



Main Features

*Using an Ecological Perspective to Screen Young Children
for Developmental Risk and Resilience*

Carmela J. DeCandia, Psy.D. · Katie Volk, Ph.D.

A young child in a classroom is pouring water from a green pitcher into a glass. An adult's hands are visible, holding the glass. The background shows a classroom setting with a table and chairs.

Neurodevelopmental

Ecological

Screening

Tool

An instrument to screen children's development that can be administered by nonclinical staff in low-resourced settings

A young child with dark hair is sitting at a table in a classroom, holding a blue plastic toy basket. The child is looking down at the basket. The background shows a typical classroom setting with a red carpet, a white wall with a colorful poster, and a wooden chair. A blue cup is on the table to the left.

Main Features

- Screening Tool
- Theory behind NEST
- Logic model
- Psychometrics

Screening

“ [Developmental] screening provides a quick snapshot of a child’s health and developmental status and indicates whether further evaluation is needed.”


Source: https://www.researchgate.net/publication/292605313_Early_Childhood_Developmental_Screening_A_Compilium_of_Measures_for_Children_Ages_Birth_to_Five , pp.6

Neurodevelopmental Ecological Screening Tool

NEST was developed in line with best practice for screening tools used for child development.

- Typical Administration Time: 20 minutes.
- Focused on selected areas of interest for a population: Predictors of risk or resilience in early childhood
- Ideal for use for children without serious impairment. Only indicates *possible* presence of developmental delay.
- Most appropriate for use with children ages 3-5 from diverse backgrounds living in poverty or homelessness.
- Not a comprehensive assessment of all areas of development. Does NOT definitively identify, diagnose, or describe whether a child has a disability. For those identified as moderate or high risk, a more comprehensive and formal evaluation process is recommended.



A young child in a striped shirt is pouring water from a green funnel into a glass. An adult's hands are visible in the foreground, holding the glass. The background shows a classroom or playroom setting with various toys and furniture.

Theory behind NEST

NEST combines decades of research in child development with the latest advances in computerized clinical decision support systems, providing an avenue to universal screening.

Literature Review

- Child development
 - Multiple Constructs: Motor, Language, Executive Function & Self-regulation, Social-Emotional, Play
- Caregiver Functioning
 - Mental Health: Depression and Trauma
 - Parenting
- Environmental Influences
 - Homelessness, Housing Stability, Food Security, Lead, Health Care Access, Quality of Play Spaces



Expert Consensus

✓ Advisory Panel of Experts

- Homelessness, Poverty, Child Development, Risk & Resilience, Mental Health, Trauma, Assessment, Evaluation and Measurement
- Vetted item pool through structured review process

✓ Cognitive testing



Empirical Analyses

✓ Gold Standards

- Vineland, BASC-III, PSI-IV

✓ Existing tools

- PHQ9, PCL-6(C), Parenting Scale (5 item), Lead, Food Insecurity, Health Care Access

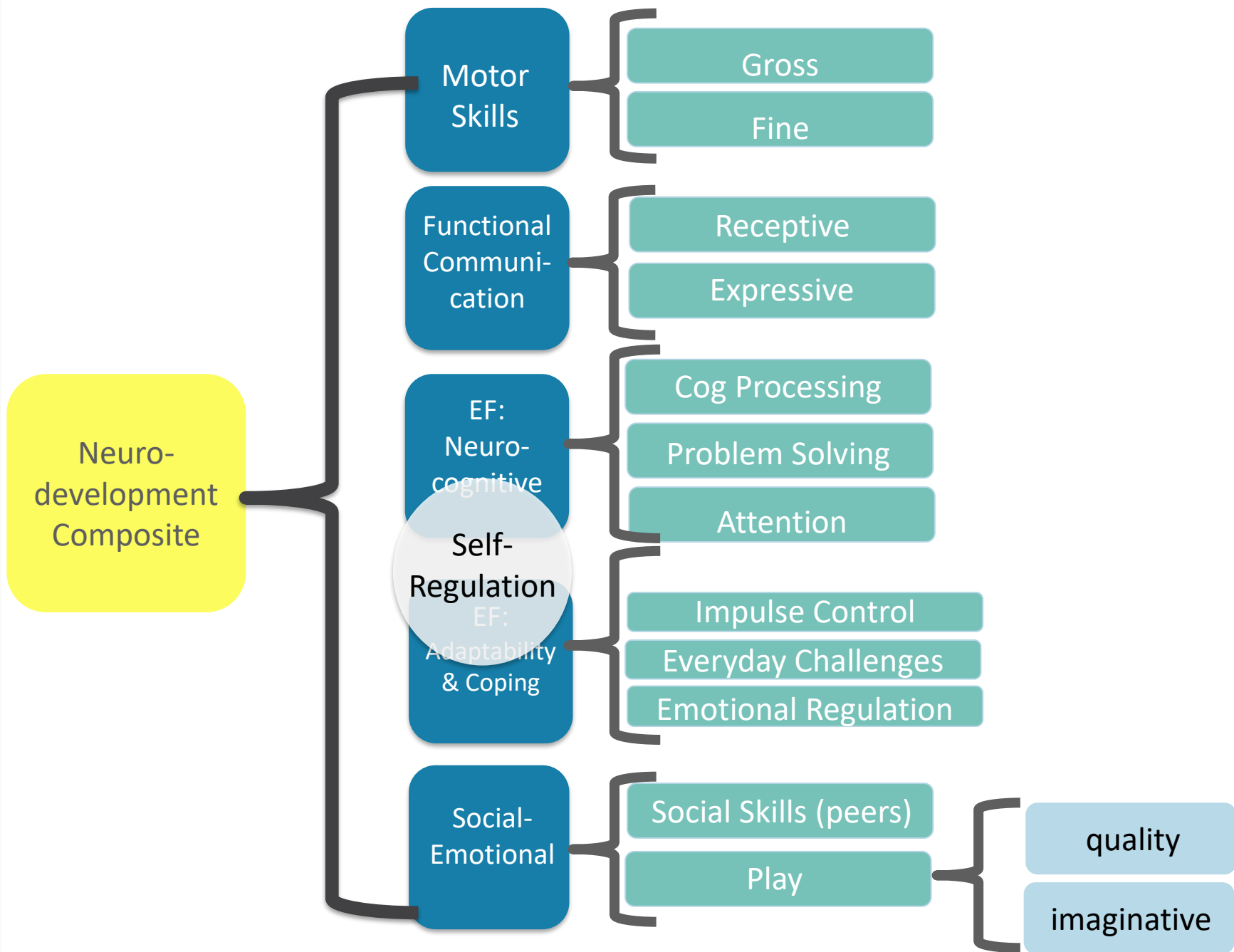




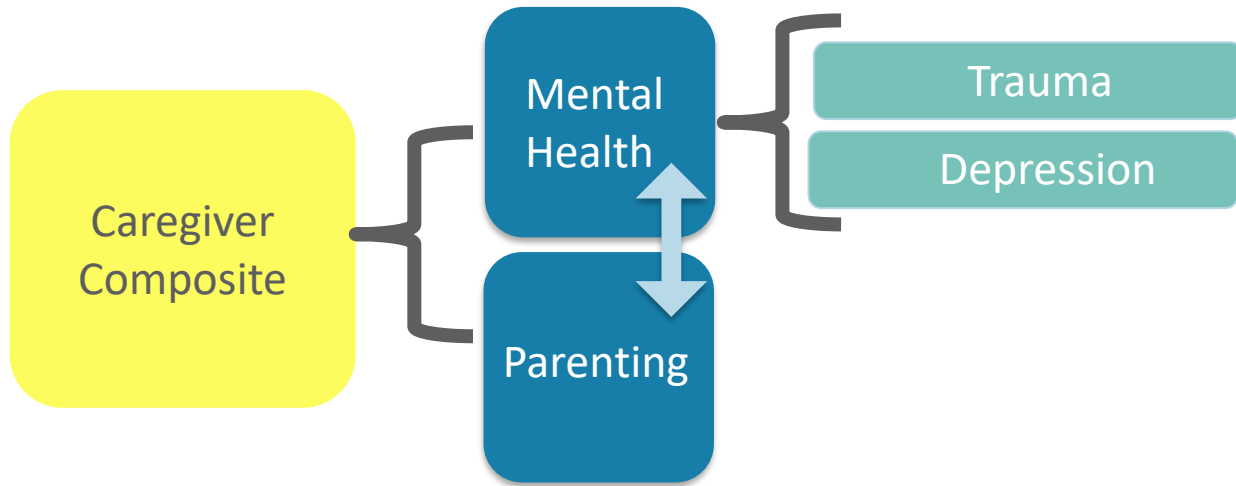
Logic Model

Despite their strengths, many tools do not fully assess functioning within a broad ecological context.

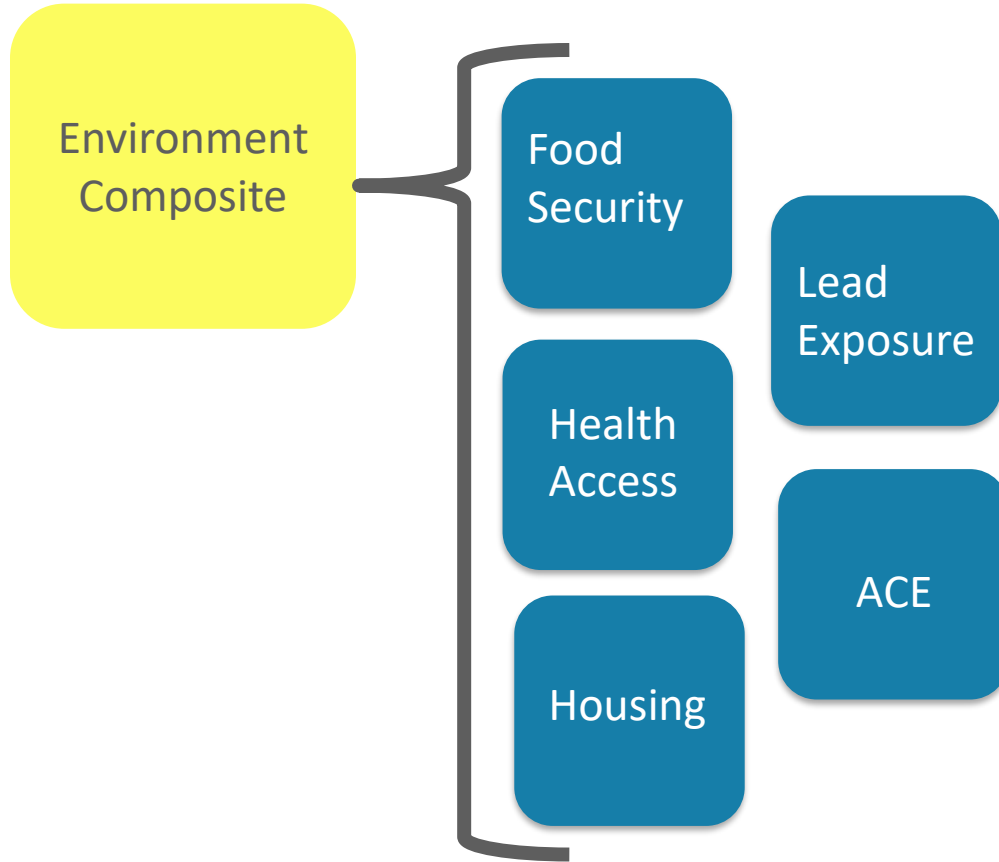
NEURODEVELOPMENTAL

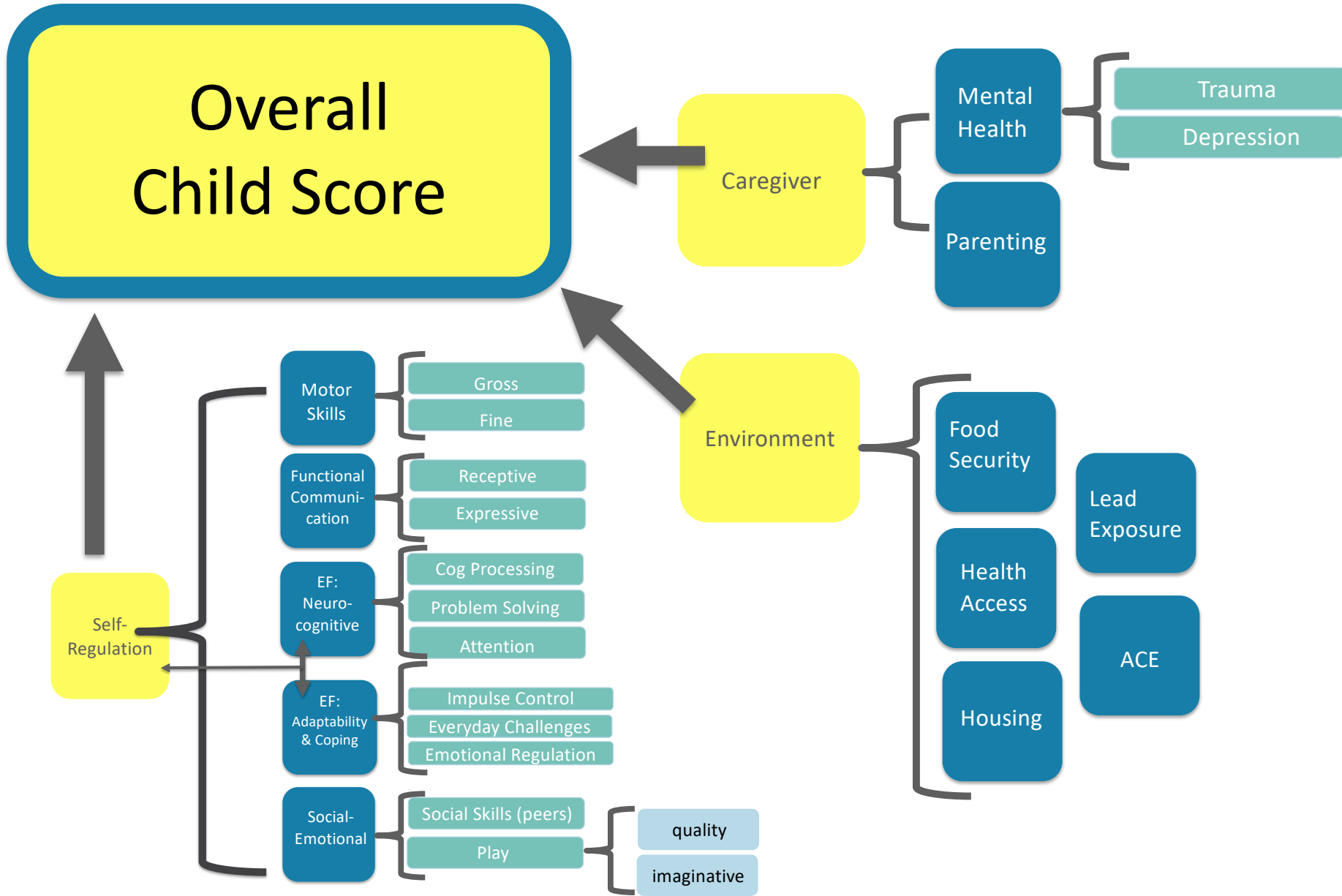


CAREGIVER



ENVIRONMENT





A woman in a white lab coat is pouring water from a green funnel into a glass. A young child in a striped shirt is sitting next to her, watching the process. The background shows a room with educational posters and a whiteboard.

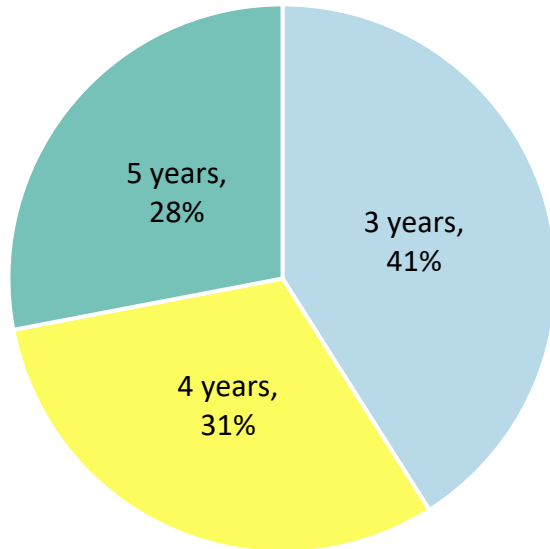
Psychometrics

NEST combines empirical data with clinical sensitivity to make developmental screening accessible for non-clinically trained frontline workers.

Sample

Child

Age



- Gender: 52% male; 48% female
- Race: 84% nonwhite
 - African American 43%, Hispanic 31%

Caregiver

- Average age: 30
- Race: 79% nonwhite
- SES: Low-Income/Poverty
- NEST completed by:
 - 93% mother, 5% father

Sample n=240 children
Northeast, Southeast, Midwest, West Coast

Data Analyses

- Cognitive testing, Item Response Theory (IRT), and Confirmatory Factor Analysis (CFA) methods were used to develop and test the items and constructs for psychometric validity and reliability.
- Clinician administered gold standard instruments were used to assess the validity of the NEST measures and to develop scoring for the NEST.



Reliability

- ✓ **Internal Item Fit**

- ✓ Item properties on the IRT tests and good unidimensionality on the CFAs.
- ✓ IRT Fit range .77 to 1.26

- ✓ **Test-Retest n=20**



Validity

✓ Gold Standards

- Vineland, BASC-III, PSI-IV
- Alpha range .7-.87

✓ Existing tools

- PHQ9, PCL-6(C), Parenting Scale (5 item), Lead, Food Insecurity, Health Care Access



Strengths & Limitations



- Strengths

- 100% Sensitivity with gold standards for identifying developmental delays.
- Combines Clinical Experience with Empirical Psychometric Data.
- Providers and Families feedback overwhelmingly positive- practical, relevant, ease of use.

- Limitations

- Sample of Convenience
- Sample size (n=240) * mitigated through data analysis
- Parent report * mitigated by Gold Standard comparison.
- Moderate Specificity

Final Thoughts

The most potent solutions to pressing social issues often come from a combination of on-the-ground clinical experience and a robust literature base.

NEST was designed to put the right tools in the hands of the people working with low-income children and families.

(DeCandia et al., under review)

