

Assessing neurocognitive and language development in the HEALthy Brain and Child Development (HBCD) study

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HEALthy Brain and Child Development (HBCD) Study

- NIH-supported prospective study of child development (pregnancy – 10 yrs)
- Enrolling 7,500 participating families from 26 US sites
 - 50% representative US sample,
 - 25% prenatally substance exposed,
 - 25% demographically matched w/o substance exposure
- Multiple domains assessed, including EEG, MRI, biospecimen
- This poster introduces the neurocognitive and language development battery
- Measures selected based on sensitivity to:
 - brain maturation,
 - potential teratogenic effects of substances of abuse,
 - variations in social and environmental contexts

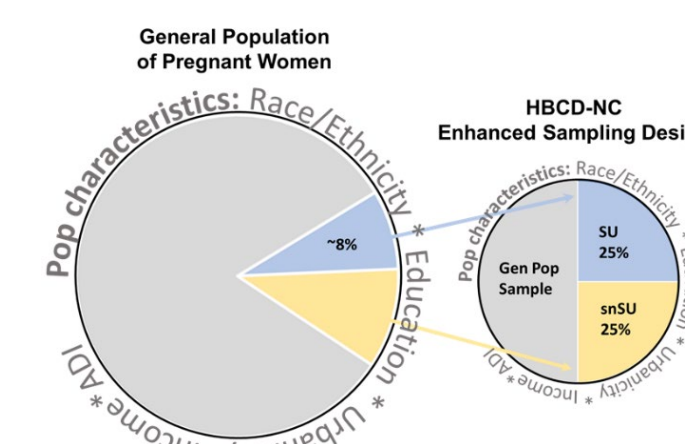
TWO CENTRAL QUESTIONS

What are the “typical” or “normative” developmental trajectories for children from birth through middle childhood?

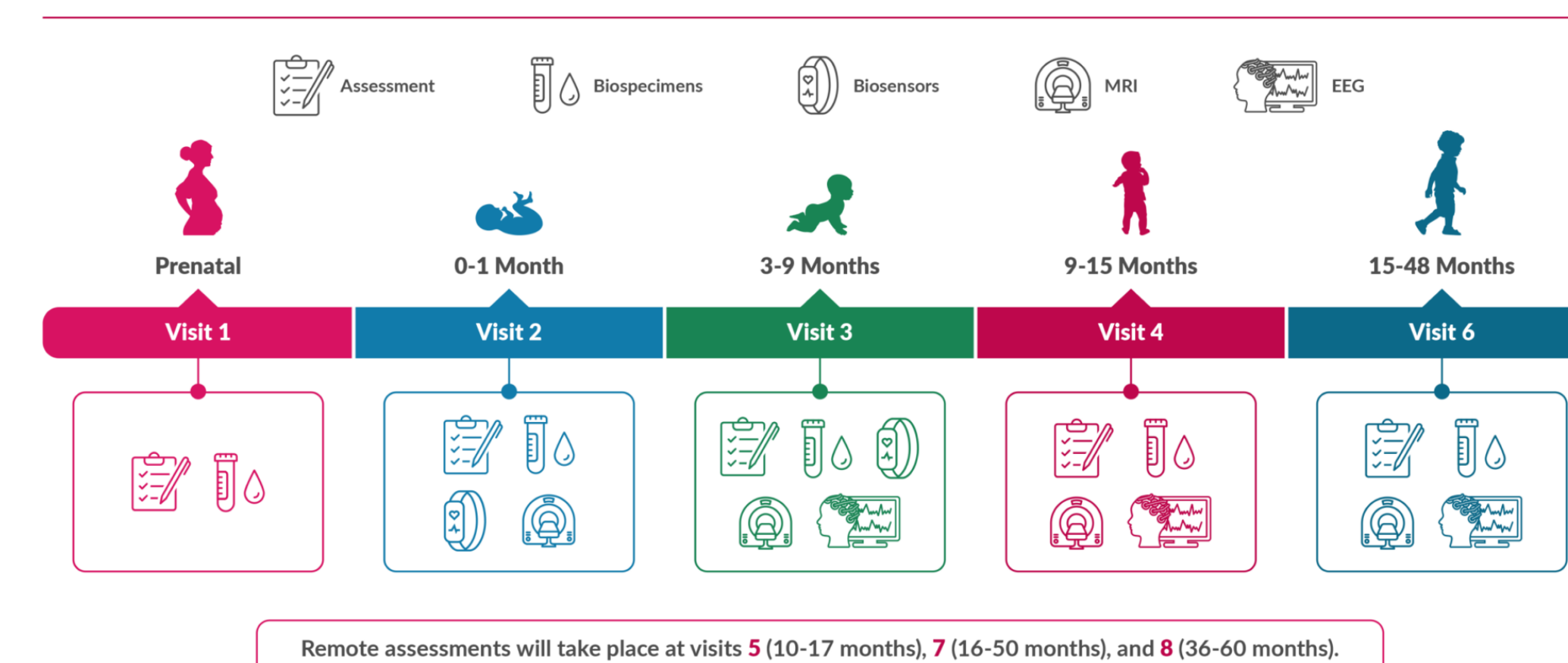
Q1: DEVELOPMENT

What are the developmental effects of substance use and environmental exposures on children from birth through middle childhood?

Q2: EXPOSURES

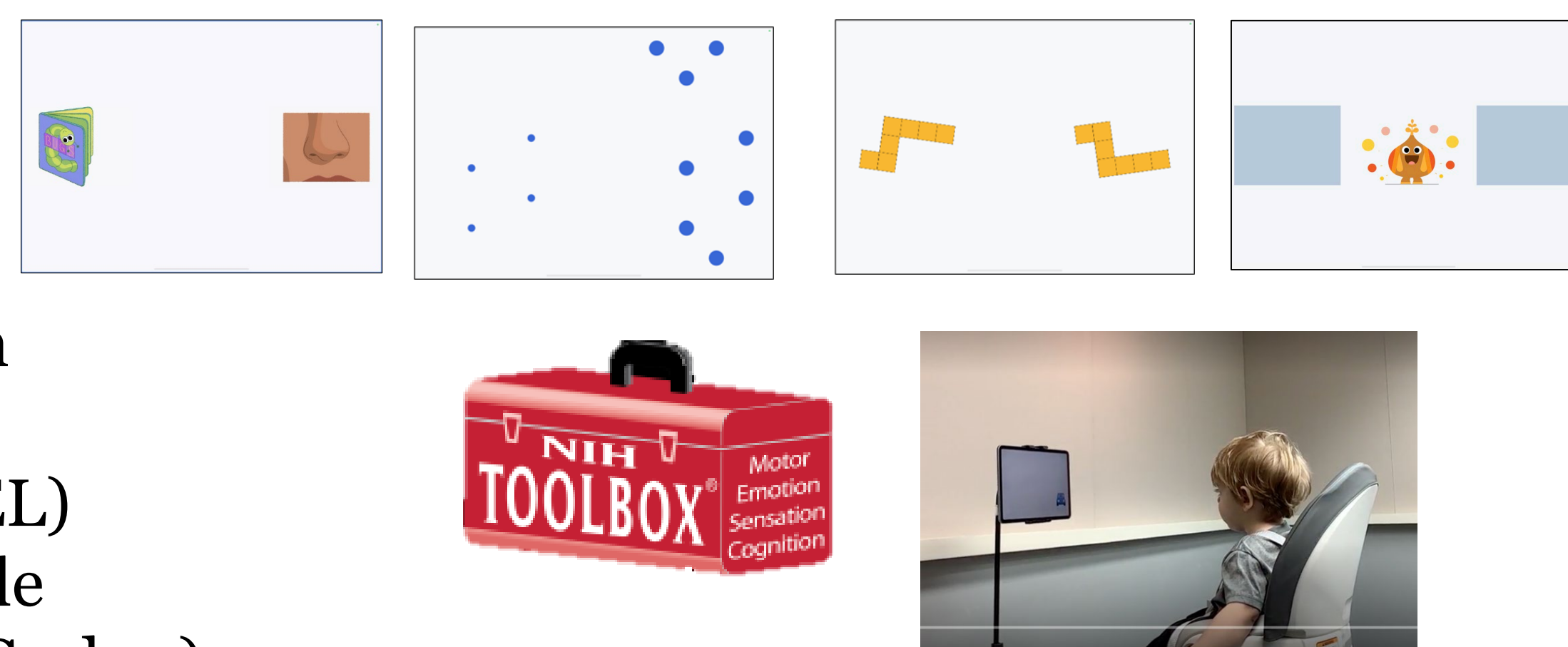


Timeline of Events



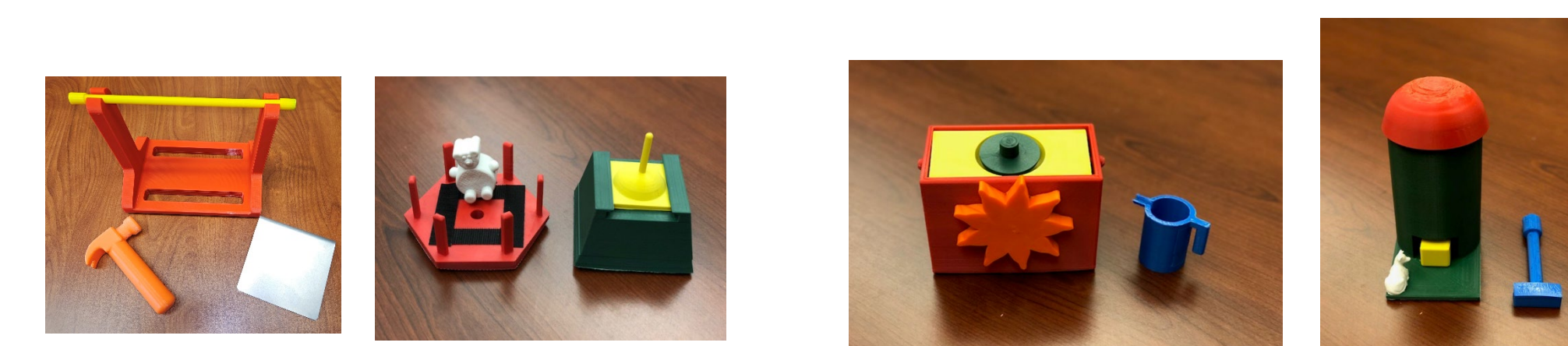
NIH Infant and Toddler (Baby) Toolbox

- Cognition, social functioning, early math/numeracy, self-regulation, motor, and executive function
- Administered via iPad
- 4 Gaze/Touch tasks
 - Looking while Listening
 - Executive Function
 - Numerical Change Detection
 - Spatial Change Detection
- Mullen Scales of Early Learning (MSEL)
 - Mullen Visual Reception scale
 - Language (adaptive Mullen Scales)



Deferred Imitation

- Long-term memory
- Props are used to create action sequences
- Number of actions determined by age
- Participants recall action sequence after ~10min delay
- Dependent measures: delayed recall for items and temporal order



Bayley Scales of Infant Development

- Cognition
- Language
- Motor
- 4th Edition
- Administered



MacArthur Bates Communicative Development Inventories

- Language
- Caregiver report



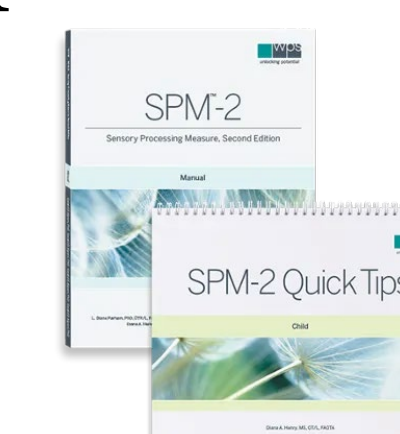
Vineland Scales of Adaptive Behavior

- Functioning in the domains of communication, daily living, socialization
- Caregiver report



Sensory Processing Measure

- Integration of auditory, visual, tactile, vestibular, and/or proprioceptive information from one's body and environment.
- Caregiver report



Working Group Contributors

- Natacha Akshoomoff, Patricia M Blasco, Stefanie C Bodison, Lucia Ciciolla, Sherry DeGray, Zoe Hulce, Emily S Kushner, Britley Learnard, Monica Luciana, Miriam A Novack, Alexandra Perez, So Yeon Shin, Sidney Smith, Jennifer Vannest, Eric H Zimak,

Resources

- <https://hbcdstudy.org> Questions? Email: riggins@umd.edu