



PEDIATRIC CARE • SUPPORTING • PARENTING
A Program of ZERO TO THREE

Child Growth and Development: HealthySteps Research Guidance

A child's growth and development can affect their health and well-being, both in the short term and later in life. Healthy growth and development in early childhood are linked to positive outcomes throughout a person's life, including those related to physical and emotional health, overall well-being, economic productivity, school readiness, and academic achievement.¹⁻⁵ Adverse childhood experiences that impede healthy growth and development can lead to decreased health and well-being, reduced educational achievement, and unhealthy social relationships.⁶⁻⁹ Research shows that poor social-emotional development in childhood is linked to increased aggression, antisocial behavior,^{10,11} and juvenile delinquency.^{12,13}

HealthySteps sites are well positioned to help families support child growth and development. HealthySteps sites can provide families with tailored supports and information and connect them to child development services in the community. For more information on HealthySteps activities that can help support child growth and development, see "Child Growth and Development: HealthySteps Theory of Change."

Previous Research on HealthySteps and Child Growth and Development

Previous HealthySteps research has shown promise of a connection between the model, identification of concerns, and delivery of supports to help ensure healthy child growth and development:

Service Delivery

- In the HealthySteps program's national evaluation, a randomized controlled trial (RCT), HealthySteps children were eight times more likely to receive a developmental assessment than children who did not receive HealthySteps.¹⁴

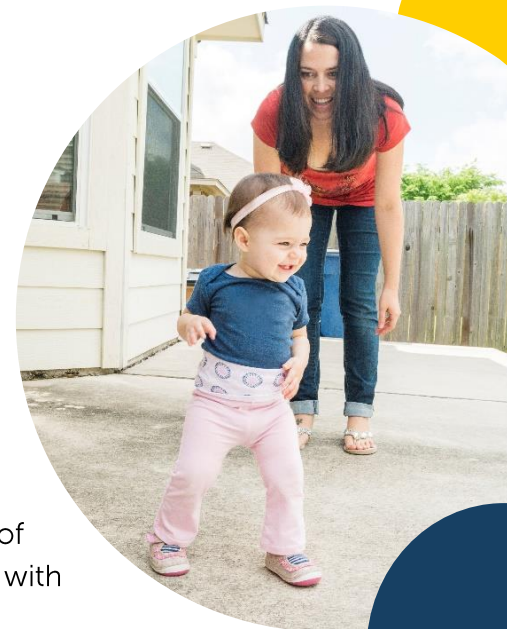


- A retrospective matched-control study found that HealthySteps families received more anticipatory guidance on child development topics (e.g., temperament, social skills)—and reported that the guidance matched their needs—than did families attending traditional pediatric primary care visits.¹⁵
- A retrospective case-control study found that HealthySteps children identified as “at risk” of social-emotional challenges had higher rates of referrals than those of children receiving traditional pediatric well-childcare.¹⁶
- A retrospective chart review found that a HealthySteps practice with a dedicated family services coordinator quadrupled its rate of successful early intervention referrals after implementing HealthySteps.^{17,18}

Child and Family Outcomes

Physical Growth

- In the national evaluation, HealthySteps mothers were less likely than mothers attending traditional pediatric primary care visits to give newborns water or introduce cereal prematurely—thereby improving infant nutrition.¹⁹
- A case study of one HealthySteps site with integrated maternal mental health treatment demonstrated a reversal of concerning infant feeding practices.²⁰
- In a quasi-experimental study, HealthySteps mothers felt significantly more supported to breastfeed and had higher rates of continued breastfeeding (i.e., longer than six months) compared with mothers attending traditional pediatric primary care visits.^{21,22}



Social-Emotional Development

- In the national evaluation, caregivers participating in HealthySteps were more likely to notice behavioral cues²³ and provide age-appropriate nurturing compared with families not enrolled in HealthySteps. HealthySteps children also showed more secure attachment and fewer behavioral problems than did children not participating in HealthySteps.²⁴
- In a quasi-experimental study, HealthySteps families demonstrated a better understanding of infant social-emotional development compared with families not receiving HealthySteps.²⁵
- A quasi-experimental study found that children of mothers who reported childhood trauma scored better on a social-emotional screening after receiving HealthySteps than did comparable children not receiving HealthySteps.²⁶

Additional research is warranted to better understand how HealthySteps supports child growth and development. For example, although several studies have investigated the influence of HealthySteps on social-emotional concerns, prior HealthySteps research has not investigated child outcomes specific to autism spectrum disorder (ASD). The following section presents sample research questions and approaches sites can use to examine how HealthySteps activities can support child growth and development.

How Your Site Can Build Evidence Related to Child Growth and Development

Your HealthySteps site can conduct its own research to help learn what strategies work best to support child growth and development and demonstrate the value of HealthySteps; there are a variety of factors to consider when determining which questions you would like to address. First, consider where your site is with respect to implementing HealthySteps with fidelity to the model. Greater fidelity to implementation is associated with achieving better outcomes.²⁷ Thus, you may want to ensure that your site is meeting at least basic fidelity requirements before evaluating questions that require more intensive methods (e.g., quasi-experimental studies).

Using HealthySteps Administrative Data for Program Improvement

HealthySteps sites are required to collect screening rates for child development, social-emotional development, and ASD as well as the rate of concern for each screening type for all [Tier 1](#) children. Sites also collect and report data on referrals made and referral outcomes for [Tier 3](#) families.

You may be interested in using administrative data for program monitoring and improvement even if your site is not ready to conduct a research study. For instance, you may assess your screening rate before you begin HealthySteps (baseline) and compare with your screening rates going forward.

To see how rates of screening for child development and identification of risk for ASD compare with national averages, you could compare your child development concerns data with publicly available data, including those released by the Health Resources and Services Administration, Maternal and Child Health Bureau. Examples include state-level data for Measure 6: Developmental Screening from the [National Performance Measures](#) and for Measure 17.3: Autism from the [National Outcome Measures](#). The CMS Medicaid and CHIP Child Core Set, Child Quality Measure Data, provides state-level data on [Developmental Screening in the First Three Years of Life](#) for most states.

Also consider the resources available to conduct your study. Some research approaches generally take more effort because they require a certain study design or level of data collection. Your site's resources (e.g., data already collected, access to an evaluator or statistician) can help offset or amplify the typical level of intensity.

Your site can decide which families you want to include in your research based on what you set out to study (e.g., the ASD rate for all children at the practice). However, we expect that studying child growth and development among Tier 3 families will provide the greatest opportunity to see HealthySteps' impact and recommend that more rigorous research focuses on that population.

Note that HealthySteps research may require review and approval from an Institutional Review Board (IRB). You may also want to identify a researcher and/or external evaluator to help you plan and conduct a research study. Also, consider how to involve families in the selection of research questions, development of measures, and/or interpretation of findings. Family participation in shaping the research process is a key step in embedding equity into your research and helping to ensure the findings are accurate and useful for participants. Finally, you should reach out to the HealthySteps National Office at ZERO TO THREE to learn more about available supports related to your evidence-building efforts.

Exhibit 1 provides an overview of potential research topics, recommended study designs, and level of intensity. Each research topic also links to a comprehensive profile with information on related:

- **Research questions** to answer
- **Methods**, including study designs,^a data sources, and anticipated level of intensity
- **Potential measures** to better understand child growth and development
- **Target population** on which to focus data collection
- **Potential actions** to help answer questions of interest






^a We do not recommend that sites conduct a RCT to answer the research questions in this document. Please contact the National Office to discuss RCT design considerations for HealthySteps (e.g., a cluster RCT involving multiple sites).



Exhibit 1. Sample Research Approaches for HealthySteps Sites

Note: Your site can adapt most developmental research topics to focus on social-emotional development or risk of ASD.

Research topic	Study design	Intensity
<i>Physical growth</i>		
<ul style="list-style-type: none"> HealthySteps strategies associated with infant feeding practices 	Correlational	
<ul style="list-style-type: none"> Barriers to healthy growth and needed resources 	Descriptive	
<ul style="list-style-type: none"> Impact of HealthySteps on responsive feeding 	Quasi-experimental	
<i>Developmental screening</i>		
<ul style="list-style-type: none"> Percentage of children screened and change in screening rates 	Descriptive	
<ul style="list-style-type: none"> Impact of HealthySteps on screening rates 	Quasi-experimental	
<i>Identified developmental concerns</i>		
<ul style="list-style-type: none"> Percentage of young children with an identified concern 	Descriptive	
<ul style="list-style-type: none"> Demographics associated with rate of identified concerns 	Correlational	
<ul style="list-style-type: none"> Impact of HealthySteps on earlier identification of concerns 	Quasi-experimental	
<i>Developmental referrals/follow-up</i>		
<ul style="list-style-type: none"> Rate of referrals/follow-up activities 	Descriptive	
<ul style="list-style-type: none"> Demographics associated with referrals/follow-up activities 	Correlational	
<ul style="list-style-type: none"> Barriers to accessing services 	Descriptive	
<ul style="list-style-type: none"> Impact of HealthySteps on receipt of referral/follow-up activities 	Quasi-experimental	

Research topic	Study design	Intensity
<i>Developmental outcomes</i>		
<ul style="list-style-type: none"> Rate of service receipt 	Descriptive	
<ul style="list-style-type: none"> Demographics associated with rate of service receipt 	Correlational	
<ul style="list-style-type: none"> Impact of HealthySteps on service receipt 	Quasi-experimental	
<ul style="list-style-type: none"> Impact of HealthySteps on social-emotional development 	Quasi-experimental	
<ul style="list-style-type: none"> Impact of HealthySteps on timing of ASD evaluation and diagnosis 	Quasi-experimental	

Physical Growth: HealthySteps Strategies Associated With Infant Feeding Practices

Research question

- Are particular strategies used by HealthySteps Specialists (e.g., receipt of positive parenting guidance and information related to nutrition and/or breastfeeding, on-site lactation support, referrals to WIC and/or lactation counseling) associated with infant feeding practices?

Methods

- Correlational study using administrative data and caregiver questionnaires

Potential actions

- Document provision of positive parenting guidance and information on specific topics (e.g., breastfeeding, nutrition), on-site lactation support, and/or referrals to WIC and/or lactation counseling
- Administer a questionnaire on infant feeding practices
- Recruit an external evaluator and/or data analyst to examine if a relationship exists between receipt of guidance and feeding practices

Intensity

Medium intensity



Potential measures

Questions from the Infant Feeding Practices Study II (direct or adapted) to measure feeding practices

Target population

Families in Tier 3

Physical Growth: Barriers to Healthy Growth and Needed Resources

Research questions

- What structural barriers to healthy feeding and physical activity do HealthySteps families experience?
- What resources or supports do HealthySteps caregivers need most to promote healthy feeding and physical activity?

Methods

- Descriptive study using qualitative methods (e.g., interviews, focus groups, open-ended survey questions)

Potential actions

- Develop measures that are culturally appropriate and sensitive to caregivers' literacy levels
- Pilot test questions with selected families to ensure questions are easy to understand
- Collect data in multiple languages
- Provide participant incentives to reimburse families for their time

Intensity

Medium intensity



Potential measures

Locally specific questions to better understand the needs of caregivers in the community and the potential role of stigma

Target population

Families in Tiers 1, 2, and/or 3

Physical Growth: Impact of HealthySteps on Responsive Feeding

Research questions

- Compared with receipt of pediatric primary care as usual, does participation in HealthySteps Tier 3 services result in more responsive feeding practices for caregivers of children ages 0-3?
- Do responsive feeding practices differ by child race or ethnicity? If so, why?

Methods

- Quasi-experimental (e.g., matched comparison group) study using administrative data

Potential actions

- Consider data available for comparison families^a
- Administer the Infant Feeding Practices Study II or other similar measure
- Determine if you need an external evaluator and/or data analyst to compare the responsive feeding practices among families at HealthySteps sites with those of families at comparison sites
- Consider a root cause analysis to understand why there are differences (if applicable)

Intensity

High intensity



Potential measures

Questions from the Infant Feeding Practices Study II (direct or adapted) to measure feeding practices

Target population

Families in Tier 3

^a For example, a matched comparison study is an option only if other non-HealthySteps sites in your health system collect the same measures as does your HealthySteps sites. A multiple baseline/staggered start design is an option if you are expanding to new sites.

Developmental Screening: Percentage of Children Screened and Change in Screening Rates

Research questions

- What percentage of children ages 0-3 are screened for child development?
- What demographic characteristics (e.g., child gender, race, ethnicity, insurance status) are related to developmental screening rates among children ages 0-3? If there are differences, why?
- How have screening rates changed over time?

Methods

- Descriptive study using administrative data or payer claims data (e.g., Medicaid, private insurance)

Potential actions

- Extract data on the number of children with at least one completed developmental or social-emotional/behavioral screen
- Extract data on demographic characteristics (e.g., child gender, race, ethnicity, insurance status) of children with at least one completed developmental or social-emotional/behavioral screen
- Consider a root cause analysis to understand why there are differences (if applicable)
- Compare screening rates at two different time periods (e.g., year over year)

Intensity

Low intensity



Potential measures

Screening tools:

- Ages and Stages Questionnaires, Third Edition (ASQ-3)
- Survey of Well-being of Young Children (SWYC)
- Ages and Stages Questionnaires: Social-Emotional, Second Edition (ASQ:SE-2)
- Baby Pediatric Symptom Checklist (BPSC)
- Preschool Pediatric Symptom Checklist (PPSC)
- Modified Checklist for Autism in Toddlers – Revised with Follow-up (M-CHAT-R/F)
- Parent's Observations of Social Interactions (POSI)

Target population

Children in Tiers 1, 2, and/or 3

Developmental Screening: Impact of HealthySteps on Screening Rates

Research questions

- Compared with receipt of pediatric primary care as usual, does participation in HealthySteps increase the likelihood of screening for child development?
- Does the likelihood of screening for child development differ by child race or ethnicity? If so, why?

Methods

- Quasi-experimental (e.g., matched comparison group) study using administrative data or payer claims data (e.g., Medicaid, private insurance)

Potential actions

- Consider data available for comparison families^a
- Extract data on the number of children with at least one developmental or social-emotional/behavioral screening in the reporting period
- Determine if you need an external evaluator and/or data analyst to compare child development screening rates at HealthySteps sites with screening rates at comparison sites within the health system
- Consider a root cause analysis to understand why there are differences (if applicable)

Intensity

High intensity



Potential measures

Screening tools:

- Ages and Stages Questionnaires, Third Edition (ASQ-3)
- Survey of Well-being of Young Children (SWYC)
- Ages and Stages Questionnaires: Social-Emotional, Second Edition (ASQ:SE-2)
- Baby Pediatric Symptom Checklist (BPSC)
- Preschool Pediatric Symptom Checklist (PPSC)
- Modified Checklist for Autism in Toddlers – Revised with Follow-up (M-CHAT-R/F)
- Parent’s Observations of Social Interactions (POSI)

Target population

Children in Tiers 1, 2, and/or 3

^a For example, a matched comparison study is an option only if other non-HealthySteps sites in your health system collect the same measures as does your HealthySteps sites. A multiple baseline/staggered start design is an option if you are expanding to new sites.

Identified Developmental Concerns: Percentage of Young Children with an Identified Concern

Research question

- What percentage of children ages 0-3 at the site have an identified child development concern?

Methods

- Descriptive study using administrative data

Potential actions

- Extract data on the number of children with an identified child development concern, a social-emotional concern, or a score that indicates the child is at risk for ASD

Intensity

Low intensity



Potential measures

Screening tools:

- Ages and Stages Questionnaires, Third Edition (ASQ-3)
- Survey of Well-being of Young Children (SWYC)
- Ages and Stages Questionnaires: Social-Emotional, Second Edition (ASQ:SE-2)
- Baby Pediatric Symptom Checklist (BPSC)
- Preschool Pediatric Symptom Checklist (PPSC)
- Modified Checklist for Autism in Toddlers – Revised with Follow-up (M-CHAT-R/F)
- Parent's Observations of Social Interactions (POSI)

Target population

Children in Tiers 1, 2, and/or 3

Identified Developmental Concerns: Demographics Associated with Rate of Identified Concerns

Research questions

- What demographic characteristics are related to rates of identified child development concerns among children ages 0-3? If there are differences, why?

Methods

- Correlational study using administrative data

Potential actions

- Determine if demographic data are captured for most families at your site
- Extract data on demographic characteristics of children with at least one identified child development concern and compare with demographic characteristics of children without at least one identified child development concern
- Determine if you need an external evaluator and/or data analyst to examine the relationship between demographic characteristics and rates of identified child development concerns
- Consider a root cause analysis to understand why there are differences (if applicable)

Intensity

Medium intensity



Potential measures

Screening tools:

- Ages and Stages Questionnaires, Third Edition (ASQ-3)
- Survey of Well-being of Young Children (SWYC)
- Ages and Stages Questionnaires: Social-Emotional, Second Edition (ASQ:SE-2)
- Baby Pediatric Symptom Checklist (BPSC)
- Preschool Pediatric Symptom Checklist (PPSC)
- Modified Checklist for Autism in Toddlers – Revised with Follow-up (M-CHAT-R/F)
- Parent's Observations of Social Interactions (POSI)

Target population

Children in Tiers 1, 2, and/or 3

Identified Developmental Concerns: Impact of HealthySteps on Earlier Identification of Concerns

Research questions

- Compared with receipt of pediatric primary care as usual, does participation in HealthySteps increase the likelihood of earlier identification of child development concerns?
- Does the likelihood of earlier identification of child development concerns differ by child race or ethnicity? If so, why?

Methods

- Quasi-experimental (e.g., matched comparison group) study using administrative data

Potential actions

- Consider data available for comparison families^a
- Extract data on the number of children with at least one identified child development concern and the age of identification
- Determine if you need an external evaluator and/or data analyst to compare the average age of child development concern identification among children at HealthySteps sites with that of comparison sites within the health system
- Consider a root cause analysis to understand why there are differences (if applicable)

Intensity

High intensity



Potential measures

Screening tools:

- Ages and Stages Questionnaires, Third Edition (ASQ-3)
- Survey of Well-being of Young Children (SWYC)
- Ages and Stages Questionnaires: Social-Emotional, Second Edition (ASQ:SE-2)
- Baby Pediatric Symptom Checklist (BPSC)
- Preschool Pediatric Symptom Checklist (PPSC)
- Modified Checklist for Autism in Toddlers – Revised with Follow-up (M-CHAT-R/F)
- Parent's Observations of Social Interactions (POSI)

Target population

Children in Tier 3

^a For example, a matched comparison study is an option only if other non-HealthySteps sites in your health system collect the same measures as does your HealthySteps sites. A multiple baseline/staggered start design is an option if you are expanding to new sites.

Developmental Referrals/Follow-Up: Rate of Referrals/Follow-up Activities

Research questions

- What follow-up activities (e.g., referrals to community resources, plans to rescreen at next visit, caregiver information on developmental activities) do children enrolled in Tier 3 services receive if they have an identified child development concern?
- What percentage of children with an identified child development concern receive at least one referral for services to address the identified concern?

Methods

- Descriptive study using administrative data

Potential actions

- Determine what types of follow-up activities are documented in the administrative database
- Extract data on the follow-up activities provided to children enrolled in Tier 3 who have at least one identified child development concern
- Extract data on the number of children with an identified child development concern who received at least one referral for services to address the identified concern

Intensity

Low intensity



Potential measures

Screening tools:

- Ages and Stages Questionnaires, Third Edition (ASQ-3)
- Survey of Well-being of Young Children (SWYC)
- Ages and Stages Questionnaires: Social-Emotional, Second Edition (ASQ:SE-2)
- Baby Pediatric Symptom Checklist (BPSC)
- Preschool Pediatric Symptom Checklist (PPSC)
- Modified Checklist for Autism in Toddlers – Revised with Follow-up (M-CHAT-R/F)
- Parent's Observations of Social Interactions (POSI)

Receipt of referral

Target population

Children in Tier 3

Developmental Referrals/Follow-Up: Demographics Associated with Referrals/Follow-up Activities

Research questions

- What demographic characteristics are related to rates of referrals for services to address identified developmental concerns among children enrolled in Tier 3 services? If there are differences, why?

Methods

- Correlational study using administrative data

Potential actions

- Determine if demographic data are captured for most children enrolled in Tier 3 at your site
- Extract data on demographic characteristics of children enrolled in Tier 3 with an identified child development concern who received at least one referral to address the identified concern and compare them with demographic characteristics of children enrolled in Tier 3 with an identified child development concern who did not receive a referral to address the identified concern
- Determine if you need an external evaluator and/or data analyst to examine the relationship between demographic characteristics and referral rates
- Consider a root cause analysis to understand why there are differences (if applicable)

Intensity

Medium intensity



Potential measures

Screening tools:

- Ages and Stages Questionnaires, Third Edition (ASQ-3)
- Survey of Well-being of Young Children (SWYC)
- Ages and Stages Questionnaires: Social-Emotional, Second Edition (ASQ:SE-2)
- Baby Pediatric Symptom Checklist (BPSC)
- Preschool Pediatric Symptom Checklist (PPSC)
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- Parent's Observations of Social Interactions (POSI)

Receipt of referral

Target population

Children in Tier 3

Developmental Referrals/Follow-Up: Barriers to Accessing Services

Research questions

- What structural barriers do HealthySteps families face in accessing services for child development concerns?
- What similarities and differences exist among these barriers?

Methods

- Descriptive study using qualitative methods (e.g., interviews, focus groups, open-ended survey questions)

Potential actions

- Develop measures that are culturally appropriate and sensitive to caregivers' literacy levels
- Pilot test questions with selected caregivers to ensure questions are easy to understand
- Conduct data collection in multiple languages
- Provide participant incentives to reimburse caregivers for their time

Intensity

Medium intensity



Potential measures

Locally specific questions to better understand the needs of caregivers in the community and the potential role of stigma

Target population

Families with children in Tier 3 who received a referral to address child development concerns

Developmental Referrals/Follow-Up: Impact of HealthySteps on Receipt of Referral/Follow-up Activities

Research questions

- Compared with receipt of pediatric primary care as usual, does participation in HealthySteps increase the likelihood of a child identified as having a child development concern receiving follow-up activities to address the concern?
- Does the likelihood of receiving follow-up activities for identified child development concerns differ by child race or ethnicity? If so, why?

Methods

- Quasi-experimental (e.g., matched comparison group) study using administrative data

Potential actions

- Consider data available for comparison families^a
- Extract data on the number of children with an identified child development concern who received follow-up activities to address the concern in the reporting period
- Determine if you need an external evaluator and/or data analyst to compare the number of children with an identified child development concern who received follow-up activities at HealthySteps sites with the number of comparable children at comparison sites within the health system
- Consider a root cause analysis to understand why there are differences (if applicable)

Intensity

High intensity



Potential measures

Screening tools:

- Ages and Stages Questionnaires, Third Edition (ASQ-3)
- Survey of Well-being of Young Children (SWYC)
- Ages and Stages Questionnaires: Social-Emotional, Second Edition (ASQ:SE-2)
- Baby Pediatric Symptom Checklist (BPSC)
- Preschool Pediatric Symptom Checklist (PPSC)
- Modified Checklist for Autism in Toddlers – Revised with Follow-up (M-CHAT-R/F)
- Parent's Observations of Social Interactions (POSI)

Receipt of referral

Target population

Children in Tier 3

^a For example, a matched comparison study is an option only if other non-HealthySteps sites in your health system collect the same measures as does your HealthySteps sites. A multiple baseline/staggered start design is an option if you are expanding to new sites.

Developmental Outcomes: Rate of Service Receipt

Research question

- What percentage of children referred for services to address an identified child development concern receive at least one of those services?

Methods

- Descriptive study using administrative data or payer claims data (e.g., Medicaid, private insurance)

Potential actions

- Extract data on the number of children referred for services to address an identified developmental concern who received at least one of those services

Intensity

Low intensity



Potential measures

Screening tools:

- Ages and Stages Questionnaires, Third Edition (ASQ-3)
- Survey of Well-being of Young Children (SWYC)
- Ages and Stages Questionnaires: Social-Emotional, Second Edition (ASQ:SE-2)
- Baby Pediatric Symptom Checklist (BPSC)
- Preschool Pediatric Symptom Checklist (PPSC)
- Modified Checklist for Autism in Toddlers – Revised with Follow-up (M-CHAT-R/F)
- Parent’s Observations of Social Interactions (POSI)

Referral outcome

Target population

Children in Tier 3

Developmental Outcomes: Demographics Associated with Rate of Service Receipt

Research questions

- What demographic characteristics are related to rates of receiving at least one of the referred services to address an identified child development concern? If there are differences, why?

Methods

- Correlational study using administrative data

Potential actions

- Determine if demographic data are captured for most children enrolled in Tier 3 at your site
- Extract data on demographic characteristics of children enrolled in Tier 3 referred for services to address an identified developmental concern who received at least of one those services and compare with demographic characteristics of children enrolled in Tier 3 referred for services to address an identified developmental concern who did not receive at least of one those services
- Determine if you need an external evaluator and/or data analyst to examine the relationship between demographic characteristics and rates of received services
- Consider a root cause analysis to understand why there are differences (if applicable)

Intensity

Medium intensity



Potential measures

Screening tools:

- Ages and Stages Questionnaires, Third Edition (ASQ-3)
- Survey of Well-being of Young Children (SWYC)
- Ages and Stages Questionnaires: Social-Emotional, Second Edition (ASQ:SE-2)
- Baby Pediatric Symptom Checklist (BPSC)
- Preschool Pediatric Symptom Checklist (PPSC)
- Modified Checklist for Autism in Toddlers – Revised with Follow-up (M-CHAT-R/F)
- Parent's Observations of Social Interactions (POSI)

Referral outcome

Target population

Children in Tier 3

Developmental Outcomes: Impact of HealthySteps on Service Receipt

Research questions

- Compared with receipt of pediatric primary care as usual, does participation in HealthySteps increase the likelihood of receiving at least one of the referred services to address an identified child development concern?
- Does the likelihood of receiving at least one of the referred services to address an identified child development concern differ by child race or ethnicity? If so, why?

Methods

- Quasi-experimental (e.g., matched comparison group) study using administrative data or payer claims data (e.g., Medicaid, private insurance)

Potential actions

- Consider data available for comparison families^a
- Extract data on the number of children referred for services to address an identified developmental concern who received at least one of those services in the reporting period
- Determine if you need an external evaluator and/or data analyst to compare the number of children referred for services to address an identified developmental concern who received at least one of those services at HealthySteps sites with the number of comparable children at comparison sites within the health system
- Consider a root cause analysis to understand why there are differences (if applicable)

Intensity

High intensity



Potential measures

Screening tools:

- Ages and Stages Questionnaires, Third Edition (ASQ-3)
- Survey of Well-being of Young Children (SWYC)
- Ages and Stages Questionnaires: Social-Emotional, Second Edition (ASQ:SE-2)
- Baby Pediatric Symptom Checklist (BPSC)
- Preschool Pediatric Symptom Checklist (PPSC)
- Modified Checklist for Autism in Toddlers – Revised with Follow-up (M-CHAT-R/F)
- Parent's Observations of Social Interactions (POSI)

Referral outcome

Target population

Children in Tier 3

^a For example, a matched comparison study is an option only if other non-HealthySteps sites in your health system collect the same measures as does your HealthySteps sites. A multiple baseline/staggered start design is an option if you are expanding to new sites.

Developmental Outcomes: Impact of HealthySteps on Social-Emotional Development

Research question

- Compared with receipt of pediatric primary care as usual, does participation in HealthySteps increase the likelihood of children’s positive social-emotional development?

Question does not apply to ASD.

Methods

- Quasi-experimental (e.g., matched comparison group) study using administrative data

Potential actions

- Consider data available for comparison families^a
- Administer the BITSEA or other similar measure to children who are at least 6 months old
- Compare data from children who participated in HealthySteps with data from nonparticipating children
- Recruit an external evaluator to plan and implement the study

Intensity

High intensity



Potential measures

Behavior Rating Scale (BRS) of the Bayley Scales of Infant Development, Second Edition (BSID-II) among children ages 2-30 months

Brief Infant Toddler Social Emotional Assessment (BITSEA) among children ages 12-36 months

Child Development Inventory (CDI) among children ages 15-72 months

Infant Toddler Social Emotional Assessment (ITSEA) among children 12-36 months

Toddler Behavior Assessment Questionnaire (TBAQ) among children 16-36 months

Target population

Children in Tier 3

^a For example, a matched comparison study is an option only if other non-HealthySteps sites in your health system collect the same measures as does your HealthySteps sites. A multiple baseline/staggered start design is an option if you are expanding to new sites.

Developmental Outcomes: Impact of HealthySteps on Timing of ASD Evaluation and Diagnosis

Research questions

- Compared with receipt of pediatric primary care as usual, does participation in HealthySteps increase the likelihood of receiving an earlier ASD evaluation?
- Compared with receipt of pediatric primary care as usual, does participation in HealthySteps increase the likelihood of receiving an earlier ASD diagnosis?
- Does the likelihood of receiving an earlier ASD evaluation and/or diagnosis differ by child race or ethnicity? If so, why?

Methods

- Quasi-experimental (e.g., matched comparison group) study using administrative data

Potential actions

- Consider data available for comparison families^a
- Extract data on the age of receipt of ASD evaluation and/or diagnosis
- Determine if you need an external evaluator and/or data analyst to assess the average age of receipt of ASD evaluation and/or diagnosis among children at HealthySteps sites and comparison sites within the health system
- Consider a root cause analysis to understand why there are differences (if applicable)

Intensity

High intensity



Potential measures

Screening tools:

- Modified Checklist for Autism in Toddlers – Revised with Follow-up (M-CHAT-R/F)
- Parent's Observations of Social Interactions (POSI)

Referral outcome

Target population

Children in Tier 3

^a For example, a matched comparison study is an option only if other non-HealthySteps sites in your health system collect the same measures as does your HealthySteps sites. A multiple baseline/staggered start design is an option if you are expanding to new sites.

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