5. THE FUNCTIONAL ABILITIES OF YOUTH

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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.

[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).

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

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.

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.

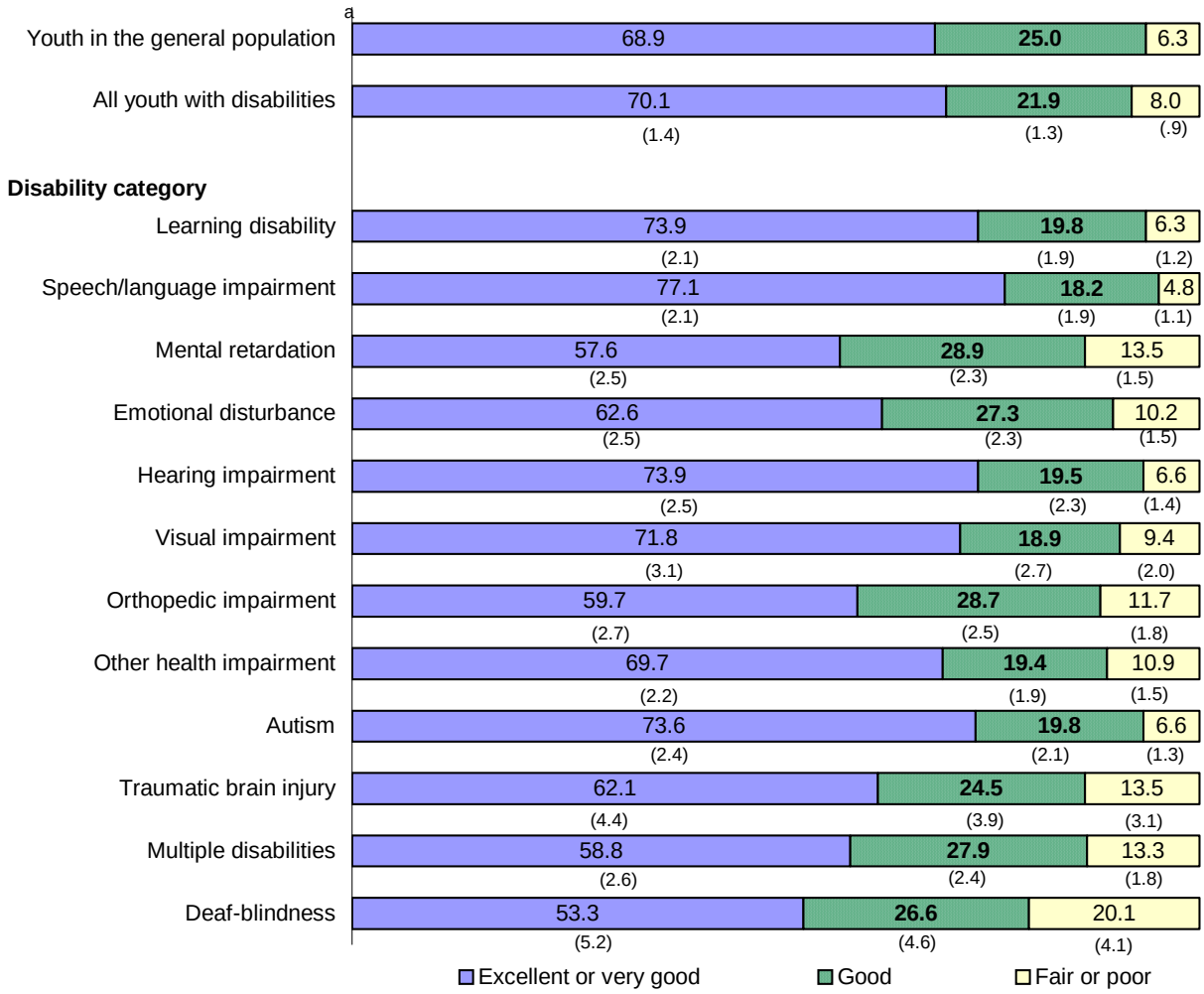
To assess the general health of youth with disabilities, parents were asked to rate their child's health as "excellent," "very good," "good," "fair," or "poor." According to parents' reports, nearly 70% of students with disabilities have excellent health (Exhibit 5-2), 25% have good health, and about 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.

[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 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 taking:												
Disability-related prescription medication	18.1 (1.9)	13.1 (1.7)	26.6 (2.3)	45.6 (2.6)	16.6 (2.1)	27.5 (3.1)	46.2 (2.8)	54.7 (2.4)	50.4 (2.7)	42.5 (4.5)	49.4 (2.7)	46.1 (5.2)
Prescription medication to affect behavior, mood, or emotions	12.7 (1.7)	9.7 (1.5)	18.7 (2.0)	41.7 (2.6)	10.1 (1.7)	12.8 (2.3)	16.2 (2.1)	43.8 (2.4)	42.9 (2.7)	23.3 (3.8)	25.2 (2.3)	12.7 (4.1)
Stimulants	9.2 (1.5)	6.3 (1.2)	11.7 (1.7)	28.8 (2.6)	5.7 (1.4)	4.3 (1.5)	10.8 (1.8)	37.6 (2.4)	22.0 (2.6)	12.4 (3.2)	15.2 (2.1)	7.5 (2.9)
Antidepressants, anti-anxiety medication	4.7 (1.1)	4.8 (1.1)	8.0 (1.5)	28.9 (2.6)	5.3 (1.3)	7.0 (1.8)	6.9 (1.5)	21.1 (2.3)	31.6 (2.6)	14.6 (3.4)	13.6 (1.9)	11.7 (3.5)
Mood stabilizers	1.5 (.6)	.7 (.4)	3.3 (1.0)	12.5 (2.0)	1.2 (.7)	1.7 (.9)	3.3 (1.0)	7.3 (1.6)	8.7 (1.9)	4.3 (2.1)	5.7 (1.4)	7.6 (2.9)
Antipsychotic medication	.4 (.3)	1.3 (.6)	3.5 (1.0)	11.5 (2.0)	.9 (.6)	1.5 (.9)	1.4 (.7)	4.9 (1.3)	21.1 (2.5)	3.9 (2.0)	8.0 (1.6)	4.6 (.3)
Seizure medication	.4 (.3)	.2 (.2)	3.4 (1.0)	7.7 (1.7)	.9 (.6)	1.4 (.9)	1.6 (.7)	4.2 (1.2)	8.1 (1.8)	5.5 (2.3)	4.9 (1.3)	4.2 (2.2)
Percentage using medical equipment or devices related to their disability	2.0 (.7)	1.3 (.6)	2.2 (.7)	2.1 (.7)	2.4 (.9)	2.9 (1.2)	13.8 (1.9)	3.7 (.9)	2.7 (.9)	2.0 (1.3)	7.6 (1.4)	7.4 (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 (2.4)	20.9 (2.3)	17.5 (2.2)	7.9 (1.6)	2.8 (1.0)	2.3 (.9)
15	26.4 (3.0)	20.0 (2.7)	13.0 (2.4)	9.2 (2.1)	3.9 (1.5)	2.0 (1.1)
16	23.6 (2.6)	15.7 (2.2)	9.4 (1.9)	8.6 (1.8)	2.8 (1.1)	2.3 (1.0)
17	23.7 (3.3)	16.9 (2.9)	9.5 (2.4)	9.6 (2.4)	2.7 (1.4)	2.7 (1.3)
Gender						
Boys	25.3 (1.7)	20.0 (1.6)	15.0 (1.5)	8.7 (1.2)	3.4 (.8)	2.6 (.7)
Girls	24.6 (2.4)	15.5 (2.0)	8.3 (1.6)	8.7 (1.6)	2.4 (.9)	1.8 (.8)
Household income						
$25,000 or less	26.1 (2.3)	18.4 (2.1)	11.1 (1.7)	9.0 (1.6)	3.5 (1.1)	2.0 (.8)
$25,001 to $50,000	22.1 (2.6)	16.2 (2.3)	12.3 (2.1)	7.1 (1.7)	2.4 (1.0)	2.5 (1.0)
More than $50,000	26.8 (2.7)	20.9 (2.5)	15.4 (2.3)	9.8 (1.9)	3.2 (1.2)	2.6 (1.1)
Race/ethnicity						
White	27.4 (1.8)	22.1 (1.7)	15.3 (1.5)	11.6 (1.4)	3.2 (.8)	2.7 (.7)
African American	21.2 (2.9)	12.8 (2.4)	9.4 (2.1)	4.3 (1.5)	2.9 (1.3)	1.6 (.9)
Hispanic	21.0 (3.7)	11.0 (2.8)	6.9 (2.4)	3.1 (1.6)	2.4 (1.5)	1.4 (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

[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 (1.2)	5.6 (1.1)	1.2 (.5)
Speech/language impairment	94.3 (1.1)	4.4 (1.0)	1.3 (.6)
Mental retardation	81.5 (2.0)	11.4 (1.6)	7.1 (1.3)
Emotional disturbance	91.7 (1.4)	6.7 (1.3)	1.6 (.6)
Hearing impairment	93.7 (1.4)	3.9 (1.1)	2.4 (.9)
Visual impairment	78.4 (2.9)	10.0 (2.1)	11.6 (2.2)
Orthopedic impairment	21.1 (2.3)	21.5 (2.3)	57.4 (2.7)
Other health impairment	84.7 (1.7)	8.9 (1.4)	6.4 (1.2)
Autism	70.1 (2.5)	20.3 (2.2)	9.6 (1.6)
Traumatic brain injury	64.0 (4.3)	15.8 (3.3)	20.2 (3.6)
Multiple disabilities	47.3 (2.7)	16.3 (2.0)	36.3 (2.6)
Deaf-blindness	59.3 (5.1)	14.3 (3.6)	26.4 (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

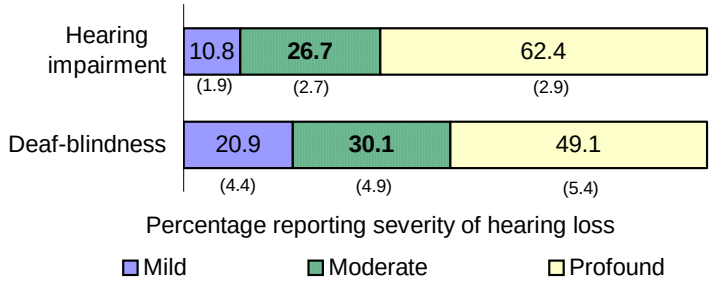
According to parent reports, approximately 90% of youth with disabilities hear normally, and 9% have some type of hearing impairment (Exhibit 5-11). Logically, reported hearing impairments are concentrated among youth whose primary disability classification is hearing impairment or deaf-blindness. However, 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.

[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.

[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 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
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.