

Leaving the Clinic: An Evolving Interprofessional Collaboration for Teaching Childhood Behavior and Development

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Medical Student Perception of Development

Table 1. Developmental Milestones

Age	Gross Motor	Fine Motor	Self-Help	Problem-solving	Social/Emotional	Receptive Language	Expressive Language
1 month	<ul style="list-style-type: none"> • Chin up in prone position • Turns head in supine position 	<ul style="list-style-type: none"> • Hands fisted near face 	<ul style="list-style-type: none"> • Sucks well 	<ul style="list-style-type: none"> • Gazes at black-white objects • Follows face 	<ul style="list-style-type: none"> • Discriminates mother's voice • Cries out of distress 	<ul style="list-style-type: none"> • Startles to voice/sound 	<ul style="list-style-type: none"> • Throaty noises
2 months	<ul style="list-style-type: none"> • Chest up in prone position • Head bobs when held in sitting position 	<ul style="list-style-type: none"> • Hands unfisted 50% • Retains rattle if placed in hand • Holds hands together 	<ul style="list-style-type: none"> • Opens mouth at sight of breast or bottle 	<ul style="list-style-type: none"> • Visual threat present • Follows large, highly contrasting objects • Recognizes mother 	<ul style="list-style-type: none"> • Reciprocal smiling; responds to adult voice and smile 	<ul style="list-style-type: none"> • Alerts to voice/sound 	<ul style="list-style-type: none"> • Coos • Social smile (6 weeks) • Vowel-like noises
3 months	<ul style="list-style-type: none"> • Props on forearms in prone position • Rolls to side 	<ul style="list-style-type: none"> • Hands unfisted 50% • Inspects fingers • Bats at objects 	<ul style="list-style-type: none"> • Brings hands to mouth 	<ul style="list-style-type: none"> • Reaches for face • Follows objects in circle (in supine position) • Regards toys 	<ul style="list-style-type: none"> • Expression of disgust (sour taste, loud sound) • Visually follows person who is moving across a room 	<ul style="list-style-type: none"> • Regards speaker 	<ul style="list-style-type: none"> • Chuckles • Vocalizes when talked to
4 months	<ul style="list-style-type: none"> • Sits with trunk support • No head lag when pulled to sit • Props on wrists • Rolls front to back 	<ul style="list-style-type: none"> • Hands held predominately open • Clutches at clothes • Reaches persistently • Plays with rattle 	<ul style="list-style-type: none"> • Briefly holds onto breast or bottle 	<ul style="list-style-type: none"> • Mouths objects • Stares longer at novel faces than familiar • Shakes rattle • Reaches for ring/rattle 	<ul style="list-style-type: none"> • Smiles spontaneously at pleasurable sight/sound • Stops crying at parent voice • To and fro alternating vocalizations 	<ul style="list-style-type: none"> • Orients head in direction of a voice • Stops crying to soothing voice 	<ul style="list-style-type: none"> •Laughs out loud • Vocalizes when alone
5 months	<ul style="list-style-type: none"> • Sits with pelvic support • Rolls back to front • Anterior protection • Sits with arms supporting trunk 	<ul style="list-style-type: none"> • Palmar grasps cube • Transfers objects: hand-mouth-hand • Holds hands together • Reaches/grasps dangling ring 	<ul style="list-style-type: none"> • Gums/ mouths pureed food 	<ul style="list-style-type: none"> • Turns head to look for dropped spoon • Regards pellet or small cracker 	<ul style="list-style-type: none"> • Recognizes caregiver visually • Forms attachment relationship to caregiver 	<ul style="list-style-type: none"> • Begins to respond to name 	<ul style="list-style-type: none"> • Says "Ah-goo" • Razes, squeals • Expresses anger with sounds other than crying
6 months	<ul style="list-style-type: none"> • Sits momentarily propped on hands • Pivots in prone • In prone position, bears weight on 1 hand 	<ul style="list-style-type: none"> • Transfers hand-hand • Rakes pellet • Takes second cube and holds on to first • Reaches with one hand 	<ul style="list-style-type: none"> • Feeds self crackers • Places hands on bottle 	<ul style="list-style-type: none"> • Touches reflection and vocalizes • Removes cloth on face • Bangs and shakes toys 	<ul style="list-style-type: none"> • Stranger anxiety (familiar versus unfamiliar people) 	<ul style="list-style-type: none"> • Stops momentarily to "no" • Gestures for "up" 	<ul style="list-style-type: none"> • Reduplicative babble with consonants • Listens, then vocalizes when adult stops • Smiles/vocalizes to mirror
7 months	<ul style="list-style-type: none"> • Bounces when 	<ul style="list-style-type: none"> • Radial-palmar 	<ul style="list-style-type: none"> • Refuses 	<ul style="list-style-type: none"> • Explores 	<ul style="list-style-type: none"> • Looks from 	<ul style="list-style-type: none"> • Looks toward 	<ul style="list-style-type: none"> • Increasing variety

Medical Student Perception of Development



Origins of This Partnership

- 2012-2013 National Board of Medical Examiners Step 2 Clinical Knowledge testing data revealed:
 - BSOM Students performed 0.4 SD below the national average in the area of “Normal Growth and Development”
- Primary care physicians play a key role^{*,**}
 - Gatekeepers to referral
 - Early intervention is best when initiated “early”
 - Have to have good frame of reference of “typical”
 - Milestones more of a “scaffold”

*Sices L et al. J Dev Behav Pediatr. 2003 Dec;24(6):409-17.

**Bailey DB. Pediatrics. 2004 Apr;113(4):887-96

Time for a Different Approach?

- Limitations to the milestone approach*
- Broader perspective
- Previous lecturer
 - Used audiovisual supplements
 - Lecture highly rated
- Excellent didactics combined with an interactive experience
- Different setting?



Didactic Experience



What do we need to emphasize?

Emerging developmental framework to address health and outcomes

Extending/expanding shift of evaluative framework for practice

- 1. Limitations of Biomedical model (normal vs typical)
No Normal Growth and Development” category
- 2. Developmental framework for developing preventive efforts/measures for health outcomes
 - Early brain development studies
 - Early Intervention services and successes
 - Shift to multi/interdisciplinary professional team approach in medical care

Transition to developmental model on human development and health

- **Defining Risk and Protective Factors as individual resources**
- Risk factors can occur at multiple levels, including biological, psychological, family, community, and cultural levels.
- **Risk factors Can Be Found in Multiple Contexts**
- **Have Cumulative Effects that effect outcome**

Developmental framework leads to:

- **Shift to preventive medicine and interventions**
 - To develop effective interventions, it is essential to understand both how developmental and contextual factors at younger ages influence outcomes at older ages and how to influence those factors
 - Prevent secondary disabilities & incorporate increase of developmental disabilities/ASD, behavioral disorders, somatic disorders
 - Provide resources and education to families/patients

Future Direction

- Future courses for medical students would include developmental framework for:
 - Early identification and prevention of behavioral disorders (ages 0-5)
 - Early recognition of developmental delays
 - Childhood chronic disorders with a focus on family components/dynamic contributing to disorders and on support for family centered care

Nancy W. Darden Child Development Center

- Model early childhood model training facility
 - * open to the public
 - * collaborations with:
 - Pitt County Schools
 - DSS
 - DOD
- NC 5-star licensed
- NAEYC Accredited



Philosophy

- Play-based curriculum . . . Child learn and construct their understanding of the world through play
- Emergent curriculum . . . Activities and experiences are based upon the ideas and interests of the children
- Reggio-inspired curriculum . . . Child is seen as strong, capable and resilient; rich with wonder and knowledge.
 - * Every child brings with them deep curiosity and potential which is a driving force to understand his/her world and his/her place within it

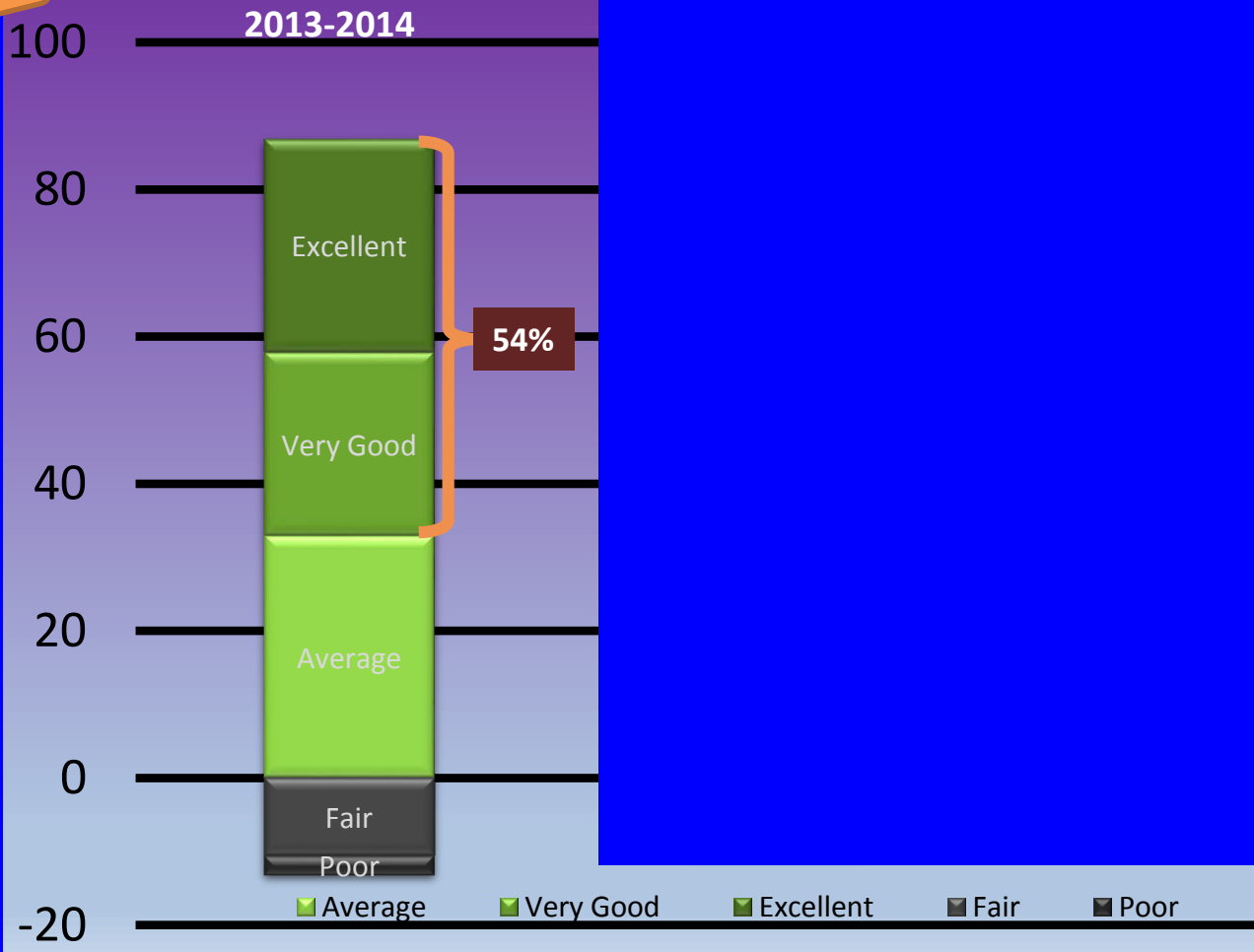




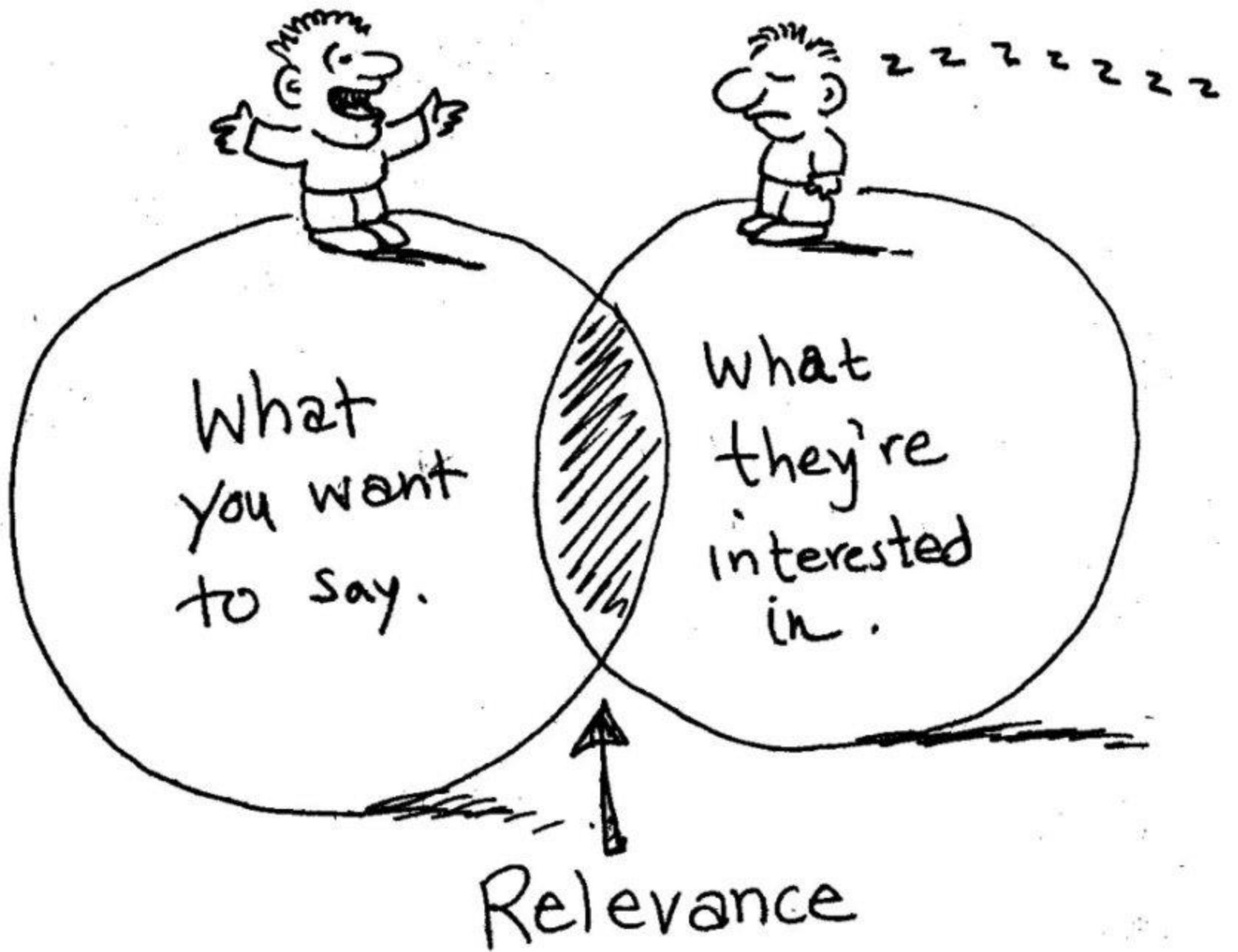
Darden Child Development Center Experience

Observing children in their
natural habitats.

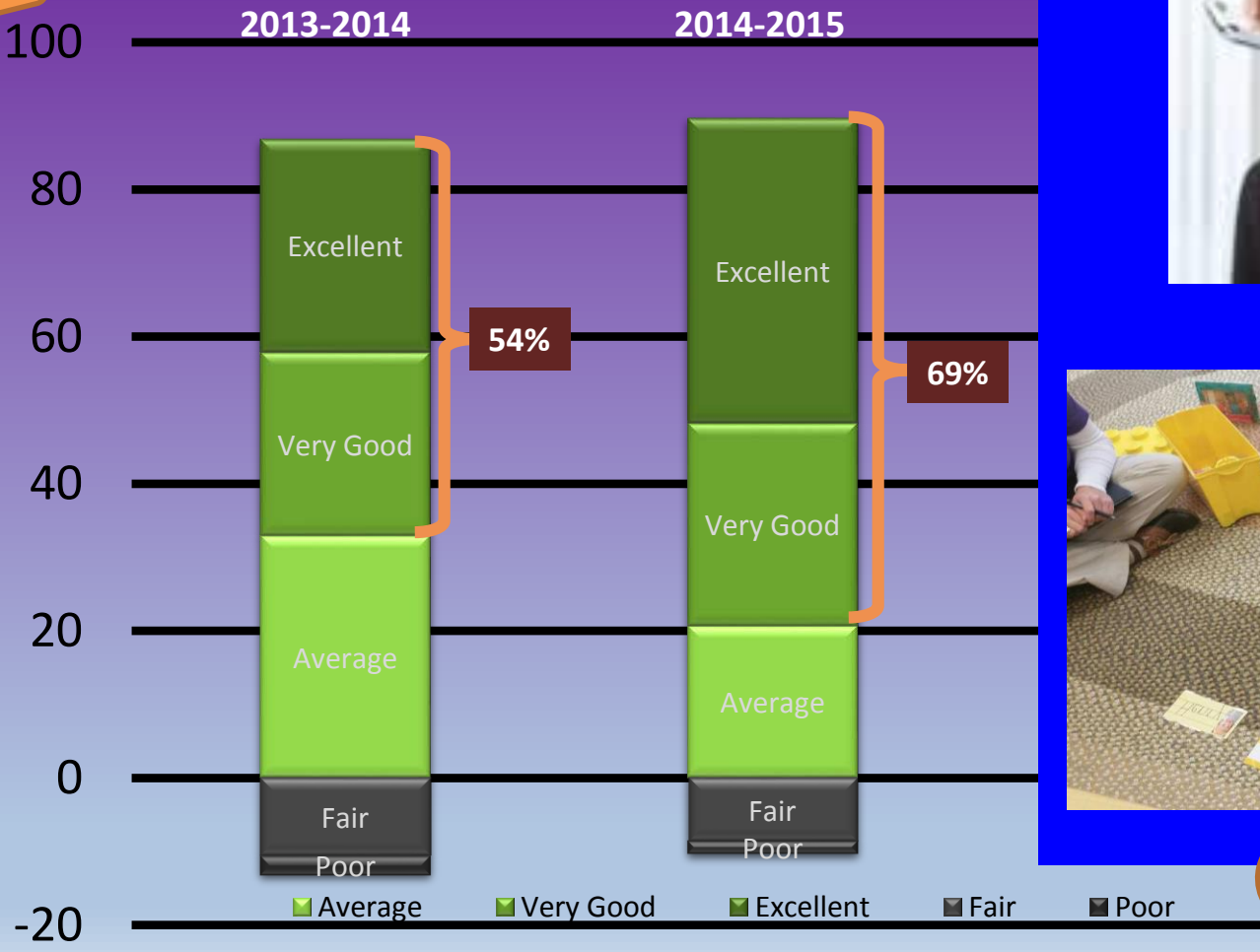
Year One



Verbal & written feedback



Year Two



Verbal & written feedback





Examiner: 729
Date: 6 9

children passing 90 75 90
ITEM

WAVE BYE-
INDICATE W



5 6

COPY
PERSON & PARTS
DEMONSTR.

WORDS 88%
T & BLOCKS

EACH FOOT 6 SECONDS
TIDE WALK
FOOT 5 SECS
SECS

FROM TOSS TO PASS POSITIONING WITH STICK



WORDS
S

RUN
WALK BACK
ELL
AND RECOVER

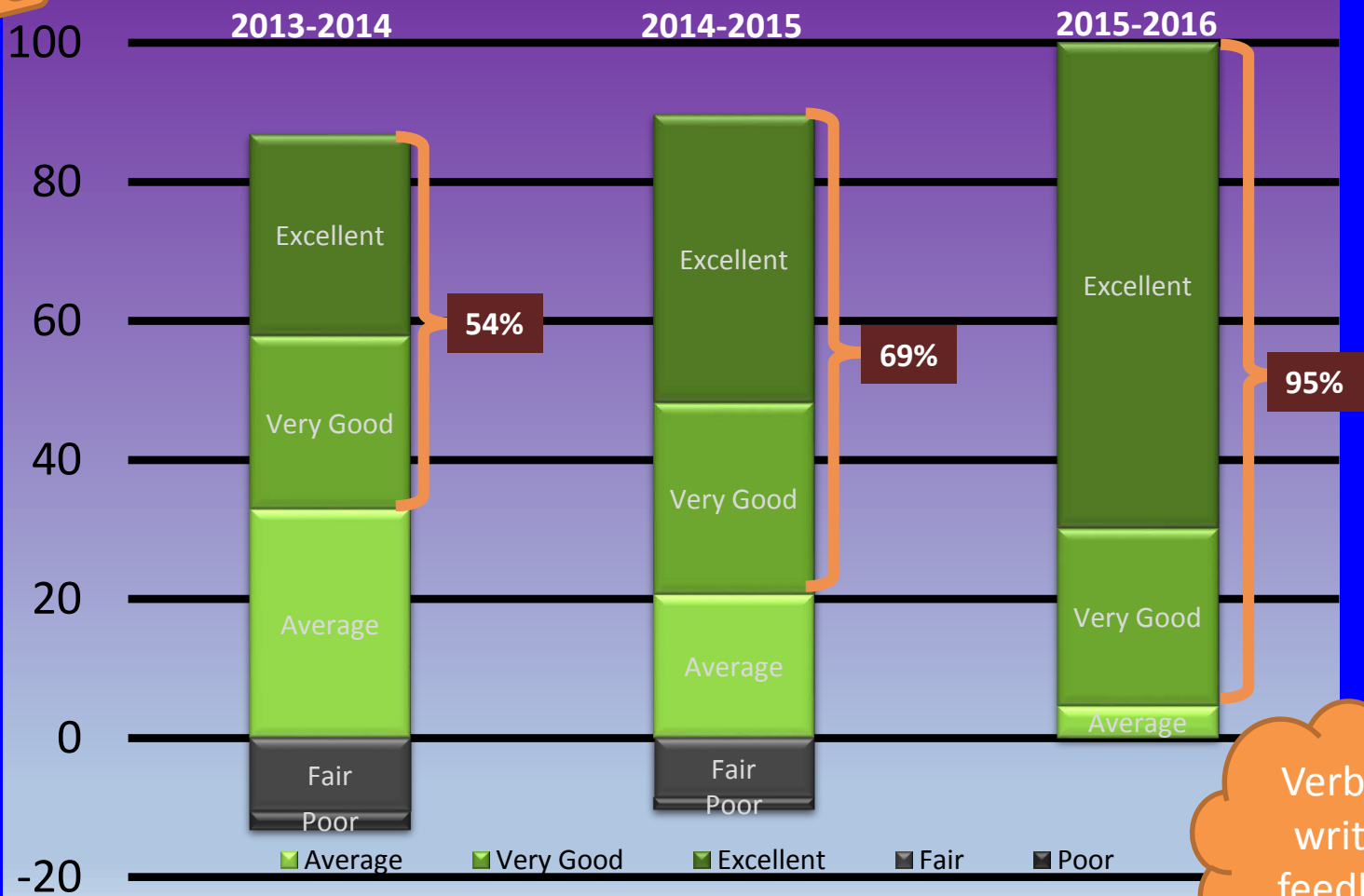


TURN TO VOICE
TURN TO RATTLING SOUND
SQUEALS

STAND-ALONE
STAND-2 SECS
GET TO SITTING



Year Three



Verbal & written feedback

Challenges and Next Steps

- NBME changed its category system for Step 2 CK starting in 2014-2015
 - No “Normal Growth and Development” category
 - Possible categories of overlap
 - Behavioral Health (+0.5 SD)
 - Applying Foundational Science Concepts (-0.1 SD)
- Further assessment/evaluation
- Extension of partnership to 4th year

Questions?

