

2. CHANGES IN THE INDIVIDUAL CHARACTERISTICS OF YOUTH WITH DISABILITIES

The nature of a student's disability and its functional implications can be powerful influences on his or her experiences, both in and out of school. Perhaps especially during adolescence, however, other fundamental characteristics of youth, in addition to whether or not they have disabilities, also help shape their development, relationships, experiences, and achievements. Gender is a defining human characteristic, and, during adolescence, when young people are exploring their sexuality and gender roles, it can shape their experiences and choices in powerful ways. In addition, racial/ethnic and language background can be associated with rich cultural traditions, patterns of relationships within families and communities, and strong group identification, which can generate important differences in values, perspectives, expectations, and practices.

Understanding the disability profiles and demographic makeup of youth with disabilities and how they have changed over time is fundamental to understanding how their experiences have changed from 1987 to 2001, both for the group as a whole and for youth with particular disability classifications. Such understanding also provides a foundation for interpreting comparisons between youth with disabilities and those in the general population.

This chapter reports on changes in the distribution of disabilities among 15- through 17-year-old youth and describes changes in both their demographic characteristics and disability profiles that can influence their experiences in important ways. Changes in the characteristics of youth with disabilities as a whole are compared with the general population, followed by a discussion of the changes in characteristics of youth in different primary disability categories and who differed on other important factors.

Primary Disability Classification

Using federal child count data reported by the Office of Special Education Programs, Exhibit 2-1 depicts the considerable growth in the number of adolescents receiving special education, as well as changes in the distribution of disability categories between 1987 and 2001, the most recent year for which data are available. Although the number of youth in this age group receiving special education increased by 58%, the more important point for comparing the two cohorts is the different mix of disabilities at the two time points. Most notably, in 1990, Public Law 101-476 added two new disability categories—autism and traumatic brain injury—to those eligible for special education. Youth with those conditions previously had been distributed among other categories, with the heaviest concentration in the other health impairment category. Despite the shift of youth with autism and traumatic brain injuries to separate categories, the other health impairment category still has shown more than a fourfold increase; whereas it accounted for only slightly more than 1% of youth with disabilities in this age range in 1987, it accounted for more than 6% in 2000. This change reflects, in part, the large number of youth diagnosed with attention deficit/hyperactivity disorder (AD/HD) as a primary disability, who often were not eligible for special education in 1987. They generally now are included in the other health impairment category if they are eligible for special education. Parents indicated that

Exhibit 2-1
DISABILITY CATEGORY DISTRIBUTION OF YOUTH WITH DISABILITIES

| Primary Disability Category | Federal Child Count (Ages 15 to 17) | | | | | NLTS/NLTS2 (Ages 15 to 17) | | |
|-----------------------------|-------------------------------------|------------|-----------|------------|-------------------------|----------------------------|------------------|-------------------------|
| | 1987 ¹ | | 2001 | | Percentage Point Change | 1987 | 2001 | Percentage Point Change |
| | Number | Percentage | Number | Percentage | | | | |
| Learning disability | 447,839 | 59.9 | 729,881 | 61.6 | +1.7 | 60.4 | 61.4 | +1.0 |
| Speech/language impairment | 27,011 | 3.6 | 33,439 | 2.8 | -1.4 | 4.4 | 3.2 | -1.2 |
| Mental retardation | 139,827 | 18.7 | 149,400 | 12.6 | -6.1 | 18.0 | 13.0 | -5.0 |
| Emotional disturbance | 94,882 | 12.7 | 139,019 | 11.7 | -1.0 | 11.4 | 11.9 | +0.5 |
| Hearing impairment | 8,140 | 1.1 | 15,350 | 1.3 | +0.2 | 1.4 | 1.4 | .0 |
| Visual impairment | 3,852 | .5 | 5,794 | .5 | .0 | .6 | .6 | .0 |
| Orthopedic impairment | 7,341 | 1.0 | 14,061 | 1.2 | +0.2 | 1.0 | 1.2 | +0.2 |
| Other health impairment | 8,243 | 1.1 | 60,168 | 5.1 | +4.0 | 1.4 | 5.3 ^a | +3.9 |
| Multiple disabilities | 11,217 | 1.5 | 24,839 | 2.1 | +0.6 | 1.3 ^b | 2.2 ^b | +0.9 |
| Deaf-blindness | 124 | .02 | 256 | .02 | .0 | | | |
| Autism | NA | | 9,009 | .8 | +0.8 | | | |
| Traumatic brain injury | NA | | 3,953 | .3 | +0.3 | | | |
| All disabilities | 747,442 | | 1,185,169 | | | 100.0 | 100.0 | |

^a Youth with autism and traumatic brain injury have been reassigned, for comparison purposes, to other categories, as described in Appendix A, with many being included in other health impairment.

^b Includes youth with deaf-blindness.

Source: NLTS and NLTS2 Wave 1 parent interviews and federal child count statistics (U.S. Department of Education, 1989 and Office of Special Education Programs, 2002).

74% of youth in the other health impairments category had AD/HD as a primary or secondary disability (Wagner, Levine, Cameto, Cadwallader, Marder, & Blackorby, 2003). A decline of 6 percentage points was evident for youth with mental retardation (17% to 12%).

Smaller changes were evident for some other categories. The learning disability and autism categories each increased by 1 percentage point, and declines of similar size were noted in the categories of speech/language impairment and emotional disturbance. Other changes were less than 1 percentage point. Overall, the distributions of primary disability classifications of the NLTS and NLTS2 samples of 15- through 17-year-olds depicted in Exhibit 2-1 quite closely match the national distribution of 15- to 17-year-olds indicated by the federal child count.

The shifts in disability distribution between the two time points should be kept in mind in considering the findings regarding changes in the population of youth with disabilities as a

¹ Although the 2001 child count allows the identification of youth who were 15 through 17, the child count in 1987 included all youth ages 12 through 17. The 1987 child count of 15- through 17-year-olds was estimated by calculating for each disability the proportion of 12- through 17-year-olds in 2001 who were 15 through 17. This percentage was then multiplied by the 1987 child count of 12- through 17-year-olds to obtain an estimate of the youth in that age range who were 15 through 17.

Demographic Characteristics of Youth

This section describes the distribution of gender, race/ethnicity,² age, and grade level of youth with disabilities in 1987 and 2001.

The gender distribution of youth with disabilities did not change significantly over time (69% and 67% male, Exhibit 2-2). At both points in time, males were significantly overrepresented among youth receiving special education relative to youth in the general population. Interestingly, a similar overrepresentation of males was evident even among infants and toddlers with disabilities (61%; Hebbeler, Wagner, Spiker, Scarborough, Simeonsson, & Collier, 2001) and with elementary age students, indicating that these percentages hold across the age range (Marder & Wagner, 2002).

The increase in the racial/ethnic diversity of the general student population also is evident among youth with disabilities. Hispanic youth exhibited the largest increase, being more than half again as large a proportion of the population of students with disabilities in 2001 as in 1987 (increasing from 9% to 14%, $p < .01$). In contrast, the proportion of youth with disabilities who were white underwent little change; given almost a 6 percentage point decline in that group in the general population, whites were the same proportion of youth with disabilities and the general population in 2001. Along with a small decline in the percentage of African Americans among

Exhibit 2-2
CHANGES IN DEMOGRAPHIC CHARACTERISTICS OF YOUTH WITH DISABILITIES AND YOUTH IN THE GENERAL POPULATION

| Individual Characteristics | Youth with Disabilities | | | Youth in the General Population | | |
|--|-------------------------|---------------|-------------------------|---------------------------------|------|-------------------------|
| | Cohort 1 | Cohort 2 | Percentage Point Change | 1987 | 2001 | Percentage Point Change |
| Percentage male | 68.6 (2.0) | 67.4 (1.8) | -1.2 | 50.0 | 51.0 | +1.0 |
| Percentage who were: | | | | | | |
| White | 64.9 (2.1) | 62.5 (1.9) | -2.4 | 68.8 | 63.1 | -5.7 |
| African American | 23.5 (1.8) | 20.7 (1.6) | -2.8 | 16.4 | 16.0 | -.4 |
| Hispanic | 8.7 (1.2) | 13.6 (1.3) | +4.9** | 10.8 | 15.7 | +4.9 |
| Multiple or "other" race/ethnicity | 2.8 (.7) | 3.3 (.8) | +2 | 3.9 | 5.2 | +1.3 |
| Percentage who did not use primarily English at home | 3.3 (.8) | 14.2 (1.4) | +10.9*** | 3.5 | 5.0 | +1.5 |

Source: NLTS and NLTS2 Wave 1 parent interviews and U.S. Census Bureau (2002). General population figures are for 15- to 19-year-olds.

Standard errors are in parentheses.

Statistically significant difference in a two-tailed test at the following levels: ** $p < .01$; *** $p < .001$.

² The racial/ethnic classification of youth in cohort 1 relied on information supplied by parents. In cohort 2, information came from the schools/school districts from which youth were sampled. In cases in which schools or districts did not supply this information, parents' reports of racial/ethnic classifications were used.

youth with disabilities, the population of high school youth receiving special education in 2001 more closely reflected the general population than had been true in 1987.

There was more than a fourfold increase in the proportion of youth with disabilities who did not use primarily English at home, increasing from 3% to 14% of youth—a noticeably higher rate of increase than in the general population. Thus, youth with disabilities increasingly were facing the challenges of communicating in two languages and accommodating two cultures, in addition to the challenges of their disabilities.

Exhibit 2-3
CHANGES IN AGE AND GRADE LEVEL
DISTRIBUTION OF YOUTH WITH DISABILITIES,
BY COHORT

| | Cohort 1 | Cohort 2 | Change |
|--|---------------|---------------|-----------------|
| Percentage who were: | | | |
| 15 years old | 26.4 (1.9) | 26.2 (1.7) | -.2 |
| 16 years old | 35.2 (2.0) | 35.4 (1.9) | +.2 |
| 17 years old | 38.4 (2.1) | 38.4 (1.9) | 0 |
| Percentage assigned to: | | | |
| Grade 8 or below | 20.4 (2.0) | 9.6 (1.2) | -10.8*** |
| Grade 9 | 33.7 (2.4) | 27.7 (1.8) | -6.0* |
| Grade 10 | 27.6 (2.2) | 36.1 (1.9) | -8.5** |
| Grade 11 | 10.5 (1.5) | 22.5 (1.6) | +12.0*** |
| Grade 12 | 1.0 (.5) | 2.4 (.6) | +1.4 |
| An ungraded program | 6.9 (1.3) | 1.7 (.5) | -5.2*** |
| Percentage who were at the typical grade level for their age | 32.0 (2.5) | 52.8 (2.0) | +20.8*** |

Source: NLTS and NLTS2 Wave 1 parent interviews.
Standard errors are in parentheses.
Statistically significant difference in a two-tailed test at the following levels: * p<.05, ** p<.01, *** p<.001.

Regarding the age of youth, the two cohorts included similar percentages of 15-, 16-, and 17-years-olds³ (Exhibit 2-3). However, they were assigned to a broader range of grade levels in school than this 3-year age span would suggest, and the distribution of grade levels was significantly different for the two cohorts.

Although the cohorts included three age years, students within them were at five or more grade levels that spanned both middle and high school, as well as being in programs that were not identified by grade level (referred to as ungraded programs). However, a significant shift upward in grade level occurred over time. For example, in 1987, 10% of this age group were in 11th grade, whereas in 2001, more than twice that many were juniors in high school (22%, p<.001). This point is illustrated further in examining a single year age group. Among 16-year-olds, for example, 52% were in 9th grade and 22% in 10th grade in 1987. By 2001, the numbers essentially reversed, with

28% being in 9th grade and 54% in 10th grade (p<.001 for changes in both grade levels).

This greater likelihood of students advancing to the next grade level resulted in a 21 point increase in the percentage of students who were at the typical grade level for their age (32% vs. 53%, p<.001). This increase could have important positive implications for other academic

³ Equality in the balance of ages for the two cohorts was created in the process of weighting the two samples to ensure maximum comparability. Please see the methodological appendix for more details.

outcomes; analyses of the original NLTS indicated that being older than the typical age for a student's grade level contributed significantly to the likelihood of students' dropping out of high school. The increase in students with disabilities being at grade level also is somewhat surprising, given that "the pendulum today is clearly swinging toward not allowing for any conditional promotion and mandating retention for all low-performing students" (Smink, 2001). Several states (e.g., Georgia, North Carolina, and Texas) and some large school districts (e.g., Chicago, Dallas, and Philadelphia) have explicit policies that mandate retention at grade level on the basis of poor scores on a single standardized test. However, despite the large decline over time, almost half of youth with disabilities (47%) still were at least 1 year older than the typical age for their grade level in 2001.

Disability Differences in Changes in Demographic Characteristics

The changes in the demographics of youth with disabilities that have been described thus far did not affect all youth similarly. Differences in levels of change were noted for youth who differed in primary disability, gender, and race/ethnicity.

Disability category differences. The fairly stable gender distribution that was noted for youth with disabilities as a whole also was evident for most disability categories (Exhibit 2-4). Only among youth with other health impairments was there a significant change, with the proportion of males in that category increasing from 54% in cohort 1 to 75% in cohort 2 ($p < .001$). This change resulted primarily from the considerable increase in the number of youth with autism and AD/HD, most of whom were included in the other health impairment category for comparison purposes. Youth with autism had the highest proportion of males of any disability category (85%; Levine, Wagner, & Marder, 2003).

Changes in the racial/ethnic distribution that were observed for youth with disabilities as a whole affected disability categories quite differently. Although the small declines in the proportion of youth who were white in six of the nine disability categories were not statistically significant, increases in the proportion of white youth of 13 and 20 percentage points ($p < .05$ and $.001$) were evident for the speech and other health impairment categories, respectively. The increase in white youth among those with other health impairments may relate to the rise in youth with AD/HD, 82% of whom were white (Levine et al., 2003). There were no significant differences in the percentage of youth with disabilities who were African American in seven disability categories; only among youth with speech impairments was there a significant difference—a decline of 11 percentage points ($p < .05$).

The significant increase in the Hispanic population for youth with disabilities as a whole resulted from 7 and 8 percentage point increases for youth with learning disabilities and visual impairments ($p < .05$ and $.01$). In contrast, a 17 percentage point decrease took place in the percentage of Hispanic youth with other health impairments ($p < .001$), consistent with the large increase in white youth in that group.

The significant increases in the percentage of youth who used a language other than English at home for six disability categories ranged from 6 to 22 percentage points. Although many of these increases were consistent with increases in the proportion of Hispanic youth, the largest increase was among youth with hearing impairments, which reflected a growth in the reported use of manual communication. A significant decrease in the percentage of youth who used a

Exhibit 2-4
CHANGES IN DEMOGRAPHIC CHARACTERISTICS, BY DISABILITY CATEGORY

| | Learning Disability | Speech/ Language Impairment | Mental Retardation | Emotional Disturbance | Hearing Impairment | Visual Impairment | Orthopedic Impairment | Other Health Impairment | Multiple Disabilities |
|--|---------------------|--------------------------------|--------------------|-----------------------|--------------------|-------------------|-----------------------|-------------------------|-----------------------|
| Percentage who were: | | | | | | | | | |
| Male | | | | | | | | | |
| Cohort 1 | 72.8 (2.9) | 56.9 (4.3) | 55.8 (3.5) | 76.6 (3.2) | 54.3 (3.6) | 59.7 (4.9) | 55.0 (4.5) | 53.6 (4.8) | 67.9 (6.0) |
| Cohort 2 | 68.3 (2.8) | 64.5 (3.2) | 57.9 (3.0) | 75.8 (2.6) | 50.5 (3.3) | 53.7 (4.3) | 56.1 (3.4) | 75.1 (2.2) | 58.2 (3.1) |
| Percentage point change | -4.5 | +7.6 | +2.1 | +8 | -3.8 | -6.0 | +1.1 | +21.5*** | -9.7 |
| White | | | | | | | | | |
| Cohort 1 | 67.0 (3.1) | 53.8 (4.4) | 60.2 (3.5) | 67.5 (3.7) | 61.0 (3.5) | 62.7 (4.9) | 62.6 (4.4) | 55.0 (4.8) | 63.0 (6.3) |
| Cohort 2 | 62.9 (2.9) | 66.5 (3.1) | 55.2 (3.0) | 61.5 (3.0) | 60.8 (3.2) | 60.9 (4.2) | 64.3 (3.2) | 74.9 (2.2) | 65.3 (3.0) |
| Percentage point change | -4.1 | +12.7* | -5.0 | -6.0 | -.2 | -1.8 | -1.7 | +19.9*** | +2.3 |
| African American | | | | | | | | | |
| Cohort 1 | 21.2 (2.7) | 27.4 (3.9) | 30.3 (3.3) | 24.8 (3.4) | 20.4 (2.9) | 26.1 (4.4) | 20.2 (3.6) | 17.2 (3.7) | 20.8 (5.3) |
| Cohort 2 | 18.4 (2.3) | 16.8 (2.5) | 32.6 (2.9) | 24.2 (2.6) | 17.7 (2.5) | 19.5 (3.4) | 14.9 (2.4) | 15.0 (1.8) | 18.3 (2.4) |
| Percentage point change | -2.8 | -10.6* | +2.3 | -.7 | -2.7 | -6.6 | -5.3 | -2.2 | -2.5 |
| Hispanic | | | | | | | | | |
| Cohort 1 | 8.7 (1.9) | 15.7 (3.2) | 6.3 (1.7) | 6.0 (1.9) | 14.4 (2.5) | 7.7 (2.7) | 15.5 (3.3) | 24.4 (4.2) | 10.8 (4.0) |
| Cohort 2 | 15.4 (2.2) | 14.3 (2.3) | 9.5 (1.8) | 10.5 (1.9) | 16.1 (2.4) | 15.4 (3.1) | 16.6 (2.5) | 7.2 (1.3) | 12.0 (2.0) |
| Percentage point change | +6.7* | +1.4 | +3.2 | +4.5 | +1.7 | +7.7** | +1.1 | -17.2*** | +1.2 |
| Percentage who did not use primarily English at home | | | | | | | | | |
| Cohort 1 | 1.3 (.8) | 7.6 (2.4) | 5.9 (1.7) | 1.5 (1.0) | 18.0 (2.8) | 5.6 (2.3) | 7.6 (2.5) | 10.3 (3.0) | 33.5 (6.1) |
| Cohort 2 | 15.4 (2.2) | 17.6 (2.6) | 11.1 (2.0) | 9.0 (1.8) | 41.4 (3.3) | 17.7 (3.3) | 14.9 (2.5) | 9.1 (1.5) | 15.6 (2.3) |
| Percentage point change | +14.1*** | +10.0** | +5.5* | +7.4*** | +22.4*** | +12.1** | +7.3 | -1.3 | -17.9** |

Exhibit 2-4
CHANGES IN DEMOGRAPHIC CHARACTERISTICS, BY DISABILITY CATEGORY (Concluded)

| | Learning Disability | Speech/ Language Impairment | Mental Retardation | Emotional Disturbance | Hearing Impairment | Visual Impairment | Orthopedic Impairment | Other Health Impairment | Multiple Disabilities |
|--|---------------------|--------------------------------|--------------------|-----------------------|--------------------|-------------------|-----------------------|-------------------------|-----------------------|
| Percentage who were at the typical grade level for their age | | | | | | | | | |
| Cohort 1 | 34.4 (3.8) | 37.0 (5.0) | 21.1 (3.9) | 29.5 (4.4) | 32.1 (4.0) | 34.1 (5.7) | 30.4 (4.7) | 33.1 (6.3) | 41.6 (10.7) |
| Cohort 2 | 56.3 (3.0) | 56.8 (3.3) | 36.6 (3.0) | 50.4 (3.1) | 53.2 (3.4) | 64.0 (4.4) | 50.5 (3.4) | 56.6 (2.6) | 43.9 (3.5) |
| Percentage point change | +21.9*** | +19.8*** | +15.5** | +20.9*** | +21.1*** | +29.9*** | +20.1*** | +23.5*** | +2.3 |

Source: NLTS and NLTS2 Wave 1 parent interviews.

Standard errors are in parentheses.

Statistically significant difference in a two-tailed test at the following levels: * p<.05, ** p<.01, *** p<.001.

language other than English at home was noted for youth with multiple disabilities (18 percentage points, $p < .01$).

The significant increase in the percentage of students with disabilities who were at grade level was evident for all categories of youth, except those with multiple disabilities, ranging from 16 to 30 percentage points. The largest increase was for youth with visual impairments ($p < .001$), bringing the proportion who were at grade level to 64% in 2001. The category of youth with the lowest initial rate of being at grade level—mental retardation—had the smallest significant increase, 16 percentage points ($p < .01$), so that in 2001, still only about one-third of youth with mental retardation were at the typical grade level for their age.

Demographic Differences in Changes in Demographic Characteristics

The stability in the proportion of youth who were white and African American was similar for both boys and girls. However, the increase in proportion of youth who were Hispanic was more pronounced among boys ($p < .05$, Exhibit 2-5). Significant changes in language use and in

| Exhibit 2-5 CHANGES IN DEMOGRAPHIC CHARACTERISTICS, BY GENDER | | |
|--|-----------------|-----------------|
| | Boys | Girls |
| Percentage of youth who were Hispanic | | |
| Cohort 1 | 7.8 (1.4) | 10.6 (2.3) |
| Cohort 2 | 14.1 (2.3) | 12.6 (2.5) |
| Percentage point change | +6.3* | +2.0 |
| Percentage who used a language other than English at home | | |
| Cohort 1 | 1.7 (1.0) | 3.6 (1.4) |
| Cohort 2 | 14.0 (1.7) | 14.5 (2.4) |
| Percentage point change | +12.3*** | +10.9*** |
| Percentage who were at the typical grade level for their age | | |
| Cohort 1 | 31.6 (3.1) | 32.7 (4.4) |
| Cohort 2 | 52.3 (2.4) | 53.8 (3.4) |
| Percentage point change | +20.7*** | +21.1*** |

Source: NLTS and NLTS2 Wave 1 parent interviews.
Standard errors are in parentheses.
Statistically significant difference in a two-tailed test at the following levels: * $p < .05$, *** $p < .001$.

being at grade level were of similar magnitude for the two genders. Similar to the pattern of gender difference, the increase in the Hispanic population was not uniform across the groups; only the lower-income group experienced a significant increase (9 percentage points, $p < .001$). Consistent with this, the increase in the use of a language other than English at home was largest for the lowest-income group (15 percentage points, $p < .001$ vs. 6 points for the highest income group, $p < .01$). In contrast, a larger increase in students being at grade level occurred among higher-income youth (26 percentage points, $p < .001$) than among lower-income students (15 percentage points, $p < .05$).

Regarding differences in change among youth of different racial/ethnic backgrounds, it was not surprising that the increase in youth who used a language other than English at home was more pronounced for Hispanic youth (37

percentage points, $p < .01$) than white or African American youth (2 and 3 percentage points, Exhibit 2-6).

Exhibit 2-6
CHANGES IN DEMOGRAPHIC CHARACTERISTICS, BY INCOME AND RACE/ETHNICITY

| | Income | | | Race/Ethnicity ⁴ | | |
|--|-----------------|-----------------|-----------------|-----------------------------|------------------|-----------------|
| | Lowest | Middle | Highest | White | African American | Hispanic |
| Percentage of youth who were Hispanic | | | | | | |
| Cohort 1 | 10.9 (2.8) | 8.8 (2.4) | 3.0 (1.3) | NA | NA | NA |
| Cohort 2 | 20.1 (2.7) | 10.7 (2.4) | 8.9 (2.1) | NA | NA | NA |
| Percentage point change | +9.2* | +1.9 | +5.9 | | | |
| Percentage who did not speak primarily English at home | | | | | | |
| Cohort 1 | 4.3 (1.8) | 3.4 (1.5) | 2.2 (1.1) | 1.7 (.7) | 1.7 (1.2) | 20.3 (6.5) |
| Cohort 2 | 19.2 (2.6) | 12.8 (2.5) | 9.1 (2.2) | 3.2 (.9) | 4.8 (1.9) | 57.3 (5.0) |
| Percentage point change | +14.9*** | +9.4** | +6.9** | +1.5 | +3.1 | +37.0*** |
| Percentage who were at the typical grade level for their age | | | | | | |
| Cohort 1 | 28.3 (5.2) | 31.2 (4.8) | 36.0 (4.2) | 67.5 (3.1) | 72.8 (5.4) | 66.1 (9.2) |
| Cohort 2 | 43.0 (3.3) | 54.2 (3.8) | 61.8 (3.7) | 45.5 (2.6) | 51.6 (4.4) | 47.9 (5.1) |
| Percentage point change | +14.7* | +23.0*** | +25.8*** | -22.0*** | -21.2** | -18.2 |
| Sample size (cohort 1/2): | | | | | | |

Source: NLTS and NLTS2 Wave 1 parent interviews.

Standard errors are in parentheses.

Statistically significant difference in a two-tailed test at the following levels: * p<.05, ** p<.01; ***p<.001.

NA=Not applicable

The increase in youth being at grade level was similar across racial/ethnic categories, although the change reached statistical significance only for the larger groups of white and African American youth.

Disability Profiles of Youth

This section highlights changes in key aspects of the disability profiles of youth, including the ages at which youth's disabilities first were identified and youth first received disability-related services, and the functional implications of disability in terms of youth's daily living skills.

Age at First Identification of and Service for Disability

The age at which children first are recognized as having a disability can indicate much about the nature of their disabilities and the experiences children and families have with those disabilities. Some disabilities, such as genetic disorders and some conditions that result from

³ There were too few cohort 1 Asian/Pacific Islander and American Indian/Alaska Native youth to identify them separately throughout this report.

premature birth, affect children throughout their lifetimes; they and their families never experience a time when disability is not an aspect of their relationship. Other disabilities emerge when children reach the ages of typical developmental milestones and exhibit delays in acquiring skills, such as delays 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 or illnesses that can occur at any age. Regardless of the age at which disabilities emerge, promptness in identifying and treating disabilities can be extremely important in ameliorating their effects on children's development and functioning. IDEA includes an early intervention program for infants and toddlers with disabilities that begins at birth and has outreach components for their families.

High-school-age youth with disabilities in 2001 first were identified as having a disability or delay significantly earlier than their peers in 1987 (Exhibit 2-7). The average age at first identification reported by parents dropped by about 8 months, from 6.6 years for cohort 1 to 5.9 years for cohort 2. Higher proportions of youth in cohort 2 first were identified as preschoolers (10% vs. 6%, $p < .05$). Disability-related services also began significantly earlier for cohort 2; the average age of first service was 7.4 years for cohort 2, compared with 8.5 years for cohort 1 ($p < .001$). These changes narrowed the average lag between identification and service from 1.9 to 1.5 years.

Youths' Daily Living Skills

Some kinds of disabilities can delay or circumvent the typical development of competencies in daily living tasks, such as feeding or dressing oneself or going to places outside the home. This section explores changes in parents' reports of the ability of high-school-age youth with disabilities to handle fundamental self-care needs and carry out common cognitive tasks.

Parents were asked to rate how well youth were able to feed and dress themselves without help and go places outside the home, such as to a neighbor's house or a nearby park. Parents also were asked to evaluate youth regarding four skills that often are used in daily activities: telling time on a clock with hands, reading and understanding common signs, counting change, and looking up telephone numbers and using the telephone. These activities are referred to as cognitive mental skills because they require the cognitive ability to read, count, and calculate. However, they also require sensory and physical skills to see signs, manipulate a telephone, etc.

**Exhibit 2-7
CHANGES IN AGE AT FIRST IDENTIFICATION OF AND
SERVICE FOR DISABILITY**

| | Cohort 1 | Cohort 2 | Percentage Point Change |
|--|---------------|---------------|-------------------------------|
| Percentage whose disability or delay first was identified at age: | | | |
| Birth to 2 | 16.5 (1.7) | 19.0 (1.6) | +2.5 |
| 3 or 4 | 5.5 (1.2) | 9.5 (1.2) | +4.0* |
| 5 or 6 | 27.0 (2.1) | 31.3 (1.9) | +4.3 |
| 7 to 10 | 37.2 (2.3) | 29.6 (1.9) | -7.6* |
| 11 or older | 13.7 (1.6) | 10.6 (1.3) | -3.1 |
| Average age when disability or delay first was identified | 6.6 (.2) | 5.9 (.2) | -7.7** |
| Percentage who began receiving service for a disability/delay at age: | | | |
| Birth to 2 | 4.3 (1.0) | 9.1 (1.2) | +4.8** |
| 3 or 4 | 5.6 (1.1) | 7.9 (1.1) | +2.3 |
| 5 or 6 | 18.3 (1.8) | 21.5 (1.6) | +3.2 |
| 7 to 10 | 44.4 (2.3) | 42.8 (2.0) | -1.6 |
| 11 or older | 27.3 (2.1) | 18.8 (1.6) | -8.5** |
| Average age when first began receiving service for a disability or delay | 8.5 (.1) | 7.4 (.1) | -1.1*** |

Source: NLTS and NLTS2 Wave 1 parent interviews.
Standard errors are in parentheses.
Statistically significant difference in a two-tailed test at the following levels: * p<.05, ** p<.01, *** p<.001.

A high score clearly indicates high functioning in all these areas; however, a low score may indicate deficits in one or more of the cognitive, sensory, or physical domains. Parents reported these self-care and cognitive mental skills on a four-point scale: “very well,” “pretty well,” “not too well,” “not at all well.” For both sets of skills, a scale was created by summing the values of the component items.

A small but consistent downward trend in scale scores was evident for both self-care skills and cognitive mental skills (Exhibit 2-8), resulting primarily from smaller percentages of youth scoring “high” and larger proportions scoring “medium” on the scales. The average scores on the scales declined by less than one-half point, but the changes were enough to attain statistical significance.

These changes in average skills may reflect real differences in youth’ abilities between the two cohorts. If the trend toward earlier identification of disability that was reported above reflects a greater proportion of youth with more severe disabilities in cohort 2 relative to

cohort 1, that greater severity of disability also might be reflected in somewhat lower skill attainment. Alternatively, the differences between groups may suggest a change in emphasis on the kinds of skills youth are being taught. For example, one of the skills in the cognitive mental skill scale is telling time on an analog clock. With digital technology now ubiquitous, youth who have trouble with number concepts may no longer need to struggle to learn how to tell time on a clock with hands, relying instead on digital timepieces. Thus, they might score lower on the scale but have no real limitation in the task of telling time.

**Exhibit 2-8
CHANGES IN THE DAILY LIVING SKILLS OF
YOUTH WITH DISABILITIES**

| | Cohort 1 | Cohort 2 | Change |
|--|---------------|---------------|----------------|
| Percentage whose self-care skills scale ^a score (range = 3 to 12) was: | | | |
| High (11 or 12) | 92.9 (1.1) | 89.7 (1.2) | -3.2 |
| Medium (8 to 10) | 4.7 (1.0) | 8.1 (1.1) | +3.4* |
| Low (3 to 7) | 2.4 (.7) | 2.2 (.6) | -.2 |
| Average self-care skills scale score | 11.7 (.0) | 11.5 (.0) | -.2** |
| Percentage whose cognitive mental skills scale ^b score (range = 4 to 16) was: | | | |
| High (15 or 16) | 58.3 (2.2) | 50.0 (2.0) | -8.3** |
| Medium (9 to 14) | 35.8 (2.2) | 44.4 (2.0) | +8.6*** |
| Low (4 to 8) | 5.8 (1.1) | 5.6 (.9) | -.2 |
| Average cognitive mental skills scale score | 14.0 (.1) | 13.7 (.1) | -.3* |

^a Scale includes how well youth could dress and feed themselves independently and get around to nearby places outside the house.

^b Scale includes how well youth were able to tell time on a clock with hands, read and understand common signs, count change, and look up telephone numbers and use the telephone.

Source: NLTS and NLTS2 Wave 1 parent interviews.

Standard errors are in parentheses.

Statistically significant difference in a two-tailed test at the following levels: * p<.05, ** p<.01, *** p<.001.

Differences Between Groups in Changes in Disability Profiles

Disability category differences. The decline in the average age at first identification of a disability⁵ that was noted for youth with disabilities as a whole resulted from significant reductions in age for youth in five disability categories—learning disabilities, mental retardation, emotional disturbance, and orthopedic and other health impairments—ranging from 8 to 18 months (p<.05 to .001, Exhibit 2-9). A significant drop in age at first service was evident for youth in all categories except hearing impairment. Significant declines averaged 1 to 2 years.

In general, little change in age at first identification and first service was evident for categories for which the ages already were among the lowest of the disability categories. For example,

there was essentially no change in the average age of identification for youth with hearing or visual impairments or multiple disabilities, for whom the average age already was age 2 or younger. Unlike most categories of youth whose disabilities first were identified at school age, there was no decline in the average age at identification for youth with speech impairments.

⁵ The specific disability that first was diagnosed is not known and may have been different from the primary disability for which youth were classified for special education services in secondary school.

Exhibit 2-9
CHANGES IN DISABILITY PROFILES 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 | Multiple Disabilities |
|--|---------------------|--------------------------------|--------------------|-----------------------|--------------------|-------------------|-----------------------|-------------------------|-----------------------|
| Average age when disability was identified | | | | | | | | | |
| Cohort 1 | 7.3 (.2) | 5.9 (.3) | 4.8 (.2) | 7.4 (.3) | 2.2 (.2) | 1.8 (.3) | 3.2 (.4) | 6.1 (.5) | 2.1 (.4) |
| Cohort 2 | 6.5 (.2) | 5.8 (.2) | 4.1 (.2) | 6.5 (.2) | 2.5 (.2) | 1.8 (.3) | 1.7 (.2) | 4.8 (.2) | 2.3 (.2) |
| Change in average age | -0.8** | -0.1 | -0.7* | -0.9* | +0.3 | .0 | -1.5*** | -1.3** | +0.2 |
| Average age when first received service for a disability | | | | | | | | | |
| Cohort 1 | 9.0 (.2) | 8.4 (.3) | 6.8 (.2) | 9.5 (.2) | 4.6 (.2) | 5.3 (.3) | 4.9 (.4) | 8.5 (.4) | 4.6 (.5) |
| Cohort 2 | 8.0 (.2) | 7.4 (.2) | 5.7 (.2) | 8.5 (.2) | 4.1 (.2) | 3.5 (.3) | 2.9 (.3) | 6.7 (.2) | 3.4 (.2) |
| Change in average age | -1.0*** | -1.0** | -1.1*** | -1.0*** | -0.5 | -1.8** | -2.0*** | -1.8*** | -1.2* |
| Average self-care skills score | | | | | | | | | |
| Cohort 1 | 11.9 (.0) | 11.8 (.1) | 11.0 (.2) | 11.9 (.1) | 11.8 (.0) | 10.9 (.2) | 9.9 (.2) | 11.1 (.1) | 8.5 (.5) |
| Cohort 2 | 11.7 (.0) | 11.7 (.1) | 10.7 (.1) | 11.7 (.0) | 11.6 (.1) | 10.3 (.2) | 9.5 (.2) | 11.3 (.1) | 9.0 (.2) |
| Change in scale score | -0.2* | -0.1 | -0.3 | -0.2* | -0.2* | -0.6* | -0.4 | +0.2 | +0.5 |
| Average cognitive mental skills scale score | | | | | | | | | |
| Cohort 1 | 14.6 (.1) | 14.5 (.2) | 12.0 (.2) | 14.3 (.1) | 14.2 (.1) | 12.6 (.3) | 13.5 (.2) | 13.7 (.2) | 8.3 (.5) |
| Cohort 2 | 14.1 (.1) | 14.4 (.1) | 11.3 (.2) | 14.5 (.1) | 14.2 (.2) | 11.7 (.3) | 12.5 (.3) | 13.7 (.1) | 9.8 (.3) |
| Change in scale score | -0.5*** | -0.1 | -0.7 | +0.2 | .0 | -0.9* | -1.0* | .0 | +1.5*** |

Source: NLTS and NLTS2 Wave 1 parent interviews.

Standard errors are in parentheses.

Statistically significant difference in a two-tailed test at the following levels: * p<.05, ** p<.01, *** p<.001.

The small, but statistically significant reductions in average scores for youth overall on scales measuring self-care and cognitive mental skills resulted from declines in scores in only some disability categories. For example, small but significant declines in self-care scale scores were noted for four categories (learning disability, emotional disturbance, hearing impairment, and visual impairment, $p < .05$). Similarly, the overall decline in the cognitive mental skills scale resulted from small but significant declines in three categories (youth with learning disabilities, $p < .001$; and hearing impairments and visual impairments, $p < .05$).

Demographic differences. The small changes in average self-care and cognitive mental skills scales did not vary significantly across genders. However, there were differences between boys and girls in their experience of changes in the age at first identification of and service for disability (Exhibit 2-10). The reduction in the age at first identification of disability was more than twice as large for boys as girls (almost 11 months, $p < .01$, vs. almost 5 months), although reductions in the age at first service for disability were more similar (13 and 11 months, $p < .001$ and $.05$).

Exhibit 2-10
CHANGES IN AGE AT DISABILITY IDENTIFICATION
AND FIRST SERVICE, BY GENDER

| | Boys | Girls |
|---|----------------|-------------|
| Average age at disability identification | | |
| Cohort 1 | 6.7 (.2) | 6.4 (.3) |
| Cohort 2 | 5.8 (.2) | 6.0 (.3) |
| Percentage change in years | -.9** | -.4 |
| Average age at first service for disability | | |
| Cohort 1 | 8.5 (.2) | 8.4 (.3) |
| Cohort 2 | 7.4 (.2) | 7.5 (.2) |
| Percentage change in years | -1.1*** | -.9* |

Source: NLTS and NLTS2 Wave 1 parent interviews.
Standard errors are in parentheses.
Statistically significant difference in a two-tailed test at the following levels: * $p < .05$; ** $p < .01$; *** $p < .001$.

No meaningful decreases took place in the age of disability identification across income levels (Exhibit 2-11). However, the decline in the age when youth first received services for their disability was larger among higher income youth (1.3 years, $p < .01$) than among middle and lower income youth (about 7 and 10 months, not significant differences).

Reductions in age of first identification were between 10 and 12 months across racial/ethnic groups, with only the difference for the larger white group being statistically significant ($p < .01$). Reductions were from 6 months to 13 months for age at first service, but only the reductions for white and African American youth were significant ($p < .001$ and $.01$).

Exhibit 2-11
CHANGES IN AGE AT DISABILITY IDENTIFICATION AND FIRST SERVICE,
BY DEMOGRAPHIC CHARACTERISTICS

| | Income | | | Race/Ethnicity | | |
|---|-------------|-------------|---------------|----------------|------------------|-------------|
| | Lowest | Middle | Highest | White | African American | Hispanic |
| Average age at disability identification | | | | | | |
| Cohort 1 | 6.9 (.4) | 6.3 (.3) | 6.2 (.3) | 6.3 (.2) | 7.4 (.4) | 6.3 (.6) |
| Cohort 2 | 6.2 (.3) | 5.9 (.2) | 5.5 (.3) | 5.5 (.2) | 6.6 (.4) | 6.3 (.4) |
| Percentage change in years | -7 | -4 | -7 | -8** | -8 | -1.0 |
| Average age at first service for disability | | | | | | |
| Cohort 1 | 8.7 (.3) | 8.2 (.3) | 8.2 (.3) | 8.2 (.2) | 9.2 (.3) | 8.4 (.5) |
| Cohort 2 | 7.9 (.3) | 7.6 (.3) | 6.9 (.3) | 7.1 (.2) | 8.1 (.3) | 7.9 (.4) |
| Percentage change in years | -8 | -6 | -1.3** | -1.1*** | -1.1** | -5 |

Source: NLTS and NLTS2 Wave 1 parent interviews.

Standard errors are in parentheses.

Statistically significant difference in a two-tailed test at the following levels: ** p<.01; ***p<.001.

Summary

The composition of 15- through 17-year-old youth with disabilities has changed markedly in some ways since 1987.

Of particular note is the distribution of youth across disability categories. This age group had significantly fewer youth classified with mental retardation as their primary disability in 2001 than in 1987. At the same time, 15- to 17-year-old youth had grown significantly in the proportion classified as having other health impairments. Some of the growth in the other health impairment category resulted from large increases in the numbers of youth diagnosed with autism or AD/HD. The change in the mix of disabilities within the other health impairment category was accompanied by significant increases in the proportion of boys in that category and in the proportion of white youth.

The racial/ethnic distribution of youth with disabilities became increasingly diverse over time, with a significant increase in the percentage of Hispanic youth and those who did not speak primarily English at home. This increase in language diversity was particularly marked among Hispanic and Asian/Pacific Islander youth. In 2001, more than three-fourths of Asian/Pacific Islander and more than half of Hispanic youth with disabilities were not native English speakers.

Among the characteristics of youth examined in this report, the largest change was in the grade level distribution of youth. Youth with disabilities were much more likely to be at higher grade levels in 2001 than their age-mates in 1987. In fact, the proportion of youth who were at the typical grade level for their age increased from one-third of youth to more than one-half over

that period. It is unclear how such factors as the educational programs they experienced, their academic performance, or policies related to social promotion contributed to the trend toward youth with disabilities being at the typical grade level for their age.

Other important changes had to do with identifying and first serving youth for their disabilities. Youth were both identified and first served at significantly earlier ages in 2001 than in 1987, with declines in these ages averaging 8 and 13 months, respectively. Declines of at least a full year in age at first service for a disability were evident for almost all categories of youth, which narrowed the gap between identification and service for most of them. Despite earlier identification and service, small, but significant declines were reported by parents in the daily living skills of youth.