Autism Updates 2018

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PATTAN
Autism Initiative ABA Supports

Change in Prevalence Data

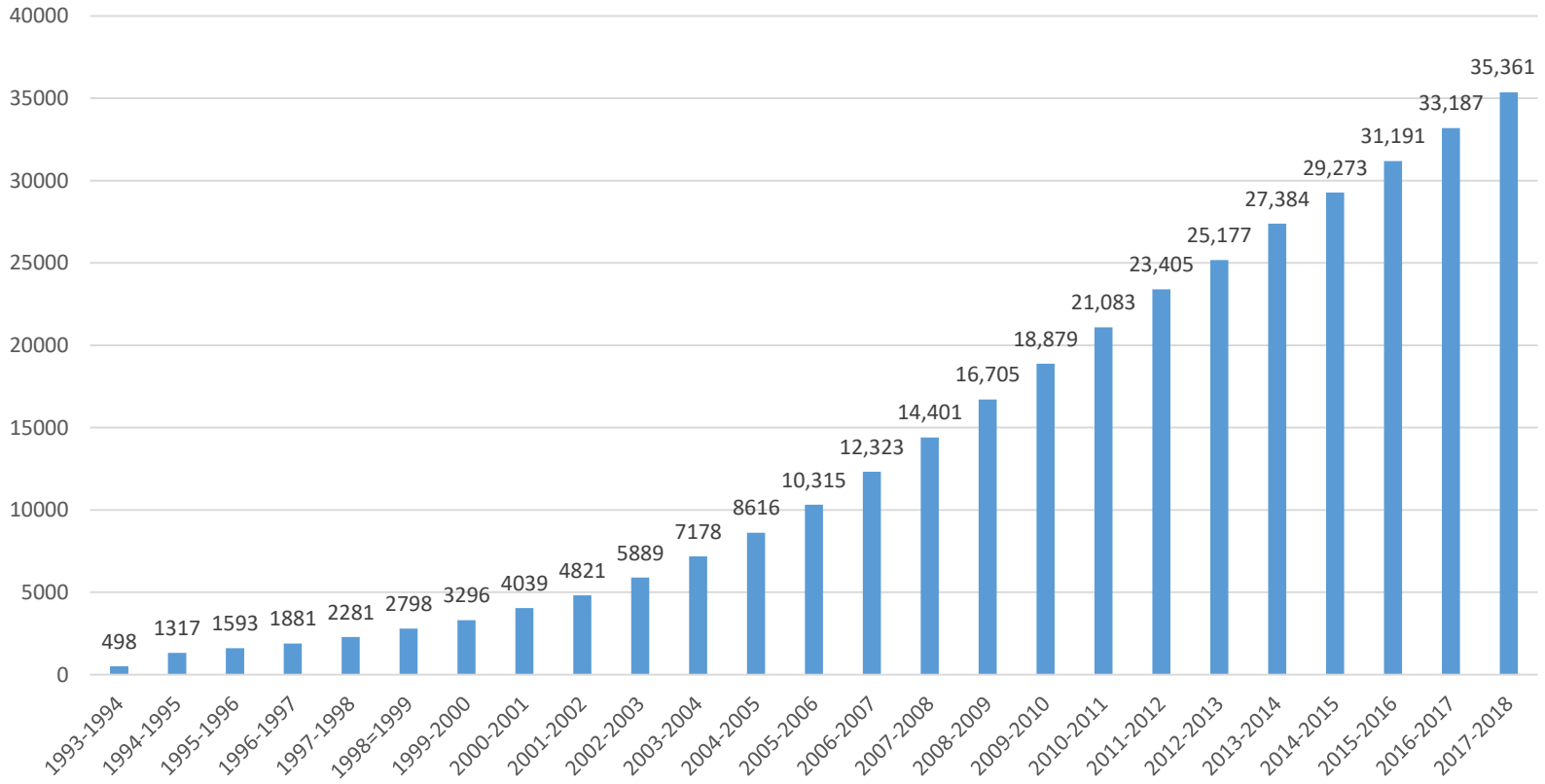
- CDC has announced that the prevalence rate for Autism Spectrum Disorders in the USA is now

1 in 59

- At this conference in 2012, Roy Richard Grinker suggested in his closing keynote address, based on Korea study of 2011, that prevalence of autism will probably peak at about 1 in 38 or 2.6% of population. Will it?

- Kim, Y.S., B. Leventhal, Y-J Koh, E. Fombonne, E. Laska, E-C Lim, K-A Chun, S-J Kim, Y-K Kim, H-J Lee, D-H Song, and R.R. Grinker."Prevalence of autism spectrum disorders in a total population sample," *American Journal of Psychiatry*. 168(90): 904-912. Published online, May 9, 2011. [*Nature* 2011 Editor's Choice Selection])

PDE Child Count Data: Students Eligible for IEPS Under Definition of Autism, Ages 3-21



Autism Interventions and Education

- Need for quality services and highly skilled teachers
- Need for services that address core deficits of autism (including social-communicative competencies)
- Need for evidence-based treatment
- Need for services to address a range of student needs across both general education and more restricted settings

Areas of Inquiry Relevant to Autism

- Genetics/Medical issues
- Prevalence/Diagnosis
- Educational and Behavioral Interventions

Efforts of the National Institute of Health

- NIH awards nearly $100 million for Autism Centers of Excellence program (2017)
  - University of California, Davis – Improving ASD treatments based on symptoms, features
  - University of California, Los Angeles - Tracing ASD symptoms to their origins
  - Duke University, Durham, North Carolina – Understanding and potentially treating ASD-ADHD combination
  - George Washington University, Washington, D.C. - Investigating how ASD differs between boys and girls
  - University of North Carolina, Chapel Hill - Tracking brain development, behavior as ASD progresses
  - Drexel University, Philadelphia - Evaluating autism screening for all toddlers.
  - Florida State University, Tallahassee - Testing parent coaching, home intervention for toddlers

Centers for Disease Control (CDC): Study to Explore Early Development (SEEDS, 2018)

- Began in December 2007; will continue until 2021
- Sites in 6 states (CO, GA, MD, MO, NC, WI)
- Thousands of families participated
- 3 study groups:
  - Children with ASD
  - Children with developmental disabilities
  - Children without developmental disabilities

Centers for Disease Control (CDC): Study to Explore Early Development (SEEDS, 2018)

- Children with ASD:
  - had more problems with early learning
  - challenging behaviors, and problems interacting with others than children in other study groups
  - more likely to have parent-reported vision problems and sensory integration disorder

Centers for Disease Control (CDC): Study to Explore Early Development (SEEDS, 2018)

- Children with other developmental delays
  - problems with early learning, challenging behaviors, and interacting with others than other children, but at lower levels than children with ASD.
  - About **a third of children** with other developmental delays had some **symptoms of ASD, but did not meet the full criteria** needed to be classified as having an ASD (avoid eye contact, have little interest in other children, or get upset by minor changes in routine, but still not fit the criteria necessary to be classified as having ASD.
  - Children classified as developmental delay with ASD symptoms had more problems with early learning, challenging behaviors, and interacting with others than other children than children classified as developmental delay without ASD symptoms.
  - Children classified as developmental delay with ASD symptoms were more likely to have parent-reported Attention Deficit Hyperactivity Disorder (ADHD) than children in other study groups.

Centers for Disease Control (CDC): Study to Explore Early Development (SEEDS, 2018)

- On average, children identified from the general population:
  - had early learning abilities within the typical range
  - few of the general population children had behavioral or social challenges or parent-reported conditions.

Centers for Disease Control (CDC): Study to Explore Early Development (SEEDS, 2018): from the SEED Fact Sheet

- Almost half of children with ASD have average or above average intellectual ability
- ASD occurs among all racial, ethnic, and socio-economic groups. However, white children are still more likely to be identified than black or Hispanic children
- Boys are about 4.5 times more likely to be identified with ASD than girls
- Most children are diagnosed with Autism after age 4, even though ASD can be diagnosed as early as age two

Genetics Home Reference: NIH US National Library of Medicine

https://ghr.nlm.nih.gov/condition/autism-spectrum-disorder

- Changes in over **1,000 genes** have been reported to be associated with ASD but **a large number of these associations have not been confirmed**
- Many common gene variations are thought to **affect the risk** of developing ASD but not all people with the gene variation will be affected
- **Most gene variations have only a small effect** but variations in many genes can combine with environmental risk factors (parental age, birth complications, etc) to affect risk
- **Non-genetic factors may contribute to 40% of ASD risk**

Genetics Home Reference: NIH US National Library of Medicine

https://ghr.nlm.nih.gov/condition/autism-spectrum-disorder

- 2-4% of people with ASD have rare gene mutations or chromosome abnormalities that may cause the condition.
  - Most are involved in the development of the brain
- The specific **ways that the protein synthesis resulting from gene actions relate to the development of ASD are unknown**
- Studies have indicated that during brain development, some people with ASD have more neurons than normal and overgrowth in parts of the outer surface of the brain (the cortex)
- May be “patchy areas” of the cortex where the normal structures of the cortex are disturbed

Some Headlines

- “Autism Blood test: One step closer” Medical News Today 7/6/2018
- “Autism is not linked to eating fish in pregnancy” study from University of Bristol, October, 2017 as reported in Science Daily 5/2018
- “Details of brain networks in autism: new personalized brain mapping approach underscores need for individualized treatments” study from Centre for Addiction and Mental Health as report in Science Daily 5/2018
- “Monkeys genetically modified to show autism symptoms” Nature news, 6/2016
- “Rat Squeaks may reveal autism gene’s role in communication” Autism Research News 7/2/18

The News on Autism for 2018:

"Promising Developments"
but
"More Research Needed"

While many large N medical, genetic and other studies point to promising directions, effective educational programming allows much to be accomplished **right now**

- Structure (organized, well-planned and sequential)
- Curriculum
- Teaching strategies
- Data based decision making

Developments in Educational Programming for Students with Autism

Evidence base remains pointed in the same direction:

- Instruction as an independent variable
- Skill acquisition as a dependent variable

- I will not cover an overview of relevant research on educational interventions completed in the last few years.
- Please attend the many sessions in this conference that will cover recent research related to educational interventions for individuals with ASD

Some Meta-Analyses Supporting the Role of Behavior Analysis in Autism Treatments

- National Autism Center Standards Report (2008, 2015)
- Missouri: ASD Guide to Evidence-based Interventions
- Maine: Interventions for Autism Spectrum Disorders: State of the Evidence
- North Carolina: Evidence-Based Practices for Children, Youth and Young Adults with ASD
- New York: Report of the Recommendations - Autism / Pervasive Developmental Disorders; Assessment and Intervention for Young Children (Age 0-3 Years)
- National Research Council: Educating Children with Autism

National Autism Center Standards Report Phase 2:

- “The National Autism Center has adopted the definition of evidence-based practice offered by David Sackett and his Colleagues: evidence based practice as ‘the integration of best research evidence, professional judgment, and values and preferences of clients.’” p.80
- “The combined results of NSP1 and NSP2 include data from more than 1000 studies. This is the largest review of its kind for individuals with ASD.” p. 80
- The report and evaluation methods can be retrieved from: http://www.nationalautismcenter.org/national-standards-project/phase-2/

NAC Standards Report Conclusions (2009):

- Approximately two-thirds of the Established Treatments were developed **exclusively** from the behavioral literature (e.g., **applied behavior analysis**).
- Of the remaining one-third of the Established treatments studies are derived **predominantly** from the behavioral literature.
- This pattern of findings suggests that treatments from the behavioral literature have the strongest research support at this time

In Pennsylvania: Behavior Specialist Certification allowing BCBAs to work in public schools

- CSPG No. 203 Page 1 of 2 August 1, 2016
- Staffing Assignment: Behavior Analyst (PreK-12)
- Behavior analysis is the scientific study of principles of learning and behavior. Applied behavior analysis (ABA) is a systematic approach for influencing socially important behavior through the identification of reliably related environmental variables and the production of behavior change techniques. The Board Certified Behavior Analyst certificate or PA Behavior Specialist license is required to perform behavioral intervention and support services for students with autism and other identified disabilities, as well as for regular academic students

A Behavior Analyst is qualified to:

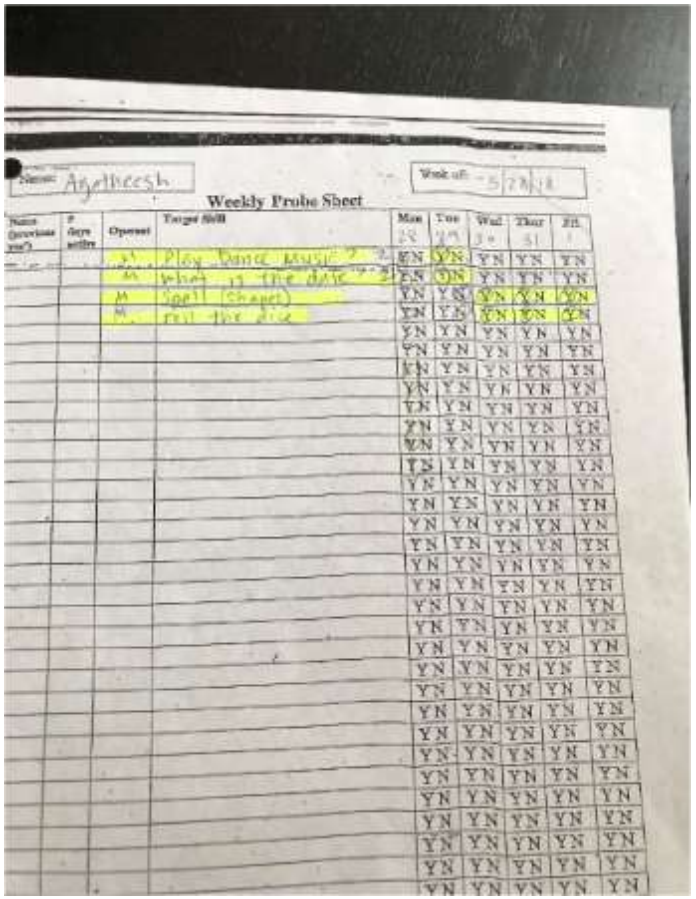
- Develop and **implement functional behavior assessments and positive behavior support plans.**
- Be involved in the **development and assessment of effective intervention training** including staff training, program specification, treatment fidelity, data calibration (such as inter-rater agreement), production of treatment manuals, data collection procedures, and analysis of accumulated data.
- **Evaluate treatments** through appropriate experimental design such as case study formats and single subject designs.
- **Provide consultative and direct support** for students with a wide range of disabilities including autism, social emotional disabilities, intellectual disabilities, multiple disabilities, and other categories of eligibility.
- Engage in activities relevant **to problem behavior prevention and school-wide systems of support.**

Why this is important

- Behavior analysis provides a scientific and effective approach to instruction and the management of problem behavior
- Role of BCBA and their practice is consistent with evidence of intervention effectiveness since behavior analysis is the most verified system for developing interventions for students with autism
- Behavior analysis has a rich history of guiding educational programs
- Behavior analysts can serve as valuable members of collaborative educational teams concerned about effective instruction and meaningful student outcomes.

One Example of Effective, sequenced instruction

Programming



- History of mand training
  - Items
  - Actions
  - Peers
  - Information
- Working toward independence in academic performance
- Developing social and leisure skills
- All instruction included clear procedures/data/ and analytic tools

Name: Agatheesh

Week of: 4/16/18

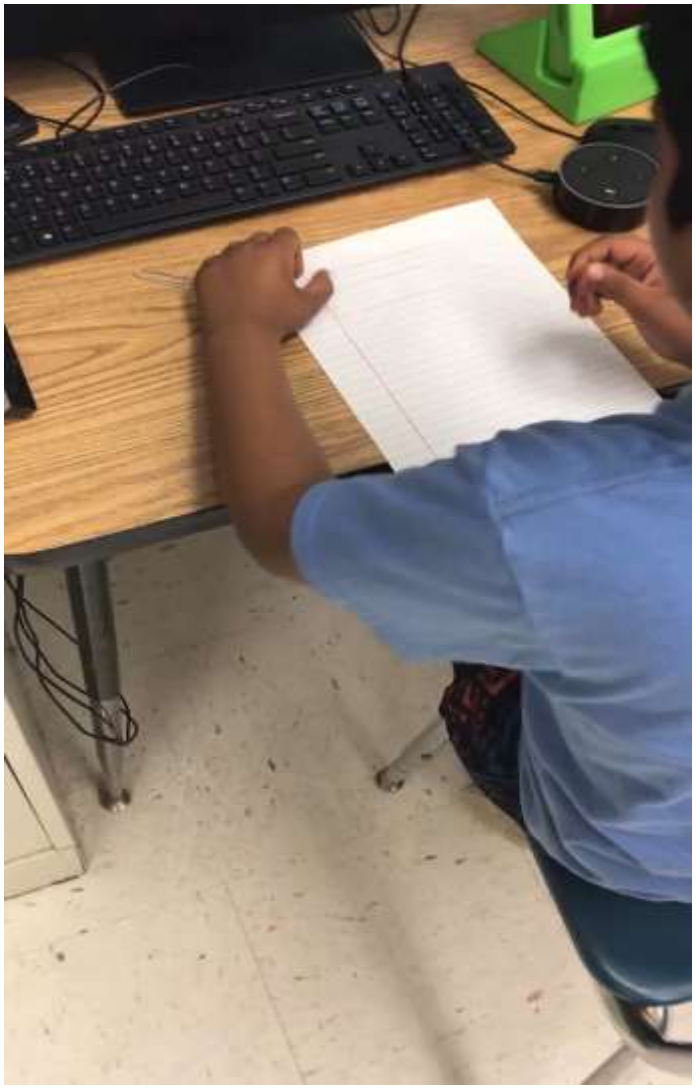
Weekly Probe Sheet

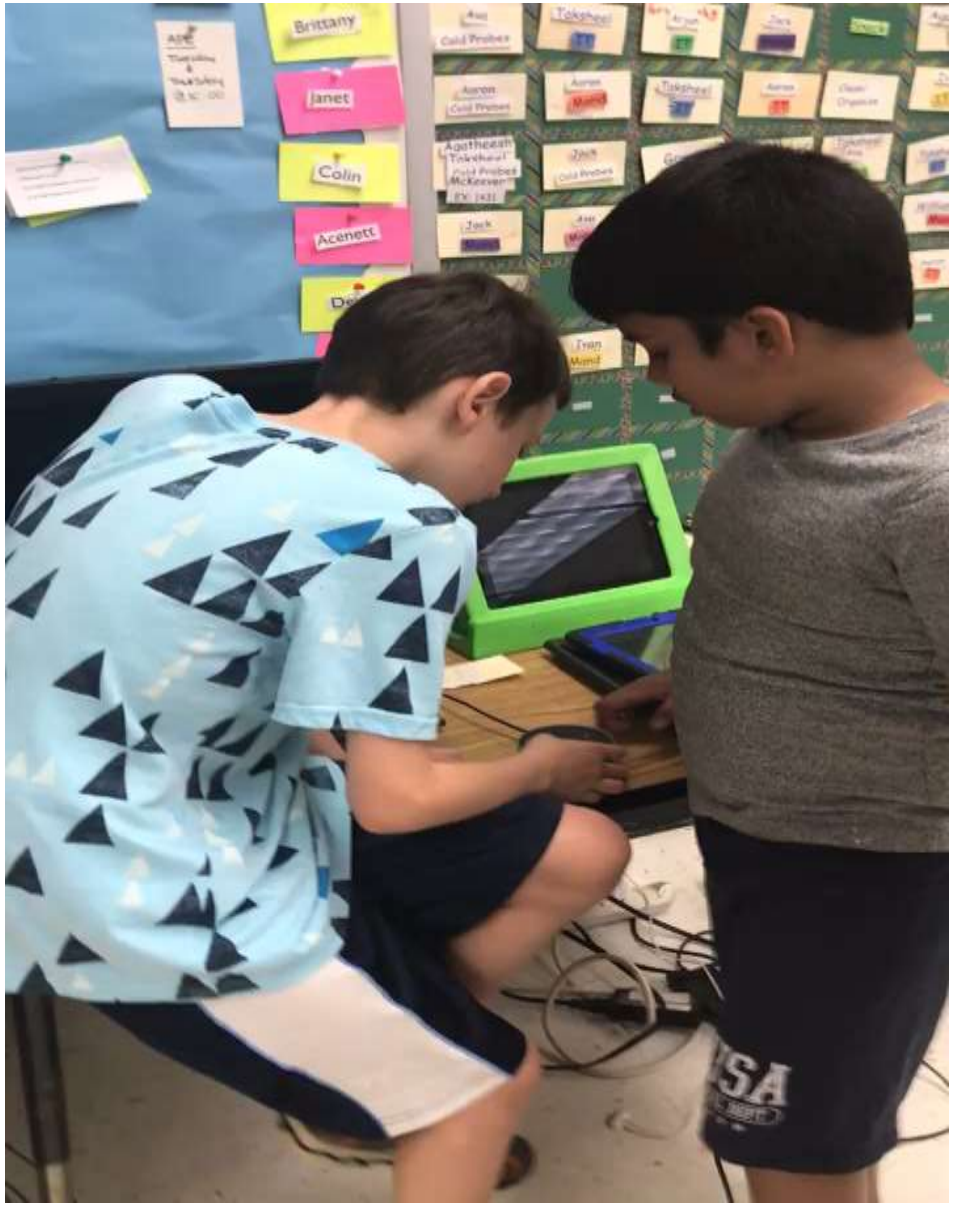
	# days active	Operant	Target Skill	Previous Y	Mon 16	Tue 17	Wed 18	Thur 19	Fri 20
1		T	Nintendo Switch	1	Y N	Y N	Y N	Y N	Y N
2		T	Gatorade	N	Y N	Y N	Y N	Y N	Y N
3		LR	2 items 2 Actions - NET	0	Y N	Y N	Y N	Y N	Y N
4		TFFCR	what do you do w/ open write w/ it	2	Y N	~~Y N~~	~~Y N~~	~~Y N~~	~~Y N~~
5		TFFCR	" " paper write on it	1	Y N	Y N	Y N	Y N	Y N
6		T P/F	stage 3 gym	N	Y N	Y N	Y N	Y N	~~Y N~~
7		T P/F	exit door	N	Y N	Y N	Y N	Y N	Y N
8		T P/F	keypad 3 cafeteria	N	Y N	Y N	Y N	Y N	~~Y N~~
9		T P/F	cooler	N	Y N	Y N	Y N	Y N	Y N
10		Math	tact Atypical dice patterns w/ 3	2	Y N	~~Y N~~	~~Y N~~	~~Y N~~	~~Y N~~
11		Math	" " 4 objects	1	Y N	Y N	Y N	Y N	Y N
12		TFFCR	what do you do w/ Alexa ASK	N	Y N	Y N	Y N	Y N	Y N
13		Math	Tact Atypical Dice patterns w/ 5 objects 5 questions	–	Y N	Y N	Y N	Y N	Y N
14		T	Vending machine	–	~~Y N~~	~~Y N~~	~~Y N~~	Y N	Y N
15		LR	3 Actions 1 item NET	–	~~Y N~~	~~Y N~~	~~Y N~~	Y N	Y N
16		T P/F	rock wall - gym	–	~~Y N~~	~~Y N~~	~~Y N~~	Y N	Y N
17		T P/F	kitchen - cafeteria	–	~~Y N~~	~~Y N~~	~~Y N~~	Y N	Y N
18		T Prep	in front 3 identical sets	–	~~Y N~~	~~Y N~~	~~Y N~~	Y N	Y N
19		T Prep	behind	–	~~Y N~~	~~Y N~~	~~Y N~~	Y N	Y N
20					Y N	Y N	Y N	Y N	Y N
21					Y N	Y N	Y N	Y N	Y N
22					Y N	Y N	Y N	Y N	Y N
23					Y N	Y N	Y N	Y N	Y N
24					Y N	Y N	Y N	Y N	Y N
25					Y N	Y N	Y N	Y N	Y N
26					Y N	Y N	Y N	Y N	Y N
27					Y N	Y N	Y N	Y N	Y N
28					Y N	Y N	Y N	Y N	Y N
29					Y N	Y N	Y N	Y N	Y N
30					Y N	Y N	Y N	Y N	Y N
31					Y N	Y N	Y N	Y N	Y N
32					Y N	Y N	Y N	Y N	Y N
33					Y N	Y N	Y N	Y N	Y N
34					Y N	Y N	Y N	Y N	Y N
35					Y N	Y N	Y N	Y N	Y N

Red: receptive ID | Green: Tact | Yellow: Echoic | Purple: Motor Imitation | Blue: Intraverbal

Criteria for mastery: _____ **consecutive yes'**

Key: once mastery is met, indicate by drawing a phase change line on the corresponding date of the




Brittany
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Thank You
and
Enjoy the Conference!

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