Dis-ability	Speech/ Language Impair-ment	Mental Retar-dation	Emo-tional Distur-bance	Hearing Impair-ment	Visual Impair-ment	Ortho-pedic Impair-ment	Other Health Impair-ment	Autism	Trau-matic Brain Injury	Multiple Disabili-ties	Deaf-Blind-ness
Percentage of youth living:												
With parents	93.9	94.5	89.3	86.8	91.7	91.7	94.3	94.1	94.5	91.5	88.5	96.0
	(1.2)	(1.2)	(1.6)	(1.8)	(1.7)	(2.0)	(1.3)	(1.2)	(1.2)	(2.6)	(1.7)	(2.1)
With both parents	63.3	69.7	54.8	48.7	65.8	61.0	66.9	71.9	67.5	61.2	63.6	60.3
	(2.4)	(2.3)	(2.6)	(2.6)	(2.8)	(3.5)	(2.7)	(2.2)	(2.5)	(4.5)	(2.6)	(5.2)
With one parent	30.6	24.8	34.5	38.1	26.0	30.7	27.4	22.2	27.0	30.3	24.9	35.7
	(2.3)	(2.2)	(2.5)	(2.6)	(2.6)	(3.3)	(2.5)	(2.0)	(2.4)	(4.2)	(2.4)	(5.1)
Not with parents	6.1	5.5	10.7	13.2	8.3	8.3	5.7	5.9	5.5	8.5	11.5	4.0
	(1.2)	(1.2)	(1.6)	(1.8)	(1.7)	(2.0)	(1.3)	(1.2)	(1.2)	(2.6)	(1.7)	(2.1)
With relative(s)	5.0	3.5	6.2	7.9	5.3	5.8	3.6	2.8	2.3	5.7	4.3	3.4
	(1.1)	(.9)	(1.3)	(1.4)	(1.3)	(1.7)	(1.1)	(.8)	(.8)	(2.1)	(1.1)	(1.9)
With a legal guardian (not a relative)	.6	.6	2.3	2.2	2.5	2.0	1.1	1.0	1.1	1.6	2.3	.0
	(.4)	(.4)	(.8)	(.8)	(.9)	(1.0)	(.6)	(.5)	(.6)	(1.2)	(.8)	
In foster care	.5	1.2	1.8	2.8	.3	.1	.5	1.7	1.7	.9	2.6	.0
	(.4)	(.5)	(.7)	(.9)	(.3)	(.2)	(.4)	(.6)	(.7)	(.9)	(.9)	
In a residential school or institution	.0	.0	.0	.2	.0	.0	.1	.1	.2	.0	1.5	.7
				(.2)			(.2)	(.2)	(.2)		(.7)	(.9)
In another arrangement	.1	.1	.4	.2	.2	.3	.3	.2	.2	.2	.8	.0
	(.2)	(.2)	(.3)	(.2)	(.3)	(.4)	(.3)	(.2)	(.2)	(.4)	(.5)	
Percentage reporting one or more other people in household with a disability	38.7	35.9	44.6	45.6	28.8	34.5	28.3	42.8	33.1	28.2	35.5	29.1
	(2.4)	(2.4)	(2.6)	(2.6)	(2.6)	(3.4)	(2.5)	(2.4)	(2.5)	(4.1)	(2.6)	(4.8)

Source: NLTS2 Wave 1 parent interviews.

Standard errors are in parentheses.

Exhibit 3-4
HOUSEHOLD COMPOSITION, BY RACE/ETHNICITY

	Youth with Disabilities		
	White	African American	Hispanic
Percentage of youth living:			
With parents	94.6 (.9)	86.0 (2.4)	94.1 (2.1)
With both parents	71.5 (1.9)	35.4 (3.4)	55.6 (4.5)
With one parent	23.1 (1.8)	50.9 (3.5)	38.4 (4.4)
Not with parents	5.4 (.9)	14.0 (2.4)	5.9 (2.1)
With relative(s)	3.4 (.8)	9.5 (2.1)	4.3 (1.8)
With a legal guardian (not a relative)	.7 (.3)	2.4 (1.1)	.8 (.8)
In foster care	1.1 (.4)	1.4 (.8)	.5 (.6)
In residential school or institution	.1 (.1)	.0	.0
In another arrangement	.1 (.1)	.4 (.4)	.4 (.6)
Percentage with any other member of household with a disability	43.2 (2.0)	39.5 (3.4)	29.3 (4.1)
Average household size			
All members	4.3 (.1)	4.5 (.1)	4.7 (.2)
Children	2.3 (.1)	2.7 (0.1)	2.6 (.1)
Adults	2.0 (<.1)	1.7 (.1)	2.1 (.1)

Source: NLTS2 Wave 1 parent interviews.
Standard errors are in parentheses.

Demographic Differences in Household Composition

Although there are no significant differences in household composition for youth of different ages or for boys and girls, there are differences among youth of the various races/ethnicities. Approximately 70% of white youth live with both parents, and 23% live with one parent. Five percent do not live with their parents. A very different pattern is apparent for African American youth. Only about one-third of them live with both parents, about half live with one parent, and 14% do not live with parents at all (p<.001 for all comparisons with white youth).

Hispanic youth’s living arrangements fall in between those of white and African American youth. About half (56%) live with both parents (p<.01 compared with white youth), and 38% live with one parent (p<.05). Hispanic youth are about as likely as white youth not to live with parents.

Approximately 40% of white youth and a similar percentage of African American youth live in households in which at least one other person has a disability. In contrast, approximately 30% of Hispanic youth live in households in which another person has a disability (p<.01 for comparison with white youth).

The average overall household sizes of the three racial/ethnic groups do not differ; however, household compositions vary somewhat. On average, white youth live in households with 2.3 children and 2.0 adults, whereas African American youth live in households that average more children (2.7) and fewer adults (1.7, p<.001). Hispanic youth’s households are similar to African American youth’s households in terms of the number of children, but similar to white youth’s households in terms of the number of adults.

Parents' Educational Attainment and Employment Status

The level of parents' education can influence their confidence in parenting, their expectations for their children, and the nature and quality of their employment opportunities. Parents' employment status usually has a direct influence on the economic status of their households. This section examines the educational attainment and employment status of parents of students with disabilities.

Parents' Educational Attainment

Higher levels of parental education often have been linked to students' success in school. This link is believed to be related to such important qualities as the home literacy environment, parental teaching styles, allocation of household resources to promote learning, and involvement in children's schools (Shonkoff & Phillips, 2000). These and related factors may be particularly important to youth with disabilities, who face learning challenges.

The educational levels of the heads of households of youth with disabilities vary widely. The heads of households of almost 15% of youth completed college (Exhibit 3-5),[4] whereas those of 21% did not complete high school. Parents' educational levels are somewhat lower than those of parents of youth in the general population, 31% of whose household heads completed college (p<.001) and 16% of whose household heads did not complete high school (p<.01). However, a comparison of youth with disabilities in 1987 and 2001 (Wagner, Cameto, & Newman, 2003) shows that this gap has closed substantially over time because of a significant reduction (20 percentage points, p<.001) in the proportion of heads of households of youth with disabilities who were not high school graduates.

Exhibit 3-5
EDUCATIONAL ATTAINMENT OF PARENTS OF YOUTH WITH DISABILITIES AND YOUTH IN THE GENERAL POPULATION

	Youth with Disabilities [a]	Youth in the General Population [b]
Percentage whose head of household completed:		
Bachelor's degree or higher	14.2 (1.1)	31.2 (1.1)
Some college	23.4 (1.4)	22.1 (1.0)
High school or equivalent	41.4 (1.6)	30.6 (1.1)
Less than high school	21.0 (1.3)	16.0 (.9)

[a] Source: NLTS2 Wave 1 parent interviews.

[b] Computed by using data from the National Household Education Survey, 1999.

Standard errors are in parentheses.

Parents' Employment Status

Employment is the primary way most families generate the financial resources required to meet their needs. Working parents tend to be able to provide more effectively for their children. At the same time, when both parents work, they have less time available to spend with students in providing emotional support, engaging in activities that promote positive development, and becoming involved in students' schooling. The employment status of the head of household is an important ingredient in understanding the context in which children grow up.

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[4] Educational attainment levels are reported only for parents who were living with the youth.

Exhibit 3-6
EMPLOYMENT STATUS OF PARENTS OF YOUTH WITH DISABILITIES AND YOUTH IN THE GENERAL POPULATION

	Youth with Disabilities [a]	Youth in the General Population [b]
Percentage whose head of household is:		
Working full-time	74.9 (1.4)	88.0 (.8)
Working part-time	8.1 (.9)	3.4 (.4)
Not employed	17.0 (1.2)	8.5 (.7)

[a] Source: NLTS2 Wave 1 parent interviews.

[b] Computed by using data from the National Household Education Survey, 1999.

Standard errors are in parentheses.

The heads of households of three-fourths of youth with disabilities are employed full-time,[5] those of 8% are employed part-time, and those of 17% are not employed. This full-time employment rate is significantly lower than that of the heads of households of youth in the general population (88%, $p<.001$),[6] whereas both the part-time employment rate and the nonemployment rate are significantly higher ($p<.001$).

Disability Differences in Parents' Educational Attainment and Employment Status

Between 18% and 25% of youth in most disability categories have household heads who completed college, and between 13% and 20% have household heads who did not complete high school. However, youth with mental retardation and youth with autism fall outside of these ranges (Exhibit 3-7). Approximately 11% of youth with mental retardation have household heads who completed college, and 32% have heads of household with less than a high school education. The percentages among youth with autism are more than reversed—with 39% having household heads who completed college and 11% having household heads who did not complete high school.

Between 68% and 78% of most groups of youth have household heads who are employed full-time, and between 14% and 20% of those same groups have household heads who are not employed. Once again, youth with mental retardation fall outside the general range, with only 62% of their household heads employed full-time and 28% not employed. Youth with other health impairments are the most likely to have a household head who is employed full-time (81%) and the least likely to have a household head who is not employed (12%).

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[5] Full-time is defined as at least 35 hours a week; part-time is defined as working at all but less than 35 hours a week. The discussion refers to the head of household's employment status on a single date during 2001 (when data were collected) and does not necessarily reflect his or her employment status during the entire year.

[6] Data for youth with disabilities collected in 2001 are compared with data for youth in the general population collected in 1999. The reader may wish to bear in mind that between 1999 and 2001, the economy softened somewhat and the annual unemployment rate went from 4.2% to 4.8% (source: Bureau of Labor Statistics, *Employment and Earnings*, Table 1. Employment status of the civilian noninstitutional population, 1939 to date. Available at http://www.bls.gov/cps/cpsaat1.pdf).

Exhibit 3-7
EDUCATIONAL ATTAINMENT AND EMPLOYMENT STATUS OF YOUTH'S PARENTS, BY DISABILITY CATEGORY

	Learning Dis-ability	Speech/ Language Impair-ment	Mental Retar-dation	Emo-tional Distur-bance	Hearing Impair-ment	Visual Impair-ment	Ortho-pedic Impair-ment	Other Health Impair-ment	Autism	Trau-matic Brain Injury	Multiple Disabili-ties	Deaf-Blind-ness
Percentage whose head of household completed:												
Bachelor's degree or higher	12.6	21.8	10.6	13.6	22.1	18.7	27.8	25.1	38.6	19.3	22.5	19.6
	(1.7)	(2.1)	(1.6)	(1.8)	(2.5)	(2.9)	(2.5)	(2.1)	(2.6)	(3.8)	(2.3)	(4.0)
Some college	23.4	23.1	21.6	16.2	29.3	24.3	26.8	27.0	30.6	25.3	25.9	26.0
	(1.4)	(2.1)	(2.1)	(1.9)	(2.4)	(2.6)	(3.2)	(2.5)	(2.2)	(2.4)	(4.2)	(2.4)
High school or equivalent	41.4	44.0	36.9	40.9	37.6	35.4	39.4	30.3	31.0	24.9	39.7	37.3
	(1.6)	(2.5)	(2.4)	(2.5)	(2.6)	(2.8)	(3.6)	(2.6)	(2.2)	(2.3)	(4.7)	(2.7)
Less than high school	20.3	19.7	32.3	19.5	18.3	15.1	14.9	13.3	11.2	15.1	14.2	18.4
	(2.0)	(2.0)	(2.4)	(2.1)	(2.3)	(2.6)	(2.0)	(1.6)	(1.7)	(3.4)	(1.9)	(3.9)
Percentage whose head of household is:												
Working full-time	77.9	77.3	62.4	68.7	78.8	70.1	74.6	81.1	75.8	76.1	70.2	68.3
	(2.1)	(2.1)	(2.5)	(2.5)	(2.4)	(3.4)	(2.5)	(1.9)	(2.3)	(4.1)	(2.5)	(4.7)
Working part-time	8.1	8.1	7.9	9.4	7.3	7.0	12.4	9.1	6.5	8.2	6.9	9.7
	(.9)	(1.4)	(1.4)	(1.5)	(1.4)	(1.5)	(2.4)	(1.6)	(1.2)	(1.5)	(2.4)	(1.6)
Not employed	14.0	14.8	28.2	24.0	14.2	17.5	16.3	12.5	16.0	17.0	20.1	19.4
	(1.7)	(1.8)	(2.3)	(2.3)	(2.1)	(2.8)	(2.1)	(1.6)	(2.0)	(3.6)	(2.2)	(4.0)

Source: NLTS2 Wave 1 parent interviews.

Standard errors are in parentheses.

Demographic Differences in Parents' Educational Attainment and Employment Status

The more affluent a youth's household, the more likely it is to be headed by a person with a relatively high level of education and who is employed full-time. Among youth whose household income is $25,000 or less, approximately 20% have household heads who completed or attended college, and approximately 40% have household heads who did not complete high school (Exhibit 3-8). In contrast, among youth whose household income is more than $50,000, more than half have household heads who completed or attended college, and fewer than 10% have household heads who did not complete high school.

Not surprisingly, heads of more affluent households are more likely than heads of less affluent households to be employed full-time. Whereas the vast majority of youth with household incomes of more than $25,000 have heads of household whose are employed full-time, only half of youth with family incomes of $25,000 have heads of household who are employed full-time, and about one-third of them have heads of household who are not employed.

Exhibit 3-8
EDUCATIONAL ATTAINMENT AND EMPLOYMENT STATUS OF YOUTH'S PARENTS, BY HOUSEHOLD INCOME AND RACE/ETHNICITY

	Household Income			Race/Ethnicity		
	$25,000 or less	$25,001 to $50,000	More than $50,000	White	African American	Hispanic
Percentage whose head of household completed:						
Bachelor's degree or higher	3.7 (1.0)	10.6 (1.9)	27.0 (2.7)	15.8 (1.5)	10.4 (2.2)	8.9 (2.6)
Some college	14.3 (1.9)	28.2 (2.7)	28.5 (2.7)	26.4 (1.8)	19.2 (2.8)	14.6 (3.2)
High school or equivalent	42.8 (2.7)	45.7 (3.0)	37.7 (2.9)	42.3 (2.0)	48.4 (3.6)	31.0 (4.2)
Less than high school	39.2 (2.6)	15.6 (2.2)	6.8 (1.5)	15.4 (1.5)	22.0 (3.0)	45.5 (4.6)
Percentage whose head of household is:						
Working full-time	50.7 (2.7)	86.0 (2.1)	90.9 (1.7)	79.7 (1.7)	63.5 (3.5)	67.2 (4.3)
Working part-time	14.3 (1.9)	5.1 (1.3)	4.4 (1.2)	6.7 (1.0)	11.9 (2.3)	10.8 (2.8)
Not employed	34.9 (2.6)	8.9 (1.7)	4.6 (1.3)	13.6 (1.4)	24.6 (3.1)	22.0 (3.8)

Source: NLTS2 Wave 1 parent interviews.

Standard errors are in parentheses.

The educational attainment and employment status of heads of household also differ considerably for youth of various races/ethnicities. Compared with white youth, minority youth's heads of household have lower educational attainment and lower employment rates. For example, 15% of white youth, but 22% of African American youth and 46% of Hispanic youth, have household heads who did not complete high school ($p<.05$), and 14% of white youth, but 25% of African American youth and 22% of Hispanic youth, have heads of household who are not employed ($p<.05$).

Economic Status

Economic status is strongly related to a range of desired school and postschool outcomes. Being from a low-income household is linked to a greater likelihood of poor health and development in young children, poor performance in school, and a variety of poor outcomes in adolescence (Duncan & Brooks-Gunn, 1997; Lewit, Terman, & Behrman, 1997). Added to the challenges associated with disability, the detrimental effects of poverty can reduce significantly the chances of success for children and youth with disabilities. This section examines several indicators of the economic status of the households in which youth with disabilities are growing up: total household income; whether households are below the federal poverty threshold; experience with selected benefit programs; and whether households have access to important resources, including health insurance and steady telephone service.

Household Income and Poverty

Youth with disabilities live in households with widely varying incomes, as do youth in the general population. Approximately 20% of youth with disabilities live in households with incomes of less than $15,000, and 13% live in households with incomes of more than $75,000 (Exhibit 3-9). For the most part, these percentages are similar to those of youth in the general population, although youth with disabilities are less likely than youth in the general population to live in households in the highest income category (p<.001).

Exhibit 3-9
HOUSEHOLD INCOME AND POVERTY STATUS OF YOUTH WITH DISABILITIES AND YOUTH IN THE GENERAL POPULATION

	Youth with Disabilities [a]	Youth in the General Population [b]
Percentage in households with incomes of:		
$15,000 or less	19.0 (1.3)	17.0 (.7)
$15,001 to $25,000	16.2 (1.3)	14.9 (.7)
$25,001 to $50,000	30.8 (1.6)	30.1 (.9)
$50,001 to $75,000	20.8 (1.4)	18.4 (.7)
More than $75,000	13.3 (1.2)	19.6 (.8)
Percentage living in poverty [c]	24.8 (1.4)	19.7 (.8)

[a] Source: NLTS2 Wave 1 parent interviews.

[b] Computed by using data from the National Household Education Survey, 1999.

[c] See Appendix A for description of how poverty was calculated.

Standard errors are in parentheses.

The adequacy of an income to meet the needs of a household depends in part on the number of people whose needs the income must meet. The federal government has identified income thresholds for households of various sizes, below which a household is considered in poverty. Because parents of youth with disabilities reported their household income in categories (e.g., $25,001 to $30,000) rather than a specific dollar value, poverty rates can only be estimated.[7] Nonetheless, according to these estimates, youth with disabilities are significantly more likely than youth in the general population to be living in poverty. Approximately one in four youth with disabilities are living in poverty, compared with one in five youth in the general population (p<.001).

Saying that a household is below the poverty threshold does not paint the entire picture of a family's lifestyle. One indicator of difficulties poor households can face, particularly when a member of the family has a disability, is lack of telephone service. Telephone service is important because it facilitates access to and communication with educators, health care professionals, other service providers, friends, and employers. Yet 7% of youth with disabilities live in households that experienced interruptions in telephone service for more than one or two days during a 12-month period.

Receipt of Government Benefits

A variety of benefit programs help eligible low-income individuals and families meet their immediate needs, as well as to move toward independence. Among the most important programs for low-income families are the Supplemental Security Income program (SSI), the Food Stamp Program, and Temporary Assistance to Needy Families (TANF).[8]

SSI is a federal program that provides monthly benefits to people with disabilities who have financial need. Federal law states that a child is to be considered eligible for SSI because of a disability if he or she has a physical or mental condition (or a combination of conditions) that results in "marked and severe functional limitations." The condition must last or be expected to last at least 12 months or be expected to result in a child's death.

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[7] See Appendix A for a description of how poverty was calculated for these analyses.

[8] Another important support program for low-income families is Medicaid, which is government-provided health insurance. Participation in health insurance is discussed in a subsequent section of this chapter.

The Food Stamp Program provides low-income households with cash-like benefits that can be used to purchase food in authorized retail stores. The program was established by the 1964 Federal Food Stamp Act, and by 1974 it had become the most significant food plan in U.S. history. The program currently provides benefits to millions of families with children and to individuals with disabilities. To qualify for benefits, households must have gross incomes below 130% of the poverty threshold.

TANF is a monthly cash assistance program for poor families with children under age 18 that emerged from The Personal Responsibility and Work Opportunity Reconciliation Act of 1996. TANF has a 5-year lifetime limit on cash assistance. In addition, work is a major component of TANF; adult recipients with children older than 1 year are required to participate in a work activity.

Exhibit 3-10
RECEIPT OF GOVERNMENT BENEFITS BY YOUTH WITH DISABILITIES AND YOUTH IN THE GENERAL POPULATION

	Households of Youth with Disabilities [a]	Households of Youth in the General Population [b]
	Receiving Currently (2001)	Received during Previous Month (1994)
Percentage receiving:		
SSI	13.3 (1.1)	5.2 (.6)
Food Stamps	12.6 (1.0)	10.4 (.8)
TANF	7.2 (.8)	6.5 (.6)
Benefits from any of these programs	24.2 (1.4)	14.1 (1.8)

[a] Source: NLTS2 Wave 1 parent interviews.

[b] Computed by using data from National Longitudinal Study of Adolescent Health, 1994.

Standard errors are in parentheses.

Approximately one in eight youth with disabilities (13%) receive SSI benefits, a similar percentage live in households that receive Food Stamps, and 7% live in households that participate in TANF (Exhibit 3-10). Overall, one-quarter of youth with disabilities live in households that are enrolled in at least one of these benefit programs. Not surprisingly, the percentage of youth with disabilities receiving SSI is significantly higher than the percentage of youth in the general population receiving SSI (p<.001); however, participation rates in TANF and Food Stamps of households of youth with disabilities are about the same as those of households of youth in the general population, even though youth with disabilities are more likely to live in poor households.

Health Insurance Coverage

Research has demonstrated that the likelihood of receiving medical care for such childhood ailments as acute earaches, recurring ear infections, sore throats, and asthma is markedly reduced for youth who are uninsured (Kaiser Commission on Medicaid and the Uninsured, 2000). Given the risk of generally poorer health among youth with disabilities relative to other youth and the significant health care needs of young people with particular kinds of disabilities, health insurance is a critically important support for youth with disabilities.

More than 90% of students with disabilities and students in the general population have some form of medical insurance; however, youth with disabilities are less likely than youth in the general population to have private insurance (Exhibit 3-11; 65% vs. 76%, p<.001) and more likely to have government insurance (27% vs. 9%, p<.001). This finding is consistent with their greater likelihood of living in poverty.

Exhibit 3-11
HEALTH INSURANCE COVERAGE OF YOUTH WITH DISABILITIES AND YOUTH IN THE GENERAL POPULATION

	Youth with Disabilities [a]	Youth in the General Population [b]
Any health insurance	92.2 (.8)	95.7 (.5)
Private insurance	64.6 (1.5)	75.6 (1.1)
Government insurance	26.9 (1.4)	8.7 (.7)
Other type of Insurance	.7 (.3)	11.3 (.8)

[a] Source: NLTS2 Wave 1 parent interviews.

[b] Computed by using data from the National Longitudinal Study of Adolescent Health, 1994.

Standard errors are in parentheses.

Approximately half of youth with disabilities have managed health care provided by a health maintenance organization (HMO) (Exhibit 3-12). Managed care is more common among youth with private health insurance (57%) than among youth with government insurance (32%, p<.001).

Exhibit 3-12
MANAGED CARE AMONG YOUTH WITH DISABILITIES

Percentage of youth with managed care among:	
All youth	49.5 (1.7)
Youth with private health insurance	56.6 (2.0)
Youth with government health insurance	32.2 (2.6)

Source: NLTS2 Wave 1 parent interviews.

Standard errors are in parentheses.

Although NLTS2 did not ask parents a specific question regarding adequacy of their adolescent children’s health insurance, the survey did ask them whether they had needed to change insurance carriers or buy additional insurance because of their children’s special needs and about refusals by insurance companies to cover services or items related to children’s disabilities (Exhibit 3-13).

Exhibit 3-13
REPORTED PROBLEMS WITH HEALTH INSURANCE

	Percentage	Standard Error
Percentage of insured youth whose parents report:		
Changing insurance plans or buying extra insurance because of child’s special needs	4.4	.6
Insurer refused to pay for disability-related services/items	12.2	1.0
Percentage of insured youth whose parents report insurer refused to pay for:		
Special equipment/devices	2.8	.5
Diagnostic services	2.7	.5
Mental health services	2.4	.5
Medications	2.1	.4
Specialists	1.1	.3
Surgery	.3	.2
Standard therapies (e.g., occupational, physical, or speech therapy)	.3	.2
Other therapy services	1.6	.4
Other services/items	.2	.1

Source: NLTS2 Wave 1 parent interviews.

Parents of 4% of youth report changing insurance plans or buying extra insurance because of their children's disabilities, and parents of 12% of youth report encountering refusals by insurance companies to cover services or items related to children's disabilities. No more than 3% of parents report rejections for any given type of item or service, but rejections are most common for requests for special equipment or devices, diagnostic services, mental health services, or medications.

Relationships among Economic Status Indicators

Although each of the measures described above depicts one aspect of the economic status of youth with disabilities, it is important to recognize their interrelationships. Measures of income, benefit program participation, and other household resources cluster together as indicators of the broad concept of economic status; youth who were economically disadvantaged generally experienced these aspects of poverty simultaneously.

Exhibit 3-14 shows the relationships of benefit program participation and household income for youth with disabilities. As expected, low-income households are more likely than higher-income households to receive all three types of benefits; youth with disabilities in households with incomes of $25,000 or less are much more likely than those in households with incomes greater than $25,000 to receive SSI (28% vs. 8% and 4% of youth in households with incomes of $25,001 to $50,000 and more than $50,000, p<.001), Food Stamps (32% vs. 4% and less than 1%, p<.001), or TANF (17% vs. 2% and 1%, p<.001). The fact that any households with incomes of more than $50,000 receive government benefits generally results from relatively high poverty thresholds for large households.

Not surprisingly, affluence is positively associated with having health insurance coverage. Whereas only 3% of youth from affluent households lack health insurance coverage, 10% of youth from households with incomes of $50,000 or less do not have coverage (p<.001).

Exhibit 3-14
BENEFIT PROGRAM PARTICIPATION AND INSURANCE COVERAGE OF YOUTH WITH DISABILITIES, BY HOUSEHOLD INCOME AND POVERTY STATUS

	Household Income			Household in Poverty	
	$25,000 or Less	$25,001 to $50,000	More than $50,000	Yes	No
Percentage in households that receive:					
SSI	27.5 (2.3)	7.8 (1.6)	3.7 (1.1)	28.8 (2.9)	8.2 (1.1)
Food Stamps	32.2 (2.4)	3.7 (1.1)	.3 (.3)	40.8 (3.1)	3.5 (.7)
TANF	17.4 (2.0)	2.3 (.9)	1.2 (.6)	22.1 (2.6)	2.5 (.6)
Benefits from any of these programs	53.4 (2.6)	12.3 (2.0)	4.6 (1.3)	62.1 (3.1)	11.9 (1.3)
Percentage with no health insurance coverage	10.2 (1.6)	10.0 (1.8)	2.6 (1.0)	11.8 (2.0)	6.3 (.9)

Source: NLTS2 Wave 1 parent interviews.

Standard errors are in parentheses.

Disability Differences in Economic Status

Across the range of indicators of economic status, households of youth with mental retardation face the greatest economic challenges (Exhibit 3-15). They are by far the most likely to live in poverty (41% vs. 22% of youth with learning disabilities, $p<.001$). They also are the most likely to live in households that receive government benefits (43%), and government health insurance (45%). However, youth in other disability categories also experience some kinds of economic risk. For example, 30% of youth with emotional disturbances and 24% of youth with multiple disabilities or deaf-blindness live in poverty. The least economic risk is experienced by youth with other health impairments or autism; more than 40% of their households have incomes of more than $50,000, and 15% live in poverty.

Exhibit 3-15
HOUSEHOLD ECONOMIC STATUS, BY DISABILITY CATEGORY

	Learning Disability	Speech/ Language Impairment	Mental Retardation	Emotional Disturbance	Hearing Impairment	Visual Impairment	Orthopedic Impairment	Other Health Impairment	Autism	Traumatic Brain Injury	Multiple Disabilities	Deaf-Blindness
Percentage with annual household income of:												
$25,000 or less	33.6	29.0	54.9	44.0	29.2	31.6	31.0	23.8	23.3	31.9	34.9	34.8
	(2.4)	(2.3)	(2.6)	(2.6)	(2.7)	(3.4)	(2.7)	(2.1)	(2.4)	(4.4)	(2.7)	(4.8)
More than $50,000	36.2	38.6	17.5	27.1	39.5	36.2	39.4	43.5	46.8	40.6	34.4	28.2
	(2.4)	(2.5)	(2.0)	(2.3)	(2.9)	(3.5)	(2.8)	(2.4)	(2.8)	(4.6)	(2.7)	(4.6)
Percentage in poverty	22.1	19.2	41.4	29.8	20.2	19.8	20.4	15.0	15.0	18.8	24.0	24.3
	(2.1)	(2.1)	(2.6)	(2.4)	(2.4)	(2.9)	(2.4)	(1.8)	(2.0)	(3.6)	(2.5)	(4.7)
Percentage receiving:												
SSI	7.7	8.2	32.9	18.3	21.4	26.7	27.7	10.5	25.1	17.9	32.9	30.3
	(1.3)	(1.4)	(2.4)	(2.0)	(2.4)	(3.1)	(2.5)	(1.5)	(2.3)	(3.6)	(2.5)	(4.6)
Food Stamps	11.7	10.4	17.7	17.8	6.5	7.4	9.2	6.8	5.9	11.8	8.2	10.6
	(1.6)	(1.5)	(1.9)	(2.0)	(1.4)	(1.8)	(1.6)	(1.2)	(1.3)	(3.0)	(1.5)	(3.1)
TANF	6.7	7.5	8.7	9.8	5.3	6.3	3.5	4.9	5.7	6.8	7.0	4.3
	(1.2)	(1.3)	(1.4)	(1.5)	(1.3)	(1.7)	(1.0)	(1.0)	(1.2)	(2.3)	(1.4)	(2.0)
Any of these benefits	19.3	17.2	43.2	32.5	26.7	31.9	30.9	16.5	26.9	23.4	36.2	34.0
	(1.9)	(1.9)	(2.5)	(2.4)	(2.6)	(3.3)	(2.6)	(1.8)	(2.4)	(3.9)	(2.6)	(4.7)
Percentage with:												
No health insurance	8.7	6.0	6.4	7.6	6.8	5.9	3.1	4.7	3.8	8.1	4.3	6.4
	(1.4)	(1.2)	(1.2)	(1.3)	(1.4)	(1.7)	(1.0)	(1.0)	(1.0)	(2.4)	(1.1)	(2.5)
Government health insurance	22.0	20.5	45.4	36.1	26.1	32.7	29.8	21.1	25.2	24.3	38.8	39.1
	(2.0)	(2.0)	(2.5)	(2.4)	(2.5)	(3.3)	(2.5)	(1.9)	(2.3)	(3.8)	(2.6)	(5.1)

Source: NLTS2 Wave 1 parent interviews.
Standard errors are in parentheses.

Youth with different disabilities differ widely in the extent to which their parents report problems with health insurance (Exhibit 3-16). Parents of relatively few youth with speech impairments (2%), learning disabilities (3%), or mental retardation (4%) report changing insurance plans or buying extra insurance, and approximately 10% of parents of insured youth in these disability categories report that insurance would not cover some service or item. More parents of youth with hearing impairments, orthopedic impairments, autism, deaf-blindness, or multiple disabilities (10% to 17%) report changing insurance plans or paying for supplemental

Exhibit 3-16
PROBLEMS WITH HEALTH INSURANCE, BY DISABILITY CATEGORY

	Learning Disability	Speech/ Language Impairment	Mental Retardation	Emotional Disturbance	Hearing Impairment	Visual Impairment	Orthopedic Impairment	Other Health Impairment	Autism	Traumatic Brain Injury	Multiple Disabilities	Deaf-Blindness
Percentage of insured youth whose parents report:												
Changing insurance plans or buying extra insurance because of child's special needs	3.3	2.4	3.9	7.3	11.5	6.3	11.6	7.2	11.5	8.8	9.7	17.4
	(.9)	(.8)	(1.0)	(1.3)	(1.8)	(1.7)	(1.8)	(1.2)	(1.7)	(2.6)	(1.6)	(3.9)
Insurer refused to pay for disability-related services/items	9.2	9.9	12.2	15.3	37.2	26.1	39.3	20.5	32.9	27.6	29.7	39.6
	(1.4)	(1.5)	(1.6)	(1.8)	(2.8)	(3.1)	(2.7)	(1.9)	(2.5)	(4.0)	(2.5)	(5.1)
Percentage of insured youth whose parents report insurer refused to pay for:												
Special equipment/devices	1.6	1.7	2.2	1.7	31.7	15.9	24.6	3.6	2.8	6.3	15.1	20.6
	(.2)	(.4)	(.3)	(.3)	(.6)	(.8)	(.8)	(.3)	(.3)	(.8)	(.6)	(2.4)
Diagnostic procedures	2.3	3.7	2.9	2.3	5.9	4.4	6.2	4.9	8.0	6.5	3.6	8.1
	(.6)	(.4)	(.8)	(.8)	(.6)	(1.1)	(1.0)	(1.0)	(1.1)	(1.1)	(.9)	(2.8)
Mental health services	2.0	.6	.9	6.8	1.3	.9	1.4	4.1	5.6	3.4	2.6	2.1
	(.4)	(.5)	(.5)	(.6)	(.6)	(1.3)	(1.0)	(.7)	(1.1)	(1.9)	(.8)	(2.1)
Medications	1.8	.8	2.3	2.5	.9	2.6	3.0	4.6	4.3	1.6	2.9	7.8
	(.6)	(.4)	(.8)	(.8)	(.6)	(1.1)	(1.0)	(1.0)	(1.1)	(1.1)	(.9)	(2.8)
Specialists	.8	1.1	1.1	1.3	1.2	3.8	3.0	1.9	4.6	4.7	2.1	4.0
	(.6)	(.6)	(.7)	(.7)	(2.7)	(2.6)	(2.4)	(.9)	(.9)	(2.2)	(1.9)	(4.2)
Surgery	.2	.8	.3	.4	1.2	1.3	1.9	.5	.3	.7	1.3	5.8
	(.2)	(.3)	(.3)	(.3)	(.4)	(.6)	(.6)	(.4)	(.8)	(1.3)	(.4)	(1.3)
Standard therapies (e.g., occupational, physical, or speech therapy)	.1	.4	.5	.3	.6	.8	1.2	.8	2.2	2.3	.4	1.5
	(.5)	(.8)	(.7)	(.7)	(1.2)	(.7)	(1.7)	(.8)	(1.8)	(2.1)	(1.3)	(3.2)
Other therapy services	.1	.0	.4	.0	.0	.2	1.1	.6	1.3	1.7	.2	1.3
	(.2)		(.3)		(.0)	(.3)	(.6)	(.4)	(0.6)	(1.2)	(.3)	(1.2)
Other services/items	.8	.5	2.4	2.6	1.0	1.7	4.2	2.2	4.6	3.3	3.2	2.9
	(.4)	(.4)	(.8)	(.8)	(.6)	(.9)	(1.1)	(.7)	(1.1)	(1.6)	(1.0)	(1.8)

Source: NLTS2 Wave 1 parent interviews.
Standard errors are in parentheses.

insurance, and about one-third or more report that insurers refused to pay for services or items related to their children's disabilities (from 28% to 40%).

In general, no more than 8% of parents report that an insurer refused to pay for any single type of item or service for their sons or daughters, with one exception; parents of approximately 16% of youth with visual impairments or multiple disabilities, 21% of youth with deaf-blindness, 25% of youth with orthopedic impairments, and 32% of youth with hearing impairments report that insurers refused to pay for a special equipment or device.

Demographic Differences in Economic Status

There are no significant differences in household economic status between youth of different ages or between boys and girls with disabilities. However, there are differences between the various races/ethnicities (Exhibit 3-17). As in the general population, minority students with disabilities are significantly more likely than white students to experience all aspects of poverty. Whereas 15% of white youth with disabilities live in poverty, the same can be said for 43% of African American and Hispanic youth with disabilities (p<.001). Thus, it is not surprising that households of African American and Hispanic youth are more likely than those of white youth to participate in some type of government benefit program (44% and 33% vs. 15%, p<.001) and to have government health insurance (43% and 41% vs. 19%, p<.001).

The relationship between income and ethnicity is complicated and is intertwined with a number of other factors. For example, the discussions of household composition and parental characteristics shows that African American youth are more likely than white youth to live in single-parent households and to have heads of household who did not graduate from high school. These risk factors also are associated with low income. As shown in Exhibit 3-18, among youth who live in households with incomes of $25,000 or less, only about one-third have two parents in their households, compared with 86% of youth in households with incomes of more than $50,000.

Exhibit 3-17
HOUSEHOLD ECONOMIC STATUS, BY RACE/ETHNICITY

	White	African American	Hispanic
Percentage with annual household income of:			
$25,000 or less	24.8 (1.8)	59.0 (3.4)	57.9 (4.6)
More than $50,000	42.7 (2.1)	16.2 (2.5)	18.0 (3.6)
Percentage of households in poverty	15.1 (1.5)	42.6 (3.5)	43.2 (4.7)
Percentage receiving benefits from:			
SSI	9.3 (1.2)	23.8 (2.9)	14.8 (3.2)
Food Stamps	6.5 (1.0)	24.3 (2.9)	24.5 (3.8)
TANF	3.5 (.7)	14.8 (2.4)	12.7 (3.0)
Any of these programs	15.3 (1.5)	44.2 (3.4)	35.0 (4.2)
Percentage with health insurance coverage:			
None	7.6 (1.1)	6.8 (1.7)	10.0 (2.7)
Government insurance	18.7 (1.6)	42.9 (3.4)	40.7 (4.4)

Source: NLTS2 Wave 1 parent interviews.

Standard errors are in parentheses.

The purpose of illustrating these patterns is not simply to verify common notions of poverty but to shed light on the relationships among ethnicity, disability, and poverty. Illuminating these relationships is particularly important to understanding the disproportionate representation of African American students among youth receiving special education relative to their proportion of the general student population, as discussed in Chapter 2. Whereas African American youth make up approximately 16% of the general population of students, they make up 21% of youth with disabilities as a whole, 33% of students with mental retardation, and 25% of students with emotional disturbances. The fact that these categories also contain the largest concentrations of low-income youth raises the question: Is it poverty that results in the disproportionate representation of African American youth among those with disabilities, particularly these disabilities, or do other factors—such as the policies or practices of schools, exercised in the assessment and eligibility determination process for special education—result in their being identified as having disabilities more often than others?

Exhibit 3-18
HOUSEHOLD COMPOSITION AND PARENT CHARACTERISTICS, BY HOUSEHOLD INCOME

	$25,000 and Less	$25,001 to $50,000	More than $50,000
Percentage of students living with both parents	35.1 (2.5)	65.3 (3.0)	85.9 (2.1)
Percentage living with a never-married parent	17.9 (2.0)	5.3 (1.4)	1.6 (.8)
Percentage with head of household who is not high school graduates	39.2 (2.6)	15.6 (2.2)	6.8 (1.5)
Percentage with head of household who is not employed	34.9 (2.6)	8.9 (1.7)	4.6 (1.0)

Source: NLTS2 Wave 1 parent interviews.
Standard errors are in parentheses.

Recent studies of the general population have found that although there are markedly higher rates of disability among racial/ethnic minority groups than among whites, these differences are attenuated when comparisons are made between individuals of a given income level (Fujiura, Yamaki, & Czechowicz, 1998). Exhibit 3-19 echoes these findings for youth with disabilities. It depicts the racial/ethnic distribution of youth with disabilities and youth in the general population within three income categories. Within each income category, the proportions of white, African American, and Hispanic youth are about the same for youth with disabilities as they are for youth in the general population. For example, in both populations, among youth with household incomes of $25,000 or less, approximately 40% are white, 30% are African American, and somewhat more than 20% are Hispanic.[9] Similarly, in both populations, among youth with household incomes of more than $50,000, approximately 80% are white, 8% are African American, and 6% are Hispanic. This suggests that if low-income youth were equally represented among youth with disabilities and youth in the general population, racial/ethnic groups also would be about equally represented in the two populations, but there are significantly more youth with disabilities living in poverty (as shown in Exhibit 3-9). Consequently, poverty status may account for much of the disproportionate representation of African Americans among youth with disabilities.

Exhibit 3-19
RACIAL/ETHNIC DISTRIBUTION OF YOUTH WITH DISABILITIES AND YOUTH IN THE GENERAL POULATION, BY HOUSEHOLD INCOME LEVEL

	Youth with Disabilities [a]			Youth in the General Population [b]		
	$25,000 or Less	$25,001-$50,000	More than $50,000	$25,000 or Less	$25,001-$50,000	More than $50,000
White	42.4 (2.5)	69.3 (2.7)	80.5 (2.4)	40.4 (2.0)	71.9 (1.5)	83.0 (1.1)
African American	33.0 (2.4)	16.9 (2.2)	9.6 (1.8)	30.0 (1.8)	12.1 (1.1)	6.9 (.8)
Hispanic	21.8 (2.1)	11.1 (1.9)	7.4 (1.6)	24.5 (1.7)	10.3 (1.0)	5.0 (.7)

[a] Source: NLTS2 Wave 1 parent interviews.

[b] Computed by using data from the National Household Education Survey, 1999.

Standard errors are in parentheses.

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[9] Percentages do not sum to 100% because youth of other racial/ethnic groups are not included in the exhibit.

Summary

Many youth with disabilities have additional factors in their lives that may compound the challenges they face. They are more likely than youth in the general population to live in a one-parent household and to have parents with relatively low levels of education. Approximately twice as many youth with disabilities as youth in the general population live in households whose head is not employed, and approximately one-quarter live in poverty. Almost 1 in 10 youth with disabilities do not have health insurance coverage.

Many facets of youth's households are similar across disability categories. However, youth with mental retardation and emotional disturbances stand out as the most likely to live in one-parent households or with relatives, guardians, or foster parents. In addition, approximately 40% of youth with mental retardation and 30% of youth with emotional disturbances live in poverty. Youth with mental retardation also have parents with particularly low levels of education.

Youth with autism or other health impairments present a strong contrast to those with mental retardation. Their parents have the highest levels of employment of youth with any type of disability and the lowest levels of poverty. Youth with autism have parents with particularly high levels of education; in fact, they are the only group of youth with disabilities whose parents have significantly higher levels of education than parents of the general population of youth.

Families of youth with some types of disabilities face special challenges when it comes to obtaining equipment or devices needed by the youth. Parents of at least 15% of youth with visual impairments or multiple disabilities report that insurers refused to pay for some type of special equipment or device, as did parents of 25% or more of youth with orthopedic impairments or hearing impairments.

Like their counterparts in the general population, minority youth with disabilities tend to have more challenging circumstances than white youth. Both African American and Hispanic youth are more likely than white youth to live in a one-parent household, to have parents with relatively low levels of education, and to live in poverty.

The myriad impacts of poverty on youth are well documented, and much has been written in the past about the overrepresentation of African Americans in special education. Findings in this chapter indicate that, at a given income level, each racial/ethnic group represents approximately the same proportion of youth receiving special education as it does of youth in the general population. This suggests that a higher prevalence of households in poverty among youth with disabilities than the general population does much to explain the presence of a higher percentage of African Americans among students receiving special education relative to the general student population.

The next chapter shifts from a focus on demographic characteristics of youth and their households to a consideration of the disability characteristics of youth.

4. DISABILITY PROFILES OF YOUTH WITH DISABILITIES

By Mary Wagner, Camille Marder, and Denise Cardoso

NLTS2 findings thus far have examined how youth with different primary disability classifications differ from each other in ways other than disability. Their primary disability classifications result from a process of identification and eligibility determination that was completed before the formation or revision of their Individualized Education Programs (IEPs). That classification is an important component in understanding the variations in students' experiences, but it indicates only one aspect of their disabilities.

This chapter takes another step in understanding disability by addressing the variety of abilities and disabilities that parents report for secondary-school-age students.[1] Also discussed are the lengths of time students and families have been dealing with disability issues, as reflected in the ages at which youth first were identified as having a disability, delay, or learning problem and when they first began receiving special services from a professional. The age of students' first receipt of special services at school and their experiences with early intervention as infants and toddlers with disabilities and/or preschool special education also are discussed. Findings are presented for youth with disabilities as a whole and for those who differ in primary disability classification, age, gender, household income, and race/ethnicity.

Parents' Reports of Youth's Disabilities

The primary disability classification assigned to students receiving special education is the result of a diagnostic process that is intended to reveal to school staff, parents, and students the one or more learning challenges that special education supports and services are designed to address. It indicates what the school believes is a student's dominant disability, from an education perspective, and is one important indicator of the disability and functional profile of students. However, a classification that is based on the educational implications of disability may not reflect the full range of academic, social, and emotional challenges students face in other areas of their lives. To obtain a broader view of students' disabilities than the primary disability classification assigned by schools, parents were asked to report the "physical, sensory, learning, or other disabilities or problems" with which students had been diagnosed.[2]

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[1] Analyses similar to those reported in this chapter were conducted for elementary and middle school students as part of the Special Education Elementary Longitudinal Study (SEELS) and are reported in Wagner and Blackorby (2002).

[2] The question wording is as follows: "{YOUTH} is included in this study because {his/her} school or school district indicated at the beginning of the 2000 school year that {he/she} may have received special education services and had an IEP (Individualized Education Plan). With what physical, sensory, learning, or other disabilities or problems has {YOUTH} been diagnosed? [PROBE: Any other disabilities or learning problems?]" Parents also were asked explicitly whether their child has attention deficit disorder or attention deficit/hyperactivity disorder if those conditions were not mentioned in response to the initial question.

Prevalence of Disabilities

Parents' reports of their children's disabilities are depicted in Exhibit 4-1. In addition to the disability categories set forth in the Individuals with Disabilities Education Act Amendments of 1997[3], the exhibit also includes reports of attention deficit disorder (ADD) or attention deficit/hyperactivity disorder (ADHD). In interpreting the findings in Exhibit 4-1, it is important to keep in mind that parents were probed for all disabilities, not just their child's main disability.

Parents' reports reveal much about the diversity of students within the federal special education disability categories. First, it is apparent that the percentages in each column add to more than 100, indicating that parents report more than one major kind of disability for many youth. In fact, parents' reports average 1.5 different categories of disability per student. Parents of youth with speech/ language impairments report the fewest different categories of disability (1.3), and, not surprisingly, those with multiple impairments (2.2) and deaf-blindness (3.3) report the most. Parents of youth with emotional disturbances, autism, and traumatic brain injuries report an average of 1.9 disabilities.

Exhibit 4-1
PARENTS' REPORTS OF YOUTH'S DISABILITIES, BY PRIMARY DISABILITY CATEGORY

	All Disabilities	Learning Disability	Speech/ Language Impairment	Mental Retardation	Emotional Disturbance	Hearing Impairment	Visual Impairment	Orthopedic Impairment	Other Health Impairment	Autism	Traumatic Brain Injury	Multiple Disabilities	Deaf-Blindness
Percentage reporting child has:													
Learning disability	62.1	**77.8**	40.5	52.9	29.9	9.1	7.6	19.7	29.9	10.1	32.5	31.1	17.5
	(1.5)	(2.0)	(2.4)	(2.5)	(2.3)	(1.7)	(1.8)	(2.2)	(2.2)	(1.6)	(4.3)	(2.5)	(3.7)
Speech impairment	8.5	6.7	**53.6**	10.0	1.8	11.4	3.5	7.0	4.2	12.9	8.6	16.1	17.7
	(.9)	(1.2)	(2.5)	(1.5)	(.7)	(1.9)	(1.3)	(1.4)	(1.0)	(1.8)	(2.6)	(2.0)	(3.7)
Mental retardation	5.5	.7	3.0	**32.6**	1.4	2.6	8.0	5.6	2.1	12.2	4.8	25.1	12.1
	(.7)	(.4)	(.9)	(2.3)	(.6)	(1.0)	(1.9)	(1.3)	(.7)	(1.7)	(2.0)	(2.3)	(3.2)
Emotional disturbance	11.4	5.3	4.5	4.2	**56.6**	1.1	2.0	3.5	14.1	5.5	4.6	9.3	5.6
	(1.0)	(1.1)	(1.0)	(1.0)	(2.5)	(.6)	(1.0)	(1.0)	(1.6)	(1.2)	(1.9)	(1.5)	(2.2)
Hearing impairment	3.3	1.9	3.3	2.4	1.6	**100.0**	.2	2.3	1.8	1.0	2.8	6.8	63.3
	(.6)	(.7)	(.9)	(.8)	(.6)	(.0)	(.3)	(.8)	(.6)	(.5)	(1.5)	(1.3)	(4.7)
Visual impairment	2.0	1.1	1.0	2.2	.6	.0	**100.0**	6.5	1.9	1.4	4.3	9.0	65.5
	(.4)	(.5)	(.5)	(.7)	(.4)	(.0)	(.0)	(1.3)	(.7)	(.6)	(1.9)	(1.5)	(4.6)
Orthopedic impairment	4.8	2.1	1.9	8.3	1.7	3.6	10.2	**78.1**	8.0	4.4	13.3	36.4	24.2
	(.7)	(.7)	(.7)	(1.4)	(.7)	(1.1)	(2.1)	(2.3)	(1.3)	(1.1)	(3.1)	(2.6)	(4.2)
Other health impairment	40.2	35.1	22.3	35.2	64.4	15.3	17.7	31.9	**86.3**	35.7	42.8	40.8	33.7
	(1.6)	(2.3)	(2.1)	(2.4)	(2.4)	(2.2)	(2.7)	(2.5)	(1.6)	(2.5)	(4.6)	(2.6)	(4.6)
ADD/ADHD [a]	36.4	32.4	18.7	28.8	63.1	11.5	10.8	21.9	75.8	32.7	31.1	28.3	15.0
	(1.5)	(2.3)	(1.9)	(2.3)	(2.5)	(1.9)	(2.2)	(2.3)	(2.0)	(2.5)	(4.3)	(2.4)	(3.5)
Autism	1.6	.1	.7	2.5	2.1	.1	1.7	1.6	2.9	**92.1**	.8	6.3	5.6
	(.4)	(.1)	(.4)	(.8)	(.7)	(.2)	(.9)	(.7)	(.8)	(1.4)	(.8)	(1.3)	(2.2)
Traumatic brain injury	.5	.1	.1	.5	.6	.1	.5	.9	.9	.4	**58.1**	3.3	1.3
	(.2)	(.2)	(.2)	(.4)	(.4)	(.2)	(.5)	(.5)	(.4)	(.3)	(4.6)	(1.0)	(1.1)
Deaf-blindness	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	**37.3**
	(.1)												(4.7)
Other	16.1	14.6	11.4	14.5	19.8	8.7	11.5	25.4	26.3	14.9	24.7	35.6	21.7
	(1.2)	(1.7)	(1.6)	(1.8)	(2.0)	(1.6)	(2.2)	(2.4)	(2.1)	(1.9)	(4.0)	(2.6)	(4.0)

Source: NLTS2 Wave 1 parent interviews.

[a] ADD/ADHD is a subset of the other health impairment category.

Standard errors are in parentheses.

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[3] Definitions of these categories are presented in Appendix A.

Further, every primary disability category to which youth were assigned by schools contains youth whose parents report that they also have other types of disabilities. For example, according to parents' reports, 8% of youth classified by schools as having visual impairments have learning disabilities, 8% have mental retardation, 10% have orthopedic impairments, and 18% have other health impairments. Parents of approximately 30% of youth classified as having emotional disturbances, other health impairments, traumatic brain injuries, or multiple disabilities, and more than half of those with mental retardation, report that their children have learning disabilities. Parents of between 19% and 64% of youth whose primary disability classification is not other health impairment report that their sons or daughters have other health impairments, largely because of the prevalence of ADD/ADHD. Overall, parents report that 36% of their sons or daughters have ADD/ADHD—parents of 76% of youth whose primary disability classification is other health impairment, and parents of between 11% and 63% of youth with other primary disability classifications.

Parents' reports of disabilities are helpful in illuminating the kinds of disabilities in the "umbrella" category of multiple disabilities. Other health impairments are the most commonly reported type of disability for youth in the multiple disabilities category; 41% of them are reported to have other health impairments, including 28% with ADD/ADHD. According to parents, about one-third of youth in this category have learning disabilities, orthopedic impairments, or "other disabilities"—those not easily categorized from their label alone. One-fourth of these youth are reported to have mental retardation, and approximately 1 in 10 are reported to have emotional disturbances.

Finally, some parents of youth in every disability category do not mention that their adolescent children have the disability for which they were classified by their schools as eligible to receive special education services. For example, among youth whose school-assigned primary disability classification is learning disability, only 78% are reported by parents as having learning disabilities; 22% of parents of youth with that classification do not mention learning disabilities at all as among their diagnosed physical, sensory, or learning problems. A similar discrepancy is apparent to a lesser or greater degree for youth with every primary disability classification.

Several factors could help explain these differences in reports of students' disabilities by parents and their children's schools. It is possible that parents perceive some disabilities as more acceptable than others and thus report them more often (e.g., learning disability may be chosen as a descriptor more readily than mental retardation). Some parents also may not be familiar with the precise meaning of the disability labels used by schools and may have incorrectly described students' disabilities. Schools also may have categorized students' disabilities incorrectly. Some research has shown, for example, that schools identify boys as having dyslexia (a learning disability that affects students' reading ability) twice as often as girls, when tests of actual reading ability show that dyslexia occurs equally in boys and girls (Shaywitz & Shaywitz, 2001). It also is possible that some students' disability profiles changed over time so that the classification reported by schools when students were chosen for NLTS2 no longer accurately described the disabilities parents reported several months later. Finally, parents' perspectives of disability and students' functioning at home simply may differ from those of the schools. For example, a learning disability that is a significant enough challenge at school to qualify a student for special education may not be nearly so apparent in the less structured environment of the home, where learning educational content is not the primary expectation of youth.

Demographic Differences in Prevalence of Disabilities

For the most part, age and gender do not distinguish between youth in the kinds of disabilities their parents report, with the exception of other health impairments. Parents identify boys significantly more often than girls as having other health impairments (45% vs. 30%, p<.001), largely because of differences in identifying them as having ADD/ADHD (42% vs. 26%, p<.001).

Other health impairment also is the only type of disability that parents report at different rates for youth who differ in economic status or race/ethnicity, again reflecting differences in the reported rates of those with ADD/ADHD. Specifically, the rate at which parents report that youth have ADD/ADHD is significantly higher for those from upper-income households (41% of youth from households with incomes of more than $50,000) than for their peers from less affluent households (33% of youth from households with incomes of $25,000 or less, p<.05). Because African American and Hispanic youth are significantly more likely than white youth to come from lower-income families, differences between racial/ethnic groups mirror those between the income groups. White youth are significantly more likely to be reported as having ADD/ADHD (41%) than African American or Hispanic youth (30% and 23%, respectively, p<.001).

Income differences also are noted regarding the rate at which parents report that youth have "other disabilities"—ones not readily classified into the primary disability categories (e.g., a genetic disorder that could manifest itself in a variety of forms of disability). Such disabilities are reported significantly more often for upper-income youth (20% of those from households with incomes of more than $50,000) than for their lower-income peers (13% of those from households with incomes of $25,000 or less, p <.05). Although racial/ethnic differences are few, Hispanic youth are significantly more likely than their white peers to be reported as having a learning disability (70% vs. 60%, p<.05), and rates of reported "other disabilities" are higher for white than for African American youth (18% vs. 12%, p<.05).

Disability Identification and Service Initiation

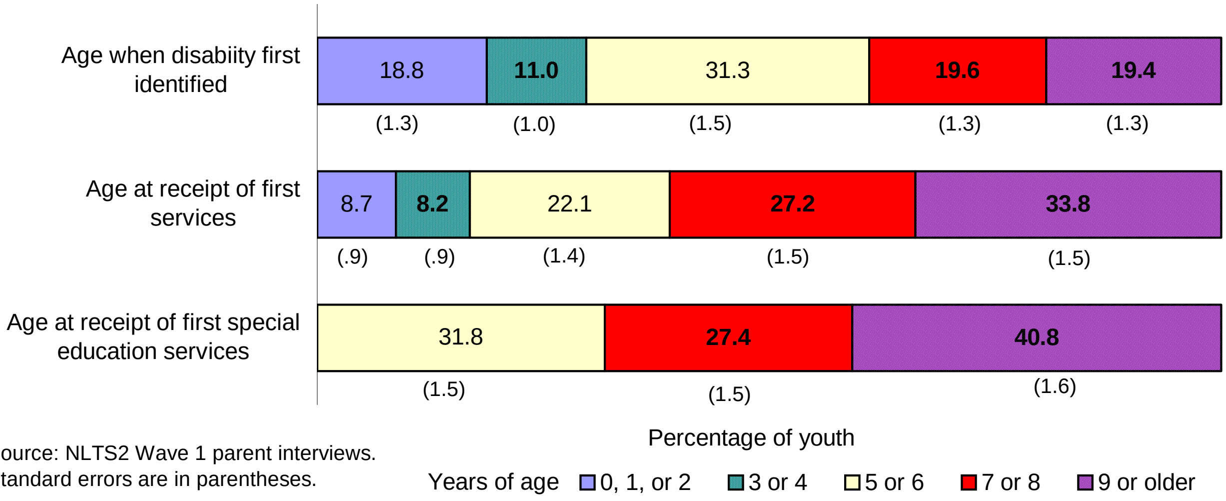
The age at which children first are recognized as having a disability or developmental delay can indicate much about the nature of their disabilities and the experiences children and families have with them. Some disabilities, such as genetic disorders and some conditions that result from premature birth, affect youth throughout their lifetimes; they and their families never experience a time when the disability is not an aspect of their relationship. Other disabilities are noticed when children reach the ages of typical developmental milestones and exhibit delays, for example, in walking or talking. Still others become apparent when children take on more sophisticated cognitive tasks, such as reading or mathematics, and demonstrate difficulty in learning. Others can result from accidents that occur at any age.

Regardless of the age at which disabilities emerge, prompt treatment can be extremely important in ameliorating their effects. The Individuals with Disabilities Education Act Amendments of 1997 mandate programs for children with disabilities that begin at birth and have outreach components to families of young children.

This section presents parents' reports of the ages at which youth first were recognized as having a disability or developmental delay. The ages at which youth first received professional services for the disability or delay and the ages at which they first received special services at school also are presented, as are findings regarding the role of parents and professionals in the identification of disabilities and initiation of services.

Approximately one in five youth have disabilities that first were recognized when they were infants or toddlers (Exhibit 4-2), and another 11% have disabilities or delays that were identified in their preschool years. More than two-thirds of youth did not have their disabilities identified until they were school age. School entry, at age 5 or 6, was when almost one-third of youth first had their disabilities identified, whereas 19% did not have their disabilities identified until they were at least 9 years old.

Exhibit 4-2
YOUTH'S AGE AT FIRST IDENTIFICATION OF DISABILITY AND FIRST RECEIPT OF SERVICES



Source: NLTS2 Wave 1 parent interviews.
Standard errors are in parentheses.

Exhibit 4-3
SOURCE OF IDENTIFICATION OF YOUTH'S DISABILITIES AND REQUEST FOR SPECIAL EDUCATION SERVICES

	Percentage	Standard Error
Disability first identified by:		
Family member	47.5	1.6
Professional	50.5	1.6
Other	2.1	.5
School services for disability first requested by:		
Parent	41.3	1.6
School staff	55.8	1.6
Other	2.9	.6

Source: NLTS2 Wave 1 parent interviews.

According to parents' reports, even more youth did not begin receiving professional services for their disabilities until they reached school age. Despite the fact that 30% of youth were identified as having a disability before they were 5 years old, fewer than one in five youth received services before they were 5. An additional one in five began to receive services at the age of school entry (age 5 or 6). Approximately one-third did not receive services until they were at least 9 years old. Age of first receipt of special education services generally parallels the age of receipt of first professional services.

Approximately half of youth's disabilities first were recognized by family members, and about half were recognized by professionals; very few youth had their disabilities first recognized by others. In contrast, school staff are significantly more likely than parents to have been the source of the request for students to receive special services at school for their disabilities (56% vs. 41%, p<.001).

Disability Differences in Disability Identification and Service Initiation

There are dramatic differences in the ages of first identification and service among youth who differ in their primary disability classification (Exhibit 4-4). Youth with sensory or orthopedic impairments by far are the most likely to have had their disabilities identified at very young ages and to have received services as young children. For example, approximately three-fourths of youth with visual or orthopedic impairments or deaf-blindness were identified as having a disability before age 3, as were 69% of those with multiple disabilities. Youth with these types of disabilities also are the most likely to have received their first professional services as infants or toddlers (51% to 67%). Approximately 60% of students with hearing impairments or autism also had their disabilities recognized as infants or toddlers. However, 40% of those with hearing impairments received services for their disability before age 3, compared with 27% of those with autism (p<.001). Approximately 70% of students with hearing impairments and 82% of students with autism first received special education services upon school entry.

In contrast, only 11% of youth with learning disabilities and 13% of youth with emotional disturbances were identified as having a disability or delay before age 3. Approximately 45% were not identified as having a disability until age 7 or older, and almost 70% were not served until age 7 or older. School age also was the time when the majority of youth with speech or other health impairments or traumatic brain injuries first were identified as having a disability or delay. Between 77% and 81% of youth in those categories did not receive professional services for their disabilities until school age, and approximately 33% were not served until age 9 or older. Despite the fact that students with emotional disturbances tended to be identified at about the same ages as students with learning disabilities, they were more likely not to receive special education services until later; 53% of youth with emotional disturbances, compared with 44% of youth with learning disabilities, did not receive services until they were at least 9 years old.

Parents’ roles in identifying students’ disabilities and in requesting special services for them at school differ among the disability categories. Parents of youth with hearing impairments or autism are significantly more likely than other parents to have been the first to recognize their children’s disabilities; 62% and 72% of these youth, respectively, were first recognized as having disabilities by their parents, compared with 41% to 53% of youth with other types of disabilities (p<.05). They are joined by parents of youth with visual impairments as being the most likely to have been the ones first to request services at school. Parents of youth with mental retardation are among the least likely to report having been the first to recognize their children’s disabilities or to request school services for them (42% and 34%).

Exhibit 4-4

FIRST IDENTIFICATION OF AND SERVICE FOR DISABILITIES, BY DISABILITY CATEGORY

	Learning Disability	Speech/ Language Impairment	Mental Retardation	Emotional Disturbance	Hearing Impairment	Visual Impairment	Orthopedic Impairment	Other Health Impairment	Autism	Traumatic Brain Injury	Multiple Disabilities	Deaf-Blindness
Percentage with disability first identified at age:												
0, 1, or 2 years	10.7	21.7	39.3	13.4	60.1	74.7	76.9	23.4	61.4	21.9	68.8	77.8
	(1.6)	(2.1)	(2.5)	(1.8)	(2.8)	(3.0)	(2.4)	(2.0)	(2.7)	(3.7)	(2.5)	(4.3)
3 or 4 years	10.3	14.9	10.8	11.7	16.3	4.4	7.5	13.3	26.1	13.8	11.8	7.6
	(1.5)	(1.8)	(1.6)	(1.7)	(2.1)	(1.4)	(1.5)	(1.6)	(2.4)	(3.1)	(1.8)	(2.8)
5 or 6 years	35.5	27.7	23.2	29.4	12.8	10.6	7.4	30.1	9.3	16.9	11.9	3.3
	(2.4)	(2.3)	(2.2)	(2.4)	(1.9)	(2.2)	(1.5)	(2.2)	(1.6)	(3.4)	(1.8)	(1.9)
7 or 8 years	22.2	18.0	14.6	19.5	6.2	4.8	3.4	16.9	1.9	20.7	4.6	7.8
	(2.1)	(2.0)	(1.8)	(2.1)	(1.4)	(1.5)	(1.0)	(1.8)	(.7)	(3.7)	(1.1)	(2.8)
9 or 10 years	11.4	10.5	7.2	12.1	2.6	3.2	2.0	9.9	1.0	9.2	1.7	1.4
	(1.6)	(1.6)	(1.4)	(1.7)	(0.9)	(1.2)	(0.8)	(1.4)	(0.5)	(2.6)	(0.7)	(1.2)
11 years or older	10.0	7.2	4.9	13.9	2.0	2.4	2.9	6.4	0.4	17.5	1.2	2.1
	(1.5)	(1.3)	(1.1)	(1.8)	(0.8)	(1.1)	(0.9)	(1.2)	(0.3)	(3.4)	(0.6)	(1.5)
Percentage with first professional services at age:												
0, 1, or 2 years	3.8	6.5	20.4	3.1	40.1	51.3	60.9	10.1	27.3	12.3	51.3	66.6
	(1.0)	(1.3)	(2.1)	(.9)	(2.8)	(3.5)	(2.8)	(1.5)	(2.4)	(3.0)	(2.7)	(5.0)
3 or 4 years	5.3	12.4	15.8	8.6	20.6	12.1	13.2	9.1	40.7	10.9	19.3	11.6
	(1.1)	(1.7)	(1.9)	(1.5)	(2.4)	(2.3)	(1.9)	(1.4)	(2.7)	(2.9)	(2.2)	(3.4)
5 or 6 years	22.0	27.6	24.4	21.0	18.2	15.2	12.7	23.5	19.5	20.3	16.8	7.7
	(2.1)	(2.3)	(2.3)	(2.1)	(2.2)	(2.5)	(1.9)	(2.1)	(2.2)	(3.7)	(2.0)	(2.8)
7 or 8 years	31.4	21.4	18.3	26.3	10.7	8.6	4.4	23.9	6.0	23.9	6.7	9.8
	(2.3)	(2.1)	(2.0)	(2.3)	(1.8)	(2.0)	(1.2)	(2.1)	(1.3)	(3.9)	(1.4)	(3.1)
9 or 10 years	19.0	15.2	10.8	15.5	4.0	7.6	2.5	17.1	2.4	12.3	3.3	1.5
	(2.0)	(1.8)	(1.6)	(1.9)	(1.1)	(1.9)	(0.9)	(1.8)	(0.8)	(3.0)	(1.0)	(1.3)
11 years or older	18.5	17.0	10.2	25.6	6.6	5.2	6.3	16.3	4.0	20.4	2.6	2.9
	(2.0)	(1.9)	(1.6)	(2.3)	(1.4)	(1.6)	(1.4)	(1.8)	(1.1)	(3.7)	(0.9)	(1.8)
Percentage first receiving special education services at age:												
5 or 6 years	24.2	43.0	56.8	22.6	68.6	63.6	74.3	29.8	82.3	41.1	81.2	75.3
	(2.1)	(2.5)	(2.6)	(2.2)	(2.7)	(3.5)	(2.5)	(2.2)	(2.1)	(4.5)	(2.2)	(4.7)
7 or 8 years	31.8	22.2	17.0	24.6	14.3	14.7	8.9	26.7	7.7	22.8	8.6	9.6
	(2.3)	(2.1)	(2.0)	(2.3)	(2.1)	(2.5)	(1.6)	(2.1)	(1.5)	(3.8)	(1.6)	(3.2)
9 or 10 years	19.6	16.7	10.7	19.6	7.1	9.6	6.5	17.7	5.4	12.6	5.3	8.2
	(2.0)	(1.9)	(1.6)	(2.1)	(1.5)	(2.1)	(1.4)	(1.9)	(1.3)	(3.0)	(1.2)	(3.0)
11 years or older	24.5	18.1	15.6	33.2	10.0	12.2	10.3	25.7	4.5	23.4	4.9	6.9
	(2.1)	(2.0)	(1.9)	(2.5)	(1.8)	(2.4)	(1.7)	(2.1)	(1.2)	(3.9)	(1.2)	(2.7)
Percentage with disability first identified by:												
A family member	47.9	53.0	41.7	46.1	62.5	43.3	42.0	49.6	72.1	41.4	49.5	44.7
	(2.5)	(2.5)	(2.5)	(2.6)	(2.8)	(3.5)	(2.8)	(2.4)	(2.4)	(4.5)	(2.7)	(5.2)
A professional	50.2	45.1	57.0	51.2	34.8	53.9	53.7	47.2	25.6	54.7	48.4	52.9
	(2.5)	(2.5)	(2.5)	(2.6)	(2.7)	(3.5)	(2.8)	(2.4)	(2.3)	(4.5)	(2.7)	(5.2)
Someone else	1.9	1.8	1.3	2.7	2.7	2.8	4.3	3.2	2.2	3.9	2.1	2.4
	(.7)	(.7)	(.6)	(.8)	(.9)	(1.2)	(1.1)	(.8)	(.8)	(1.8)	(.8)	(1.6)

Exhibit 4-4
FIRST IDENTIFICATION OF AND SERVICE FOR DISABILITIES, BY DISABILITY CATEGORY (CONCLUDED)

	Learning Dis-ability	Speech/ Language Impair-ment	Mental Retar-dation	Emotional Distur-bance	Hearing Impair-ment	Visual Impair-ment	Ortho-pedic Impair-ment	Other Health Impair-ment	Autism	Trau-matic Brain Injury	Multiple Disabili-ties	Deaf-Blind-ness
Percentage with school services for disability first requested by:												
A parent	42.2	42.9	33.6	36.7	51.1	52.9	47.4	47.4	57.5	48.7	46.2	46.3
	(2.5)	(2.5)	(2.5)	(2.6)	(3.0)	(3.6)	(2.9)	(2.5)	(2.8)	(4.6)	(2.8)	(5.4)
School staff	56.8	54.1	60.7	58.3	39.4	36.4	42.0	47.2	32.9	36.2	39.5	40.5
	(2.5)	(2.6)	(2.6)	(2.7)	(2.9)	(3.5)	(2.9)	(2.5)	(2.6)	(4.4)	(2.8)	(5.3)
Someone else	1.0	3.0	5.7	4.9	9.6	10.7	10.5	5.4	9.6	15.1	14.2	13.2
	(.5)	(.9)	(1.2)	(1.2)	(1.8)	(2.2)	(1.8)	(1.1)	(1.7)	(3.3)	(2.0)	(3.7)

Source: NLTS2 Wave 1 parent interviews.

Standard errors are in parentheses.

Demographic Differences in Disability Identification and Service Initiation

Gender does not distinguish between youth with regard to age at first identification, first service, or first receipt of special education services at school, or with regard to the role parents played in those processes. However, there are consistent differences in disability identification and service initiation for youth with different levels of household income (Exhibit 4-5). In general, youth from less affluent households are more likely to have had their disabilities identified and to have first received services for them later than youth from more affluent households. Youth from lower-income households ($25,000 or less per year) are significantly less likely than youth from more affluent households (more than $50,000 per year) to have been identified as having a disability at age 5 or 6 (26% vs. 37%, p<.01) and more likely to have been identified as having a disability at age 9 or 10 (37% vs. 29%, p<.05). About one-fifth of youth from the least affluent households did not receive their first professional services until at least 11 years old, compared with 14% of youth from the most affluent households (p<.05). In addition, lower-income youth tend not to receive special education services at school as early as upper-income youth; 28% of youth from the least affluent households began to receive special education services in school at age 5 or 6, compared with 37% of youth from the most affluent households (p<.05).

Lower-income youth also are significantly less likely than upper-income youth to have had their parents be the first to recognize their disabilities (43% vs. 53%, p<.05). Their parents are even less likely to have been the first to request services for them at school (30% vs. 50%, p<.001). Thus, professionals and school staff play a particularly prominent role for lower-income youth in recognizing that they have disabilities and ensuring that they receive services for them.

Exhibit 4-5
FIRST IDENTIFICATION OF AND SERVICE FOR DISABILITIES, BY INCOME AND RACE/ETHNICITY

	Income			Race/Ethnicity		
	$25,000 or Less	$25,001 to $50,000	More than $50,000	White	African American	Hispanic
Percentage with disability first identified at age:						
0, 1, or 2 years	19.2 (2.1)	17.8 (2.4)	20.0 (2.5)	19.2 (1.6)	16.9 (2.7)	18.4 (3.6)
3 or 4 years	10.7 (1.7)	11.5 (2.0)	10.7 (1.9)	11.1 (1.3)	9.6 (2.1)	12.1 (3.0)
5 or 6 years	26.3 (2.4)	32.0 (2.9)	36.6 (3.0)	34.8 (2.0)	27.0 (3.2)	23.6 (3.9)
7 or 8 years	19.9 (2.1)	19.7 (2.5)	17.6 (2.3)	18.9 (1.6)	21.5 (3.0)	21.0 (3.8)
9 or 10 years	12.0 (1.8)	12.3 (2.1)	7.2 (1.6)	9.3 (1.2)	12.1 (2.3)	12.0 (3.0)
11 years or older	11/0 (1.2)	6/6 (2.3)	7.8 (3.0)	6.8 (1.0)	13.1 (2.4)	13.0 (3.1)
Percentage with first professional services at age:						
0, 1, or 2 years	7.8 (1.5)	7.8 (1.7)	10.9 (1.9)	8.6 (1.2)	8.0 (2.0)	10.2 (2.8)
3 or 4 years	6.4 (1.3)	10.1 (1.9)	8.6 (1.7)	9.3 (1.2)	6.1 (1.7)	6.6 (2.3)
5 or 6 years	20.1 (2.2)	20.3 (2.5)	24.3 (2.6)	24.7 (1.8)	16.1 (2.7)	18.3 (3.6)
7 or 8 years	28.4 (2.4)	26.5 (2.8)	27.3 (2.7)	27.7 (1.9)	26.9 (3.2)	23.5 (3.9)
9 or 10 years	15.8 (2.0)	16.8 (2.3)	15.2 (2.2)	14.1 (1.4)	22.7 (3.0)	19.4 (3.6)
11 years or older	21.5 (2.2)	18.5 (2.4)	13.8 (2.1)	15.3 (1.5)	20.3 (2.9)	22.0 (3.8)
Percentage first receiving special education services at age:						
5 or 6 years	28.5 (2.4)	30.1 (2.8)	37.1 (3.0)	34.7 (2.0)	23.5 (3.1)	28.2 (4.1)
7 or 8 years	28.6 (2.4)	24.3 (2.7)	28.6 (2.8)	28.4 (1.9)	26.6 (3.2)	24.4 (3.9)
9 or 10 years	18.5 (2.1)	19.8 (2.5)	14.0 (2.1)	15.8 (1.5)	23.1 (3.0)	19.7 (3.6)
11 years or older	24.4 (2.3)	25.7 (2.7)	20.3 (2.5)	21.1 (1.7)	26.7 (3.2)	27.7 (4.1)
Percentage with disability first identified by:						
A family member	42.8 (2.6)	45.6 (3.1)	52.6 (3.0)	50.4 (2.1)	41.3 (3.5)	42.2 (4.5)
A professional	56.1 (2.6)	52.3 (3.1)	44.3 (3.0)	46.7 (2.1)	58.1 (3.5)	56.8 (4.5)
Someone else	1.1 (.6)	2.0 (.9)	3.2 (1.1)	2.9 (.7)	.5 (.5)	1.0 (.9)

Exhibit 4-5
FIRST IDENTIFICATION OF AND SERVICE FOR DISABILITIES, BY INCOME AND RACE/ETHNICITY (CONCLUDED)

	Income			Race/Ethnicity		
	$25,000 or Less	$25,001 to $50,000	More than $50,000	White	African American	Hispanic
Percentage with school services for disability first requested by:						
A parent	30.5	43.5	50.3	45.0	35.9	31.6
	(2.5)	(3.1)	(3.1)	(2.1)	(3.5)	(4.3)
School staff	67.0	53.9	46.4	52.0	61.9	65.2
	(2.6)	(3.1)	(3.1)	(2.1)	(3.5)	(4.4)
Someone else	2.5	2.6	3.3	3.0	2.1	3.2
	(.8)	(1.0)	(1.1)	(.7)	(1.0)	(1.6)

Source: NLTS2 Wave 1 parent interviews.

Standard errors are in parentheses.

Differences also are noted for youth of different racial/ethnic backgrounds, consistent in direction with those found for household income. African American and Hispanic youth, who more often are from lower-income households, are significantly more likely than white youth to have been identified as having a disability at age 9 or older (25% for both vs. 16%, p<.05) and to begin to receive services for them later (43% and 41% at age 9 or older for African American and Hispanic youth, respectively, vs. 29% for white youth, p<.05). In addition, parents of African American youth are significantly less likely than parents of white youth to report having been the first to recognize their children's disabilities (41% vs. 50%, p<.05). They, along with parents of Hispanic youth, also are less likely than parents of white youth to report having been the first to request services at school (36% and 32%, respectively, vs. 45%, p<.05).

Program Participation as Young Children

Part C of the Individuals with Disabilities Education Act Amendments of 1997 authorizes funds for states to provide early intervention services for infants and toddlers. Part B of the same Act mandates that Individualized Education Programs be developed for students with disabilities ages 3 through 21. In 2001, 230,853 infants and toddlers were served under Part C, and 599,678 children ages 3 through 5 received special education and related services under Part B (Office of Special Education Programs, 2002).

As described earlier, 19% of youth with disabilities are reported to have disabilities that were identified before age 3. More than half of those youth (58%) participated in early intervention services for infants and toddlers with disabilities (Exhibit 4-6). Among the approximately 45% of youth with disabilities whose disabilities were identified before age 6, 47% received special education services in their preschool years.

Exhibit 4-6
RECEIPT OF EARLY INTERVENTION AND PRESCHOOL SPECIAL EDUCATION, BY DISABILITY CATEGORY

	Percentage Receiving Early Intervention Services [a]	Percentage Receiving Preschool Special Education [b]
All youth with disabilities	57.6 (3.3)	46.8 (2.5)
Learning disability	41.8 (8.7)	36.5 (4.7)
Speech/language impairment	60.7 (6.7)	47.5 (4.0)
Mental retardation	69.9 (4.4)	66.3 (3.4)
Emotional disturbance	34.0 (8.4)	29.9 (4.2)
Hearing impairment	69.0 (4.2)	69.5 (3.0)
Visual impairment	77.3 (2.8)	59.5 (3.7)
Orthopedic impairment	52.1 (5.9)	73.3 (2.7)
Other health impairment	58.3 (3.7)	35.9 (3.5)
Autism	58.3 (3.7)	71.2 (2.6)
Traumatic brain injury	54.8 (9.7)	56.6 (7.4)
Multiple disabilities	81.4 (2.6)	80.9 (2.4)
Deaf-blindness	69.8 (5.5)	78.4 (4.6)

Source: NLTS2 Wave 1 parent interviews.

[a] Of children whose disabilities were identified before age 3.

[b] Of children whose disabilities were identified before age 6.

Standard errors are in parentheses.

Youth with visual impairments and multiple disabilities whose disabilities were identified before age 3 are the most likely to have received early intervention services (77% and 81%, respectively). Along with youth with hearing impairments, autism, and deaf-blindness whose disabilities were identified before age 6, they also are among the most likely to have received preschool special education (between 70% and 81%). In contrast, youth with learning disabilities or emotional disturbances whose disabilities were identified by the appropriate ages for early intervention or preschool special education services are among the least likely to have received them; approximately 42% of youth with learning disabilities and 34% of those with emotional disturbances received early intervention services, and 36% and 30% of them participated in preschool special education.

There are no significant differences in the rates at which students participated in early intervention or preschool special education for youth who differed in age, gender, household income, or racial/ethnic background.

Summary

Information provided by parents does much to expand our understanding of the multidimensional nature of students' disabilities. Parents' reports underscore the complexity of disability, which goes well beyond the category labels used by schools. According to parents, within each primary disability classification, there are youth who also had one or more of virtually every other kind of disability.

Parents' views also may provide important insight regarding the prevalence of some kinds of disabilities. Most notably, parents of more than one-third of youth report that their children have attention deficit disorder or attention deficit/hyperactivity disorder (ADD/ADHD). This disability was mentioned by parents of 76% of youth in the other health impairment category. Although there is much debate regarding the true prevalence and appropriate diagnosis of these conditions, the rate at which parents report such diagnoses as part of students' disability profiles is telling in that reports of ADD/ADHD span all disability categories.

Information about the ages at which youth first were identified as having a disability or delay and first received services for it may point up opportunities for earlier efforts to ameliorate the effects of some kinds of disabilities. Parents of 30% of youth report that their children's disabilities were identified before age 5, but 43% of youth who were identified at those early ages did not begin to receive services until 5 or older. About 58% of 13- to 17-year-old students whose disabilities were identified before age 3 are reported to have received early intervention services; however, fewer (47%) whose disabilities were identified before age 6 participated in preschool special education programs. The majority of youth with disabilities first were served when they reached school, even when their disabilities had been identified earlier. This gap between identification and services was apparent even for such disabilities as autism and hearing impairments.

In general, disability profiles do not differ significantly for boys and girls, the exception being that parents of boys were significantly more likely than parents of girls to report that students had ADD/ADHD.

Lower-income and wealthier youth differ in their disability profiles in important ways. Upper-income youth are more likely than lower-income youth to be identified by parents as having ADD/ADHD. They also are more likely to have had their disabilities identified before school age and to have begun receiving services at younger ages when they were identified. Parents of lower-income youth are less likely to have been the first to recognize their children's disabilities or to have requested services for them in school; school staff and other professionals were most often the sources of disability identification and requests for service. However, it is encouraging to note that income limitations do not appear to pose barriers to accessing early intervention or preschool special education services; there are no differences between income groups in the rate at which children who were identified with disabilities at the appropriate ages received services for them.

Because youth with disabilities of color are much more likely than white youth to come from low-income households, racial/ethnic differences mirror those found among income groups. White youth are much more likely than youth of color to be reported as having ADD/ADHD, to have had their disabilities recognized and addressed earlier, and for their parents to have been the first to identify their disabilities and request services for them.

These findings illuminate the complexity of the concept of disability and its potential for impact on the lives of youth and their families. The next chapter moves beyond disability labels to examine the functional abilities of youth in the physical, sensory, and communication domains.

5. THE FUNCTIONAL ABILITIES OF YOUTH

By Mary Wagner, Jose Blackorby, Camille Marder, and Phyllis Levine

Since 1975, federal special education legislation has defined disability categories under which a student may receive special education services. The specific number and definitions of the categories have changed over time, and some states have adopted alternative categorization frameworks, yet the notion of identifying and categorizing primary disabilities remains an element of the law. Beyond the requirements of the law, there is broad agreement that we need to know more about students than their disability category label to serve them well. Not understanding students' actual functioning in important domains leaves us less well informed than we need to be if we are to help youth maximize their chances for success.

This chapter goes beyond the disability category label to take a broad look at the competencies and challenges youth bring to their educational experiences.[1] Several aspects of their functioning are described, including:

- Health
- Movement and mobility
- Vision
- Hearing
- Communication.

Parents' reports of how well youth function in each of these domains are described, as well as the kinds of supports youth use to enhance that functioning. These issues are discussed for youth with disabilities as a group, for youth in each primary disability category, and, when relevant, for those who differ in age, gender, household income, and race/ethnicity.

Health

This section presents findings related to students' health, including mortality among NLTS2 youth, parents' reports of students' general health status, and the use of medications and medical devices.

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[1] Analyses similar to those reported in this chapter were conducted for elementary and middle school students as part of the Special Education Elementary Longitudinal Study (SEELS) and are reported in Blackorby, Levine, and Wagner (2002).

Mortality

Approximately 71 of 100,000 U.S. adolescents between the ages of 15 and 19 die each year, with injuries from motor vehicles and firearms being the most common cause (Federal Interagency Forum on Child and Family Statistics, 2001). Of the 11,276 youth with disabilities ages 13 to 17 for whom NLTS2 attempted to complete a parent interview or survey, 17 were identified as deceased in the 15-month period ending March 2002,[2] a mortality rate[3] more than twice that of youth in the general population. The primary disability categories of the youth reported to be deceased are shown in Exhibit 5-1.

Exhibit 5-1
PRIMARY DISABILITY CATEGORY OF DECEASED YOUTH

Primary Disability Category	Number of Youth
Orthopedic impairment	5
Emotional disturbance	2
Learning disability	2
Visual impairment	2
Hearing impairment	2
Multiple disabilities	1
Mental retardation	1
Other health impairment	1
Deaf-blind	1
TOTAL	17

Eleven of the youth (65%) were boys, virtually the same percentage of boys as in the NLTS2 sample. Almost 30% of the deceased teens were 14-year-olds, 35% were 15-year-olds, and 35% were 16- or 17-year-olds. Ten of the deceased youth were white (59%), three were African American (18%), two were Hispanic (12%), and one was Asian/Pacific Islander,[4] a distribution very similar to the proportion of each racial/ethnic group in the full NLTS2 sample.

General Health Status

The ability of youth to participate in daily activities at school, at home, and in the community is conditioned in many ways by their general health. Frequent or chronic illness can cause absenteeism from school; the resulting missed exposure to the school curriculum and other learning opportunities can impede student learning and performance, sometimes significantly. Poor health also can limit activities outside of school, hampering development of social relationships and opportunities to hone personal interests and skills.

To assess the general health of youth with disabilities, parents were asked to rate their child’s health as “excellent,” “very good,” “good,” “fair,” or “poor.” According to parents’ reports, nearly 70% of students with disabilities have excellent health (Exhibit 5-2), 25% have good health, and about 6% have fair or poor health. These percentages are very close to those reported for 13- to 17-year-old youth in the general population.

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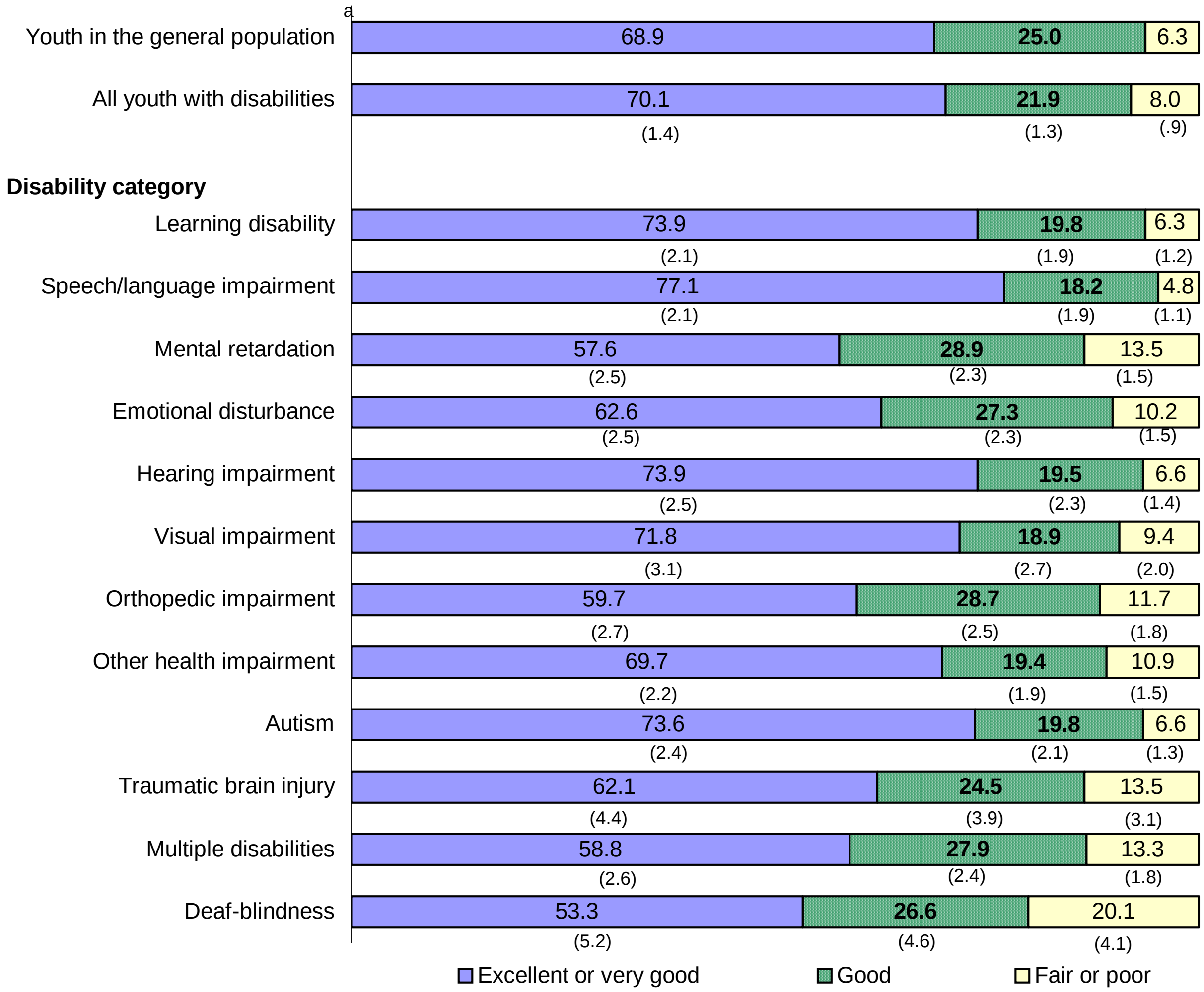
[2] The 17 youth reported here as deceased is a minimum number. The true number of youth who passed away between the time the sample was drawn and the time of the survey is not possible to know with certainty because the sons or daughters of some parents whom NLTS2 was unable to contact for the survey may have been deceased.

[3] The mortality rate is an unweighted percentage of youth in the NLTS2 sample, unlike other statistics reported for NLTS2, which are weighted population estimates for youth with disabilities nationally. The unweighted percentage is used because no parent interview or other data were collected for many of the deceased youth, so they were not assigned weights for analysis purposes.

[4] The ethnicity of one deceased youth was unknown.

Exhibit 5-2
GENERAL HEALTH STATUS OF YOUTH WITH DISABILITIES AND YOUTH IN THE GENERAL POPULATION , BY DISABILITY CATEGORY



Source: NLTS2 Wave 1 parent interviews.

[a] Computed by using data from the National Longitudinal Study of Adolescent Health, 1996.

Standard errors are in parentheses.

Disability Differences in Youth's Health

There are dramatic differences in the health of youth in different disability categories. Youth with mental retardation, orthopedic impairments, multiple disabilities, or deaf-blindness, are the least healthy; fewer than 60% are reported to be in excellent or very good health, and between 12% and 20% of them are reported to have only fair or poor health. In contrast, among youth with learning disabilities, speech impairments, hearing impairments, or autism, at least 70% are reported to be in excellent or very good health, and no more than 7% are reported to be in fair or poor health.

Demographic Differences in Youth's Health

Analysis of the general health of youth with different demographic characteristics reveals no notable differences between boys and girls or between youth of different ages. However, there are significant differences in the health of youth from households with different levels of income and youth of different racial/ethnic backgrounds. Youth from upper-income households generally are in better health than youth from less affluent households. Among youth with household incomes of more than $50,000, 81% are in very good or excellent health, and 4% are in fair or poor health, whereas among youth with household incomes of $25,000 or less, 55% are in very good or excellent health and 15% are in fair or poor health (Exhibit 5-3, p<.001).

Exhibit 5-3
DEMOGRAPHIC DIFFERENCES IN THE HEALTH OF YOUTH WITH DISABILITIES

	Percentage with Health Status Reported as: [a]	
	Excellent or Very Good	Fair or Poor
Household income		
$25,000 or less	54.8 (2.6)	15.1 (2.0)
$25,001 to $50,000	77.9 (2.5)	5.0 (1.3)
More than $50,000	80.8 (2.4)	3.7 (1.1)
Race/ethnicity		
White	75.3 (1.7)	6.0 (1.0)
African American	61.5 (3.3)	10.8 (2.1)
Hispanic	58.9 (4.4)	12.2 (2.9)

Source: NLTS2 Wave 1 parent interviews.

[a] Percentages do not add to 100 because the category of "good" health is not depicted here.

Standard errors are in parentheses.

White youth are significantly more likely than African American or Hispanic youth to be reported as having excellent or very good health (75% vs. 62% and 59%, respectively, p<.001) and are only about half as likely to be reported as having fair or poor health (6% vs. 11% and 12%, p<.05).

The association of income with race/ethnicity and type of disability may help explain some of the differences in health status between students of different racial/ethnic backgrounds. White youth are more likely than minority youth to come from more affluent households and also are more likely than minority youth to have excellent or very good health.

Use of Medications and Medical Devices

Advances in pharmacology and medical technology have generated new medications and medical devices that enable many youth with disabilities to cope with their medical challenges and disabilities and participate more fully at school, at home, and in the community. Yet their use is not without debate. The use of psychotropic medications to treat such conditions as attention deficit disorder (with or without hyperactivity), depression, and anxiety is the subject of particular attention, fueled by research that shows their use is increasing (Safer, Zito, & Fine, 1996) and the age of children taking such medications is decreasing (Zito et al., 2000). NLTS2 provides the first opportunity to learn the extent to which secondary-school-age youth who receive special education services use these and other prescribed medications.

Exhibit 5-4
YOUTH'S USE OF MEDICATIONS AND MEDICAL DEVICES RELATED TO THEIR DISABILITIES

	Percentage	Standard Error
Percentage taking disability-related prescription medication among:		
All youth with disabilities	25.1	1.4
Youth whose health is:		
Excellent	15.8	1.9
Very good	22.8	2.6
Good	36.7	3.1
Fair or poor	45.6	5.1
Percentage taking prescription medication to affect behavior, mood, or emotions (psychotropic) among:	18.5	1.3
All youth with disabilities	18.5	1.3
Youth whose health is:		
Excellent	14.4	1.8
Very good	18.6	2.4
Good	23.6	2.7
Fair or poor	22.9	4.4
Percentage taking:		
Stimulants	12.8	1.1
Antidepressants, anti-anxiety medications	8.7	1.0
Mood stabilizers	3.1	.6
Antipsychotic medications	2.3	.5
Seizure medications	1.7	.5
Percentage using medical equipment or devices related to their disability	2.4	.5

Source: NLTS2 Wave 1 parent interviews.

One-fourth of youth with disabilities in the NLTS2 age range are reported by parents to be taking prescription medications for conditions related to their disability (Exhibit 5-4). Not surprisingly, use of medications is significantly more common among less-healthy youth. Sixteen percent of youth who are reported to be in excellent health take medications related to their disabilities, whereas 46% of youth in fair or poor health do so (p<.001).

By far the most common types of medication taken by youth are medications to affect behavior, mood, or emotions (psychotropic medications); overall, 18% of youth with disabilities are reported to take these medications, compared with 25% who take any medication at all for their disability. Taking psychotropic medications also is related to the health of youth; those with excellent health are significantly less likely than those in fair or poor health to be taking them (14% vs. 23%, p<.05).

Stimulants and antidepressants/ antianxiety medications are the most commonly reported kinds of psychotropic medication taken by youth with disabilities. Thirteen percent are reported to take the former, and 9% are reported to take the latter. Each of the other kinds of psychotropic drugs is taken by fewer than 4% of youth with disabilities.

Rates at which adolescents with disabilities are reported to take medications for disability in general, and for behavior, mood, or emotions in particular, are virtually the same as those found for elementary school and middle school students with disabilities (Blackorby, Levine, & Wagner, 2002); however, the types of medications differ somewhat. Elementary and young middle school students are somewhat more likely than older middle school students and high school students to take stimulants (16% vs. 13%, p<.05), but less likely to take other kinds of medications (e.g., antidepressants/antianxiety medications, 6% vs. 9%, p<.05).

About two-thirds (69%) of youth with disabilities who take psychotropic medications also receive psychological counseling or other mental health services, according to parents. The absence of multiple treatments for one-third of youth taking psychotropic medications could present a significant opportunity to improve treatment of youth. The Multimodal Treatment Study of Children with Attention Deficit Hyperactivity Disorder (MTA Cooperative Group,

1999) found that the best results are obtained with a combination of pharmacological and psychological interventions.

The use of medical equipment or devices is rare among youth with disabilities. Of the 2% who use medical equipment or other medical devices, a nebulizer is the most commonly reported medical device in use; 48% of those using a device are reported to use a nebulizer.

Disability Differences in Use of Medications and Medical Devices

Not surprisingly, youth with different primary disabilities have strikingly different patterns of medication use (Exhibit 5-5). For example, youth whose primary disability is speech impairment, hearing impairment, or learning disability are significantly less likely than youth with other primary disabilities to take medications related to their disability; from 13% to 18% are reported to do so, significantly fewer than those with mental retardation, the category of youth with the next-lowest rate of medication use (27%, p<.01). In contrast, at least 40% of youth with emotional disturbances, orthopedic impairments, traumatic brain injuries, or deaf-blindness, and approximately half of youth with other health impairments, autism, or multiple disabilities take medications related to their disabilities.

The use of psychotropic medications also varies widely. The vast majority of youth with emotional disturbances who take medications at all take them, as do most youth with other health impairments or autism. However, fewer than half of youth with visual or orthopedic impairments or deaf-blindness who take any medication take them.

Exhibit 5-5
USE OF MEDICATIONS AND MEDICAL DEVICES RELATED TO DISABILITY, BY DISABILITY CATEGORY

	Learning Dis-ability	Speech/ Language Impair-ment	Mental Retar-dation	Emo-tional Distur-bance	Hearing Impair-ment	Visual Impair-ment	Ortho-pedic Impair-ment	Other Health Impair-ment	Autism	Trau-matic Brain Injury	Multiple Disabili-ties	Deaf-Blind-ness
Percentage taking:												
Disability-related prescription medication	18.1	13.1	26.6	45.6	16.6	27.5	46.2	54.7	50.4	42.5	49.4	46.1
	(1.9)	(1.7)	(2.3)	(2.6)	(2.1)	(3.1)	(2.8)	(2.4)	(2.7)	(4.5)	(2.7)	(5.2)
Prescription medication to affect behavior, mood, or emotions	12.7	9.7	18.7	41.7	10.1	12.8	16.2	43.8	42.9	23.3	25.2	12.7
	(1.7)	(1.5)	(2.0)	(2.6)	(1.7)	(2.3)	(2.1)	(2.4)	(2.7)	(3.8)	(2.3)	(4.1)
Stimulants	9.2	6.3	11.7	28.8	5.7	4.3	10.8	37.6	22.0	12.4	15.2	7.5
	(1.5)	(1.2)	(1.7)	(2.6)	(1.4)	(1.5)	(1.8)	(2.4)	(2.6)	(3.2)	(2.1)	(2.9)
Antidepressants, anti-anxiety medication	4.7	4.8	8.0	28.9	5.3	7.0	6.9	21.1	31.6	14.6	13.6	11.7
	(1.1)	(1.1)	(1.5)	(2.6)	(1.3)	(1.8)	(1.5)	(2.3)	(2.6)	(3.4)	(1.9)	(3.5)
Mood stabilizers	1.5	.7	3.3	12.5	1.2	1.7	3.3	7.3	8.7	4.3	5.7	7.6
	(.6)	(.4)	(1.0)	(2.0)	(.7)	(.9)	(1.0)	(1.6)	(1.9)	(2.1)	(1.4)	(2.9)
Antipsychotic medication	.4	1.3	3.5	11.5	.9	1.5	1.4	4.9	21.1	3.9	8.0	4.6
	(.3)	(.6)	(1.0)	(2.0)	(.6)	(.9)	(.7)	(1.3)	(2.5)	(2.0)	(1.6)	(.3)
Seizure medication	.4	.2	3.4	7.7	.9	1.4	1.6	4.2	8.1	5.5	4.9	4.2
	(.3)	(.2)	(1.0)	(1.7)	(.6)	(.9)	(.7)	(1.2)	(1.8)	(2.3)	(1.3)	(2.2)
Percentage using medical equipment or devices related to their disability	2.0	1.3	2.2	2.1	2.4	2.9	13.8	3.7	2.7	2.0	7.6	7.4
	(.7)	(.6)	(.7)	(.7)	(.9)	(1.2)	(1.9)	(.9)	(.9)	(1.3)	(1.4)	(2.7)

Source: NLTS2 Wave 1 parent interviews.

Standard errors are in parentheses.

Each kind of psychotropic medication is taken by some youth in every disability category, possibly reflecting the presence of secondary disabilities, as shown in Chapter 4. The use of stimulants, the most frequently prescribed psychotropic drug overall, is particularly common for youth with other health impairments (38%)—the category of disability that is most likely to include youth with attention deficit disorder or attention deficit/hyperactivity disorder (ADD/ADHD). The next most common type of medication for these youth is antidepressants, which are taken by approximately one-fifth of them. Use of antidepressants is more prevalent than use of stimulants among youth with autism (32% and 22%), and about equally prevalent among youth with emotional disturbances (approximately 30% take the two types of medication). Youth with autism and emotional disturbances also are most likely to be taking antipsychotic drugs (21% and 12%, respectively).

The rate of use of medical equipment and devices is particularly high among youth with orthopedic impairments (14%), multiple disabilities (8%), and deaf-blindness (7%).

Demographic Differences in the Use of Medications and Medical Devices

In general, there are no significant patterns of difference in the use of medications at all or in the use of most types of medication by youth of various ages (Exhibit 5-6). However, the use of stimulants declines with age; 18% of 13- and 14-year-olds take such medications, compared with 10% of 17-year-olds (p<.001).

Although boys with disabilities are not more likely than girls to take most types of medication, they are more likely to take stimulants (15% vs. 8%, p<.01). This finding is consistent with the higher rate of ADD/ADHD reported by parents of boys with disabilities, as indicated in Chapter 4.

Given the high cost of some pharmacological treatments and medical devices, one might expect them to be used less by youth from lower-income households. The somewhat lower rate of health insurance coverage among poorer children would reinforce this expectation. However, there are no significant differences in the use of medications by youth with different levels of household income.

In contrast, significant differences are noted between white youth and youth of color in the extent to which they use medications to affect behavior, mood, or emotions. Given that ADD/ADHD is reported more often for white than for African American or Hispanic youth, it is not surprising that they also are more likely to take psychotropic medications (22% vs. 13% and 11%, p<.01), particularly stimulants (15% vs. 9% and 7%, p<.05) and antidepressants/antianxiety medications (12% vs. 4% and 3%, p<.001).

Exhibit 5-6
DEMOGRAPHIC DIFFERENCES IN USE OF MEDICATION AND MEDICAL DEVICES RELATED TO DISABILITY

	Percentage Reported to Take:					
	Medication Related to Disability	Medication to Affect Behavior, Mood, or Emotions	Stimulant Medication	Anti-depressant/ Antianxiety Medication	Mood Stabil-izer	Antipsychotic Medication
Age						
13 or 14	26.2	20.9	17.5	7.9	2.8	2.3
	(2.4)	(2.3)	(2.2)	(1.6)	(1.0)	(.9)
15	26.4	20.0	13.0	9.2	3.9	2.0
	(3.0)	(2.7)	(2.4)	(2.1)	(1.5)	(1.1)
16	23.6	15.7	9.4	8.6	2.8	2.3
	(2.6)	(2.2)	(1.9)	(1.8)	(1.1)	(1.0)
17	23.7	16.9	9.5	9.6	2.7	2.7
	(3.3)	(2.9)	(2.4)	(2.4)	(1.4)	(1.3)
Gender						
Boys	25.3	20.0	15.0	8.7	3.4	2.6
	(1.7)	(1.6)	(1.5)	(1.2)	(.8)	(.7)
Girls	24.6	15.5	8.3	8.7	2.4	1.8
	(2.4)	(2.0)	(1.6)	(1.6)	(.9)	(.8)
Household income						
$25,000 or less	26.1	18.4	11.1	9.0	3.5	2.0
	(2.3)	(2.1)	(1.7)	(1.6)	(1.1)	(.8)
$25,001 to $50,000	22.1	16.2	12.3	7.1	2.4	2.5
	(2.6)	(2.3)	(2.1)	(1.7)	(1.0)	(1.0)
More than $50,000	26.8	20.9	15.4	9.8	3.2	2.6
	(2.7)	(2.5)	(2.3)	(1.9)	(1.2)	(1.1)
Race/ethnicity						
White	27.4	22.1	15.3	11.6	3.2	2.7
	(1.8)	(1.7)	(1.5)	(1.4)	(.8)	(.7)
African American	21.2	12.8	9.4	4.3	2.9	1.6
	(2.9)	(2.4)	(2.1)	(1.5)	(1.3)	(.9)
Hispanic	21.0	11.0	6.9	3.1	2.4	1.4
	(3.7)	(2.8)	(2.4)	(1.6)	(1.5)	(1.1)

Source: NLTS2 Wave 1 parent interviews.

Standard errors are in parentheses.

Movement and Mobility

Youth with disabilities have an enormous range of mobility, movement, and motor functioning. Not all limitations in movement or mobility qualify a student for special education; however, if limitations in physical functioning or mobility require modifications to a student's educational program in order for him or her to function well at school, that student may be eligible for special education and/or related services. Some limitations may be accommodated fairly easily through a modification of a teaching technique or adaptive device; other youth may require substantial mechanical assistance and an emphasis on related services to maintain or improve physical functioning and increase independence. Youth with severe physical disabilities may not achieve the basic milestones of motor development—rolling over, holding up their heads, grasping—and may need ongoing intensive intervention and support.

This section describes parents' responses to a series of questions about the ability of youth to use their arms and hands for gross motor and fine motor skills and to use their legs and feet for mobility. Their use of mobility devices to improve access to and movement in their environment also is reported.

Using Arms, Hands, Legs, and Feet

Limitations in hand and arm functioning are reported by more than 50 million Americans, and 7.4 million Americans use assistive devices to accommodate mobility impairments (National Center for Health Statistics, 2001). Although most of them are elderly people experiencing the painful results of arthritis and other conditions associated with aging, many are youth who experience problems using their arms, hands, legs, and feet, with attendant challenges at school, at home, and in the community. In most schools, students spend a large portion of their day sitting at a desk or table and using educational tools that require gross and fine motor functioning. Social and recreational activities usually require some level of mobility and motor functioning, as well.

Exhibit 5-7
PHYSICAL FUNCTIONING OF YOUTH WITH DISABILITIES

Parents' Reports of Physical Functioning	Percentage	Standard Error
Use of arms and hands for gross motor skills		
Normal	94.8	.7
A little trouble using one or both	3.6	.6
A lot of trouble using or no use of one or both	1.6	.4
Use of arms and hands for fine motor skills		
Normal	94.7	.7
A little trouble using one or both	3.1	.5
A lot of trouble using or no use of one or both	2.2	.5
Use of legs and feet		
Normal	93.3	.8
A little trouble with one or both	4.3	.6
A lot of trouble using or no use of one or both	2.3	.5
Use of all limbs		
Normal use of all	89.3	1.0
A little trouble with one or more	7.0	.8
A lot of trouble with or no use of one or more limbs	3.7	.6
Uses a mobility device	1.9	.4

Source: NLTS2 Wave 1 parent interviews.

NLTS2 asked parents several questions about their child's use of his or her limbs.[5] According to parents' reports, a large majority of youth have normal use of their limbs (Exhibit 5-7). From 93% to

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[5] Parents were asked the following questions:

"How well does {YOUTH} use {his/her} arms and hands for things like using a spoon or holding a pencil? Would you say {he/she} uses both arms and hands normally?"

"Does {he/she} have a little trouble using one or both, have a lot of trouble using one or both, or have no use at all of one or both arms or hands for fine motor skills?"

"How well does {he/she} use {his/her} arms and hands for things like throwing, lifting, or carrying? Would you say {he/she} uses both arms and hands normally?"

"Does {he/she} have a little trouble using one or both, have a lot of trouble using one or both, or have no use at all of one or both arms or hands for gross motor skills?"

"How well does {YOUTH} use both of {his/her} legs and feet? Would you say {he/she} uses both legs and feet normally?"

"Does {he/she} have a little trouble using one or both, have a lot of trouble using one or both, or have no use at all of one or both legs or feet?"

95% of youth have normal use of their arms, hands, legs, or feet. However, only 89% have normal functioning of all limbs, and 4% have substantial trouble with one or more limbs.

A variety of devices are available to assist youth in managing or improving movement or mobility, and their number, range, and sophistication have increased in recent years. The purposes and design of such devices range from special appliances to aid in daily living skills, complex computers to promote communication, or lightweight leg braces and walking canes to sophisticated, breath-controlled electric wheelchairs. Even relatively simple apparatuses, such as adapted seating devices, prone boards, bolsters, and standing tables, can help students participate more effectively in the classroom. These kinds of advances, along with conscientious attention to assuring an accessible environment, can improve the overall quality of life for youth with mobility or functional impairments, both in the schools and in their communities.

Exhibit 5-8
PHYSICAL FUNCTIONING, BY DISABILITY CATEGORY

	Percentage Reporting Use of Arms, Hands, Legs, and Feet:		
	All Normal	A Little Trouble Using One or More	A Lot of Trouble Using/No Use of One or More
Learning disability	93.2	5.6	1.2
	(1.2)	(1.1)	(.5)
Speech/language impairment	94.3	4.4	1.3
	(1.1)	(1.0)	(.6)
Mental retardation	81.5	11.4	7.1
	(2.0)	(1.6)	(1.3)
Emotional disturbance	91.7	6.7	1.6
	(1.4)	(1.3)	(.6)
Hearing impairment	93.7	3.9	2.4
	(1.4)	(1.1)	(.9)
Visual impairment	78.4	10.0	11.6
	(2.9)	(2.1)	(2.2)
Orthopedic impairment	21.1	21.5	57.4
	(2.3)	(2.3)	(2.7)
Other health impairment	84.7	8.9	6.4
	(1.7)	(1.4)	(1.2)
Autism	70.1	20.3	9.6
	(2.5)	(2.2)	(1.6)
Traumatic brain injury	64.0	15.8	20.2
	(4.3)	(3.3)	(3.6)
Multiple disabilities	47.3	16.3	36.3
	(2.7)	(2.0)	(2.6)
Deaf-blindness	59.3	14.3	26.4
	(5.1)	(3.6)	(4.6)

Source: NLTS2 Wave 1 parent interviews.
Standard errors are in parentheses.

Nevertheless, fewer than 2% of youth use a device to aid their mobility. A wheelchair is by far the most common device. Of those who use a device at all, 80% use a wheelchair, almost one-fourth use a walker, and about 15% use crutches, leg braces, or another kind of device.

Disability Differences in Movement and Mobility

As would be expected, youth with orthopedic impairments are less likely than other youth to use hands, arms, legs, and/or feet normally, with 21% reported to have normal use of all their limbs (Exhibit 5-8) and more than half reported to have “a lot of trouble using” or no use at all of one or more of their limbs. Some youth in other disability categories also have movement or mobility limitations. According to parents, about half of youth with multiple disabilities and 59% of youth with deaf-blindness have normal functioning in all the areas assessed. About 1 in 5 youth with traumatic brain injuries and 1 in 10 youth with visual impairments or autism have significant limitations in physical functioning.

Parents report that approximately half of youth with orthopedic impairments and one-fourth of youth with multiple disabilities use equipment to get around.

There are no statistically significant differences in movement or mobility between youth who differ in age, gender, household income, or racial/ethnic background.

Vision

In the context of IDEA, two disability categories specifically reference difficulties with vision: visual impairment and deaf-blindness. However, as noted in Chapter 4, some youth in every disability category are reported by parents to have visual impairments. The degree of impairment is determined through measurements of visual acuity and visual efficiency (e.g., eye movement, discrimination, and peripheral vision), and by the functional implications of low vision for specific purposes (e.g., navigation or reading). Legal blindness is defined as 20/200 vision with correction; however, most students with visual impairments have better vision than this standard. This section describes parents' reports of the visual ability of youth and their use of glasses and devices for information access and mobility.

Exhibit 5-9
USE OF GLASSES OR CONTACTS AND VISUAL ABILITY, WITH AND WITHOUT AIDS

	Percentage	Standard Error
Uses glasses or contacts	39.2	1.5
User of glasses or contact lenses sees:		
Normally	81.0	1.9
With a little trouble	15.8	1.8
With a lot of trouble	3.2	.9
Nonuser of glasses or contact lenses sees:		
Normally	91.0	1.2
With a little trouble	7.7	1.1
With a lot of trouble	1.0	.4
Not at all	.3	.2
Uses vision aid(s) other than glasses or contacts	1.3	.4

Source: NLTS2 Wave 1 parent interviews.

Overall, approximately 40% of youth with disabilities wear glasses or contact lenses (Exhibit 5-9). In the vast majority of cases (81%), youth with disabilities who use lenses are able to see normally with them. Most youth who do not wear glasses or contact lenses also see normally; however, almost 1 in 10 are reported to have at least some vision limitation that is not treated with corrective lenses.

Vision aids other than glasses or contacts are used by very few youth (1%). Among those who use such aids, large-print type is the most commonly used aid (27%). Magnification devices are used by 19% of those who use vision aids, whereas 15% use assistive technologies and 13% use mobility aids, such as a cane. A Braille note taker is used by 4% of youth who use a vision aid.

Disability Differences in Vision

Not surprisingly, the use of glasses or contact lenses is most common among youth in the visual impairment category (61%), although 4 of 10 youth in that category do not use corrective lenses (Exhibit 5-10). Youth in the visual impairment category also are the most likely to use other kinds of vision aids; almost 90% do so. More than half of youth in the deaf-blindness (56%) or orthopedic impairment (54%) category also wear glasses or contact lenses. However, among youth in these categories, other kinds of vision aids are in common use only among those with deaf-blindness (67%). Among all other youth, the proportion of glasses/contact-lens users ranges from 32% (those with autism) to 45% (youth with speech/language impairments), and users of other vision aids are few.

Exhibit 5-10
USE OF GLASSES OR CONTACTS AND VISUAL ABILITY WITH AND WITHOUT AIDS, BY DISABILITY CATEGORY

	Learning Disability	Speech/ Language Impairment	Mental Retardation	Emotional Disturbance	Hearing Impairment	Visual Impairment	Orthopedic Impairment	Other Health Impairment	Autism	Traumatic Brain Injury	Multiple Disabilities	Deaf-Blindness
Uses glasses or contacts	37.1	44.9	41.3	43.3	41.7	61.4	53.9	41.3	32.3	48.0	38.5	55.8
	(2.3)	(2.4)	(2.5)	(2.5)	(2.8)	(3.4)	(2.8)	(2.3)	(2.5)	(4.5)	(2.6)	(5.1)
User of glasses or contact lenses sees:												
Normally	85.1	84.4	68.5	82.2	82.8	5.2	68.7	82.4	80.6	81.3	60.5	21.2
	(2.8)	(2.6)	(3.6)	(3.0)	(3.3)	(2.1)	(3.6)	(2.8)	(4.1)	(5.4)	(4.2)	(5.7)
With a little trouble	13.2	13.4	26.3	14.5	14.5	36.1	21.8	16.4	16.3	16.5	26.5	35.8
	(2.6)	(2.5)	(3.5)	(2.8)	(3.0)	(4.6)	(3.2)	(2.7)	(3.8)	(5.1)	(3.8)	(6.7)
With a lot of trouble	1.7	2.2	5.2	3.3	2.7	58.6	9.6	1.3	3.2	2.2	12.9	43.0
	(1.0)	(1.1)	(1.7)	(1.4)	(1.4)	(4.7)	(2.3)	(.8)	(1.8)	(2.0)	(2.9)	(6.9)
Nonuser of glasses or contact lenses sees:												
Normally	92.7	90.7	89.6	88.8	94.0	2.5	79.9	91.7	92.9	79.8	73.8	13.6
	(1.6)	(2.0)	(2.0)	(2.1)	(1.8)	(1.6)	(3.1)	(1.7)	(1.6)	(4.7)	(3.1)	(5.4)
With a little trouble	6.6	9.0	9.7	10.0	5.7	11.2	15.1	7.7	6.4	17.1	16.3	25.4
	(1.6)	(1.9)	(2.0)	(2.0)	(1.8)	(3.2)	(2.8)	(1.7)	(1.5)	(4.4)	(2.6)	(6.9)
With a lot of trouble or not at all	0.8	0.3	0.7	1.3	0.3	86.3	5.1	0.7	0.7	3.2	10.0	61.0
	(.5)	(.4)	(.5)	(.7)	(.4)	(3.4)	(1.7)	(.5)	(.5)	(2.1)	(2.1)	(7.7)
Uses a vision aid other than glasses or contacts	.2	.5	1.2	1.0	.7	88.8	7.0	.8	1.4	3.1	8.7	66.6
	(.2)	(.3)	(.6)	(.5)	(.5)	(2.2)	(1.4)	(.4)	(.6)	(1.6)	(1.5)	(4.9)

Source: NLTS2 Wave 1 parent interviews.

Standard errors are in parentheses.

In disability categories that do not address vision directly, from 60% (youth with multiple disabilities) to 85% (youth with learning disabilities) of youth who use corrective lenses have their vision corrected to normal levels. As one might expect, vision limitations, even with correction, are most common among youth in the visual impairment category, almost 60% of whom are reported to have "a lot of trouble" seeing, even with corrective lenses. Some youth in each of the other categories are reported to have trouble seeing, even with corrective lenses. For example, 13% of youth with multiple disabilities are reported to have "a lot of trouble" seeing with corrective lenses. Further, from 13% to 26% of youth in each of the other disability categories are reported to have "a little trouble" seeing after correction.

Youth in the visual impairment category who do not use corrective lenses are even more likely than lens wearers to have "a lot of trouble" seeing or no sight at all (86%). Youth with deaf-blindness also follow this pattern to a lesser degree. In addition, some youth in each of the other categories who do not use corrective lenses are reported to have at least "a little trouble" seeing.

Demographic Differences in Vision

Girls are significantly more likely than boys to wear glasses or contact lenses (48% vs. 35%; p<.001). Although there are no differences between youth from households with different income levels in the use of corrective lenses, wealthier youth are much more likely than their lower-income peers to have their vision corrected to normal when they wear them. Whereas 90% of youth from households with incomes of more than $50,000 have normal vision with their corrective lenses, 76% of youth from households with incomes of $25,000 or less have normal vision with correction ($p<.01$). It is unclear whether this difference results from lower-income youth's having more serious forms or levels of vision limitations that are not amenable to correction, whether they are unable to update their lens prescriptions as needed so that the lenses correct imperfectly, or whether lens prescription or construction is of lower quality among lower-income youth.

Hearing

IDEA recognizes the potentially significant educational implications of hearing impairment and considers it a defining feature of two disability categories: hearing impairment and deaf-blindness. However, according to parents' reports, some youth in every other disability category also have hearing impairments that may affect their functioning in educational and community settings.

This section examines the degree to which parents report that youth with disabilities "hear normally or have a hearing problem." The parent-reported severity of hearing impairment also is reported.[6] The extent to which youth with hearing impairment use devices, including cochlear implants, to improve their hearing and their hearing ability when using a hearing device are then considered.

Exhibit 5-11

YOUTH REPORTED TO HAVE HEARING LOSS, BY DISABILITY CATEGORY

	Percentage	Standard Error
All students with disabilities	8.6	.9
Learning disability	6.4	1.2
Speech/language impairment	10.2	1.5
Mental retardation	10.4	1.5
Emotional disturbance	6.5	1.3
Hearing impairment	100.0	
Visual impairment	4.3	1.4
Orthopedic impairment	8.3	1.5
Other health impairment	7.5	1.3
Autism	6.0	1.3
Traumatic brain injury	10.3	2.7
Multiple disabilities	17.3	2.0
Deaf-blindness	100.0	

Source: NLTS2 Wave 1 parent interviews.

Differences in Experiences with Hearing Impairment

According to parent reports, approximately 90% of youth with disabilities hear normally, and 9% have some type of hearing impairment (Exhibit 5-11). Logically, reported hearing impairments are concentrated among youth whose primary disability classification is hearing impairment or deaf-blindness. However, youth in other disability categories also are reported to have hearing impairments; 17% of youth with multiple disabilities and 10% of youth with speech impairment, mental retardation, or traumatic brain injury are reported to have some difficulty in hearing.

Whether students receive special education services for hearing impairments depends primarily on the degree of hearing loss.

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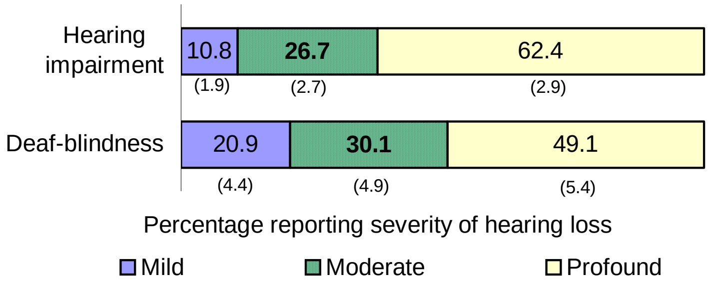
[6] Parents were asked, "Is {YOUTH}'s hearing loss mild, moderate, or severe to profound?" It is important to note that parents' responses to this question may include assessments of both youth's physical ability to perceive auditory stimuli (measured or unmeasured audiometry) and their ability to process that information effectively for educational and/or general communication purposes.

Among youth with disability classifications other than hearing impairment or deaf-blindness, most of this loss is mild. Parents report that fewer than 4% of youth in all but one of these categories have moderate or profound hearing loss; however, 8% of youth with multiple disabilities are reported to have moderate or profound hearing loss.

Exhibit 5-12
SEVERITY OF HEARING LOSS AMONG YOUTH WITH HEARING IMPAIRMENTS AND DEAF-BLINDNESS



Source: NLTS2 Wave 1 parent interviews.
Standard errors are in parentheses.

Clearly, youth classified as having a hearing impairment or deaf-blindness follow a very different pattern. Among the former group, 27% are reported to have moderate hearing loss, and 62% are reported to have profound hearing loss (Exhibit 5-12). Among the latter group, 30% are reported to have moderate hearing loss, and 49% are reported to have profound hearing loss.

The only significant difference in hearing of youth with different demographic characteristics is that youth from lower-income households who use a hearing device are much more likely than wealthier youth to be reported to have normal hearing with the device. Specifically, 48% of youth from households with annual incomes of $25,000 or less who use a hearing device are reported to have normal hearing with the device, compared with 14% of youth from households with incomes greater than $50,000 (p<.05). This difference is the inverse of the relationship noted regarding differences in normal vision with glasses, and the explanation for it is unclear.

Use of Hearing Devices

Over the past 25 years, significant advances in technologies have enabled individuals with hearing impairments to maximize their ability to hear, communicate with others, and access information. For example, in- and behind-ear hearing aids better amplify sound so that some students with hearing impairments hear well enough to participate in classes that rely on spoken language. Cochlear implants, which are devices inserted surgically that transmit sound to the cochlea, allow some people with hearing impairments to hear sounds they otherwise could not. Environmental adaptations, such as FM loops, enable teachers to “broadcast” directly to students who wear hearing aids. Other technologies, such as closed-caption television and video, TTYs, and the Internet, have improved access to information and entertainment and facilitated communication between deaf and hearing people.

The NLTS2 data reported here focus on the use by youth of devices to improve hearing (use of communication devices is discussed in the following section). Parents who reported their children as having a hearing loss were asked whether a hearing device had been prescribed and whether youth had a cochlear implant. Parents also were asked how well youth can hear with the devices.

Exhibit 5-13
USE AND EFFECTIVENESS OF HEARING DEVICES, BY DEGREE OF HEARING LOSS

	Youth with Hearing Loss	Degree of Reported Hearing Loss		
		Mild	Moderate	Profound
Uses a hearing device	23.4	4.6	38.4	64.2
	(4.2)	(3.0)	(9.3)	(8.0)
Has a cochlear implant	2.4	2.3	.4	6.1
	(1.5)	(2.1)	(1.1)	(3.8)
Hearing capability with device:				
Normal hearing	36.1	63.9	51.5	16.3
	(6.4)	(14.8)	(14.4)	(3.4)
Has a little trouble hearing	37.4	33.7	43.2	32.9
	(6.4)	(14.6)	(14.3)	(4.3)
Has a lot of trouble hearing	21.5	2.0	5.1	38.3
	(5.4)	(4.3)	(6.3)	(4.5)
Does not hear at all	6.0	.4	.2	12.5
	(2.3)	(2.0)	(1.1)	(3.0)

Source: NLTS2 Wave 1 parent interviews.
Standard errors are in parentheses.

Although the use of hearing devices is not common among youth with reported hearing loss overall (23%; Exhibit 5-13), 38% of youth whose parents report they have moderate hearing loss and 64% of youth whose parents report they have severe hearing loss use a hearing device. Since the approval of the Nucleus device for children in the early 1990s, the use of cochlear implants has been increasing, although not without debate (Christiansen & Leigh, 2001; Holden-Pitt, 1997). Among adolescents, approximately 2% of youth with hearing loss have a cochlear implant, including 6% of youth with profound hearing loss.

In most instances, hearing devices do not completely compensate for hearing impairments. Overall, more than one-third of youth (36%) with hearing loss are reported to hear normally with the aid of a hearing device, and 40% are reported to have only “a little trouble hearing”; however, 22% continue to have “a lot of trouble hearing,” and 6% cannot hear at all.

How well youth hear with a device varies considerably for students with different levels of hearing loss. For example, among youth who use a hearing device, normal hearing is reported for almost two-thirds of those with mild hearing loss and half of those with moderate hearing loss, but for only one-sixth of those with profound hearing loss.

Communication

Communication—expression and reception of information, thoughts, and ideas—can involve many mechanisms, including speech, manual communication, body language, listening, and writing. It is difficult to overestimate the importance of communication for effective functioning in virtually every context. At school, communication among students and between students and teachers is fundamental to all types of learning.

Difficulties in one or more aspects of communication are part of the diagnostic and eligibility criteria for several disability categories. Youth with speech impairments most commonly have difficulty in speech production, morphology, or pragmatics. Youth with learning disabilities may have particular difficulty in reading and/or writing. Youth with autism frequently experience difficulties in understanding and applying the social conventions of communication. However, as pointed out in Chapter 4, parents report that some youth in every category have difficulty communicating in one way or another, which may affect their ability to succeed in educational or community contexts.

Effective communication requires several skills. Effective and clear speech requires the understanding of phonology, morphology, syntax, semantics, and pragmatics. Speech also requires the physical ability to produce sounds that others can understand. The interchange of information, thoughts, and ideas through conversation requires the ability to express oneself, as well as cognition, social understanding, and attention. Difficulty in any of these areas can present challenges in interpreting situations correctly, obtaining necessary information, and responding appropriately to others. In educational contexts, difficulty in expression can result in others' misunderstanding of requests or responses. Conversely, a student's difficulty in understanding others can lead to failure to grasp curriculum content delivered orally, directions for carrying out learning tasks, and the content of classroom discussions. The importance of participating in conversation increases as the demands of curriculum, instruction, and peer relationships expand throughout high school.

Parents were asked about their child's ability to communicate effectively through any means, as well as about specific communication skills, including speaking clearly, carrying on a conversation with others, and understanding what others say.[7] According to parents, 70% of youth with disabilities have "no trouble" communicating by using some communication mode accessible to them (Exhibit 5-14). Similar percentages of youth can perform each individual communication skill with no trouble.

Across the skills, approximately 30% of youth experience at least some difficulty with one or more communication skills. However, most youth who have any difficulty at all have only "a little trouble" with these communication skills. Overall, 3% to 8% of youth are reported to have "a lot of trouble" with these skills or not to be able to perform them at all.

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[7] Parents were asked:

"How well does {YOUTH} communicate by any means? Would you say {he/she} has no trouble communicating, has a little trouble communicating, has a lot of trouble communicating, or doesn't communicate at all?"

"How clearly does {YOUTH} speak? Would you say {he/she} has no trouble speaking clearly, has a little trouble speaking, has a lot of trouble speaking, or does not speak at all?"

"How well does {he/she} carry on a conversation? Would you say {he/she} has no trouble carrying on a conversation, has a little trouble carrying on a conversation, has a lot of trouble carrying on a conversation, or doesn't carry on a conversation at all?"

"How well does {YOUTH} understand what people say to {him/her} in {his/her} primary language? Would you say {he/she} has no trouble understanding what others say, has a little trouble understanding, has a lot of trouble understanding, or doesn't understand at all?"

Exhibit 5-14
COMMUNICATION ABILITIES OF YOUTH WITH DISABILITIES

	Communicate by Any Means	Speak Clearly	Carry on a Conversation	Understand What Others Say
Percentage reporting youth has:				
No trouble with this skill	70.5 (1.4)	71.1 (1.4)	68.2 (1.5)	69.9 (1.5)
A little trouble with this skill	26.4 (1.4)	24.6 (1.4)	23.8 (1.3)	27.7 (1.4)
A lot of trouble with this skill or does not perform it at all	3.1 (.5)	4.4 (.7)	8.0 (.9)	2.4 (.5)

Source: NLTS2 Wave 1 parent interviews.
Standard errors are in parentheses.

Youth reported to have “a lot” of difficulty speaking use a variety of other modes of communication. Sounds, simple gestures, manual communication, communication boards, and assistive technologies are used in conjunction with, or independent of, spoken language to enable students to communicate with family members, peers, and teachers. Words, gestures, and manual communication are the most frequently reported communication modes; nevertheless, among all youth with disabilities, no more than 3% use any of these.

Disability Differences in Communication

As one might expect, the ability to perform the several skills involved in communication varies dramatically by disability category, with youth with some types of disabilities demonstrating patterns of competence or limitations in all the skills and youth with other types of disabilities showing strength in some skills and limitations in others (Exhibit 5-15).

As expected, speech impairments are a major limitation to communication, yet, according to parents, 53% of youth whose primary disability is speech/language impairment have no trouble communicating by some available means, and 52% have no trouble speaking. Hearing impairment has more serious implications for overall communication ability. Approximately half of youth in the hearing impairment category and fewer than one-third of youth with deaf-blindness are reported to have no trouble communicating by some means. Speech is the communication skill that is most limited for youth in the hearing impairment category, whereas youth with deaf-blindness have similar levels of limitation across all of the communication skills.

Overall communication also is limited for youth with autism, multiple disabilities, and mental retardation; more than half of youth with these disabilities are reported not to be able to communicate normally. Youth with mental retardation are reported to have similar abilities across all the communication skills. In contrast, although 38% of youth with autism have no trouble speaking clearly, only 13% are reported to be able to converse normally, presumably because of difficulty with the interaction of conversation.

Exhibit 5-15
COMMUNICATION ABILITIES, BY DISABILITY CATEGORY

	Learning Disability	Speech/ Language Impairment	Mental Retardation	Emotional Disturbance	Hearing Impairment	Visual Impairment	Orthopedic Impairment	Other Health Impairment	Autism	Traumatic Brain Injury	Multiple Disabilities	Deaf-Blindness
Youth communicates by any means:												
With no trouble	76.6	53.4	45.1	79.3	48.2	82.0	62.9	74.4	36.4	58.9	35.6	29.5
	(2.1)	(2.5)	(2.5)	(2.1)	(2.9)	(2.7)	(2.7)	(2.1)	(2.6)	(4.4)	(2.6)	(4.7)
With a little trouble	22.7	43.1	44.6	18.7	41.8	12.6	28.9	22.7	40.2	35.2	38.0	46.3
	(2.0)	(2.4)	(2.5)	(2.0)	(2.8)	(2.3)	(2.5)	(2.0)	(2.6)	(4.3)	(2.6)	(5.2)
With a lot of trouble	.7	3.6	9.4	1.8	9.8	3.6	6.3	2.8	21.8	5.9	22.2	.7
	(.4)	(.9)	(1.5)	(.7)	(1.7)	(1.3)	(1.3)	(.8)	(2.2)	(2.1)	(2.2)	(.4)
Not at all	.0	.0	.9	.2	.3	1.8	1.9	.1	1.6	.0	4.2	.0
			(.5)	(.2)	(.3)	(.9)	(.8)	(.2)	(.7)		(1.1)	
Youth speaks:												
With no trouble	77.0	52.4	46.9	80.7	36.7	82.9	61.9	75.1	37.5	61.0	33.2	38.7
	(2.0)	(2.5)	(2.5)	(2.0)	(3.0)	(2.6)	(2.7)	(2.1)	(2.6)	(4.4)	(2.6)	(5.8)
With a little trouble	22.0	40.9	37.7	17.3	45.9	11.1	24.8	20.8	31.5	31.7	31.6	39.9
	(2.0)	(2.4)	(2.5)	(1.9)	(3.1)	(2.2)	(2.4)	(1.9)	(2.5)	(4.2)	(2.6)	(5.8)
With a lot of trouble	1.0	6.6	12.0	2.0	15.7	2.8	7.5	4.0	16.9	6.3	18.5	1.0
	(.5)	(1.2)	(1.6)	(.7)	(2.3)	(1.2)	(1.5)	(.9)	(2.0)	(2.2)	(2.1)	(.5)
Not at all	.0	.1	3.6	.2	1.9	3.8	6.7	.3	14.3	1.0	17.9	3.2
		(.2)	(.9)	(.2)	(.8)	(1.3)	(1.4)	(.3)	(1.9)	(.9)	(2.1)	(2.1)
Youth converses:												
With no trouble	75.8	60.4	43.3	68.7	51.6	78.7	65.4	66.2	13.2	56.1	29.4	32.7
	(2.1)	(2.4)	(2.5)	(2.4)	(2.9)	(2.9)	(2.6)	(2.3)	(1.8)	(4.5)	(2.5)	(4.9)
With a little trouble	21.0	29.8	32.9	24.9	34.3	12.8	18.2	26.3	31.3	34.0	26.5	34.9
	(2.0)	(2.3)	(2.4)	(2.2)	(2.7)	(2.3)	(2.1)	(2.1)	(2.5)	(4.3)	(2.4)	(4.9)
With a lot of trouble	3.1	9.4	18.7	5.8	12.5	4.3	9.6	7.2	37.9	8.8	24.4	20.1
	(.8)	(1.4)	(2.0)	(1.2)	(1.9)	(1.4)	(1.6)	(1.2)	(2.6)	(2.5)	(2.3)	(4.1)
Not at all	.1	.3	5.1	.6	1.7	4.3	6.8	.3	17.7	1.1	19.8	12.3
	(.2)	(.3)	(1.1)	(.4)	(.7)	(1.4)	(1.4)	(.3)	(2.1)	(.9)	(2.1)	(3.4)
Youth understands others:												
With no trouble	76.3	64.3	47.9	70.6	53.9	80.9	72.1	67.2	22.7	58.2	41.6	35.4
	(2.1)	(2.4)	(2.5)	(2.3)	(2.9)	(2.7)	(2.5)	(2.2)	(2.3)	(4.4)	(2.7)	(5.0)
With a little trouble	22.8	33.7	44.6	28.1	39.6	17.1	23.2	30.3	58.8	39.4	43.9	51.7
	(2.0)	(2.3)	(2.5)	(2.3)	(2.8)	(2.6)	(2.3)	(2.2)	(2.6)	(4.4)	(2.7)	(5.2)
With a lot of trouble	.9	1.9	7.0	1.3	6.5	1.4	3.7	2.4	18.4	2.4	12.2	10.0
	(.5)	(.7)	(1.3)	(.6)	(1.4)	(.8)	(1.0)	(.7)	(2.1)	(1.4)	(1.8)	(3.1)
Not at all	.0	.1	.5	.0	.0	.6	1.0	.1	.1	.0	2.3	2.9
		(.2)	(.4)			(.5)	(.6)	(.2)	(.2)		(.8)	(1.7)

Source: NLTS2 Wave 1 parent interviews.

Standard errors are in parentheses.

About three-fourths or more of youth with learning disabilities, emotional disturbances, visual impairments, or other health impairments have no trouble communicating, with similar percentages reported to have each of the communication skills.

Even among youth who have difficulty speaking, a majority of youth in each disability category use oral speech, ranging from 30% of youth with multiple disabilities to 81% of youth with speech/language impairments. However, youth with different primary disabilities use different additional or alternative communication methods. Among youth with difficulty speaking, those with autism or multiple disabilities are the most likely to use gestures, sounds, or communication boards to communicate: 24% and 18%, respectively, use gestures; 17% of both groups use sounds; and 10% of both groups use communication boards. In contrast, youth with hearing impairments who have difficulty speaking are more likely than youth in other disability categories to use lip reading (77%) or manual communication (57%)—typically American Sign Language (ASL). ASL is used by 77% of youth with hearing impairments, compared with 31% who use signed English; a small percentage (8%) of youth who use manual communication use another form. The fact that these figures add to more than 100% indicates that many youth are reported to use more than one form of manual communication.

Demographic Differences in Communication

Few characteristics of youth besides their disabilities are associated with differences in communication. One exception involves youth in different income groups. Approximately three-fourths of youth from households with annual incomes of more than $50,000, but only approximately two-thirds of youth from households with annual incomes of $25,000 or less, are reported to have no trouble speaking clearly. Differences in reports of normal conversational ability are almost as large (71% vs. 62%, p<.05). Abilities to communicate by any means and to understand what others say are very similar across income groups.

Race/ethnicity also appears to be a factor in some aspects of communication. Significantly fewer African American youth than white youth are reported by their parents to be able to speak clearly or communicate by any means. Approximately 65% of African American youth, compared with 73% of white youth, are reported to communicate and speak clearly with “no trouble” (p<.05).

Relationships among Functional Domains

Problems in each of the physical/health, sensory, and communication domains reported thus far can have important implications both for students’ efforts to learn and for the efforts of educational systems’ to provide curricula, instruction, and accommodations that address students’ needs. Problems in these areas often do not occur in isolation. They can co-occur with one another and combine with many other strengths and challenges in defining what youth bring to their educational experiences. Although most youth with disabilities do not have moderate or severe problems in any of these domains, one-fifth have moderate or severe problems in one domain.

Youth with learning disabilities, speech impairments, emotional disturbances, or other health impairments are the most likely to be reported to have no moderate or severe problems in any domain (between 68% and 80%; Exhibit 5-16). In contrast, approximately 20% of youth with mental retardation or traumatic brain injuries, and between 26% and 36% of youth with hearing impairments, visual impairments, orthopedic impairments, or autism, and almost half of youth with multiple disabilities are reported to have moderate or severe problems in at least two domains. Youth with deaf-blindness have moderate or severe problems in the greatest number of domains; almost one-fourth have problems in two domains, and almost half have problems in three or more domains.

Exhibit 5-16
PROBLEMS WITH HEALTH, HEARING, VISION, USE OF LIMBS, AND COMMUNICATION ABILITY, BY DISABILITY CATEGORY

Percentage of youth with:	Total	Learning Dis-ability	Speech/ Language Impair-ment	Mental Retar-dation	Emo-tional Distur-bance	Hearing Impair-ment	Visual Impair-ment	Ortho-pedic Impair-ment	Other Health Impair-ment	Autism	Trau-matic Brain Injury	Multiple Disabili-ties	Deaf-Blind-ness
Fair or poor health	8.0 (.9)	6.3 (1.2)	4.8 (1.1)	13.5 (1.7)	10.2 (1.5)	6.5 (1.5)	9.4 (2.0)	11.7 (1.8)	10.9 (1.5)	6.6 (1.3)	13.5 (3.1)	13.3 (1.8)	20.2 (4.2)
Mild or moderate hearing loss	3.8 (.6)	2.1 (.7)	4.1 (1.0)	3.5 (.9)	2.9 (.9)	90.0 (1.8)	3.1 (1.2)	4.6 (1.2)	2.7 (.8)	3.0 (.9)	5.6 (2.1)	9.0 (1.5)	82.1 (3.8)
A lot of trouble seeing or no sight	7.4 (.8)	5.4 (1.1)	6.2 (1.2)	11.8 (1.6)	6.9 (1.3)	6.4 (1.5)	91.2 (2.0)	18.6 (2 .2)	7.1 (1.2)	6.5 (1.3)	10.3 (2.7)	20.4 (2.2)	71.3 (4.8)
A lot of trouble using limbs or no use of limbs at all	10.7 (1.0)	6.8 (1.2)	5.7 (1.1)	18.5 (2.0)	8.3 (1.4)	6.0 (1.4)	21.6 (2.9)	78.9 (2.3)	15.3 (1.7)	29.9 (2.5)	36.0 (4.3)	52.7 (2.7)	40.1 (5.2)
A lot of trouble communicating or cannot communicate at all	8.6 (.9)	3.6 (.9)	10.6 (1.5)	24.2 (2.2)	7.1 (1.3)	25.1 (2.6)	8.8 (2.0)	16.9 (2.1)	7.8 (1.3)	55.6 (2.7)	11.1 (2.8)	46.1 (2.7)	40.7 (5.2)
Percentage of youth with moderate or severe problems in:													
No domains	72.0 (1.4)	79.7 (2.0)	75.5 (2.1)	55.1 (2.5)	74.5 (2.2)	7.7 (1.6)	7.4 (1.8)	16.9 (2.1)	68.3 (2.2)	29.7 (2.5)	50.6 (4.5)	25.4 (2.3)	2.6 (1.6)
One domain	20.0 (1.3)	16.9 (1.8)	18.4 (1.9)	25.7 (2.2)	18.0 (2.0)	60.4 (2.9)	63.9 (3.4)	46.6 (2.8)	22.0 (2.0)	44.5 (2.7)	31.1 (4.2)	28.9 (2.4)	27.1 (4.4)
Two domains	6.1 (.8)	2.9 (.8)	5.5 (1.1)	13.5 (1.7)	5.7 (1.2)	25.1 (2.5)	20.4 (2.8)	27.9 (2.5)	8.0 (1.3)	20.9 (2.2)	11.5 (2.9)	28.9 (2.4)	23.9 (4.2)
Three or more domains	1.9 (.4)	.4 (.3)	.5 (.4)	5.7 (1.2)	1.9 (.7)	6.9 (1.5)	8.2 (1.9)	8.6 (1.6)	1.7 (.6)	4.9 (1.2)	6.7 (2.2)	16.8 (2.0)	46.4 (5.0)

Source: NLTS2 Wave 1 parent interviews.

Standard errors are in parentheses.

Summary

This chapter confirms that a youth's designated disability category describes only a portion of the intricate puzzle of his or her functioning. Health, physical functioning, vision, hearing, and communication all influence youth's abilities to learn, interact with others, and participate successfully in the educational process.

Good health is taken for granted by many of us. However, when health is failing, it can negatively affect all areas of an individual's life. Most youth with disabilities are healthy; as a group, they are about as healthy as their peers in the general population. However, one in four youth with disabilities take medication for conditions related to their disabilities. Most of the medications prescribed are to affect behavior, mood, or emotions. Although the rate of using such medications is highest among youth with emotional disturbances, other health impairments, or autism, some youth in all disability categories take them.

Fewer than 12% of youth with disabilities overall are reported to have moderate or severe problems with mobility, vision, hearing, or communication. However, there is a considerable range across youth in the various disability categories, and substantial percentages of youth with hearing, visual, or orthopedic impairments; autism; multiple disabilities; or deaf-blindness experience moderate to severe problems in two or more of these domains.

Parents of youth from lower-income families are more likely to report poor health, as well as problems in some communication skills, but rates of vision, hearing, and mobility challenges are similar across income groups, as are use of medications and sensory and mobility aids. The differences in health status between income groups manifest themselves in differences among racial/ethnic groups, favoring better health for white youth; however, white youth are more likely than minority youth to take psychotropic medications. There also are differences between the racial/ethnic groups in some communication skills. Few age- and gender-related differences are observed beyond differences in use of psychotropic medications, particularly stimulants, among younger students and boys, consistent with their higher reported rates of ADD/ADHD.

6. THE DAILY LIVING AND SOCIAL SKILLS OF YOUTH WITH DISABILITIES

By Renée Cameto, Camille Marder, Tom W. Cadwallader, and Mary Wagner

The preceding chapter described the manifestations of disability in terms of students' health and functioning in the physical, sensory, and communication domains. This chapter considers the implications of disability for students' capacities to carry out activities of daily living and to interact with others in family and social relationships.[1] It also expands our understanding of what youth can do through a discussion of parents' reports of the particular aptitudes of their adolescent children.

Findings are presented for youth with disabilities as a whole and for those who differ in primary disability classification, age, gender, household income, and race/ethnicity.

Daily Living Skills

As youth age, their competence to care for their personal needs generally grows, and their independence grows with it. Cognitive ability also increases for most youth as they reach adolescence and become increasingly able to deal with higher-order-thinking challenges. Furthermore, youth typically take on additional responsibilities for household tasks as they get older. However, disabilities of some kinds can delay or circumvent the usual development of competencies and independence for youth. Limitations in the ability to carry out tasks of daily living can place stress and burden on caregivers at home and can require school staff to address the personal-care needs of students as well their learning challenges. This section explores parents' reports of how well youth with disabilities are able to perform basic self-care tasks, common cognitive tasks, and the extent to which they perform several household activities.

Self-Care Skills

To assess the ability of youth to care for themselves, parents of youth with disabilities were asked to rate how well youth can feed and dress themselves without help. Abilities were measured on a 4-point scale ranging from "not at all well" to "very well." A summative scale of abilities ranges from 2 (both skills done "not at all well") to 8 (both skills done "very well").

According to parents, the vast majority of youth feed and dress themselves on their own "very well" (Exhibit 6-1); only 3% and 6% feed and dress themselves less well, respectively. Thus, virtually all youth (94%) have a high self-care skills scale score.

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[1] Similar analyses were conducted for elementary and middle school students with disabilities as part of the Special Education Elementary Longitudinal Study (SEELS). The results are reported in Cadwallader, Cameto, Blackorby, Giacalone, and Wagner (2002).

Functional Cognitive Skills

Parents were asked to use the same 4-point scale to evaluate four of their sons' or daughters' skills that often are used in daily activities: reading and understanding common signs, telling time on a clock with hands, counting change, and looking up telephone numbers and using the telephone. These skills are referred to here as "functional cognitive skills" because they require the cognitive ability to read, count, and calculate. As such, they suggest much about students' abilities to perform a variety of more complex cognitive tasks. However, they also require sensory and motor skills—for example, to see signs, manipulate a telephone, etc. Consequently, a high score indicates high functioning in all of these areas, but a low score can result from a deficit in the cognitive, sensory, and/or motor domains.

Exhibit 6-1
SELF-CARE SKILLS OF YOUTH WITH DISABILITIES

	Percentage	Standard Error
Feeds him/herself without help		
Very well	96.8	.5
Pretty well	1.9	.4
Not very or not at all well	1.2	.3
Dresses him/herself without help		
Very well	93.8	.8
Pretty well	3.8	.6
Not very or not at all well	2.3	.5
Self-care scale score		
High (8)	93.5	.8
Medium (5 to 7)	5.1	.7
Low (2 to 4)	1.3	.4

Source: NLTS2 Wave 1 parent interviews.

Parents report that youth with disabilities have more difficulty performing functional cognitive skills than the self-care skills described previously. Still, most youth have mastered these tasks (Exhibit 6-2). Approximately 90% of youth read and understand common signs "very well" or "pretty well," whereas about 80% tell time or count change with these levels of skill. Looking up telephone numbers and using the telephone appears to be the most difficult task; about three-fourths of youth perform this task "very well" or "pretty well," according to parents.

A summative scale of parents' ratings of these functional cognitive skills ranges from 4 (all skills done "not at all well") to 16 (all skills done "very well"). Approximately half of youth with disabilities score in the high range on this scale (15 or 16); almost 6% score in the low range (4 to 8).

Exhibit 6-2
FUNCTIONAL COGNITIVE SKILLS OF YOUTH WITH DISABILITIES

	Percentage	Standard Error
Reads and understands common signs		
Very well	76.5	1.3
Pretty well	15.7	1.1
Not very well	5.6	.7
Not at all well	2.2	.5
Tells time on an analog clock		
Very well	61.6	1.5
Pretty well	21.6	1.3
Not very well	16.8	1.2
Not at all well	5.4	.7
Counts change		
Very well	58.5	1.6
Pretty well	24.1	1.3
Not very well	13.5	1.1
Not at all well	3.9	.6
Looks up telephone numbers and uses the phone		
Very well	51.4	1.6
Pretty well	24.2	1.4
Not very well	17.7	1.2
Not at all well	6.7	.8
Functional cognitive skills scale score		
High (15 or 16)	48.9	1.6
Medium (9 to 14)	45.6	1.6
Low (4 to 8)	5.5	.7

Source: NLTS2 Wave 1 parent interviews.

Household Responsibilities

As youth mature, it often is expected that they take on responsibilities within the home, such as fixing their own breakfast or lunch, straightening up their room or living area, and doing laundry. In addition, most youth begin to function more independently outside of the home, for example, by shopping for personal items. Thus, these kinds of daily living skills can measure both youth's competence and independence.

Parents were asked how often youth fix their own breakfast or lunch, straighten up their living space, do laundry, and buy a few things at a store when they are needed. The frequency of performing these tasks was reported on a 4-point scale ranging from “never” to “always.”

A majority of youth (55%) are reported to fix their own breakfast or lunch “always” or “usually,” and between 28% and 42% do their laundry, straighten up their room or living area, and buy items at a store that often (Exhibit 6-3). Between 61% and 92% of youth do each of these activities at least “sometimes.” Youth are least likely to do laundry; 39% never do laundry, and 33% sometimes do it.

An overview of students' household responsibilities results from a summative scale of ratings of the frequency with which youth do the four activities investigated in NLTS2. The scale ranges from 4 (all activities “never” done) to 16 (all activities “always” done). Overall, 58% of youth score in the medium range on this scale, indicating that they usually or sometimes do these activities, and another 7% score in the high range, indicating that they almost always do these activities.

In interpreting these findings, readers should bear in mind that the extent to which youth perform these tasks may reflect their abilities and disabilities; however, it also may reflect other factors, such as youth's preferences, parental expectations, and/or family culture.

Exhibit 6-3
HOUSEHOLD RESPONSIBILITIES OF YOUTH WITH DISABILITIES

	Percentage	Standard Error
Fixes own breakfast or lunch		
Always	32.0	1.5
Usually	22.8	1.3
Sometimes	37.1	1.5
Never	8.2	.9
Straightens up own room or living area		
Always	26.6	1.4
Usually	14.7	1.1
Sometimes	40.4	1.5
Never	18.3	1.2
Buys items needed at a store		
Always	25.3	1.4
Usually	17.0	1.2
Sometimes	41.5	1.6
Never	16.2	1.2
Does laundry		
Always	19.1	1.5
Usually	8.6	.9
Sometimes	32.9	1.5
Never	39.4	1.5
Household responsibilities scale score		
High (15 or 16)	6.9	.8
Medium (9 to 14)	58.1	1.6
Low (4 to 8)	35.0	1.5

Source: NLTS2 Wave 1 parent interviews.

Disability Differences in Daily Living Skills

Youth with different primary disability classifications differ dramatically in the frequency with which they perform the daily living activities described above. At least 90% of youth with learning disabilities, emotional disturbances, or speech, hearing, or other health impairments score in the high range on the self-care scale (Exhibit 6-4). These are more difficult tasks for youth with orthopedic impairments, autism, multiple disabilities, or deaf-blindness; only about half score high on the scale.

However, these findings should be interpreted with caution. It can be tempting to think of these self-care skills as fundamental, and to think that youth who cannot perform these skills also cannot perform other tasks. This is not always the case; as exemplified by well-known figures, such as scientist Stephen Hawking and artist Christy Brown, some individuals with severe physical impairments who cannot take care of their own physical needs are very competent in other areas.

Youth in the categories that tend to have high self-care scores also tend to have high functional cognitive skill scores. More than half of youth with learning disabilities, emotional disturbances, or speech, hearing, or other health impairments have high scores on functional cognitive skills. Youth with mental retardation, visual impairments, autism, multiple disabilities, or deaf-blindness appear to be more challenged by these types of tasks; more than 20% score in the low range.

There is much less variation in youth doing household responsibilities frequently; between 2% and 9% score high on the household responsibilities scale. However, there is greater variation at the low end of that scale, with variations across categories being similar to those of other scales. Youth with hearing and speech impairments or learning disabilities are least likely to score low on household responsibilities (26% to 32%), whereas more than half of those with autism, orthopedic impairments, or multiple disabilities do.

Exhibit 6-4
DAILY LIVING SKILLS OF YOUTH WITH DISABILITIES, BY DISABILITY CATEGORY

	Learning Disability	Speech/ Language Impairment	Mental Retardation	Emotional Disturbance	Hearing Impairment	Visual Impairment	Orthopedic Impairment	Other Health Impairment	Autism	Traumatic Brain Injury	Multiple Disabilities	Deaf-Blindness
Percentage with self-care skills scale score:												
High (8)	98.1	96.0	80.9	96.7	97.5	73.2	50.5	90.5	52.9	76.7	53.4	56.0
	(.7)	(1.0)	(1.9)	(.9)	(.9)	(3.1)	(2.7)	(1.4)	(2.7)	(3.9)	(2.7)	(4.9)
Low (2 to 4)	.1	.2	4.0	.3	.1	6.3	17.8	.8	6.6	4.5	21.7	14.9
	(.2)	(.2)	(1.0)	(.3)	(.2)	(1.7)	(2.1)	(.4)	(1.3)	(1.9)	(2.2)	(3.5)
Percentage with functional cognitive skills scale score:												
High (15 or 16)	52.3	61.6	20.4	62.7	56.0	33.4	40.3	53.0	24.6	46.4	15.8	20.4
	(2.4)	(2.4)	(2.0)	(2.5)	(2.8)	(3.3)	(2.7)	(2.4)	(2.3)	(4.6)	(2.0)	(4.1)
Low (4 to 8)	1.5	2.0	22.6	2.5	3.9	22.8	15.0	2.4	28.6	8.2	40.4	33.1
	(.6)	(.7)	(2.1)	(.8)	(1.1)	(3.0)	(2.0)	(.7)	(2.4)	(2.5)	(2.6)	(4.8)
Percentage with household responsibilities scale score:												
High (15 or 16)	7.4	5.7	7.4	6.3	8.6	4.7	4.2	3.6	1.5	6.9	2.7	6.3
	(1.3)	1.1)	(1.3)	1.2)	(1.6)	(1.5)	(1.1)	(0.9)	(.6)	(2.3)	(.9)	(2.4)
Low (4 to 8)	30.8	30.1	43.3	39.8	26.3	40.1	63.0	41.4	56.2	36.0	63.4	48.5
	2.3)	2.3)	(2.5)	(2.5)	(2.5)	(3.5)	(2.7)	(2.3)	(2.6)	(4.4)	(2.6)	(5.0)

Source: NLTS2 Wave 1 parent interviews.

Note: The category “medium” is omitted from the table.

Standard errors are in parentheses.

Demographic Differences in Daily Living Skills

Age. Few daily living skills differ between youth in the narrow 13- to 17-year-old age range. The one exception is that 17-year-olds are significantly more likely than younger teens to take on household responsibilities frequently. Approximately 13% of 17-year-olds score high on the scale, compared with 4% to 6% of 13- to 16-year-olds (p<.01). Youth represented by NLTS2 also have higher levels of household responsibility than younger students. About 60% of 6- to 13-year-olds represented in the Special Education Elementary Longitudinal Study (SEELS) score low on the household responsibilities scale, compared with 35% of older teens with disabilities (p<.001).

Similarly, compared with 6- to 13-year-olds, older teens with disabilities are more likely to score high on both the self-care scale and the functional cognitive scales (Cadwallader, Cameto, Blackorby, Giacalone, & Wagner, 2002). Just over three-fourths of younger students with disabilities score high on the self-care skills scale, and about one-fourth do so on the functional cognitive skills scale, compared with 94% and 49% of 13- to 17-year-olds, respectively (p<.001).

Exhibit 6-5
DAILY LIVING SKILLS, BY GENDER

	Boys	Girls
Percentage with functional cognitive skills scale score:		
High (15 or 16)	51.1 (1.9)	44.4 (2.7)
Low (4 to 8)	5.1 (.9)	6.3 (1.3)
Percentage with household responsibilities scale score:		
High (15 or 16)	4.8 (.8)	11.1 (1.7)
Low (4 to 8)	38.1 (1.9)	28.8 (2.4)

Source: NLTS2 Wave 1 parent interviews.

Note: The category “medium” is omitted from the table.

Standard errors are in parentheses.

Gender. Although boys and girls do not differ in their self-care abilities, boys are more likely than girls to be reported to have high functional cognitive skills (51% vs. 44%, p<.05; Exhibit 6-5). However, girls are more than twice as likely to score high on the household responsibilities scale than boys (11% vs. 5%, p<.001).

Household income. Youth with various levels of household income differ only on the functional cognitive skills scale, with higher income levels being associated with higher performance. Whereas 42% of youth with annual household incomes of $25,000 or less are rated as having high functional cognitive skills, 55% of youth with household incomes of more than $50,000 have high ratings (p<.001).

Race/ethnicity. Youth of the three racial/ethnic groups differ only on the household responsibilities scale. African American youth are more likely than white youth to be rated in the high range (10% vs. 6%, p<.05).

Social Functioning

It is well established that competence in social exchanges is a key factor in school engagement and academic success (Cairns & Cairns, 1994; Coie, 1990; Dodge, 1990) and that problems in social functioning can signal difficulties in multiple domains (Magnusson & Bergman, 1990). Positive peer relations support adaptive behavior and can be an indicator of positive social, emotional, and cognitive development, whereas social isolation has been associated with confrontational, aggressive, and self-destructive behavior in children and adults (Cairns & Cairns, 1994).

The IDEA requires an IEP team to consider, if appropriate, strategies to address behavior that impedes a student’s learning or that of others [34CFR300.346(a)2(i)]. Students receiving special education include a disproportionate number of youth who are at high risk for delays or difficulties in social development, and it is these students who are most likely to be targeted for positive behavioral supports as part of an IEP or behavioral intervention plan.

NLTS2 helps shed light on students’ social adjustment by providing national benchmarks regarding their social skills against which the effects of national, regional, and local programs can be evaluated. Parents’ reports of the social skills of youth with disabilities are provided to assess their general social competence; the extent to which parents report that youth have been arrested also is reported as an important marker of youth’s social adjustment in the community.

Social Skills

The social skills of youth with disabilities were assessed by asking parents questions regarding 11 aspects of social interactions, most of which were drawn from the Social Skills

Rating System, Parent Form (Gresham & Elliott, 1990). Parents were asked whether their adolescent children engaged in each kind of interaction "never," "sometimes," or "always." The 11 items and the three skill areas into which they group are:

- **Assertion**—a student's ability and willingness to become involved in social activities.
    - Makes friends easily.
    - Seems confident in social situations, such as parties or group outings.
    - Starts conversations rather than waiting for others to start.
    - Joins group activities without being told to, such as a group having lunch together.
- **Self-control**—a student's ability to cope with frustration and to deal with conflict.
    - Avoids situations that are likely to result in trouble.
    - Controls his or her temper when arguing with peers other than siblings.
    - Ends disagreements with parent calmly.
    - Receives criticism well.
- **Cooperation**—a student's ability to cooperate and stay on task.
    - Speaks in an appropriate tone at home.
    - Keeps working at something until he or she is finished, even if it takes a long time.*
    - Behaves at home in a way that causes problems for the family.*

A scale was created from responses to items regarding each area of social ability. The assertion and self-control scales range from 0 to 8, and the cooperation scale ranges from 0 to 6. An overall measure of general social skills was created by summing these three scales; it ranges from 0 to 22. For the first two scales, ratings of low, medium, or high were created for youth by using the national means and standard deviations; for the overall and cooperation scales, ratings were created by using the means and standard deviations for youth with disabilities because no national norm data are available for them.[2]

A minority of youth with disabilities (18%) receive low scores on the overall social skills scale (Exhibit 6-6); a similar percentage (23%) score high. Youth are most likely to receive high scores for assertion and cooperation—approximately 13% on each scale; between 15% and 20% score low. The fact that a majority of students (54%) make friends easily contributes particularly strongly to high scores for assertion, whereas having a majority of students frequently speaking in an appropriate tone at home contributes to high cooperation ratings. Fewer youth are rated high on the self-control scale (5%), yet somewhat fewer also are rated low (11%). Lower scores on this scale result primarily from reports that relatively few youth (17%) frequently receive criticism well.

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* An asterisk indicates items that were not drawn from the SSRS.

[2] See Appendix A for details on the creation of these scales.

Exhibit 6-6
SOCIAL SKILLS OF YOUTH WITH DISABILITIES AND YOUTH IN THE GENERAL POPULATION

	Youth with Disabilities [a]		Youth in the General Population [b]	
	Low	High	Low	High
Social skills scales (percentage with score)				
Overall social skills	17.9 (1.2)	22.9 (1.3)	NA	NA
Assertion	19.9 (1.3)	12.5 (1.0)	8.1 (2.1)	12.6 (2.5)
Self-control	10.9 (1.0)	5.4 (.7)	7.5 (2.0)	6.3 (1.8)
Cooperation	15.4 (1.1)	13.4 (1.1)	NA	NA
Components of scales (percentage with frequency of activity)	Never	Very Often	Never	Very Often
Assertion				
Makes friends easily	8.6 (.9)	53.8 (1.6)	2.9 (1.3)	56.9 (3.8)
Starts conversations rather than waiting for others to start	11.4 (1.0)	42.3 (1.6)	12.6 (2.5)	32.8 (3.6)
Seems confident in social situations, such as parties or group outings	15.6 (1.1)	38.7 (1.5)	.0	62.1 (3.7)
Joins group activities without being told to, such as a group having lunch together	22.0 (1.3)	34.8 (1.5)	12.1 (2.5)	44.3 (3.8)
Self-control				
Avoids situations that are likely to result in trouble	11.6 (1.0)	48.4 (1.6)	2.3 (1.1)	53.5 (3.8)
Controls his or her temper when arguing with peers other than siblings	12.5 (1.1)	38.8 (1.5)	9.2 (2.2)	35.1 (3.6)
Ends disagreements with parent calmly	16.1 (1.2)	34.1 (1.5)	7.5 (2.0)	38.5 (3.7)
Receives criticism well	27.3 (1.4)	16.7 (1.2)	14.4 (2.7)	20.7 (3.1)
Cooperation				
Speaks in an appropriate tone at home	4.3 (.6)	52.0 (1.6)	.6 (.6)	50.6 (3.8)
Keeps working at something until he or she is finished, even if it takes a long time	16.4 (1.2)	35.0 (1.5)	NA	NA
Behaves at home in a way that does not cause problems for the family	14.3 (1.1)	35.8 (1.5)	NA	NA

[a] Source: NLTS2 Wave 1 parent interviews.

[b] Source: American Guidance Service Social Skills Rating System national norms data.

Note: The categories “medium” and “sometimes” are omitted from the exhibit.

NA=Not available.

Standard errors are in parentheses.

Compared with youth in the general population, youth with disabilities are more likely to receive low ratings on the assertion scale and on several of its components. Parents of youth in the general population rate only 8% of them as low on this scale, compared with 20% of youth with disabilities (p<.05). This difference results from the fact that parents of students with disabilities are more likely to report that their children never make friends easily, join group activities without being told to, or are confident in social situations (p<.05 for all differences). On the other hand, youth with disabilities appear to be better than youth in the general population at starting conversations; parents report that 42% of them start conversations on their own "very often," compared with 33% of youth in the general population (p<.05).

Youth with disabilities and youth in the general population receive similar ratings with regard to their self-control skills; however, there is considerable differentiation between the two groups on the individual items that comprise the scale. Parents of youth with disabilities and youth in the general population are about equally likely to report that youth do each of the social skills "very often," but parents of youth with disabilities are less likely than those of youth in the general population to report that their children never avoid situations that result in trouble, end disagreements calmly, or receive criticism well (p<.001 for all differences).

Disability Differences in Social Skills

There are reasons to expect that differences in disabilities might influence youth's social skills. For example, youth with severe cognitive or speech/language limitations might have problems with social functioning because of communication difficulties, whereas youth with learning disabilities or most orthopedic impairments may not face those types of challenges. Findings from NLTS2 support these expectations. Ten percent or fewer of youth with learning disabilities, speech impairments, or hearing, visual, or orthopedic impairments are rated low on the overall social skills scale (Exhibit 6-7). In contrast, from 20% to 31% of youth with mental retardation, autism, or multiple disabilities score in the low range on overall social skills.

Difficulty in social situations is a diagnostic criterion for youth with autism or emotional disturbances, and their social skills ratings also are predictably low. Youth with autism have the weakest assertion skills of any of the disability groups—parents report that 61% of them have low skills in this domain. Youth with emotional disturbances receive significantly lower ratings than youth with all other types of disabilities for self-control and cooperation, with 20% rated low and only 1% rated high on the former scale and 29% rated low and only 6% rated high on the latter scale.

Although one-fourth of youth with emotional disturbances are rated low on the assertion scale, according to their parents, most youth with emotional disturbances are not asocial, shy, or withdrawn. In fact, approximately 90% of them are reported to make friends and/or start conversations easily, 80% are reported to seem confident in social situations, and 72% are reported to join group activities without being told to do so. These reports lend support to evidence that peer rejection and social ostracism are not the inevitable burden of youth with behavioral and emotional difficulties (Farmer & Farmer, 1996; Rodkin, Farmer, Pearl, & Van Acker, 2000; Sandstrom & Coie, 1999).

Exhibit 6-7
SOCIAL SKILLS OF YOUTH, BY DISABILITY CATEGORY

	Learning Dis-abilities	Speech/ Language Impair-ment	Mental Retar-dation	Emo-tional Distur-bance	Hearing Impair-ment	Visual Impair-ment	Ortho-pedic Impair-ment	Other Health Impair-ment	Autism	Trau-matic Brain Injury	Multiple Disabili-ties	Deaf-Blind-ness
Percentage with overall social skills rated:												
High	11.3	13.1	5.2	3.2	18.5	19.7	16.7	7.9	3.1	7.6	9.8	8.2
	(1.6)	(1.7)	(1.1)	(.9)	(2.2)	(2.8)	(2.1)	(1.3)	(.9)	(2.4)	(1.6)	(2.8)
Low	10.1	8.8	15.0	25.2	7.7	5.3	9.6	15.4	30.8	13.3	20.2	16.9
	(1.5)	(1.4)	(1.8)	(2.2)	(1.5)	(1.6)	(1.6)	(1.7)	(2.5)	(3.1)	(2.2)	(3.8)
Percentage with assertion skills rated:												
High	14.1	12.7	7.1	9.0	14.8	14.6	15.3	14.2	2.2	9.3	8.9	6.8
	(1.7)	(1.6)	(1.3)	(1.5)	(2.0)	(2.5)	(2.0)	(1.7)	(.8)	(2.7)	(1.5)	(2.5)
Low	16.5	20.3	26.8	24.3	21.0	18.1	22.2	22.2	61.2	19.5	35.3	36.4
	(1.8)	(2.0)	(2.2)	(2.2)	(2.3)	(2.7)	(2.3)	(2.0)	(2.6)	(3.6)	(2.6)	(4.8)
Percentage with self-control skills rated:												
High	5.8	7.3	5.4	1.2	9.4	8.3	10.2	5.7	4.9	5.8	8.7	10.6
	(1.1)	(1.3)	(1.1)	(.5)	(1.7)	(2.0)	(1.7)	(1.1)	(1.2)	(2.2)	(1.6)	(3.1)
Low	9.9	4.1	10.5	19.8	3.8	4.5	4.8	12.2	11.4	10.1	11.1	12.2
	(1.5)	(1.0)	(1.5)	(2.0)	(1.1)	(1.5)	(1.2)	(1.5)	(1.7)	(2.8)	(1.7)	(3.3)
Percentage with cooperation skills rated:												
High	14.4	21.9	12.3	5.6	24.9	30.7	21.5	8.9	10.0	10.0	13.1	20.1
	(1.7)	(2.0)	(1.6)	(1.2)	(2.5)	(3.3)	(2.3)	(1.3)	(1.6)	(2.8)	(1.8)	(4.0)
Low	12.7	10.3	17.8	28.6	9.3	4.7	11.1	20.0	19.1	14.2	16.9	11.9
	(1.6)	(1.5)	(1.9)	(2.3)	(1.7)	(1.5)	(1.7)	(1.9)	(2.1)	(3.2)	(2.0)	(3.2)

Source: NLTS2 Wave 1 parent interviews.

Standard errors are in parentheses.

Note: The category “medium” is omitted from the exhibit.

For youth in other disability categories, there is quite a wide range of ratings on the assertion scale, but youth with multiple disabilities or deaf-blindness stand out as being the most likely to receive low ratings (35% and 36%, respectively). Ratings on the self-control scale vary somewhat less; between 5% and 11% of youth are rated high, and between 4% and 12% are rated low. Youth with visual impairments are the most likely to be rated high (31%) regarding cooperation and the least likely to be rated low (5%). At the other end of the cooperation continuum are youth with learning disabilities, mental retardation, other health impairments, or multiple disabilities, between 9% and 14% of whom are rated high and between 13% and 20% are rated low.

Demographic Differences in Social Skills

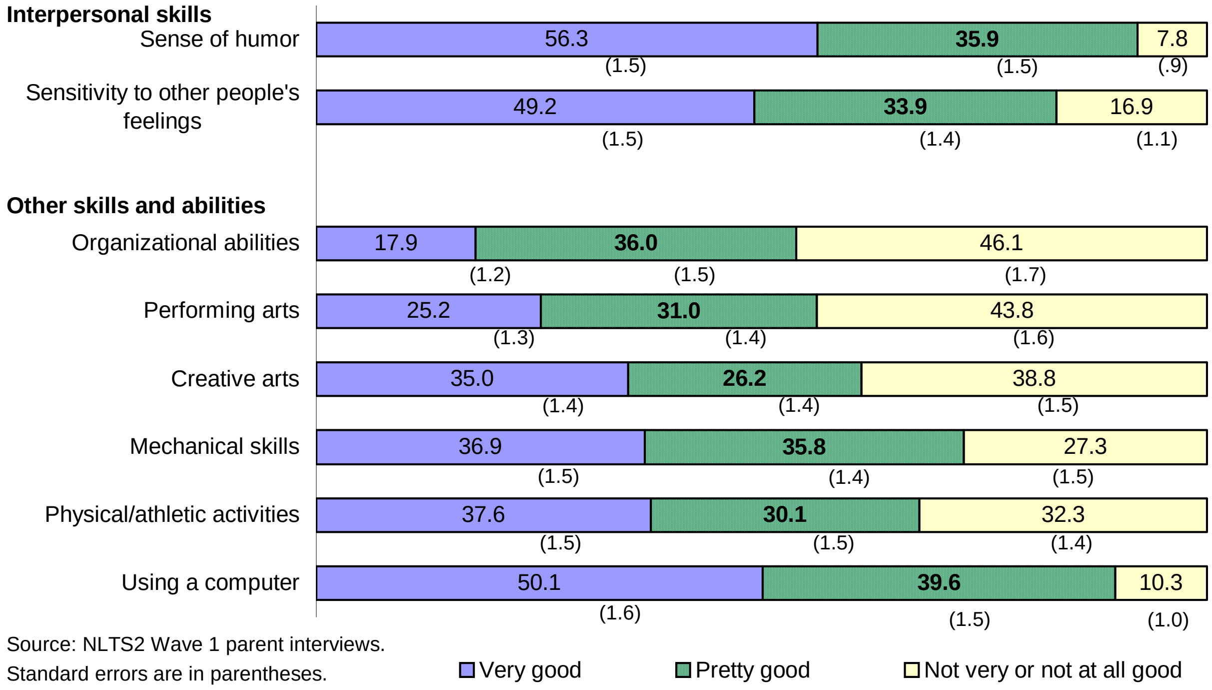
There are no consistent or significant age-related differences in parents’ reports of the social skills of youth in the NLTS2 age range. However, there are notable differences when teens are compared with younger students with disabilities (Cadwallader et al., 2002). Unlike self-care and functional cognitive skills, stronger social skills are demonstrated by younger students. Compared with older teens, students with disabilities in the 6- to 13-year-old age range are less likely to be rated low by their parents on their overall social skills (13% vs. 18%, p<.001) and on the assertion scale (8% vs. 20%, p<.001). They also are more likely to be rated high on their self-control skills (18% vs. 5%, p<001). Cooperation skills of younger and older students are rated similarly by their parents. Also, parents of boys and girls do not rate their social skills differently.

The assertion scale is the only one on which there are differences in the ratings of youth with different levels of household income or of different races/ethnicities. Youth from households with incomes of more than $50,000 are more likely than youth from households with incomes of $25,000 or less to be rated high on this scale (16% vs. 10%, p<.05), and youth from low-income families are more likely to be rated low (23% vs. 16%, p<.05). In addition, white youth are more likely than African American youth to be rated high on this scale (14% vs. 10%, p<.05).

Parents' Reports of Youth's Aptitudes

The skills and abilities described thus far focus on areas of functioning that are important to the ability of youth to participate and succeed at home, in school, and in their communities. However, there are other areas in which youth might demonstrate aptitude. To identify other strengths or abilities of youth, parents were asked how good they thought their adolescent children were in the variety of areas indicated in Exhibit 6-8. Parents perceive a sizable percentage of youth as having at least some aptitude in each of these areas. The percentage of youth rated as "pretty good" or "very good" ranges from 54% to 92% across the areas. Youth reportedly are best at interpersonal skills, with 56% reported to have a very good sense of humor

Exhibit 6-8
PARENTS' REPORTS OF APTITUDES OF YOUTH WITH DISABILITIES



Source: NLTS2 Wave 1 parent interviews.
Standard errors are in parentheses.

and 49% to be very sensitive to others' feelings. There is quite a range of ratings on the other skills and abilities. Half of youth are rated as "very good" at using a computer, and another 40% are rated as "pretty good." At the other end of the continuum are performing arts and organization; approximately 45% of youth are rated as not good in these areas. Physical and athletic activities, mechanical skills, and creative arts fall between the two poles.

Disability Differences in Aptitudes

There are dramatic ranges in aptitudes among youth with different primary disability classifications (Exhibit 6-9). Youth with hearing impairments are among the most likely to be reported to be good at each of the areas, as are youth with speech impairments to a somewhat lesser extent. Youth with autism or multiple disabilities are among the least likely to be rated by parents as strong in each of the areas.

Youth with most types of disabilities mirror the pattern of youth with disabilities as a group, scoring higher on the two interpersonal skills and on computer use than in other areas. Youth with emotional disturbances are an exception to this pattern in that they are rated lower on sensitivity to others' feelings than on several other abilities and skills.

Exhibit 6-9
PARENTS' REPORTS OF APTITUDES OF YOUTH, BY DISABILITY CATEGORY

	Learning Disability	Speech/ Language Impairment	Mental Retardation	Emotional Disturbance	Hearing Impairment	Visual Impairment	Orthopedic Impairment	Other Health Impairment	Autism	Traumatic Brain Injury	Multiple Disabilities	Deaf-Blindness
Percentage reported to be "very skilled" at:												
Having a sense of humor	60.2	59.4	46.0	47.5	62.8	64.2	68.5	50.8	39.2	56.7	49.9	55.0
	(2.4)	(2.4)	(2.5)	(2.5)	(2.9)	(3.4)	(2.6)	(2.4)	(2.6)	(4.6)	(2.7)	(5.0)
Being sensitive to others' feelings	53.6	55.1	42.9	30.8	59.5	58	57.9	44.1	26.4	45.4	48.0	48.1
	(2.4)	(2.4)	(2.5)	(2.4)	(2.9)	(3.5)	(2.7)	(2.4)	(2.4)	(4.6)	(2.7)	(5.1)
Using a computer	52.7	59.0	28.9	55.1	61.2	46.9	50.1	57.1	39.4	45.5	28.2	38.9
	(2.5)	(2.5)	(2.3)	(2.6)	(2.9)	(3.6)	(2.8)	(2.4)	(2.7)	(4.7)	(2.5)	(5.0)
Physical/athletic activities	40.7	40.8	29.0	31.9	44.3	22.1	15.2	33.1	14.2	21.6	16.3	24.4
	(2.4)	(2.4)	(2.3)	(2.4)	(2.9)	(2.9)	(2.0)	(2.2)	(1.9)	(3.8)	(2.0)	(4.3)
Mechanical skills	43.2	33.4	19.3	38.9	35.5	15.9	14.0	33.8	16.3	26.0	13.8	18.7
	(2.4)	(2.3)	(2.0)	(2.5)	(2.8)	(2.6)	(1.9)	(2.3)	(2.0)	(4.1)	(1.9)	(4.0)
Creative arts	38.3	32.2	19.4	40.8	42.5	32.5	24.5	30.7	23.1	24.9	15.4	23.2
	(2.4)	(2.3)	(2.0)	(2.5)	(2.9)	(3.3)	(2.4)	(2.2)	(2.3)	(4.1)	(2.0)	(4.3)
Performing arts	27.1	25.7	19.8	23.9	25.5	36.9	23.5	20.8	20.4	19.9	14.8	18.2
	(2.2)	(2.2)	(2.0)	(2.2)	(2.6)	(3.5)	(2.4)	(2.0)	(2.2)	(3.8)	(2.0)	(3.9)
Organization	18.4	25.0	22.5	9.9	29.6	17.9	18.6	8.5	21.5	11.9	20.5	24.8
	(1.9)	(2.1)	(2.1)	(1.5)	(2.7)	(2.7)	(2.2)	(1.3)	(2.2)	(3.0)	(2.2)	(4.4)

Source: NLTS2 Wave 1 parent interviews.

Standard errors are in parentheses.

Demographic Differences in Aptitudes

There are no differences among the various demographic groups in parents' reports of aptitudes regarding sensitivity to others' feelings or creative arts. The only difference among the age groups relates to organizational abilities; 17-year-olds are more likely than 16-year-olds to be rated by their parents as very skilled (25% vs. 15%, p<.05).[3]

According to parents, boys are more likely than girls to have a good sense of humor (59% vs. 52%, p<.05; Exhibit 6-10) and to excel at physical or athletic activities (42% vs. 27%, p<.001) and mechanical skills (48% vs. 16%, p<.001). In contrast, girls are more likely than boys to have an aptitude for the performing arts (33% vs. 21%, p<.001).

Youth from the highest-income group reportedly have a better sense of humor (60% vs. 51%, p<.05) and are better at using a computer (56% vs. 44%, p<.01), but youth from the least-affluent households are better organized (23% vs. 13%, p<.001).

White youth are significantly more likely than African American youth to be reported to have strong mechanical abilities (41% vs. 29%, p<.01), but more African American youth are reported to be good at the performing arts (38% vs. 21%, p<.001) and organization (23% vs. 16%, p<.05).

Exhibit 6-10
PARENTS' REPORTS OF APTITUDES OF YOUTH, BY DEMOGRAPHIC CHARACTERISTICS

	Gender		Household Income			Race/Ethnicity		
	Boys	Girls	$25,000 or Less	$25,001 to $50,000	More than $50,000	White	African American	Hispanic
Percentage reported to be "very skilled" at:								
Having a sense of humor	58.6	51.9	51.2	58.3	60.5	57.4	56.5	52.3
	(1.9)	(2.7)	(2.6)	(2.9)	(2.9)	(2.0)	(3.4)	(4.4)
Using a computer	51.4	47.5	44.3	51.6	55.5	51.3	46.5	50.2
	(2.0)	(2.7)	(2.6)	(3.0)	(3.0)	(2.0)	(3.5)	(4.6)
Physical/athletic activities	41.7	27.2	34.3	38.4	37.5	36.0	39.2	37.1
	(1.9)	(2.4)	(2.5)	(2.9)	(2.9)	(1.9)	(3.3)	(4.3)
Mechanical skills	48.2	15.9	33.4	40.9	38.2	40.7	29.1	36.9
	(2.0)	(2.0)	(2.4)	(2.9)	(2.9)	(2.0)	(3.1)	(4.3)
Performing arts	21.3	32.7	28.7	22.6	23.3	21.0	37.5	27.6
	(1.6)	(2.6)	(2.4)	(2.5)	(2.6)	(1.7)	(3.3)	(4.0)
Organizational skills	16.3	21.1	22.6	17.7	12.9	15.7	23.3	20.3
	(1.4)	(2.2)	(2.2)	(2.3)	(2.0)	(1.5)	(2.9)	(3.6)

Source: NLTS2 Wave 1 parent interviews.

Standard errors are in parentheses.

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[3] The aptitudes of youth with disabilities in the NLTS2 age range cannot be compared with those of younger students with disabilities, as was done for their daily living and social skills, because SEELS data do not use the response categories used in NLTS2 for parents' reports of aptitudes.

Summary

Daily living skills set the stage for subsequent performance in school and independent living. The vast majority of youth with disabilities are able to perform the tasks that are fundamental to self-care. Functional cognitive skills present significantly greater challenges; only about half of youth perform tasks like counting change and reading common signs “very well.” Fixing their own breakfast or lunch is the only household chore investigated in NLTS2 that a majority of youth are reported to do “always” or “usually”.

There are significant differences in parents’ perceptions of students’ daily living skills, social abilities, and strengths. Disability classification clearly differentiates among youth, with some disability groups demonstrating significant limitations while others do not. Youth with learning disabilities, emotional disturbances, or speech, hearing, or other health impairments tend to have good self-care and functional cognitive skills. Self-care is more difficult for youth with orthopedic impairments, autism, or multiple disabilities, and functional cognitive tasks are difficult for a comparatively large proportion of youth with visual impairments or deaf-blindness, as well as for youth with mental retardation, autism, or multiple disabilities.

There also is a broad range of social abilities among youth with various types of disabilities; youth with hearing, visual, or orthopedic impairments are reported to be the most socially adept, whereas youth with autism or emotional disturbances have the most difficulty socially. Their difficulties lie not in their social assertion skills, however, but in their abilities to control themselves and cooperate with others.

Age-related differences between youth in the NLTS2 age range are not particularly pronounced, but comparisons between their skills and those of younger students, as measured in SEELS, demonstrate the developmental nature of self-care and functional cognitive skills and household responsibilities. Teens are more likely than younger students with disabilities to have high ratings on these skills and activities. In contrast, older teens are more likely to be rated lower on their social skills. It is unclear whether this difference results from a deterioration of social skills as youth age, a difference in the disability distributions among younger and older students with disabilities (e.g., there are fewer students with speech impairments and more students with emotional disturbances in the upper age range), or the use of different standards by parents of older and younger students with disabilities in assessing their children’s social skills.

Although gender, family income, and racial/ethnic background do not distinguish youth in their self-care skills, demographic factors are associated with differences on some other dimensions. Boys are more likely than girls to be reported to have strong athletic and mechanical abilities, a better sense of humor, and greater functional cognitive skills. On the other hand, girls are more likely to excel in the performing arts and in organization, and they also are more likely to take on household responsibilities.

A higher family income is associated with stronger functional cognitive, assertion, and computer skills, and a better sense of humor. However, a lower family income is associated with stronger performing arts talents and organizational skills. Youth with disabilities of different racial/ethnic backgrounds are rated quite similarly in their self-care and functional cognitive skills. However, white youth are reported to be better than African American youth at mechanical tasks, whereas African American youth are reported to be better at the performing arts and at organization. African American youth are reported to take on household responsibilities more frequently than white youth.

These findings confirm that youth with disabilities are a heterogeneous group with a range of competencies and limitations. Strengths and weaknesses can vary among individuals in ways that are unpredictable and that may be overlooked in understanding the aggregate experiences of youth with disabilities.

7. A PROFILE OF YOUTH WITH DISABILITIES

By Mary Wagner and Camille Marder

This report has attempted to create a solid foundation for interpreting future NLTS2 results by painting a profile of youth with disabilities. Individual and household characteristics and functional abilities in several domains have been documented for youth with disabilities as a whole and, importantly, for those who differ in primary disability classification, age, gender, household income, and race/ethnicity. In doing so, important insights have emerged regarding several distinguishing features of youth, as described below.

Disabilities: More than a Label

The implications of disability for the functioning of youth are far-reaching and occur in multiple domains. Although as a group, youth with disabilities have about the same levels of general health as their nondisabled peers, approximately one-tenth do not have full use of all limbs and/or have a hearing loss, and more than 10% do not have normal vision even with corrective lenses. Communication limitations are more widespread; almost one-third are reported by parents not to communicate well. These limitations, combined with cognitive impairments for some youth, mean that approximately half of 13- to 17-year-olds have not mastered fully the basic functional cognitive skills of telling time, reading common signs, counting change, and looking up telephone numbers and using the phone. Almost one in five youth are reported by parents to have poor social skills, and one in six are described as not sensitive to others' feelings. Almost one-third of youth and their families have been dealing with their disability and its impact since before the youth reached school age.

This overall look at the characteristics of youth with disabilities masks the dramatic differences between youth with different kinds of disabilities. Youth with different primary disability classifications differ at least as much from each other as from the general population of youth. Further, on every factor considered here, greater differences are noted between youth with different disability categories than between youth who differ in age, gender, or other characteristics. For example, limitations in functional cognitive skills affect 37% of youth with emotional disturbances but at least 80% of youth with mental retardation or multiple disabilities, including deaf-blindness. Poor social skills are reported for 5% of youth with visual impairments but one-fourth of youth with emotional disturbances and 30% of youth with autism.

Parents' reports about youth clearly demonstrate that there are dimensions of their disabilities that are not captured by their primary classification for special education. For example, by definition, all youth who are classified as having speech impairments share some limitation in the communication domain. However, their range of functioning is quite broad; 52% are reported to speak normally, whereas 7% have significant speech limitations or do not speak at all. And for some, speaking ability is not their only limitation. Parents report that 41% of youth in the speech impairment category also have learning disabilities and that 19% have ADD/ADHD. Three percent are reported to have a hearing loss, a similar percentage are reported to have a visual impairment, 6% do not have normal use of all limbs, and 5% have fair or poor health. The range of additional disabilities and functional limitations illustrated by youth with speech impairments is characteristic of every other disability category.

Looking within disability categories also illuminates the prevalence of what are, for many youth, secondary disabilities. The prevalence of ADD/ADHD across the disability categories is particularly notable. More than one-third of youth with disabilities are reported by parents to have ADD/ADHD. Approximately three-fourths of youth with other health impairments—the category within which ADD/ADHD typically is subsumed—are reported to have it, but ADD/ADHD also is reported for between 12% and 63% of youth in other disability categories.

Clearly, youth with this broad range of functional limitations face more than the challenges suggested by their primary disability, and these challenges may require that their schools take more comprehensive approaches to serving them than their primary disability label implies. In the future, NLTS2 will explore the educational programs and services youth experience and the performance they achieve, including special attention to how these vary for youth with different disabilities and for youth who share a disability classification but differ in other important ways.

Age and Gender Differences in Functioning and Behavior

Although many disabilities have developmental components, so that age differences are an important factor in understanding variations in children's functioning, most of the skills and abilities addressed in this report, including physical, sensory, communication, and social skills, do not vary significantly by age for 13- to 17-year-olds. However, there are a few age-related differences regarding youth's behaviors. Specifically, older youth with disabilities are less likely than the youngest youth represented here to take psychotropic medications, particularly stimulants—a common treatment for ADD/ADHD. However, older youth are more likely to take on household responsibilities.

Although adolescence is a time in which most youth develop a strong gender identity, boys and girls with disabilities do not differ in many aspects of their functioning—their physical, hearing, communications, and social abilities are reported by parents to be very similar. However their disability profiles differ in important ways. Despite being about half of the general population of students enrolled in schools, boys make up significantly more than half of youth in every disability category. This overrepresentation of boys starts early; a national study shows that even among infants and toddlers, boys are more likely than girls to be identified as needing early intervention services.

Importantly, boys are particularly large percentages of youth with emotional disturbances, other health impairments, and autism. Because of their prominence in these categories, they are much more likely than girls to take psychotropic medications (especially stimulants) for their disabilities. Boys also are more likely than girls to have mastered basic functional cognitive skills, such as telling time and counting change.

Differences also are noted in areas in which social, cultural, and familial values, norms, and expectations can shape activities and preferences. For example, the aptitudes that are reported by parents for their adolescent children differ markedly for boys and girls. Whereas boys are reported to excel in athletic and mechanical abilities, girls are much more likely to be reported as having aptitude for the performing arts, to have strong organizational skills, and to do a specified set of household chores frequently.

As NLTS2 analyses continue to unfold, the study will examine whether greater differences between boys and girls are apparent in other domains of their experiences than are evident in the aspects of functioning reported here—for example, whether the very similar functional abilities of boys and girls translate into similar programs and performance at school. As youth age, data from subsequent waves of NLTS2 will enable an investigation of whether gender differences appear in such areas as choices in course-taking and employment.

Money Matters

Youth with disabilities are much more likely than youth in the general population to be poor. In part, this situation occurs because factors that are associated with poverty actually create or contribute to disabilities of many kinds. Poor prenatal care or drug or alcohol exposure during pregnancy can result in premature births, birth complications, or a variety of disabilities that may appear at birth or emerge later. Poor health care can result in untreated medical conditions that eventually may lead to or complicate disabilities, as in the case of frequent and untreated ear infections that lead to hearing loss. Exposure to lead paint in run-down housing can result in mental retardation. The stresses of poverty can contribute to poor family functioning, which in turn can be detrimental to children's cognitive, social, and emotional development. The longer youth live in poverty, the more its detrimental effects accumulate so that, by adolescence, it can place severe limitations on the experiences and performance of youth and the expectations and prospects for their future.

Some of the common correlates of poverty are quite prevalent among poor youth with disabilities. They are more likely than their more affluent peers or youth in the general population to live with one parent and to have a head of household who is poorly educated and not employed. They also are more likely than others to be without health insurance. Factors such as these and the poverty they signify have been shown to relate powerfully to poor child development.

The factors associated with poverty affect some disability groups markedly more than others. Youth with mental retardation and emotional disturbances are more likely than youth in other disability categories to be in poverty and to have many of the characteristics associated with it. These differences in economic status contribute to the differences in the experiences and achievements that are apparent for youth in different disability categories. One of the differences that may have far-reaching developmental effects is that poor youth with disabilities are less likely than their wealthier peers to have had those disabilities identified at early ages or to have received services for them that might have ameliorated some of their negative consequences.

The negative developmental impacts of poverty and, perhaps, of late disability identification and treatment are clear among youth with disabilities in some functional domains. Poorer youth with disabilities are significantly more likely than others to be in poor health, to have limitations in communication and in social skills, and to have limitations in vision even when they use glasses or contacts. Importantly for their academic performance and employment prospects, poorer youth also are less likely than others to have mastered basic functional cognitive skills, such as reading common signs and counting change, and are less likely to be reported by parents as having strong computer skills.

Further NLTS2 analyses will explore income-related differences among youth with disabilities in other aspects of their lives, including social activities and academics. Such differences will be examined as NLTS2 tracks the achievements of youth with disabilities in the transition into early adulthood, a time when many youth will consider postsecondary education and employment.

The Complexity of Racial/Ethnic Differences

White youth make up a smaller proportion of youth with disabilities than of youth in the general population, largely because African Americans make up a larger proportion of youth with disabilities than of youth in the general population. Much of the differential representation of African Americans among youth with disabilities may relate to the fact that they are more likely to be poor than their white counterparts. Within a given family income level, the proportions of white, African American, and Hispanic youth are very similar among youth with disabilities and the general population of youth. Thus, if low-income youth were equally represented among youth with disabilities and youth in the general population, African American youth also would likely be about equally represented in the two populations. However, having more low-income youth among those with disabilities also means there are more African American youth in that group than in the general student population.

The parental and household characteristics that accompany poverty, such as single-parent households and parents with less education, are more prevalent among African American and Hispanic youth than among white youth. Some of the outcomes associated with poverty highlighted above also are more common for African American students with disabilities. According to their parents, they are more likely to be in poor health, to be unable to speak clearly, and to have poor assertion skills. But not all income-related differences translate into differences between white youth and their African American and Hispanic peers. For example, uncorrected vision problems among poor youth with disabilities are not more common for African American or Hispanic youth than for white youth.

Future NLTS2 analyses will be attentive to the ways that differences in youth’s racial/ethnic backgrounds affect their experiences and achievements in school and in other domains. The study will continue to disentangle the influences of income, race/ethnicity, and disability as youth transition to young adulthood.

Diversity on Many Dimensions

The initial look at the characteristics and functioning of youth with disabilities reveals a tremendous diversity in challenges and strengths. Multiple dimensions of aptitude and functional limitation and complex variation among youth who differ in disability classification, age, gender, income, and race/ethnicity call for a broad vision of what constitutes effective instruction and of the nature of the postschool results youth will achieve. Given the great range in the functioning of youth, educational programs and transition practices will need to be diverse, flexible, and carefully tailored if they are to meet the needs of all youth with disabilities. Indeed, NLTS2 findings affirm the original cornerstones of IDEA and special education values and practice generally: youth are entitled to individualized education programs and transition processes that are designed specifically to meet their needs.

As additional NLTS2 data become available, they will depict schools' efforts to meet the diverse needs of youth in terms of goals, curricula, placements, instruction, and services in their educational programs overall and in the transition process in particular. NLTS2 data also will shed light on the results youth achieve in a broad range of outcome areas, including academics, social adjustment, employment, and community participation. The longitudinal design of NLTS2 supports an assessment of how youth and household characteristics, education and transition services and strategies, and achievements unfold over a period of years as youth move into the challenges that face them in young adulthood.

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APPENDIX A

NLTS2 SAMPLING, DATA COLLECTION, AND ANALYSIS PROCEDURES: WAVE 1 PARENT INTERVIEW/SURVEY

Appendix A

NLTS2 SAMPLING, DATA COLLECTION, AND ANALYSIS PROCEDURES: WAVE 1 PARENT INTERVIEW/SURVEY

This appendix describes several aspects of the NLTS2 methodology relevant to the Wave 1 parent interview/survey data reported here, including:

- Sampling local education agencies (LEAs), schools, and students
- Parent interview and survey procedures and response rates
- Weighting of the parent interview/survey data
- Estimation and use of standard errors
- Unweighted and weighted sample sizes
- Calculating statistical significance
- Measurement issues.

NLTS2 Sample Overview

The NLTS2 sample was constructed in two stages. A stratified random sample of 3,634 LEAs was selected from the universe of approximately 12,000 LEAs that serve students receiving special education in at least one grade from 7th through 12th grades. These LEAs and 77 state-supported special schools that serve primarily students with hearing and vision impairments and multiple disabilities were invited to participate in the study, with the intention of recruiting 497 LEAs and as many special schools as possible from which to select the target sample of about 12,000 students. The target LEA sample was reached; 501 LEAs and 38 special schools agreed to participate and provided rosters of students receiving special education in the designated age range.

Students on each LEA's[1] and special school's roster were stratified by disability category. Students then were selected randomly from each disability category. Sampling fractions were calculated to produce enough students in each category so that, in the final study year, findings will generalize to most categories individually with an acceptable level of precision, accounting for attrition and for response rates to the parent/youth interview. A total of 11,276 students were selected and eligible to participate in the NLTS2 study.

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[1] LEAs were instructed to include on the roster any student for which they were administratively responsible, even if the student was not educated within the LEA (e.g., attended school sponsored by an education cooperative or was sent by the LEA to a private school). Despite these instructions, some LEAs may have underreported students served outside the LEA.

The NLTS2 LEA Sample

Defining the Universe of LEAs

The NLTS2 sample includes only LEAs that have teachers, students, administrators, and operating schools—that is, “operating LEAs.” It excludes such units as supervisory unions; Bureau of Indian Affairs schools; public and private agencies, such as correctional facilities; LEAs from U.S. territories; and LEAs with 10 or fewer students in the NLTS2 age range, which would be unlikely to have students with disabilities.

The 1999 public school universe data file maintained by Quality Education Data (QED) was used to construct the sampling frame because it had more recent information than the alternative list maintained by the National Center for Education Statistics. Correcting for errors and duplications resulted in a master list of 12,435 LEAs that met the selection criteria. These comprised the NLTS2 LEA sampling frame.

Stratification

The NLTS2 LEA sample was stratified to increase the precision of estimates, to ensure that low-frequency types of LEAs (e.g., large urban districts) were adequately represented in the sample, to improve comparisons with the findings of other research, and to make NLTS2 responsive to concerns voiced in policy debate (e.g., differential effects of federal policies in particular regions, LEAs of different sizes). Three stratifying variables were used:

Region. This variable captures essential political differences, as well as subtle differences in the organization of schools, the economic conditions under which they operate, and the character of public concerns. The regional classification variable selected was used by the Department of Commerce, the Bureau of Economic Analysis, and the National Assessment of Educational Progress (categories are Northeast, Southeast, Midwest, and West).

LEA size (student enrollment). LEAs vary considerably by size, the most useful available measure of which is student enrollment. A host of organizational and contextual variables are associated with size that exert considerable potential influence over the operations and effects of special education and related programs. In addition, total enrollment serves as an initial proxy for the number of students receiving special education served by an LEA. The QED database provides enrollment data from which LEAs were sorted into four categories serving approximately equal numbers of students:

- **Very large** (estimated[2] enrollment greater than 14,931 in grades 7 through 12)
- **Large** (estimated enrollment from 4,661 to 14,931 in grades 7 through 12)
- **Medium** (estimated enrollment from 1,568 to 4,660 in grades 7 through 12)
- **Small** (estimated enrollment from 11 to 1,621 in grades 7 through 12).

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[2] Enrollment in grades 7 through 12 was estimated by dividing the total enrollment in all grade levels served by an LEA by the number of grade levels to estimate an enrollment per grade level. This was multiplied by 6 to estimate the enrollment in grades 7 through 12.

LEA/community wealth. As a measure of district wealth, the Orshansky index (the proportion the student population living below the federal definition of poverty, Employment Policies Institute, 2002) is a well-accepted measure. The distribution of Orshansky index scores was organized into four categories of LEA/community wealth, each containing approximately 25% of the student population in grades 7 through 12:

- **High** (0% to 13% Orshansky)
- **Medium** (14% to 24% Orshansky)
- **Low** (25% to 43% Orshansky)
- **Very low** (more than 43% Orshansky).

The three variables generate a 64-cell grid into which the universe of LEAs was arrayed.

LEA Sample Size

On the basis of an analysis of estimated sampling fractions for each disability category and LEAs' average enrollment within LEA size stratum, 497 LEAs (and as many state-sponsored special schools as would participate) was considered sufficient to generate the student sample. Taking into account the expected rate at which LEAs were expected to refuse to participate, a sample of 3,635 LEAs was invited to participate, from which 497 participating LEAs might be recruited. A total of 501 LEAs actually provided students for the sample, 101% of the target number needed and 14% of those invited. Analyses of the region, size, and wealth of the LEA sample, both weighted and unweighted, confirmed that that the weighted LEA sample closely resembled the LEA universe with respect to those variables.

In addition to ensuring that the LEA sample matched the universe of LEAs on variables used in sampling, it was important to ascertain whether the stratified random sampling approach resulted in skewed distributions on relevant variables not included in the stratification scheme. Several analyses were conducted.

First, three variables from the QED database were chosen to compare the "fit" between the first-stage sample and the population: the LEA's racial/ethnic distribution of students, the proportion who attended college, and the urban/rural status of the LEA. This analysis revealed that the sample of LEAs somewhat underrepresented African American students and college-bound students and overrepresented Hispanic students and LEAs in rural areas. To compensate for these over- and underrepresentations, LEA weights were calculated to achieve a distribution on the urbanicity and racial/ethnic distributions of students that matched the universe in addition to taking into account the stratification variables.

To determine whether the using the resulting weights with the NLST2 sample would accurately represent the universe of LEAs serving the specified grade levels, data collected from the universe of LEAs by the U.S. Department of Education's Office of Civil Rights (OCR) and additional items from QED were compared for the weighted NLTS2 LEA sample and the universe. Finally, the NLTS2 participating LEAs and a sample of 1,000 LEAs that represented the universe of LEAs were surveyed to assess a variety of policies and practices known to vary among LEAs and to be relevant to secondary-school-age youth with disabilities. Analyses of both the extant databases and the LEA survey data confirm that the weighted NLTS2 LEA sample accurately represents the universe of LEAs.

The NLTS2 Student Sample

Determining the size of the NLTS2 student sample took into account the duration of the study, desired levels of precision, and assumptions regarding attrition and response rates. Analyses determined that approximately three students would need to be sampled for each student who would have a parent/youth interview in Wave 5 of NLTS2 data collection.

NLTS2's design called for findings to be generalizable to (a) all students receiving special education and (b) students in each of the 12 special education disability categories currently in use and reported in this document.[3] Standard errors were to be no more than 3.6%, except for the low-incidence categories of traumatic brain injury and deaf-blindness. By sampling 1,250 students per disability category (with the two exceptions noted), 402 students per category were expected to have a parent or youth interview in year 9. Assuming a 50% sampling efficiency (which is likely to be exceeded for most disability categories), the standard error of estimates for 402 students would be slightly less than 3.6%. Because there were so few of them, all students with traumatic brain injury or deaf-blindness in participating LEAs and special schools were selected. Students were disproportionately sampled by age to assure that there would be an adequate number of students who were age 24 or older at the conclusion of the study. Among the eligible students, 40.2% will be 24 or older as of the final interview.

LEAs and special schools were contacted to obtain their agreement to participate in the study and request rosters of students receiving special education who were (a) ages 13 through 16 on December 1, 2000, and (b) in at least 7th grade or in an ungraded program. Requests for rosters specified that they contain students' name, address, disability student, and birthdate or age. Some LEAs provided only identification numbers for students, along with birthdates and disability categories. When students were sampled in these LEAs, identification numbers of selected students were provided to the LEA, along with materials to mail to their parents/guardians (without revealing their identity).

After estimating the number of students receiving special education in the NLTS2 age range, the appropriate number of students in each category was selected randomly from each LEA and special school. In cases in which more than one child in a family was included on a roster, only one was eligible to be selected. LEAs and special schools were notified of the students selected, and contact information for their parents/guardians was requested.

Parent Interview/Survey

The data source for the findings reported here was parents/guardians of NLTS2 sample members, who were interviewed by telephone or surveyed by mail. The NLTS2 conceptual framework posits that a youth's nonschool experiences, such as extracurricular activities and

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[3] The 12 categories are: learning disability, speech/language impairment, mental retardation, emotional disturbance, hearing impairment, visual impairment, orthopedic impairment, other health impairment, autism, traumatic brain injury, multiple disabilities, and deaf-blindness.

friendships; historical information, such as age when disability was first identified; household characteristics, such as socioeconomic status; and a family's level and type of involvement in school-related areas are crucial to student outcomes. Parents/guardians are the most knowledgeable about these aspects of students' lives.

Matches of names, addresses, and telephone numbers of NLTS2 parents with existing national locator databases were conducted to maximize the completeness and accuracy of contact information and subsequent response rates. A student was required to have a working telephone number and an accurate address to be eligible for the parent interview sample.

Letters were sent to parents to notify them that their child had been selected for NLTS2 and that an interviewer would be attempting to contact them by telephone. The letter included a toll-free telephone number for parents to call to be interviewed if they did not have a telephone number where they could be reached reliably or if they wanted to make an appointment for the interview at a specific time.

Computer-assisted telephone interviewing (CATI) was used for parent interviews, which were conducted between from mid-May through late September 2001. Ninety-five percent of interviews were conducted in English and 5% in Spanish.

All parents who could not be reached by telephone were mailed a self-administered questionnaire in a survey period that extended from September through December 2001. The questionnaire contained a subset of key items from the telephone interview. Exhibit A-1 reports the responses to the telephone and mail surveys.

Exhibit A-1
RESPONSE RATES FOR NLTS2 PARENT/GUARDIAN TELEPHONE INTERVIEW AND MAIL SURVEY

	Number	Percentage
Total eligible sample	11,276	100.0
Respondents		
Completed telephone interview	8,672	76.9
Partial telephone interview completed	300	2.7
Complete mail questionnaire	258	2.3
Total respondents	9,230	81.9
Nonrespondents		
Refused	738	6.5
Language barrier (not English- or Spanish-speaking)	138	1.2
No response	1,170	10.4
Total nonrespondents	2,046	18.1

Overall, 91% of respondents reported that they were parents of sample members (biological, adoptive, or step), and 1% were foster parents. Six percent were relatives other than parents, 2% were nonrelative legal guardians, and fewer than 1% reported other relationships to sample members.

Weighting the Wave 1 Parent Data

The percentages and means reported in the data tables are estimates of the true values for the population of youth with disabilities in the NLTS2 age range. The estimates are calculated from responses of parents of NLTS2 sample members. The response for each sample member is weighted to represent the number of youth in his or her disability category in the kind of LEA (i.e., region, size, and wealth) or special school from which he or she was selected.

Exhibit A-2 illustrates the concept of sample weighting and its effect on percentages or means that are calculated for students with disabilities as a group. In this example, 10 students are included in a sample, 1 from each of 10 disability groups, and each has a hypothetical value regarding whether that student participated in organized group activities outside of school (1 for yes, 0 for no). Six students participated in such activities, which would result in an unweighted value of 60% participating. However, this statistic would not accurately represent the national population of students with disabilities because many more students are classified as having a learning disability than as having orthopedic or other health impairments, for example. Therefore, in calculating a population estimate, weights in the example are applied that correspond to the proportion of students in the population that are from each disability category (actual NLTS2 weights account for disability category and several aspects of the districts from which they were chosen). The sample weights for this example appear in column C. Using these weights, the weighted population estimate is 87%. The percentages in all NLTS2 tables are similarly weighted population estimates, whereas the sample sizes are the actual number of cases on which the weighted estimates are based (similar to the 10 cases in Exhibit A-2).

Exhibit A-2
EXAMPLE OF WEIGHTED PERCENTAGE CALCULATION

	A	B	C	D
Disability Category	Number in Sample	Participated in Group Activities	Example Weight for Category	Weighted Value for Category
Learning disability	1	1	5.5	5.5
Speech/language impairment	1	1	2.2	2.2
Mental retardation	1	1	1.1	1.1
Emotional disturbance	1	0	.9	0
Hearing impairment	1	1	.2	.2
Visual impairment	1	1	.1	.1
Orthopedic impairment	1	0	.1	0
Other health impairment	1	1	.6	.6
Autism	1	0	.2	0
Multiple disabilities	1	0	.1	0
TOTAL	10	6	10	8.7
	Unweighted sample percentage = 60% (Column B total divided by Column A total)		Weighted population estimate = 87% (Column D total divided by Column C total)	

The students in LEAs and state schools with parent interview/survey data were weighted to represent the universe of students in LEAs and state schools using the following process:

- For each of the 64 LEA sampling cells, an LEA student sampling weight was computed. This weight is the ratio of the number of students in participating LEAs in that cell divided by the number of students in all LEAs in that cell in the universe of LEAs. The weight represents the number of students in the universe who are represented by each student in the participating LEAs. For example, if participating LEAs in a particular cell served 4,000 students and the universe of LEAs in the cell served 400,000 students, then the LEA student sampling weight would be 100.

- The LEA student sampling weight was adjusted via ranking so that the weighted sample closely approximated the universe on the ethnic distribution of the LEA student body and its urbanicity. Ethnic distribution was categorized as non-Hispanic white, non-Hispanic black, Hispanic, and other (Asian, Native American, Alaskan, and mixed). Urbanicity was categorized as urban, suburban, or rurual. Data on ethnicity and urbanicity were obtained from QED.
- For each of the 64 LEA cells, the number of students in each disability category was estimated by multiplying the number of students with that disability on the rosters of participating LEAs in a cell by the adjusted LEA student sampling weight for that cell. For example, if 350 students with learning disabilities were served by LEAs in a cell, and the LEA student sampling weight for that cell was 100 (that is, each student in the sample of participating LEAs in that cell represented 100 students in the universe), there would be an estimated 35,000 students with learning disabilities in that cell in the universe.
- For the state schools, the number of students in each disability category was estimated by multiplying the number of students with that disability on the rosters by the inverse of the proportion of state schools that submitted rosters.
- The initial student sampling weights were adjusted by disability category so that the sum of the weights (that is, the initial student sampling weights multiplied by the number of students with completed interviews) was equal to the number of students in the geographical and wealth cells of each size strata, and so that the ethnic distribution within disability category closely approximated the distribution reported in the federal child count. The adjustments were typically small and essentially served as a nonresponse adjustment. However, the adjustments could become substantial when there were relatively few interviewees (as occurred in the small and medium strata for the lowest-incidence disabilities) because in these cases, there might not be any interviewees in some cells, and it was necessary to adjust the weights of other interviewees to compensate. Two constraints were imposed on the adjustments: (1) within each size stratum, the cells weights could not vary from the average weight by more than a factor of 2, and (2) the average weight within each size strata could not be larger than 4 times the overall average weight. These constraints substantially increased the efficiency of the sample at the cost of introducing a small amount of weighting bias (discussed below).
- In a final step, the weights were adjusted so that they summed to the number of students in each disability category, as reported to OSEP by the states for the 2000-2001 school year (Office of Special Education Programs, 2001a).

The imposition of constraints on the adjusted weights increased sampling efficiency at the cost of introducing a small amount of bias. The average efficiency increased from 51.7% to 67.4%; the largest increases in sampling efficiency occurred for youth with emotional disturbances (from 44.4% to 81.0%) and for those with multiple disabilities (from 32.1% to 56.8%). Biases introduced by the imposition of constraints on the student weights generally were very small. The largest bias in size distribution was for youth with visual impairments (decreasing from 17.1% in the smallest size stratum to 11.6%) and those with autism (decreasing from 21.3% in the smallest size stratum to 17.5%). All other changes in the size distribution were 1.5% or less, and the average absolute change was only 0.4%. The largest bias in wealth distribution was for those with multiple disabilities (from 22.2% in wealth stratum 3 to 16.6%, and from 18.3% in wealth stratum 4 to 22.0%). All other changes were 2.1% or less, and the average absolute change was only 0.6%. All biases in regional distribution were 2.1% or less, and the average absolute change was only 0.5%. Considering the increase in sampling efficiency, these biases are considered acceptable.

The reason for the reduction in the proportion of students represented in the cells mentioned above is that there were relatively few students with interview/survey data in those cells. For example, small LEAs had only 21 students with visual impairments with data, requiring that they represent an estimated 1,701 students with visual impairments from small LEAs. The weighting program determined that the average weight required (i.e., 81.0) violated the constraints, and therefore reduced these weights to a more reasonable value (i.e., 56.2).

Estimating Standard Errors

Each estimate reported in the data tables is accompanied by a standard error. A standard error acknowledges that any population estimate that is calculated from a sample will only approximate the true value for the population. The true population value will fall within the ranged demarcated by the estimate, plus or minus the standard error 95% of the time. For example, if the estimate indicates that 25.1% of youth with disabilities take prescription medication, and the standard error of that estimate is 1.4 (see Exhibit 5-5), one can be 95% confident that the true percentage of all youth with disabilities that take prescription medication is between 23.7% and 26.5%.

Because the NLTS2 sample is both stratified and clustered, calculating standard errors by formula is not straightforward. Standard errors for means and proportions were estimated using pseudo-replication, a procedure that is widely used by the U.S. Census Bureau and other federal agencies involved in fielding complex surveys. To that end, a set of weights was developed for each of 32 balanced half-replicate subsamples. Each half-replicate involved selecting half of the total set of LEAs that provided contact information using a partial factorial balanced design (resulting in about half of the LEAs being selected within each stratum) and then weighting that half to represent the entire universe. The half-replicates were used to estimate the variance of a sample mean by: (1) calculating the mean of the variable of interest on the full sample and each half-sample using the appropriate weights; (2) calculating the squares of the deviations of the half-sample estimate from the full sample estimate; and (3) adding the squared deviations and dividing by (n-1), where n is the number of half-replicates.

Although the procedure of pseudo-replication is less unwieldy than development of formulas for calculating standard errors, it is not easily implemented using the Statistical Analysis System (SAS), the software used to for NLTS2 analyses. Therefore, NLTS2 used effective sample sizes to develop straightforward estimates of standard errors.

When respondents are independent and identically distributed, the effective sample size for a weighted sample of N respondents can be approximated as

$$N_{eff} = N\left(E^2[W] \Big/ E^2[W] + V[W] \right)$$

where N_{eff} is the effective sample size, $E^2[W]$ is the square of the arithmetic average of the weights and $V[W]$ is the variance of the weights. For a variable X, the standard error of estimate can typically be approximated by $\sqrt{V[X]/N_{eff}}$,where $V[X]$ is the weighted variance of X.

NLTS2 respondents are not independent of each other because they are clustered in LEAs, and the intra-cluster correlation is not zero. However, the intra-cluster correlation traditionally has been quite small, so that the formula for the effective sample size shown above has worked well. To be conservative, however, the initial estimate was multiplied by a “safety factor” that assures that the standard error of estimate is not underestimated.

To determine the adequacy of fit of the variance estimate based on the effective sample size and to estimate the required safety factor, 24 questions with 95 categorical responses and 2 continuous responses were selected. Standard errors of estimates were calculated for each response category and the mean response to each question for each disability group using both pseudo-replication and the formula involving effective sample size. A safety factor of 1.25 resulted in the effective sample size standard error estimate underestimating the pseudo-replicate standard error estimate for 92% of the categorical responses and 89% of the mean responses. Because the pseudo-replicate estimates of standard error are themselves estimates of the true standard error, and are therefore subject to sampling variability, this was considered an adequate margin of safety. All standard errors in Wave 1 are 3.0% or less, except for categories of deaf-blindness, traumatic brain injury, and visual impairments, where sample sizes are small. For these disability categories, the standard errors were at most 4.9%, 4.9%, and 3.5% for dichotomous variables.

Unweighted and Weighted Sample Sizes

As indicated above, standard errors accompany all estimates reported in the data tables. How close an estimate comes to a true population value is influenced by the size of the sample on which the estimate is based. Larger samples yield estimates with smaller standard errors, indicating that those estimates are closer to true population values than estimates with larger standard errors based on smaller samples.

The actual, or “unweighted,” sample sizes for each variable reported in the data tables are included in Appendix B. However, some readers may be interested in determining the number of youth in the nation represented by a particular estimate (e.g., if 29% of youth were employed currently, how many youth in the country were employed?). A first step in determining these “weighted” sample sizes involves multiplying the percentage estimate by the actual number of youth in the nation represented by that estimate (see example below). However, 95% of the time, the true population value is likely to diverge from that estimate by as much as twice the amount of the standard error. Therefore, it is more appropriate to use twice the standard error to calculate a range in the number of youth represented by an estimate, rather than relying on the single value resulting from multiplying the estimate by the size of the population it represents.

Consider the example depicted in Exhibit A-3. NLTS2 findings indicate that 18.1% of youth with learning disabilities take prescription medication (see Exhibit 5-6). The standard error accompanying that estimate is 0.95, indicating that the true current percentage of the population that take prescription medications almost certainly falls between 16.2% and 20.0%. There are 1,130,539 youth with learning disabilities in the NLTS2 age range in the U.S. Multiplying the percentages by this population size yields a single-point estimate that 226,107 youth with learning disabilities take prescription medication, and we can be 95% confident that the between 183,147 and 226,107 U.S. youth with learning disabilities take prescription medication.

Exhibit A-3
EXAMPLE OF CALCULATING WEIGHTED SAMPLE SIZES

A	B	C	D	E	F
Percentage Estimate	Standard Error	Range around Estimate (Column A Plus or Minus twice Column B)	Population Size	Single-point Weighted Population Affected (Column A x Column D)	Range in Weighted Population Affected (Column C x Column D)
25.1	0.7	23.7 to 26.5	1,130,539	226,107	183,147 to 226,107

Because percentage estimates are provided not only for the full sample of youth with disabilities, but also for youth who differ in primary disability category, gender, household income, and race/ethnicity, readers must have the actual population size for each of these subgroups to calculate weighted sample sizes for some estimates. These population sizes are presented in Exhibit A-4.

Calculating Significance Levels

In general, references in the text of the report to differences between groups highlight only differences that are statistically significant with at least 95% confidence (denoted as $p<.05$). Beyond the differences highlighted in the text, readers may want to compare percentages or means for specific subgroups to determine, for example, whether the difference in the percentage of students who are male between students with learning disabilities and those with hearing impairments is greater than would be expected to occur by chance. To calculate whether the difference between percentages is statistically significant, the squared difference between the two percentages of interest is divided by the sum of the two squared standard errors. If this product is larger than 3.84, the difference is statistically significant at the .05 level—i.e., it would occur by chance fewer than 5 times in 100. Presented as a formula, a difference in percentages is statistically significant at the .05 level if:

$$\sqrt{\frac{(P_1 - P_2)^2}{SE_1^2 + SE_2^2}} \succ 1.96$$

where P_1 and SE_1 are the first percentage and its standard error and P_2 and SE_2 are the second percentage and the standard error. If the product of this calculation is 2.57 to 10.28, the significance level is .01; if the product is 3.28 or greater, the significance level is .001.

Exhibit A-4
POPULATION SIZES OF GROUPS REPRESENTED BY NLTS2

Groups	Number
All youth with disabilities	1,838,848
Disability category:	
Learning disability	1,130,539
Speech/language impairment	76,590
Mental retardation	213,552
Emotional disturbance	203,937
Hearing impairment	22,001
Visual impairment	8,013
Orthopedic impairment	21,006
Other health impairment	98,197
Autism	14,637
Traumatic brain injury	6,379
Multiple disabilities	34,865
Deaf-blindness	340
Gender	
Boys	747,286
Girls	377,487
Age	
13 or 14	350,580
15	265,451
16	299,593
17	214,916
Household income	
$25,000 or less	414,116
$25,001 to $50,000	338,822
More than $50,000	377,600
Race/ethnicity	
White	707,152
African American	233,796
Hispanic	159,406

Measurement and Reporting Issues

The chapters in this report include information about specific variables included in analyses. However, several general points about NLTS2 measures that are used repeatedly in analyses should be clear to readers as they consider the findings reported here.

Categorizing students by primary disability. Information about the nature of students' disabilities came from rosters of all students in the NLTS2 age range receiving special education services in the 2000-01 school year under the auspices of participating LEAs and state-supported special schools. In data tables included in this report, students are assigned to a disability category on the basis of the primary disability designated by the student's school or district. Although there are federal guidelines in making category assignments (Exhibit A-5) criteria and methods for assigning students to categories vary from state and to state and even between districts within states, with the potential for substantial variation in the nature and severity of disabilities included in categories (see for example, MacMillan & Siperstein, 2002). Therefore, NLTS2 data should not be interpreted as describing students who truly had a particular disability, but rather as describing students who were *categorized* as having that primary disability by their school or district. Hence, descriptive data are nationally generalizable to youth in the NLTS2 age range who were classified as having a particular primary disability in the 2000-01 school year.

Exhibit A-5
DEFINITIONS OF DISABILITIES[4]

Autism: A developmental disability significantly affecting verbal and nonverbal communication and social interaction, generally evident before age 3, that adversely affects a child's educational performance. Other characteristics often associated with autism are engagement in repetitive activities and stereotyped movements, resistance to environmental change or change in daily routines, and unusual responses to sensory experiences. The term does not apply if a child's educational performance is adversely affected primarily because the child has a serious emotional disturbance as defined below.

Deafness: A hearing impairment so severe that the child cannot understand what is being said even with a hearing aid.

Deaf-Blindness: A combination of hearing and visual impairments causing such severe communication, developmental, and educational problems that the child cannot be accommodated in either a program specifically for the deaf or a program specifically for the blind.

Hearing impairment: An impairment in hearing, whether permanent or fluctuating, that adversely affects a child's educational performance but that is not included under the definition of deafness as listed above.

Mental retardation: Significantly subaverage general intellectual functioning existing concurrently with deficits in adaptive behavior and manifested during the developmental period that adversely affects a child's educational performance.

Multiple disabilities: A combination of impairments (such as mental retardation-blindness, or mental retardation-physical disabilities) that causes such severe educational problems that the child cannot be accommodated in a special education program solely for one of the impairments. The term does not include deaf-blindness.

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[4] From ERIC Digests (1998).

Exhibit A-5
DEFINITIONS OF DISABILITIES (Concluded)

Orthopedic impairment: A severe orthopedic impairment that adversely affects educational performance. The term includes impairments such as amputation, absence of a limb, cerebral palsy, poliomyelitis, and bone tuberculosis.

Other health impairment: Having limited strength, vitality, or alertness due to chronic or acute health problems such as a heart condition, rheumatic fever, asthma, hemophilia, and leukemia, which adversely affect educational performance.[5]

Emotional Disturbance:[6] A condition exhibiting one or more of the following characteristics, displayed over a long period of time and to a marked degree that adversely affects a child's educational performance:

- An inability to learn that cannot be explained by intellectual, sensory, or health factors
- An inability to build or maintain satisfactory interpersonal relationships with peers or teachers
- Inappropriate types of behavior or feelings under normal circumstances
- A general pervasive mood of unhappiness or depression
- A tendency to develop physical symptoms or fears associated with personal or school problems.

This term includes schizophrenia, but does not include students who are socially maladjusted, unless they have a serious emotional disturbance.

Specific Learning Disability: A disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, that may manifest itself in an imperfect ability to listen, think, speak, read, write, spell, or do mathematical calculations. This term includes such conditions as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia. This term does not include children who have learning problems that are primarily the result of visual, hearing, or motor disabilities; mental retardation; or environmental, cultural or economic disadvantage.

Speech or language impairment: A communication disorder such as stuttering, impaired articulation, language impairment, or a voice impairment that adversely affects a child's educational performance.

Traumatic brain injury: An acquired injury to the brain caused by an external physical force, resulting in total or partial functional disability or psychosocial impairment, or both, that adversely affects a child's educational performance. The term applies to open or closed head injuries resulting in impairments in one or more areas, such as cognition; language; memory; attention; reasoning; abstract thinking; judgment; problem-solving; sensory, perceptual and motor abilities; psychosocial behavior; physical functions; information processing; and speech. The term does not apply to brain injuries that are congenital or degenerative, or brain injuries induced by birth trauma. As with autism, traumatic brain injury (TBI) was added as a separate category of disability in 1990 under P.L. 101-476.

Visual impairment, including blindness: An impairment in vision that, even with correction, adversely affects a child's educational performance. The term includes both partial sight and blindness.

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[5] OSEP guidelines indicate that "children with ADD, where ADD is a chronic or acute health problem resulting in limited alertness, may be considered disabled under Part B solely on the basis of this disorder under the 'other health impaired' category in situations where special education and related services are needed because of the ADD" (Davila, 1991).

[6] P.L. 105-17, the Individuals with Disabilities Education Act Amendments of 1997, changed "serious emotional disturbance" to "emotional disturbance." The change has no substantive or legal significance. It is intended strictly to eliminate any negative connotation of the term "serious."

The exception to reliance on school or district category assignment involves students with deaf-blindness. District variation in assigning students with both hearing and visual impairments to the category of deaf-blindness results in many students with those dual disabilities being assigned to other primary disability categories, most often hearing impairment, visual impairment, and multiple disabilities. Because of these classification differences, national estimates suggest that there were 3,196 students with deaf-blindness who were ages 12 to 17 in 1999 (National Technical Assistance Center, 1999), whereas the federal child count indicated that 681 were classified with deaf-blindness as their primary disability (Office of Special Education Programs, 2001b).

To describe the characteristics and experiences of the larger body of youth with deaf-blindness more accurately and precisely, students who were reported by parents or by schools or school districts[7] as having both a hearing and a visual impairment were assigned to the deaf-blindness category for purposes of NLTS2 reporting, regardless of the primary disability category assigned by the school or school district. This increased the number of youth with deaf-blindness for whom parent data were collected from 24 who were categorized by their school or district as having deaf-blindness as a primary disability to 166. The number of students reassigned to the deaf-blindness category and their original designation of primary disability are indicated in Exhibit A-6.

Exhibit A-6

ORIGINAL PRIMARY DISABILITY CATEGORY OF YOUTH ASSIGNED TO DEAF-BLINDNESS CATEGORY FOR NLTS2 REPORTING PURPOSES

Original Primary Disability Category	Number
Deaf-blindness	24
Visual impairment	46
Hearing impairment	43
Multiple disabilities	31
Orthopedic impairment	7
Mental retardation	6
Traumatic brain injury	4
Other health impairment	3
Speech/language impairment	1
Autism	1
Total	166

Demographic characteristics. Findings in this report are provided for youth who differ in age, gender, household income, and race/ethnicity. For the large majority of youth, age, gender, and race/ethnicity were determined from data provided by students' schools or districts. For youth for whom information was not provided by schools or districts, data for these variables were taken from the parent interview/survey. Classifying the household income of students' households relied exclusively on information provided during the parent interview/survey.

Households in poverty. A dichotomous variable indicating that a student's household was in poverty was constructed using parents' reports of household income and household size and federal poverty thresholds for 2000 (U.S. Census Bureau, 2000). These thresholds indicate the income level for specific sizes of households, below which the household is considered in poverty. Because NLTS2 respondents reported household income in categories (e.g., $25,001 to $30,000) rather than specific dollar

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[7] Some special schools and school districts reported secondary disabilities for students. So, for example, a student with visual impairment as his or her primary disability category also could have been reported as having a hearing impairment as a secondary disability.

amounts, estimates of poverty status were calculated by assigning each household to the mean value of the category of income reported by the parent and comparing that value to the household's size to determine poverty status.

Comparisons with the general population of students. In cases in which survey data for the general population of youth are publicly available (e.g., the National Household Education Survey), data have been abstracted from those datasets for youth who match in age the 13- through 17-year-olds included in NLTS2. However, many of the comparisons have been made using published data. For many of these comparisons, differences in samples (e.g., ages of students) or measurement (e.g., question wording on surveys) reduce the direct comparability of NLTS2 and general population data. Where these limitations affect the comparisons, they are pointed out in the text and the implications for the comparisons are noted.

Construction of social skills scales. For Chapter 6, four social skills scales were constructed: assertion, self-control, social cooperation, and overall social skills. All items for the first two scales were taken from American Guidance Service's Social Skills Rating System (SSRS; Gresham & Elliott, 1990), and statistics for the nationally normed data were used to construct the scale. For the assertion scale, the national mean is 5.68 and the standard deviation is 1.54. Scores falling within the national mean plus or minus one national standard deviation, rounded to the nearest integer (that is 4 to 7), were defined as "medium." Scores lower than this range (0 to 3) were defined as "low," and a score of 8 was defined as "high." The same procedure was used to create categories for the self control scale, using the national mean of 5.1 and standard deviation of 1.6. Thus, scores of 0 to 2 were defined as "low," scores of 3 to 7 were defined as "medium," and a score of 8 was defined as "high." A similar procedure was used for the cooperation and overall social skills scales, but the means and standard deviations for youth disabilities were used because most of the items used for the scale were not taken from the SSRS. The mean and standard deviations for youth with disabilities for the cooperation scale are 3.9 and 1.4, respectively, and for the overall social skills scale they are 13.7 and 1.7.

Reporting statistics. Statistics are not reported for groups with fewer than 35 members. Statistics with a decimal of .5 are rounded to the nearest whole even number.

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Appendix B

UNWEIGHTED SAMPLE SIZES

Exhibit B-1

UNWEIGHTED SAMPLE SIZES FOR EXHIBITS FOR ALL STUDENTS WITH DISABILITIES: EXHIBITS 2-1, 2-2, 3-1, 3-12, 3-13, 4-2, 4-3, 5-8, 5-10, 5-15, 6-1, 6-2, 6-3, 6-8

Exhibit 2-1	11,276
Exhibit 2-2	
Age	11,276
Grade level	9,021
Exhibit 3-1	
Other members of household with disabilities	8,663
Adult in household with disabilities	8,649
Other children of household with disabilities	8,663
Exhibit 3-12	
Managed care among all youth	8,152
Managed care among youth with private health insurance	5,393
Managed care among youth with government health insurance	2,688
Exhibit 3-13	
Had to change plans or buy extra insurance	8,863
Disability-related health care that insurance would not cover	8,868
Type of item that insurance would not cover	8,850
Exhibit 4-2	
Youth’s age when disability first was identified	8,594
Youth’s age at receipt of first professional services	8,449
Youth’s age at receipt of first special education services	8,377
Exhibit 4-3	
Who first identified youth’s disability	8,671
Who first requested services at school	8,173
Exhibit 5-8	
Use of arms and hands for gross motor skills	8,901
Use of arms and hands for fine motor skills	8,907
Use of legs and feet	8,904
Use of all limbs	8,898
Youth uses a mobility device	915
Exhibit 5-10	
Uses glasses	8,926
Users of glasses or contact lenses	3,794
Nonusers of lenses	5,056
Uses vision aids other than glasses or contact lenses	8,860
Exhibit 5-15—How well youth	
Is able to speak	8,644
Carries on a conversation	8,892
Understands what others say	8,900
Communicates by any means	8,906

Exhibit B-1
UNWEIGHTED SAMPLE SIZES FOR EXHIBITS FOR ALL STUDENTS WITH DISABILITIES: EXHIBITS 2-1, 2-2, 3-1, 3-12, 3-13, 4-2, 4-3, 5-8, 5-10, 5-15, 6-1, 6-2, 6-3, 6-8
(CONCLUDED)

Exhibit 6-1	
Feeds him/herself	9,128
Dresses him/herself	9,127
Self-care scale	9,126
Exhibit 6-2	
Reads and understands common signs	8,949
Tells time on an analog clock	8,948
Counts change	
Looks up telephone numbers and uses the phone	8,946
Functional cognitive skills scale	8,938
Exhibit 6-3	
Does laundry/straightens room	8,970
Buys items needed at a store	8,973
Fixes own breakfast or lunch	8,971
Household responsibilities scale	8,968
Exhibit 6-8	
Sense of humor	8,928
Sensitivity to others' feelings	8,878
Using a computer	8,631
Physical activities	8,799
Mechanical skills	8,862
Creative arts	8,831
Performing arts	8,679
Organization	8,891

Exhibit B-2
UNWEIGHTED SAMPLE SIZES FOR EXHIBITS WITH YOUTH WITH DISABILITIES AND THE GENERAL POPULATION: EXHIBITS 3-1, 3-2, 3-5, 3-6, 3-10, 3-11, 5-2, 6-6

	Youth with Disabilities	Youth in the General Population
Exhibit 3-1		
Living arrangements	8,429	3,630
Never married parent	8,375	3,202
Exhibit 3-2	8,638	3,643
Exhibit 3-5	8,461	4,645
Exhibit 3-6	8,446	4,645
Exhibit 3-9	8,333	6,529
Exhibit 3-10		
Youth currently receives SSI	8,854	3,178
Household currently receives Food Stamps	8,875	3,172
Household currently receives TANF	8,862	3,177
Household currently receives any benefit	8,850	3,174
Exhibit 3-11	8,899	3,216
Exhibit 5-2	8,910	3,657
Exhibit 6-6		
Overall social skills	8,788	NA
Assertion	8,939	174
Self-control	8,822	174
Cooperation	8,961	NA
Makes friends	8,968	174
Starts conversations	8,959	174
Confidence	8,955	174
Joins group activities	8,961	174
Avoids trouble	8,921	174
Controls temper	8,849	174
Ends disagreements calmly	8,882	174
Receives criticism well	8,859	174
Speaks in appropriate tone	8,962	174
Keeps working until finished	8,963	NA
Behavior doesn’t cause problems for family	8,938	NA

NA=Not available

Exhibit B-3
UNWEIGHTED SAMPLE SIZES FOR EXHIBITS FOR DISABILITY CATEGORIES: EXHIBITS 2-3, 3-3, 3-7, 3-15, 3-16, 4-4, 5-2, 5-6, 5-9, 5-11, 5-13, 5-15, 6-4, 6-8, 6-9

	Learning Disability	Speech/ Language Impairment	Mental Retardation	Emotional Distubance	Hearing Impairment	Visual Impairment	Orthopedic Impairment	Other Health Impairment	Autism	Traumatic Brain Injury	Multiple Disabilities	Deaf-Blindness
Exhibit 2-3												
Exhibit 3-3												
Living arrangements	804	797	772	754	764	618	849	858	873	354	872	138
Lives with never-married parent	800	790	765	742	756	612	844	852	868	350	859	137
Others with disability	825	797	790	777	799	646	855	875	882	357	874	142
Exhibit 3-7												
Head of household's educational attainment	806	798	779	738	773	619	853	875	881	339	846	154
Head of household's employment status	807	797	777	737	773	618	849	873	879	339	844	153
Exhibit 3-15												
Household Income	800	770	780	761	781	614	825	857	833	346	813	153
Household in poverty	775	736	734	733	751	601	796	827	807	341	792	133
Youth currently receives SSI	846	824	830	796	819	656	874	898	901	357	894	159
Household currently receives Food Stamps	849	830	830	797	817	659	883	898	901	361	894	156
Household currently receives TANF	848	828	827	798	818	658	879	897	900	361	892	156
Household currently receives any benefit	848	826	832	793	818	655	872	895	899	360	894	158
Health insurance coverage	860	834	823	806	831	661	883	895	895	368	896	147
Exhibit 3-16												
Had to change plans buy extra insurance	860	833	821	808	828	662	871	888	894	363	888	147
Insurer refused to pay for services or items	861	832	822	807	821	661	876	891	895	366	891	145
Specific item or service insurance would not cover	860	831	820	807	819	659	872	889	891	366	891	145
Exhibit 4-4												
Youth's age at first identification of disability	807	778	769	759	822	663	872	867	875	362	873	147
Youth's age at first receipt of professional services	801	776	756	750	810	649	858	865	874	354	863	143
Youth's age at first receipt of special education in school	817	776	773	732	789	627	845	861	834	353	834	136
Who first identified youth's disability	822	787	788	768	829	661	865	879	886	357	882	147
Who first requested school services for youth	799	761	752	707	763	615	814	839	827	348	814	134

Exhibit B-3
UNWEIGHTED SAMPLE SIZES FOR EXHIBITS FOR DISABILITY CATEGORIES: EXHIBITS 2-3, 3-3, 3-7, 3-15, 3-16, 4-4, 5-2, 5-6, 5-9, 5-11, 5-13, 5-15, 6-4, 6-8, 6-9
(CONTINUED)

	Learning Disability	Speech/ Language Impairment	Mental Retardation	Emotional Disturbance	Hearing Impairment	Visual Impairment	Orthopedic Impairment	Other Health Impairment	Autism	Traumatic Brain Injury	Multiple Disabilities	Deaf-Blindness
Exhibit 5-2	862	835	822	804	833	666	883	895	895	369	898	148
Exhibit 5-6												
Percentage taking disability-related prescription medication	828	793	794	776	827	660	875	884	890	361	890	148
Percentage taking prescription medication to affect behavior, mood, or emotions	829	791	790	776	828	663	874	884	890	360	888	148
Percentage taking particular types of medications	744	726	682	524	750	604	778	546	582	300	716	127
Percentage using medical equipment or devices related to their disability	405	21	0	0	0	27	21	125	36	25	0	83
Exhibit 5-9	862	833	821	806	833	664	881	894	891	369	896	148
Exhibit 5-11												
Uses glasses	863	836	825	807	834	667	885	896	895	370	900	148
Users of glasses or contact lenses	383	343	335	369	352	459	376	260	159	344	81	383
Nonusers of lenses	527	451	476	468	462	301	418	517	625	209	538	64
Uses vision aids other than glasses or contact lenses	862	834	819	804	831	656	877	895	885	369	882	146
Exhibit 5-13	--	--	--	--	773	--	--	--	--	--	--	136
Exhibit 5-15 How well youth…												
Is able to speak	859	828	812	803	682	662	883	892	885	364	859	115
Carries on a conversation	861	832	820	804	830	665	883	892	894	367	896	148
Understands what others say	862	834	823	806	833	665	883	895	890	368	895	146
Communicates by any means	862	833	821	807	832	667	884	895	892	369	898	146
Exhibit 6-4												
Self-care skills scale	878	866	852	832	862	668	899	916	912	367	913	161
Functional cognitive skills scale	853	834	832	805	833	657	893	905	906	362	904	154
Household responsibilities scale	852	835	835	810	836	663	894	907	909	363	904	160
Exhibit 6-8												
Overall social skills	846	844	819	801	824	649	878	901	864	361	861	151
Assertion skills	850	836	831	905	834	660	891	905	905	361	904	157
Self-control skills	848	836	825	809	826	653	879	905	865	362	862	152
Cooperation skills	854	839	836	812	835	660	894	907	907	363	905	159

Exhibit B-3
UNWEIGHTED SAMPLE SIZES FOR EXHIBITS FOR DISABILITY CATEGORIES: EXHIBITS 2-3, 3-3, 3-7, 3-15, 3-16, 4-4, 5-2, 5-6, 5-9, 5-11, 5-13, 5-15, 6-4, 6-8, 6-9 (CONCLUDED)

	Learning Disability	Speech/ Language Impairment	Mental Retardation	Emotional Distubance	Hearing Impairment	Visual Impairment	Orthopedic Impairment	Other Health Impairment	Autism	Traumatic Brain Injury	Multiple Disabilities	Deaf-Blindness
Exhibit 6-9												
Sense of humor	851	837	833	811	799	662	890	908	893	361	890	156
Sensitivity to others' feelings	851	835	808	906	880	832	888	878	795	654	361	153
Using a computer	823	809	781	776	780	636	870	890	876	348	854	151
Physical activities	844	827	826	798	797	657	883	903	901	358	875	156
Mechanical skills	871	872	647	890	154	823	357	824	896	785	801	842
Creative arts	847	832	820	801	796	650	869	900	900	356	869	154
Performing arts	827	817	811	790	780	639	862	877	887	354	846	152
Organization	853	836	834	813	798	653	873	907	902	361	868	156

-- Too few to report separately.

Exhibit B-4
UNWEIGHTED SAMPLE SIZES FOR EXHIBITS FOR ALL YOUTH WITH DISABILITIES AND DISABILITY CATEGORIES: EXHIBITS 4-1, 4-6, 5-12, 5-17

	Total	Learning Dis-ability	Speech/ Language Impair-ment	Mental Retar-dation	Emo-tional Distur-bance	Hearing Impair-ment	Visual Impair-ment	Ortho-pedic Impair-ment	Other Health Impair-ment	Autism	Trau-matic Brain Injury	Multiple Disabili-ties	Deaf-Blind-ness
Exhibit 4-1													
All except multiple disabilities	9,010	847	818	830	805	767	659	908	907	917	366	910	162
Multiple disabilities	9,162	878	860	851	826	767	661	911	915	918	371	921	162
Exhibit 4-6													
Youth with disability identified before age 3	3,286	66	107	230	66	482	402	598	149	458	64	554	110
Youth with disability identified before age 6	5,286	218	322	409	255	668	556	725	379	777	133	718	126
Exhibit 5-12	8,884	863	831	822	805	812	663	882	891	887	366	898	164
Exhibit 5-17													
Fair or poor health	8,858	862	835	822	804	786	666	883	895	895	369	898	143
Mild or moderate hearing loss	8,880	863	831	822	805	812	663	882	891	887	366	898	160
A lot of trouble seeing or no sight	8,799	860	834	819	804	784	653	877	893	885	368	882	140
A lot of trouble using limbs or no use of limbs at all	8,846	862	833	821	806	786	664	881	894	891	369	896	143
A lot of trouble communicating or cannot communicate at all	8,868	862	833	821	807	832	667	884	895	892	369	898	146
Percentage of youth with moderate or severe problems in any domain	8,921	864	836	825	808	812	667	886	896	895	370	902	160

Exhibit B-5
UNWEIGHTED SAMPLE SIZES FOR EXHIBITS BY AGE: EXHIBIT 5-7

	13 or 14	15	16	17
Medication related to disability	3,004	2,171	2,176	1,375
Medication to affect behavior, mood, or emotions	3,003	2,168	2,176	1,374
Type of medication	2,382	1,727	1,793	1,177

Exhibit B-6
UNWEIGHTED SAMPLE SIZES FOR EXHIBITS BY GENDER: EXHIBITS 5-7, 6-5, 6-10

	Male	Female
Exhibit 5-7		
Medication related to disability	5,659	3,067
Medication to affect behavior, mood, or emotions	5,651	3,070
Type of medication	4,442	2,637
Exhibit 6-5		
Functional cognitive skills scale	5,801	3,137
Household responsibilities scale		
Exhibit 6-10		
Having a sense of humor	5,788	3,140
Using a computer	5,586	3,045
Physical activities	5,754	3,108
Mechanical skills	5,735	3,064
Performing arts	5,612	3,067
Organizational skills	5,773	3,118

Exhibit B-7
UNWEIGHTED SAMPLE SIZES FOR EXHIBITS BY INCOME AND RACE/ETHNICITY: EXHIBITS 2-5, 3-4, 3-8, 3-14, 3-17, 4-5, 5-3, 5-7, 6-10

	Income			Race/Ethnicity		
	$25,000 or Less	$25,001 to $50,000	More than $50,000	White	African American	Hispanic
Exhibit 2-5	2,739	3,291	2,777	5,212	1,750	1,136
Exhibit 3-4						
Living arrangements	--	--	--	5,129	1,696	1,102
Other member of household has disability	--	--	--	5,472	1,729	1,141
Household size	--	--	--	5,482	1,736	1,141
Exhibit 3-8						
Head of household's educational attainment	2,680	2,399	2,818	5,237	1,611	1,105
Head of household's employment status	2,676	2,398	2,817	5,232	1,603	1,107
Exhibit 3-14 and 3-17						
Youth currently receives SSI	2,878	2,502	2,864	5,392	1,779	1,154
Household currently receives Food Stamps	2,883	2,507	2,870	5,402	1,784	1,160
Household currently receives TANF	2,877	2,502	2,870	5,393	1,783	1,160
Exhibit 3-17						
Household income	--	--	--	5,066	1,675	1,090
Household in poverty	--	--	--	4,912	1,595	1,048
Health insurance coverage	--	--	--	5,394	1,813	1,170
Exhibit 4-5						
Youth's age when disability first was identified	2,707	2,353	2,742	5,253	1,724	1,123
Youth's age at first receipt of professional services	2,663	2,332	2,736	5,208	1,688	1,113
Youth's age at first receipt of special education in school	2,645	2,315	2,714	5,125	1,651	1,116
Who first identified youth's disability	2,728	2,373	2,766	5,289	1,744	1,138
Who first requested school services for youth	2,599	2,260	2,646	4,971	1,625	1,101
Exhibit 5-3	2,805	2,438	2,827	5,611	1,825	1,187
Exhibit 5-7						
Medication related to disability	2,744	2,392	2,784	5,323	1,753	1,145
Medication to affect behavior, mood, or emotions	2,735	2,395	2,786	5,322	1,752	1,140
Type of medication	2,277	1,971	2,146	4,116	1,535	1,021
Exhibit 6-10						
Having a sense of humor	2,882	2,501	2,859	5,631	1,804	1,196
Using a computer	2,692	2,446	2,838	5,502	1,724	1,115
Physical activities	2,852	2,488	2,851	5,581	1,799	1,184
Mechanical skills	2,842	2,467	2,827	5,544	1,788	1,178
Performing arts	2,806	2,429	2,803	5,452	1,766	1,167
Organizational skills	2,877	2,489	2,846	5,598	1,809	1,184

Exhibit B-8
UNWEIGHTED SAMPLE SIZES FOR EXHIBIT 3-14

	Income			Household in Poverty	
	$25,000 or Less	$25,001 to $50,000	More than $50,000	Yes	No
Youth currently receives SSI	2,878	2,502	2,864	1,875	6,119
Household currently receives Food Stamps	2,883	2,507	2,870	1,877	6,142
Household currently receives TANF	2,877	2,502	2,870	1,873	6,136

Exhibit B-9
UNWEIGHTED SAMPLE SIZES FOR EXHIBIT 3-18

Youth lives with two parents	4,892
Youth lives with one parent	2,334
Youth lives with a never married parent	597
Youth lives in household in which an adult has a disability	1,533
Youth lives in a household in which no adult has a disability	3,874
Youth’s head of household completed college	1,664
Youth’s head of household did not complete high school	1,451
Youth’s head of household is employed full time	3,618
Youth’s head of household is not employed	1,423

Exhibit B-10
UNWEIGHTED SAMPLE SIZES FOR EXHIBIT 3-19

	Youth with Disabilities			Youth in the General Population		
	$25,000 or Less	$25,001 to $50,000	More than $50,000	$25,000 or Less	$25,001 to $50,000	More than $50,000
Racial/ethnic distribution of youth with disabilities and youth in the general population, by income level	2,926	2,528	2,879	1,565	2,215	2,749

Exhibit B-11
UNWEIGHTED SAMPLE SIZES FOR EXHIBIT 5-5

Percentage taking disability-related prescription medication among:	
All youth with disabilities	8,726
Youth whose health was:	
Excellent	3,341
Very good	2,244
Good	2,063
Fair or poor	869
Percentage taking prescription medication to affect behavior, mood, or emotions (psychotropic), percentage taking:	
All youth with disabilities	8,721
Youth whose health is:	
Excellent	3,346
Very good	2,443
Good	2,059
Fair or poor	865
Percentage taking particular types of medications	7,079
Percentage using medical equipment or devices related to their disability	8,833

Exhibit B-12
UNWEIGHTED SAMPLE SIZES FOR EXHIBIT 5-14

	Youth with Hearing Loss	Degree of Reported Hearing Loss		
		Mild	Moderate	Profound
Uses a hearing device	1,581	477	394	710
Has a cochlear implant	1,580	478	393	709
Hearing capacity with device	808	65	205	538