

# Screening and Risk for Developmental Delay

Indicators of Child  
and Youth Well-Being



Children are three times as likely to be at high risk for developmental delay if they have no parent with a high school diploma, compared with children with parents who have education beyond a high school diploma. This gap increased between 2003 and 2011/12.

## Importance

Developmental screening of young children is an efficient, cost-effective way to identify potential health or behavioral problems. Research has found that children who get screening are more likely to be identified with developmental delays, referred for early intervention, and be determined eligible for early intervention services.<sup>1</sup> Screenings—which may use direct measures administered by pediatricians, or parent questionnaires—can help identify children who are not meeting expected milestones of development. The American Academy of Pediatrics recommends that children, before their third birthday, receive developmental screening from their physicians at least three times.<sup>2</sup>

Developmental delays among young children can signal the presence of serious physical or psycho-social problems. Because development during infancy and toddlerhood is rapid and cumulative, the success of early intervention depends on early identification. Delayed development (sometimes termed “failure to thrive”) can also indicate the presence of serious neglect or maltreatment.

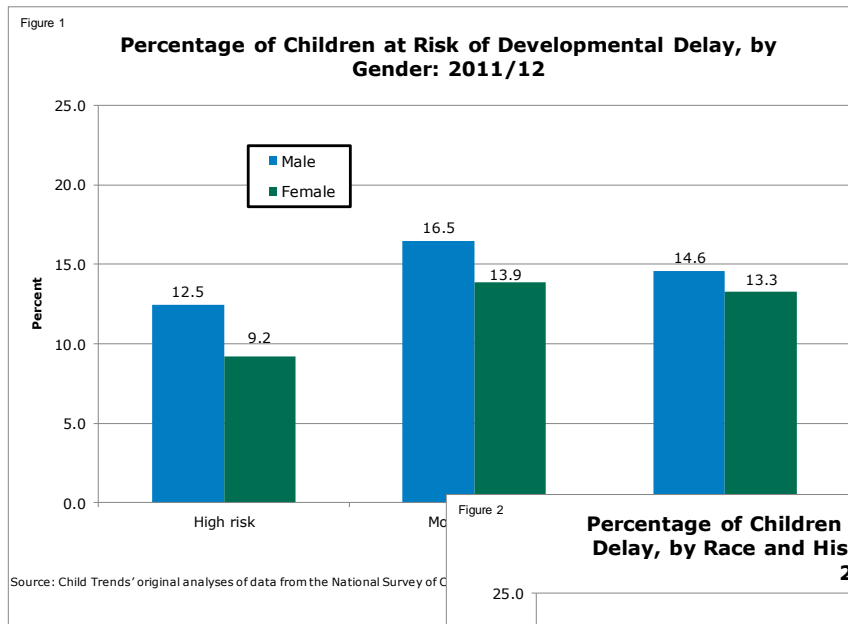
In primary health care settings, the most effective screening tools rely on parent-reported information. Research indicates that when parents express one or more concerns, their child’s risk for disabilities is eight times as great as for those whose parents have no concerns; when parents express two or more concerns, the risk is twenty times as high.<sup>3</sup>

## Trends

The rate of developmental screening increased by ten percentage points between 2007 and 2011/12, from 19 to 29 percent. (Appendix 1) In 2011/12, 11 percent of children ages four months to five years had a high risk for developmental delays; 15 percent had moderate risk, and 14 percent had low risk for delays. Between 2003 (the first time these data were collected) and 2011/12, there were no significant overall changes in the percentages for these categories. (Appendix 2)

## Differences by Gender

Girls and boys are equally likely to receive developmental screenings. (Appendix 1) However, boys are more likely to be at risk for developmental delays than girls are. In 2011/12, 13 percent of boys and nine percent of girls had a high risk for delays, while 17 percent of boys and 14 percent of girls had moderate risk. There was no significant gender difference in the proportion that was at low risk. (Figure 1)

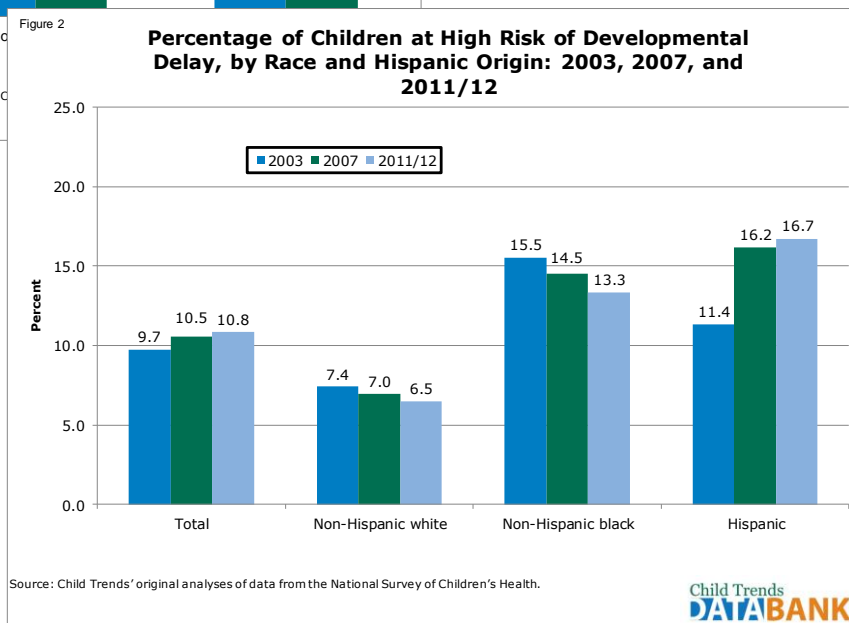


differences by race or Hispanic origin. (Appendix 1)

Among the tabulated categories of race and ethnicity, Hispanic children are the most likely to have a high risk for developmental delays, followed by black children, with white children the least likely to have a high risk. In

## Differences by Race and Hispanic Origin<sup>4</sup>

In 2007, black children were more likely than white or Hispanic children to be screened for developmental delays (24 percent, compared with 19 and 18 percent, respectively). However, in 2011/12 there were no

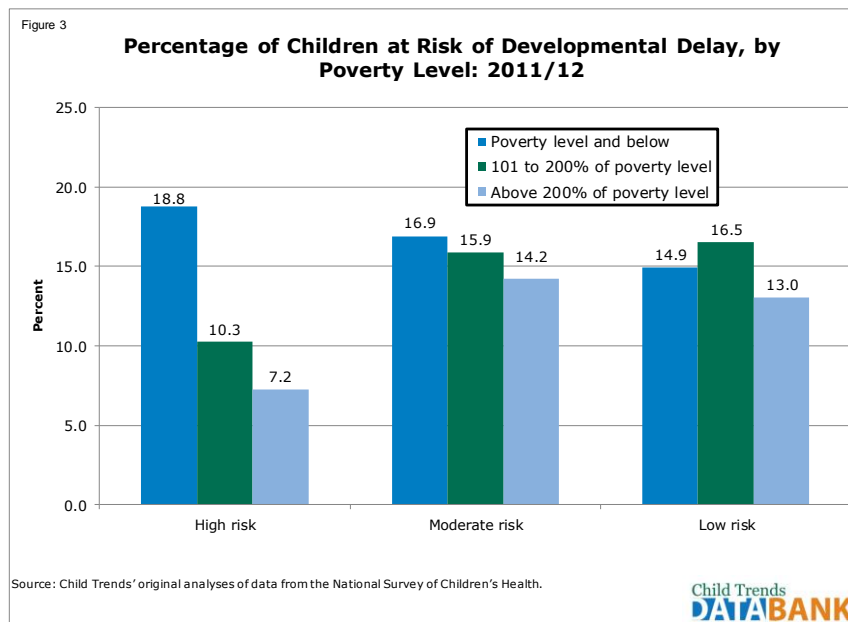




2011/12, Hispanic and black children were more than twice as likely as white children to have a high risk for delays (17 and 13 percent, respectively, compared with seven percent of white children). Since 2003, the proportion of black children with high risk has decreased (from 16 to 13 percent), the proportion of Hispanic children with high risk has increased (11 to 17 percent), and the proportion of white children with high risk has stayed constant. (Figure 2) There are no significant differences by race/Hispanic origin in the percent of children with moderate or low risk for delays. (Appendix 2)

### Differences by Poverty Level

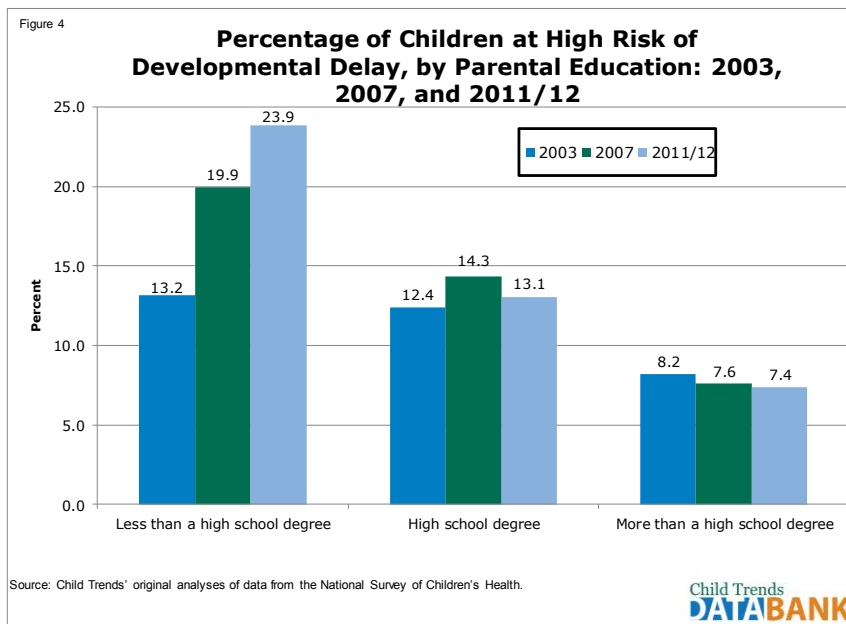
Regardless of family income, children are equally likely to be screened for developmental delays. (Appendix 1) However, children living at or below the poverty line are more than twice as likely to be at high risk for developmental delays as their peers living at more than twice the poverty line (19 and seven percent, respectively). Those living in families with incomes above but less than twice the poverty line fall in between, with 10 percent having a high risk for delays. Poor children are also more likely than children living at more than twice the poverty line to have a moderate risk for delays. However, this difference is smaller (17 and 14 percent, respectively). (Figure 3) The proportion of poor children who are at high risk has increased since 2003 (from 14 to 19 percent), but the proportion of children living at more than twice the poverty line who were at high risk has remained the same. (Appendix 2)





## Differences by Parental Education

There are no significant differences in rates of screening by parental education. However, children whose parents lack a high school diploma are nearly twice as likely to be at high risk for delays as children with a parent with a diploma, and three times as likely to be at high risk as children with parents with education beyond high school (24, 13, and seven percent, respectively, in 2011/12). This gap increased between 2003 and 2011/12, with the likelihood of high risk nearly doubling among children of parents with less than a high school diploma (from 13 to 24 percent). (Figure 4) There are no significant differences by parental education in the prevalence of children with a moderate risk for delay, although children with a parent who has a high school diploma only are more likely to be at low risk of delay than children whose parents have either more or less education (16 percent, compared with 13 percent, each). (Appendix 2)





## State and Local Estimates

2007 and 2011/12 state estimates for developmental screening are available from the National Survey of Children's Health at the [Data Resource Center for Child & Adolescent Health](#).

2003, 2007, and 2011/12 state estimates for developmental risk are also available from the National Survey of Children's Health at the [Data Resource Center for Child & Adolescent Health](#).

## International Estimates

None available.

## National Goals

The federal government, through its Healthy People 2020 initiative, has set a goal to increase the proportion of young children with developmental delays who are screened, evaluated, and enrolled in early intervention services as soon as possible. There is also a goal to increase the proportion of parents who have a concern about their children's learning, development, or behavior who receive information from a health care professional.

More information is available at:

<http://www.healthypeople.gov/2020/topicsobjectives2020/objectiveslist.aspx?topicId=26>  
(Goal MICH-29)

<http://www.healthypeople.gov/2020/topicsobjectives2020/objectiveslist.aspx?topicId=10>  
(Goal EMC-2.4)

## What Works to Make Progress on This Indicator

See Child Trends' LINKS database ("Lifecourse Interventions to Nurture Kids Successfully") for reviews of many rigorously evaluated programs, including the following which have been shown to be effective:

- Home Start: <http://www.childtrends.org/?programs=home-start> (for detecting developmental delays)
- Nurse-Family Partnership: <http://www.childtrends.org/?programs=nurse-family-partnership>
- Project CARE: <http://www.childtrends.org/?programs=project-care>

## Related Indicators

- Autism Spectrum Disorders: [www.childtrends.org/?indicators=autism-spectrum-disorders](http://www.childtrends.org/?indicators=autism-spectrum-disorders)
- Children with Limitations: [www.childtrends.org/?indicators=children-with-limitations](http://www.childtrends.org/?indicators=children-with-limitations)



- Children with Special Health Care Needs: [www.childtrends.org/?indicators=children-with-special-health-care-needs](http://www.childtrends.org/?indicators=children-with-special-health-care-needs)
- Early School Readiness: [www.childtrends.org/?indicators=early-school-readiness](http://www.childtrends.org/?indicators=early-school-readiness)
- Individualized Education Plans: [www.childtrends.org/?indicators=individualized-education-plans](http://www.childtrends.org/?indicators=individualized-education-plans)
- Well-child Visits: [www.childtrends.org/?indicators=well-child-visits](http://www.childtrends.org/?indicators=well-child-visits)

## Definition

Children were classified as having been screened for developmental delay if their parents indicated that a doctor or health care provider had had them complete a questionnaire about specific concerns the parent had about the child's development, communication, or social behaviors. Additionally, the questionnaire had to address speech and social interaction behaviors.

Parents, whether or not they had been screened, were also asked about their concerns. If parents answered that they had "a lot" or "a little" concern regarding two or more developmental areas that are considered predictive of delay at a given age, then the child was classified as being at high risk for delay. If the parent had one concern that is considered predictive, then the child was classified as having a moderate risk for delay. If the parent had any concerns, but these were not considered predictive, the child was classified as having a low risk for delay. More information is available at the Data Resource Center for Child and Adolescent Health, at [www.childhealthdata.org/docs/nsch-docs/peds\\_scoring\\_4website-pdf](http://www.childhealthdata.org/docs/nsch-docs/peds_scoring_4website-pdf). Risk was evaluated for children ages four months through five years, except in 2003, when the evaluation was for children ages 10 months through five years.



## Data Source

Child Trends' original analyses of data from the 2003, 2007, and 2011/12 National Survey of Children's Health.

## Raw Data Source

National Survey of Children's Health.

<http://www.childhealthdata.org>



## Appendix 1 - Percentage of Children, Ages 10 Months through 5 Years, Who Received a Developmental Screener: 2007 and 2011/12

	2007	2011/12
<b>Total</b>	<b>19.1</b>	<b>29.3</b>
Gender		
Male	19.4	29.9
Female	18.9	28.7
Race/Hispanic Origin		
Non-Hispanic white	18.5	29.1
Non-Hispanic black	23.6	29.4
Hispanic	18.4	29.7
Other	20.0	29.7
Poverty level		
Poverty level and below	20.8	29.2
101 to 200% of poverty level	21.8	30.0
Above 200% of poverty level	18.3	29.8
Parental Education		
Less than a high school degree	19.9	27.6
High school degree	21.3	29.8
More than a high school degree	18.4	29.6

Source: Child Trends' original analyses of data from the National Surveys of Children's Health.



## Appendix 2 - Percentage of Children at Risk for Developmental Delay, by Risk Level<sup>1</sup>: 2003, 2007, and 2011/12

	High Risk for Delay			Moderate Risk for Delay			High or Moderate Risk			Low Risk for Delay		
	2003	2007	2011/12	2003	2007	2011/12	2003	2007	2011/12	2003	2007	2011/12
<b>Total</b>	<b>9.7</b>	<b>10.5</b>	<b>10.8</b>	<b>15.7</b>	<b>15.6</b>	<b>15.2</b>	<b>25.4</b>	<b>26.1</b>	<b>26.1</b>	<b>14.4</b>	<b>13.9</b>	<b>13.9</b>
Gender												
Male	11.9	12.0	12.5	17.5	17.1	16.5	29.3	29.1	29.0	14.6	14.9	14.6
Female	7.5	9.0	9.2	13.8	14.1	13.9	21.3	23.1	23.1	14.2	12.8	13.3
Race/Hispanic origin												
Non-Hispanic white	7.4	7.0	6.5	15.5	14.3	14.8	22.9	21.3	21.3	14.1	13.5	13.5
Non-Hispanic black	15.5	14.5	13.3	19.2	17.1	16.4	34.7	31.6	29.7	13.8	13.5	15.1
Hispanic	11.4	16.2	16.7	13.8	18.2	15.4	25.1	34.4	32.1	14.3	13.9	14.6
Other	12.6	12.2	13.2	16.5	14.0	16.1	29.1	26.2	29.3	17.2	17.3	13.4
Poverty level <sup>2</sup>												
Poverty level and below	14.2	15.2	18.8	17.0	17.5	16.9	31.2	32.7	35.7	15.5	14.2	14.9
101 to 200% of poverty level	11.5	13.3	10.3	16.6	15.9	15.9	28.1	29.3	26.2	14.4	14.6	16.5
Above 200% of the poverty level	7.3	7.1	7.2	15.2	14.6	14.2	22.5	21.7	21.5	14.0	14.0	13.0



	High Risk for Delay			Moderate Risk for Delay			High or Moderate Risk			Low Risk for Delay		
	2003	2007	2011/12	2003	2007	2011/12	2003	2007	2011/12	2003	2007	2011/12
<b>Parental education</b>												
Less than a high school degree	13.2	19.9	23.9	14.7	19.8	14.9	27.8	39.7	38.8	15.2	13.8	12.5
High school degree	12.4	14.3	13.1	15.9	15.0	15.9	28.3	29.3	29.0	15.5	15.7	16.4
More than a high school degree	8.2	7.6	7.4	15.8	15.3	15.1	24.0	22.9	22.5	13.8	13.4	13.4

<sup>1</sup> Children whose parents expressed concerns in two or more developmental areas considered predictive of risk for that age were classified as high risk; those with one predictive concern were classified as moderate risk; and those with one or more concerns not predictive of risk were classified as low risk. Risk was evaluated for children ages four months through five years, except in 2003, when the evaluation was for children ages 10 months through five years.

<sup>2</sup> In 2003, income categories were the following: below poverty, 100 to 199% of poverty level, and 200% of poverty and above.

Source: Child Trends' original analyses of data from the National Survey of Children's Health.



## Endnotes

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<sup>1</sup> Guevara, J. P., Gerdes, M., Localio, R., Huang, Y. V., Pinto-Martin, J., Minkovitz, C. S., Hsu, D., Kyriakou, L., Baglivo, S., Kavanagh, J., & Pati, S. (2012). Effectiveness of developmental screening in an urban setting. *Pediatrics*, Published online December 17, 2012.

<sup>2</sup> American Academy of Pediatrics, Council on Children With Disabilities, Section on Developmental Behavioral Pediatrics, Bright Futures Steering Committee and Medical Home Initiatives for Children With Special Needs Project Advisory Committee. (2006). Identifying infants and young children with developmental disorders in the medical home: An algorithm for developmental surveillance and screening. *Pediatrics*, *118*(1), 405-420.

<sup>3</sup> Glascoe, F. P. (2000). Early detection of developmental and behavioral problems. *Pediatrics in Review*, *21*(8), 272-280.

<sup>4</sup> Hispanics may be any race. Estimates for whites and blacks do not include Hispanics.