

Healthy and Ready to Learn: A New National Outcome Measure of Kindergarten Readiness

Introduction

The skills that children gain before kindergarten entry can greatly affect their ability to succeed in school and later in life. Consequently, communities have a vested interest in providing resources to support young children, setting them on a path toward success in school and life. A robust and reliable way to measure—at the national, state, or local level—whether children are on track to enter kindergarten can serve multiple purposes, including the following:

- Describe children’s readiness for school in the years leading up to kindergarten entry.
- Identify subgroups of children who are less likely to be on track for school readiness in order to inform program and policy decisions.
- Form the basis for tracking trends over time to assess progress toward the goal of ensuring that all children are ready for school.

States and early childhood stakeholders have sought ways to capture such information about young children for years. However, until 2016, there was no single data source that provided a comprehensive, integrated assessment of multiple aspects of children’s health and development related to kindergarten preparedness.

The pilot Healthy and Ready to Learn [Title V Maternal and Child Health Services Block Grant](#) National Outcome Measure (NOM)¹ was developed by the [Health Resources and Services Administration’s Maternal and Child Health Bureau](#) (HRSA MCHB), in collaboration with Child Trends, to meet this need, and comes at a time of unprecedented investments in early childhood. It uses data from the 2016 [National Survey of Children’s Health](#) (NSCH), a nationally representative, annual household survey that includes 18 items to assess the health and development of children ages 3 to 5, across four domains, as well as in one cumulative summary measure. In 2017, a 19th item was added to the NSCH, and additional items continue to be considered for inclusion in the survey (see appendices for more information).

Currently, a validation study of the pilot NOM is being funded by HRSA MCHB. MayaTech and Child Trends are partnering with HRSA MCHB to test the validity of both the individual items and the domain-specific

¹ National outcome measures (NOMs) cross all population domains and reflect maternal and child population health status. More than two dozen NOMs have been developed and are tracked and reported by HRSA MCHB.

and summary measures. The validation work assesses the 2017 and 2018 NSCH data, building upon the foundational measurement work that was conducted on the 2016 NSCH data. What follows is a description of the work conducted with the 2016 NSCH data

How the Measure Was Developed²

The Healthy and Ready to Learn NOM reflects years of planning by HRSA MCHB. In 2016, HRSA MCHB added 22 items related to multiple domains of school readiness to the NSCH, after gathering input from experts in the field of early childhood and partner agencies. In 2017, Child Trends worked with HRSA MCHB to examine the data from the 2016 NSCH, a process that involved assessing the individual items, sorting the items into domains, and developing domain scales using a consistent, methodologically rigorous approach. This work culminated in the development of an overall index of Healthy and Ready to Learn, a pilot National Outcome Measure (NOM) for the Title V Program, in addition to four domain-specific indices.

The Current Healthy and Ready to Learn Measure

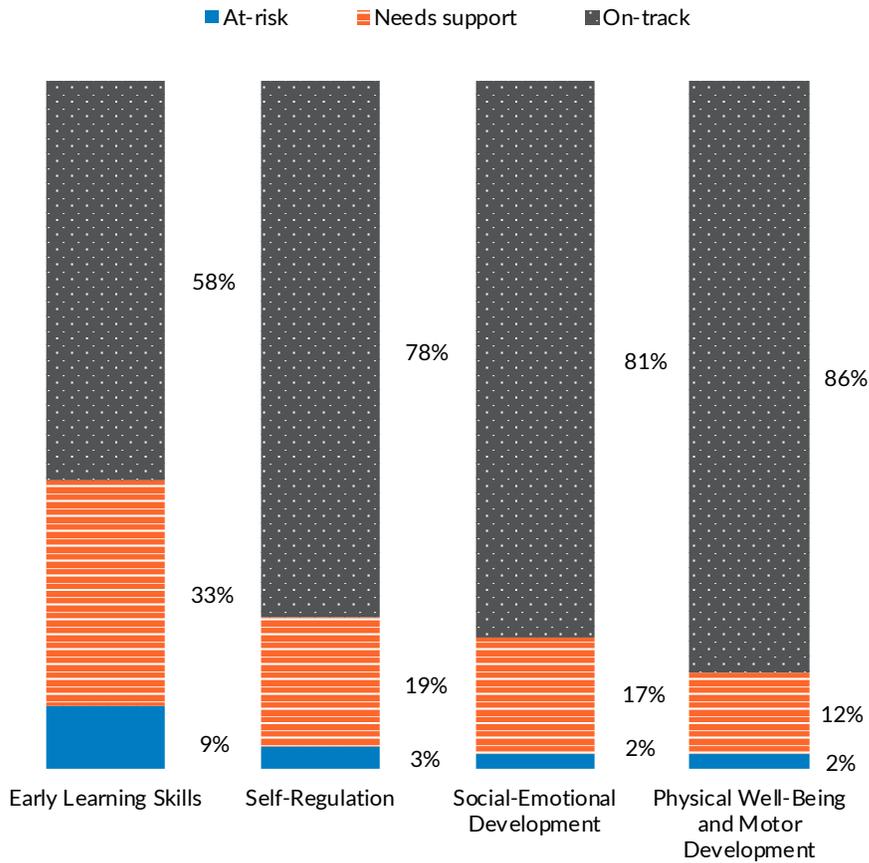
The Healthy and Ready to Learn NOM includes 18 survey items across four domains:

1. Early Learning Skills
2. Self-Regulation
3. Social-Emotional Development
4. Physical Well-Being and Motor Development

Individual item responses were coded and scored as “At-Risk” (0), “Needs Support” (1), and “On-Track” (2), accounting for age-specific abilities among 3- to 5-year-olds. These item scores were then summed to create a total domain score, and thresholds within each domain score were set, rendering domain measures of At-Risk, Needs Support, and On-Track. Figure 1 displays the proportion of children scoring in each category within each domain.

² Please see Appendix A.1 for a list of the items used in the 2016 and 2017 version of the measure, and Appendix A.2 for a list of the items that were included in the 2018 version of the measure.

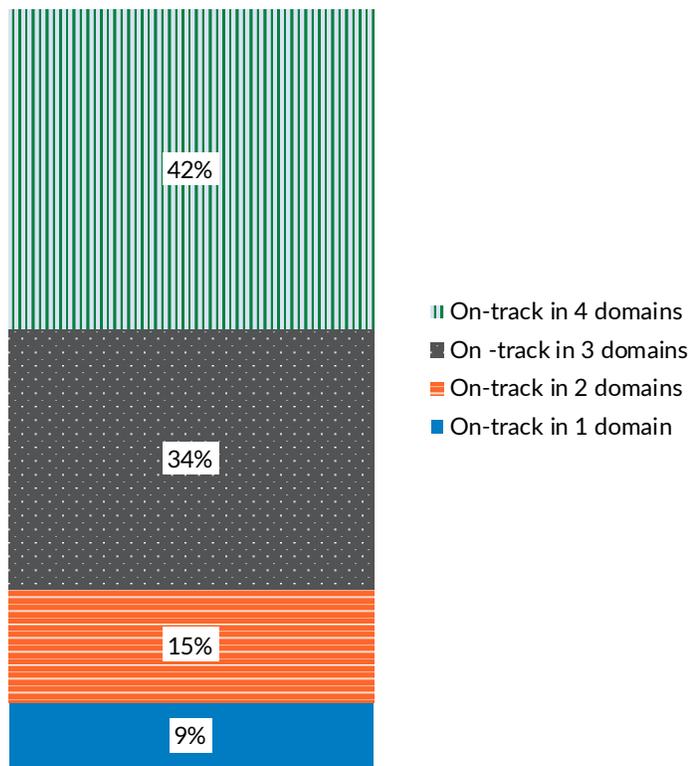
Figure 1. Proportion of U.S. children ages 3–5 scoring “On-Track,” “Needs Support,” or “At-Risk” for each Healthy and Ready to Learn domain



Source: Child Trends' analysis of 2016 NSCH

The goal of the Healthy and Ready to Learn NOM is to assess readiness not only in each domain, but also across domains; for this purpose, a summary measure was developed. Analyses of the 2016 NSCH data using these domains found that 42 percent of children ages 3 to 5 were on track in all four domains; 34 percent were on track in three domains; 15 percent were on track in two domains; and 9 percent were on track in only one or in none of the domains (see Figure 2).

Figure 2. Proportion of U.S. children ages 3–5 scoring “On-Track” in 0–4 domains of Healthy and Ready to Learn



Source: Child Trends’ analysis of 2016 NSCH

The Future of the Healthy and Ready to Learn Measure

The Healthy and Ready to Learn NOM has the potential to become an accessible and useful way to assess children’s early learning, self-regulation, social-emotional development, health and motor skills, and overall school readiness. However, both HRSA MCHB and Child Trends recognize that the Healthy and Ready to Learn NOM is still a pilot measure, and additional steps must be taken to refine and validate it. As noted above, these validation efforts are currently being conducted jointly by MayaTech and Child Trends, in partnership with HRSA MCHB. To validate the measure, we will confirm that it uses the right items, encompasses the right domains, and reflects the right overall index. The steps in the validation process include the following:

1. **Gather expert input on the measure.** Researchers, state policymakers, and state and national stakeholders have been asked to provide input on the measure. Their input will be used to refine existing items, identify potential new items, assess the response options, and explore how state-level stakeholders can use the measure.
2. **Assess whether the scales and index are appropriate and valid across subgroups.** We are testing whether the measure is valid across subgroups of children, including subgroups based on age, race/ethnicity, and sex.

3. **Replicate the measure across years.** We are re-estimating the measure using the 2017 NSCH data to confirm that the measure is consistent across 2016 and 2017. Re-estimating is important because changes were made to the measure in 2017; specifically, an item about color knowledge was added and the response options were changed for all items. When the 2018 NSCH data become available, we will re-estimate the measure again and also analyze new items (on language and communication) added to the survey, to see if they are appropriate for inclusion in the measure.

Frequently Asked Questions about the Healthy and Ready to Learn Measure

- **What are national outcome measures?**
National outcome measures, or NOMs, report on various aspects of maternal and child health at the state and national level. They are designed to allow the [Title V Maternal and Child Health Services Block Grant](#) program to track population-level data across time. HRSA MCHB shares these data publicly and monitors trends in maternal and child health.
- **What makes this measure unique?**
The Healthy and Ready to Learn NOM is a measure based on data from the National Survey of Children's Health (NSCH), a nationally representative parent-reported survey of children and youth conducted annually. The Healthy and Ready to Learn NOM is the only effort, at the state or national level, to annually measure preschool-age children's readiness for school before they actually start school. Once it has been refined and validated, the Healthy and Ready to Learn measure will make it possible to annually estimate 3- to 5- year-olds' readiness to start kindergarten, at both state and national levels. This measure also generates a summary index of school readiness, unlike most other measures of readiness that only estimate readiness within separate domains.
- **How does this measure compare to other measures of children's kindergarten readiness, such as the EDI or Kindergarten Readiness/Entry Assessments?**
The Healthy and Ready to Learn measure is different from other measures of kindergarten readiness in several respects. First, the Healthy and Ready to Learn measure focuses on assessing children in the years before they enter kindergarten, rather than assessing children at kindergarten entry. Second, the Healthy and Ready to Learn measure is embedded in the largest survey of children's health in the United States, which is conducted annually and designed to be representative of children at both national and state levels. Third, the Healthy and Ready to Learn measure is based on parent reports rather than teacher reports. Fourth, assessments conducted by schools and school districts are often used as formative assessments, meaning that they are used for curriculum planning and to address the needs of individual children in individual classrooms, whereas Healthy and Ready to Learn provides population-level data to inform policy, planning, and programmatic decisions. Finally, the Healthy and Ready to Learn measure examines readiness in individual domains, as well as across domains in a composite measure. In this way, it is unlike other assessments of kindergarten readiness, which tend to solely examine separate domains of readiness (e.g., language and literacy, cognition and reasoning, or gross- and fine-motor development).

The Healthy and Ready to Learn measure is an important complement to assessments that are given at kindergarten entry. It can allow states to assess the readiness of young children—as a group and for key subgroups—well before they start kindergarten. It can also help states target population-based interventions during the preschool years. Kindergarten entry assessments, on the other hand, provide teachers and other school personnel with critical insights into individual kindergartners' developmental status that can inform their strategies for teaching and supporting students.

- **Are state-level estimates available?**
Because the Healthy and Ready to Learn measure was developed using data from the NSCH, state-level estimates of young children’s kindergarten readiness can be obtained annually. Currently, state-level estimates can be calculated for individual Healthy and Ready to Learn survey items (not domains) using the NSCH 2016 and 2017 data; pending further validation work, state-level estimates for the Healthy and Ready to Learn NOM will be available at both the domain and summary levels.
- **Is this measure ready to use in my state/community/research?**
Not yet. The refined measure, including the survey instrument, scoring rubric, and underlying data, will be available for use by researchers, communities, states, and federal agencies after the items, scales, and index have been assessed and validated.
- **Where can I learn more about the Healthy and Ready to Learn measure?**
HRSA MCHB and Child Trends recently published an article in *Child Indicators Research*: “[School Readiness among U.S. Children: Development of a Pilot Measure](#).” Also watch for blogs and social media posts from Child Trends as the additional work to validate the Healthy and Ready to Learn measure continues, in partnership with MayaTech, HRSA MCHB, and private foundations. We are at an early point in our journey with the Healthy and Ready to Learn NOM. Please contact us with your questions or ideas at: MCHBreadytolearn@hrsa.gov

Acknowledgments

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Appendix A.1: “Healthy and Ready to Learn” Items in the 2016 and 2017 NSCH³

Items in the 2016 and 2017 NSCH	Response Options
Section A. This Child’s Health	
A1. In general, how would you describe this child’s health?	Excellent Very good Good Fair Poor
A2. How would you describe the condition of this child’s teeth?	This child does not have any teeth Excellent Very good Good Fair Poor
A3b. This child bounces back quickly when things do not go his or her way.	Definitely true Somewhat true Not true
Section G. This Child’s Learning	
G5. How often can this child recognize the beginning sound of a word? For example, can this child tell you that the word “ball” starts with the “buh” sound?	Always Most of the time About half the time Sometimes Never
G6. How many letters of the alphabet can this child recognize?	All of them Most of them About half of them Some of them None of them
G7. Can this child rhyme words?	Yes No
G8. How often can this child explain things he or she has seen or done so that you get a very good idea of what happened?	Always Most of the time About half the time Sometimes Never
G9. How often can this child write his or her first name, even if some of the letters aren’t quite right or are backwards?	Always Most of the time About half the time Sometimes Never

³ US Department of Health and Human Services. (2018). *National Survey of Children’s Health*. NSCH-T1 paper questionnaire. Available at: <https://www.census.gov/content/dam/Census/programs-surveys/nsch/tech-documentation/questionnaires/2018/NSCH-T1.pdf>.

Items in the 2016 and 2017 NSCH	Response Options
G10. How high can this child count?	This child cannot count Up to five Up to ten Up to 20 Up to 50 Up to 100 or more
G11. How often can this child identify basic shapes, such as a triangle, circle, or square?	Always Most of the time About half the time Sometimes Never
G12. Can this child identify the colors red, yellow, blue, and green by name? <i>New in 2017</i>	Yes, all of them Yes, some of them No, none of them
G13. How often is this child easily distracted?	Always Most of the time About half the time Sometimes Never
G14. How often does this child keep working at something until he or she is finished?	Always Most of the time About half the time Sometimes Never
G15. When he or she is paying attention, how often can this child follow instructions to complete a simple task?	Always Most of the time About half the time Sometimes Never
G16. How does this child usually hold a pencil?	Uses fingers to hold the pencil Grips the pencil in his/her fist This child cannot hold a pencil
G17. How often does this child play well with others?	Always Most of the time About half the time Sometimes Never
G19. How often does this child show concern when others are hurt or unhappy?	Always Most of the time About half the time Sometimes Never
G22. Compared to other children his or her age, how much difficulty does this child have making or keeping friends?	A lot of difficulty A little difficulty No difficulty
G23. Compared to other children his or her age, how often is this child able to sit still?	Always Most of the time About half the time Sometimes Never

Items in the 2016 and 2017 NSCH	Response Options
Items considered for inclusion in the NOM but ultimately excluded	
A3a. This child is affectionate and tender with you.	Definitely true Somewhat true Not true
A3c. This child shows interest and curiosity in learning new things.	Definitely true Somewhat true Not true
A3d. This child smiles and laughs a lot.	Definitely true Somewhat true Not true
G2. How well is this child learning to do things for him or herself?	Very well Somewhat Poorly Not at all
G16. How often does this child become angry or anxious when going from one activity to another?	All the time Most of the time Some of the time None of the time
G18. How often can this child calm down when excited or all wound up?	All of the time Most of the time Some of the time None of the time
G19. How often does this child lose control of his or her temper when things do not go his or her way?	All of the time Most of the time Some of the time None of the time

Appendix A.2: “Healthy and Ready to Learn” Items added to the 2018 NSCH⁴

Answer the following question only if this child is at least 1 year old...		
G1 Is this child able to do the following... Mark (X) Yes or No for each item.	Yes	No
a. Say at least one word, such as "hi" or "dog"?	<input type="checkbox"/>	<input type="checkbox"/>
b. Use 2 words together, such as "car go"? Yes No	<input type="checkbox"/>	<input type="checkbox"/>
c. Use 3 words together in a sentence, such as, "Mommy come now."?	<input type="checkbox"/>	<input type="checkbox"/>
d. Ask questions like "who," "what," "when," "where"?	<input type="checkbox"/>	<input type="checkbox"/>
e. Ask questions like "why" and "how"?	<input type="checkbox"/>	<input type="checkbox"/>
f. Tell a story with a beginning, middle, and end?	<input type="checkbox"/>	<input type="checkbox"/>
g. Understand the meaning of the word "no"?	<input type="checkbox"/>	<input type="checkbox"/>
h. Follow a verbal direction without hand gestures, such as "Wash your hands."?	<input type="checkbox"/>	<input type="checkbox"/>
i. Point to things in a book when asked?	<input type="checkbox"/>	<input type="checkbox"/>
j. Follow 2-step directions, such as "Get your shoes and put them in the basket."?	<input type="checkbox"/>	<input type="checkbox"/>
k. Understand words such as "in," "on," and "under"?	<input type="checkbox"/>	<input type="checkbox"/>

⁴ US Department of Health and Human Services. (2018). *National Survey of Children's Health*. NSCH-T1 paper questionnaire. Available at: <https://www.census.gov/content/dam/Census/programs-surveys/nsch/tech-documentation/questionnaires/2018/NSCH-T1.pdf>.