"Lost at Sea" in ASD?

Techniques for Improved Communication and Examination of Pediatric Patients with Autism Spectrum Disorders

Dr. Thomas Meersman
DHSc, MMSc, PA-C
Assistant Professor
North Central College MSPAS Program
AAPA 2021 Conference

Disclosure

- I have no financial relationships with commercial interests to disclose

Objectives

- By the end of this lecture the clinician will be able to:
  - Categorize the unique sensory needs of children with autism spectrum disorder (ASD).
  - Identify the responses that children with ASD experience during physical exams, highlighting challenges related to anxiety and specific phobias.
  - Apply behavioral techniques to assist with the use of instruments/procedures that are often problematic in the examination of children with ASD.
  - Describe the common components of coping kits, visual communication tools, and anxiolytic adjunctive modalities and demonstrate the proper use of these elements during the examination of children with ASD .
  - Discuss current research on the examination of children with ASD, delineating components that may prove useful to clinicians and parents/caregivers.

Pre-test Question 1

- All of the following represent established approaches to facilitate the physical examination of a resistant/agitated patient with ASD except:
  - A. Use of distractive tools such as those found in a coping kit.
  - B. Using specific and detailed written and verbal instructions to outline the entire procedure at all once.
  - C. Modifying the physical environment to tailor the stimuli experience (i.e.- dimming lights, providing head phones, and chewy tubes).
  - D. Providing visual cues of the procedure/exam using visual models such as dolls or stuffed animals prior to performing the procedure.

Pre-test Question 2

- All of the following are methods of alternative communication that you may see commonly used by children with ASD to assist their communication and decrease anxiety/fear with health care providers during their exam EXCEPT:
  - A. Speech Generation Devices (SGD)
  - B. Picture Exchange (PE)
  - C. Functional Magnetic Resonance Imaging (fMRI) enabled speech device
  - D. Micro Switches

Pre-test Question 3

- Based on research performed on the physical examination of children with ASD, which of the following techniques is NOT a preferred technique for the routine behavioral management of fear/anxiety related to physical exam:
  - A. Intermittent graduated exposure to fearful stimuli
  - B. Tell-Show-Feel-Do (T-S-F-D)
  - C. Differential reinforcement of other behavior (DRO)
  - D. General sedation

Roadmap

- Intro/Demographics/Terminology
- Sensory Concerns
- Communication Concerns
- Safety concerns (Anxiety/Fear)
- Mobility concerns
- Research

The Reality of Medical Care in Special Needs Populations

- Children with ASD and developmental disorders (DD)
  - Often require more frequent medical care
  - Experience more difficulties during the history and physical examination than neurotypical peers (Cuvo et al., 2010).

The Fallout of Traditional Histories in ASD

- Health care providers often fail to obtain a detailed medical evaluation relying on:
  - Parents/caregivers
  - Incomplete preexisting medical records (Cuvo, Readan, Ackerlund, Huckfeldt, & Kelly, 2010).

Importance of Performing Proper Exams

- Negative health care experiences can adversely affect children with ASD/DDs perceptions of medical care for future visits
- Targeted behavioral support can facilitate the examination of this unique patient population, preventing child:
  - Stress
  - Adverse events
  - Future aversion to medical care (Drake, Johnson, Stoneck, Martinez, & Massey, 2012, p. 215)

The Reality of Medical Care in Special Needs Populations

- Nationwide survey of primary care health care professional (Wexler, Holmes, Shore, & Rollins, 2015).
- Self-rated ability to care for patients with ASD
- 77% felt their ability to care for someone with ASD as:
  - Poor
  - Fair
- Essential health care procedures in this population, often rely on:

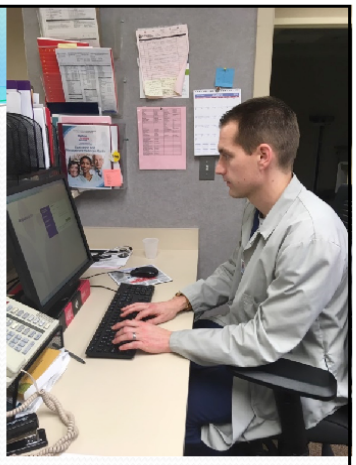
(Cuvo et al., 2009)

  - Physical restraint
  - Sedation
  - Forgo procedures due to non-compliance

Clinical Scenario

- 6-year-old male patient, named Jack, presents to your outpatient clinic with chief complaint of "he feels warm" for the past 2 days per the parent. You observe as the patient is wheeled into his room by stroller/community access device that Jack is grunting, repeating the words "all done", watching a video on a tablet device, and constantly sucking on his finger. He appears agitated, makes poor eye contact with the nurse, and responds in a limited manner using "yes/no" answers to questions primarily with laminated cards his parent brought in for the examination. Your clinician coworker rolls their eyes, looks to you and says, "Well, I guess Jack is back again."

Clinical Scenario



- Your best course of action for Jack is:
  - A. Run and hide in the bathroom.
  - B. Take an early lunch.
  - C. Spend time catching up on charts and hope your colleagues see Jack instead.
  - D. Review his medical history and enter the room, discussing the history with the parent but never examining Jack due to "combativeness" and "non-compliance" during the clinical interaction.
  - E. None of the above.

Definitions (Autism Speaks, 2018)

- Autism Spectrum Disorder (ASD)
- DSM-5 Criteria - Symptoms
  - Persistent deficits in social communication/interaction
    - Deficits in:
      - Social/emotional reciprocity
      - Nonverbal communicative behaviors
      - Developing, maintaining, understanding relationships
  - Restricted, repetitive patterns of behavior, interest, activities (2+)
    - Stereotyped/repetitive movements/speech/use of objects
    - Insistence on sameness, routines, patterns
    - Restricted, fixated interests
    - Hyper/hyporeactivity to sensory inputs
  - Symptoms are not better explained by intellectual disability or developmental delay

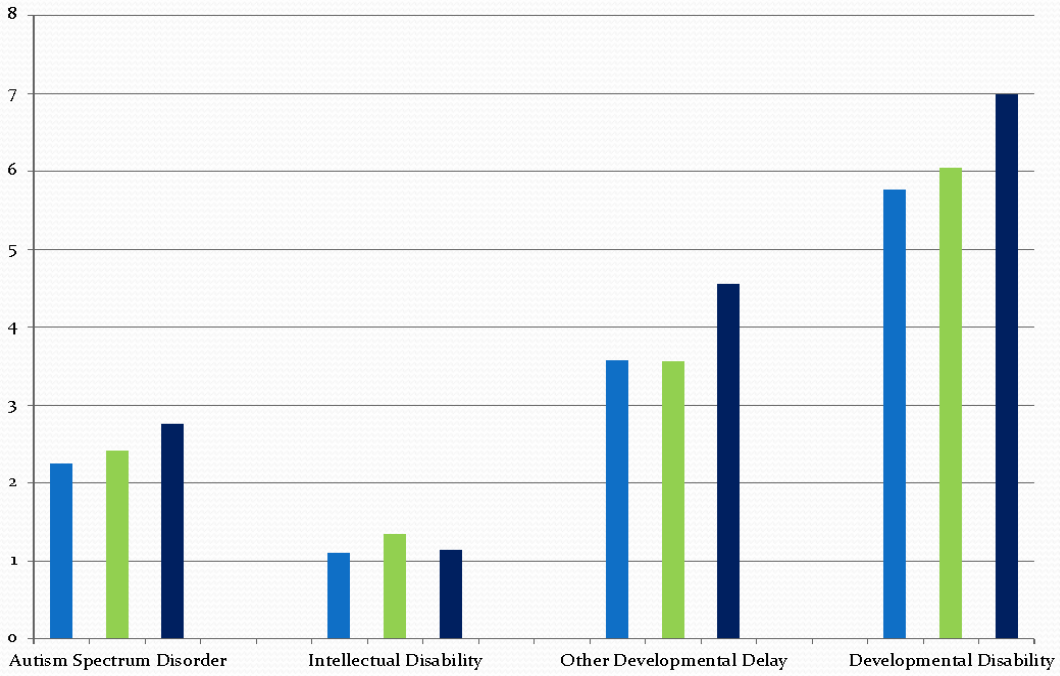
Demographics – ASD

- Prevalence of ASD (Autism Speaks, 2018; Monz, Houghton, Law, & Loss, 2019)
  - 2018 CDC estimates:
    - 1 in 37 Boys
    - 1 in 151 Girls
      - Boys > 4 x more likely to have ASD than girls
  - Most diagnosed after age 4
    - Reliable diagnosis as early as 2-years-old

Demographics – ASD (Autism Speaks, 2018; Monz et al., 2019)

- Challenges:
  - Nearly half all children wander/bolt from safety
  - High rates of self injurious behavior
    - Head banging, arm biting, skin scratching most common
  - Highly Concomitant intellectual disability (ID)
    - 31% also have ID
    - 25% borderline ID
    - 44% average-above average intelligence
  - Medical expenditures average 4.1-6.2 times higher in ASD
  - Passage of autism insurance legislation in 48 states
    - Increased access to medical care/treatment

Relative Prevalence of ASD/DD in Children aged 3-17, 2014-2016



Adapted from Zablotsky et al., 2017

Important Terminology- Developmental Disorders (Harris, 2013)

- Please avoid:
  - Mental Retardation(MR)/"Retarded"
    - Adopted by medical societies in 1961
    - Replaced terms feeblemindedness, idiocy, and mental subnormality.
    - All are now considered pejoritive
  - APA revised preferred terminology in 2013 with DSM-5 and ICD-11.
  - In US, federal statute has replaced MR with Intellectual Disability (ID).

Roadmap

- Intro/Demographics/Terminology
- Sensory Concerns
- Communication Concerns
- Safety concerns (Anxiety/Fear)
- Mobility concerns
- Research

Anatomy and Pathophysiology of Autism (Lathe, 2006)

- MRI
  - Abnormal size of limbic structures
    - Fewer hippocampal dendrites, abnormal hippocampal volume
    - Higher neuronal density in amygdala, abnormal volume
- Histology
  - Prefrontal and temporal lobe cell columns increased in number, but smaller and fewer neurons per column
- fMRI
  - Examine blood flow and energy utilization
    - Reduced blood flow to temporal lobes
    - Asperger – abnormal functional integration amygdala and parahippocampal gyrus
- Reduced neuronal metabolite in hippocampus/amygdala and cerebellum
  - Indicates diminished metabolic activity in these areas
  - Sign. Correlation between parent rated ASD severity and limbic neuronal density
- SPECT
  - Decreased blood flow to left temporal lobe
- PET
  - Decreased blood flow to temporal lobes

Pathophysiology of Autism – ASD Phenotype (Lathe, 2006)

- Memory
  - Hippocampal dependent memory affected in ASD
  - Repeat training can overcome hippocampal damage/lesions and also in ASD
    - Difficulty relearning "new rules"
- Anxiety/Stress
  - Associated with hippocampal function in ASD
- Desire for sameness
  - Decreased blood flow to right amygdala/hippocampus associated with obsessive desire for sameness
- Perception of facial emotions
  - Associated with limbic atrophy, facial recognition temporal lobe
- Social interaction
  - Amygdala lesions associated with impaired evaluation of social stimuli
- Language
  - Limbic lesions associated with speech/language impairment
- Stereotypical/repetitive behavior
  - Associated with hippocampal lesions
- Sensory Deficits
  - Temporal lobe/limbic lesions associated with auditory agnosia ("hearing blindness")

Anatomy and Pathophysiology of Autism (Lathe, 2006)

- Consensus:
  - Abnormalities in the medial temporal lobe, hippocampus, and amygdala
    - Cognitive, perceptual, social and language impairments of ASD
  - Cerebellar abnormalities
    - Impaired coordination/posture/locomotion

Sensory Experience in ASD

- CGI Animated Shorts : "Listen" - by Alexander Bernard ... – YouTube – 2:41.
  - Bernard, A., & Fernandez, M.(2016, June 7). *Listen Senior Film*.[Video File]. Retrieved from https://www.youtube.com/watch?v=ibylThIMErE
- DMV...

Sensory Experience of ASD

- Sensory processing difficulties are universally present in children with ASD (Lathe, 2006)
  - Hearing deficits in 8.6%
  - Varying visual impairments in 25%
- Sensory difficulties correlated with maladaptive behaviors (Nieto, López, & Gandía, 2017)
  - Key driver of parental stress
- Sensory disturbances may involve acoustic, visual, tactile, and pain stimuli (Lathe, 2006)
  - Heightened response
  - Reduced response

Hypersensitivity (over responsive)	Hyposensitivity (under responsive)	Impaired Sense	Accommodation in Clinic
	Poor response to visual cues	Vision	Pictures/items with high contrast
	Poor Balance/Coordination	Proprioceptive/Vestibular	Opportunities for rocking/swinging/weighted vests or blankets
	Oral seeking	Tactile/oral	Chewable tubes
Spectrum of light		Visual	Room without fluorescent lamps
Loud Noises		Auditory/vestibular	Ear plugs/Headphones/ Close door
Sensitivity to touch		Tactile	Request permission prior to touching
Bright light		Visual	Dimmed lights/visor/sunglasses

Hypersensitivity (over responsive)	Hyposensitivity (under responsive)	Impaired Sense	Accommodation in Clinic
Withdrawing from soft touch		Nociceptive/Tactile	Avoid rough stimuli
Avoidance of textures		Tactile	Avoid painful/rough stimuli
Smell		Gustatory	Avoid perfumes, colognes, or scented items
	Seek out strong tastes/odors	Gustatory	Flavored chewable tubes
	Unresponsive to loud noises	Vestibular/Auditory	Noisy toys, play loud music, running commentary

(Brownlee, 2010; Fun and Function, 2018; Developmental Delay, 2014; Newman, 2008)

Big Picture Check

- Which of the following statements are TRUE regarding triggers of sensory stimuli for children with ASD?
  - A. Hypersensitivity to stimuli is the most common general sensory trigger.
  - B. Hyposensitivity to stimuli is the most common general sensory trigger.
  - C. Sensory triggers are similar in this population to those of neurotypical peers.
  - D. BOTH hyposensitivity and hypersensitivity are common general sensory triggers

Roadmap

- Intro/Demographics/Terminology
- Sensory Concerns
- Communication Concerns
- Safety concerns (Anxiety/Fear)
- Mobility concerns
- Research

Language and ASD

- Basic Terms
  - Speech (Mulhern et al., 2017) – ability to articulate needs or thoughts
  - Vocalizations (Mulhern et al., 2017) – act/process of producing voice sounds
  - Receptive language (Lim, 2011)
    - What the individual understands
  - Expressive language (Lim, 2011)
    - What is spoken/expressed by the individual

Language and ASD

(Lim, 2011)

- Key considerations
  - *Lack of expressive language does not signify a total lack of receptive language.

Language and ASD (Lim, 2011; Mulhern, 2017)

- "Inadequate" use of language key feature of ASD.
  - Early speech delay/regression
  - 1/3rd to ½ of individuals with ASD are unable to communicate at a level to express daily needs.
    - 25-30% of children with ASD fail to acquire speech without direct intervention
    - Possible linkage with comorbid intellectual disabilities
    - Challenges/inability to decode auditory speech

Language and ASD

(Lim, 2011; Mulhern, 2017)

- Verbal ASD children display aberrant speech:
  - Unusual word choice
  - Echololia
  - Unresponsiveness to questions
  - Lack of drive to communicate
  - Absent reciprocal "Give and take" of communication
  - Inability to understand body language, tone of voice, subtle language queues

Developmental Level and Corresponding Characteristics in ASD (Hudson, 2006)

- Level 1
  - Responds to name
  - Aware of others
  - Indicates needs through gestures
  - Prefers soothing touch
  - Enjoys rhythm/repetition
  - Orients to facial expression
- Level 2
  - Acquires language
  - Engages in discovery/inquisition
  - Imitation/play
  - Prefers structure/limits
  - Requests help/communicates needs
  - Gains control of body/motor skills

Developmental Level and Corresponding Characteristics in ASD (Hudson, 2006)

- Level 3
  - Develops imagination
  - Mimics adults
  - Able to provide detail
  - Understands rules/orders
  - Greater awareness of body
  - Increase language
- Level 4
  - Seeks details
  - Tells others rules
  - Maintains routines
  - Makes plans, more structured
  - Gains reasoning skills

Developmental Level and Corresponding Characteristics in ASD (Hudson, 2006)

- Level 5
  - Establishes goals
  - Aware of peer opinions
  - More advanced problem solving
  - Weighs options/outcomes
  - Abstract thinking
  - Understands sequence of events
  - Makes personal choices

Developmental Level and Corresponding Characteristics in ASD (Hudson, 2006)

- Developmental checklists
  - Used to determine developmental level
  - Tailor make Participation and Information Plans. Ex.-
    - Medical interaction – MRI
    - Developmental level – Level Two
    - Information processing characteristics
      - visual learner
      - overstimulated by people
      - needs processing time
    - Developmental level considerations –
      - Simple, visual steps
      - Use repetition
      - Comforted by close contact, holding preferred object

Language Considerations

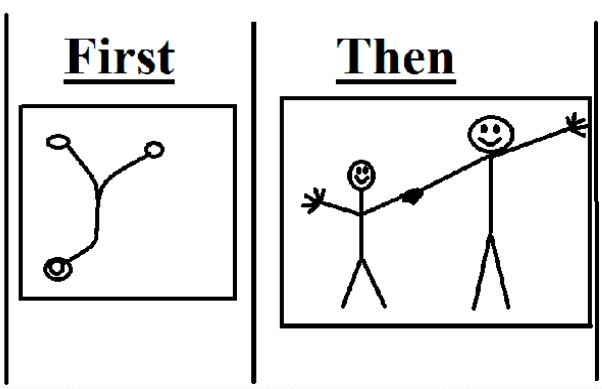
- Challenges with speech acquisition affect quality of life
  - Decreased independence
  - Decreased social adaptive functioning
    - Struggles integrating with peers
    - Comorbid behavioral difficulties and language deficit common

Roadmap

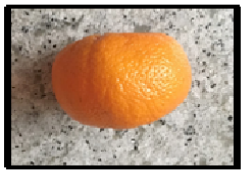
- Intro/Demographics/Terminology
- Sensory Concerns
- Communication Concerns – Continued…
- Safety concerns (Anxiety/Fear)
- Mobility concerns
- Research

Objects of Reference

- Visual representation of the tasks asked of the individual (Goldbart et al., 2014).



Objects of Reference

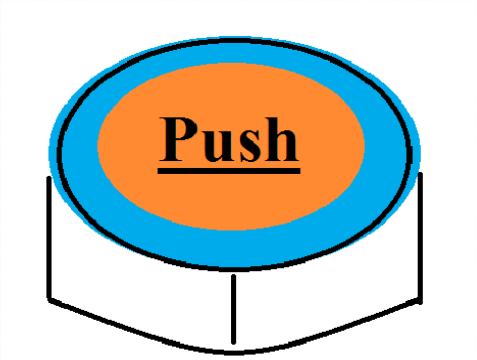


1	2	3	4

Micro Switches

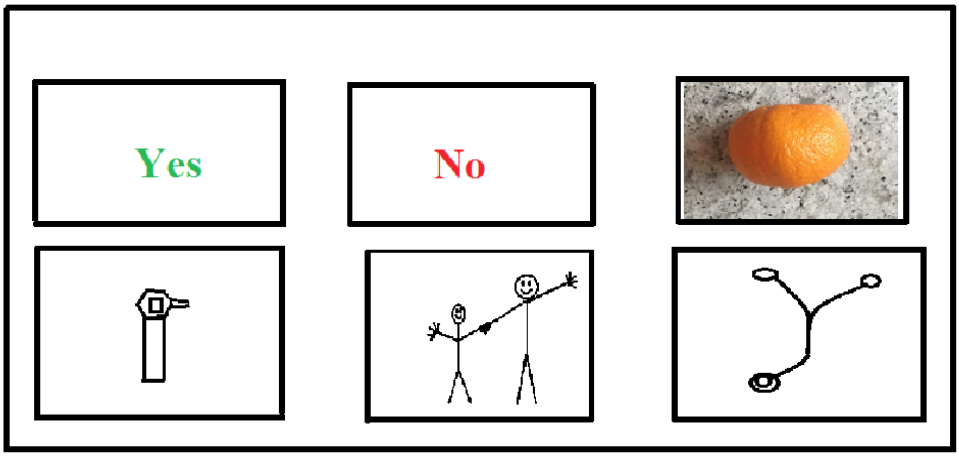
(Cable, 2015; Lancioni, O'Reilly, & Basili, 2001)

- Applying tactile pressure to an electronic switch
  - Wobble
  - Pressure
  - Pull
  - Pedal type inputs (Lancioni, O'Reilly, & Basili, 2001)



Picture Exchange (PE)

Ganz et al., 2014
Lancioni et al.,2001



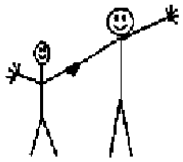
- PE techniques comparable effectiveness speech generation devices in children with comorbid ID (Ganz et al., 2014)

Speech Generation Devices (SGDs)

(Hagan and Thompson, 2013)

- Advanced means of communication that uses touched symbols to trigger recorded messages.
- Mimic verbal speech
  - Speakers
  - Increase communication competence in children with ID
  - Studies also showing effectiveness in children with multiple disabilities and ASD

Speech Generation Devices (SGDs)

No stethoscope goodbye		
Yes	No	More
		

Sign Language (Vandereet et al., 2013)

- Impairments in fine and gross motor functioning may limit the use of sign language in children with ID
  - ***Sign language may be an adjunct for communication, provided:
    - Baseline cognition is relatively high
    - Fine motor skills are advanced enough to allow hand manipulation to form signs consistently

Big Picture Check

- All of the following are methods of alternative communication that you may see commonly used by children with ASD/DD to assist their communication and decrease anxiety/fear with health care providers during their exam EXCEPT:
  - A. Speech Generation Devices (SGD)
  - B. Picture Exchange (PE)
  - C. Micro Switches
  - D. Functional Magnetic Resonance Imaging (fMRI) enabled speech device.

Roadmap

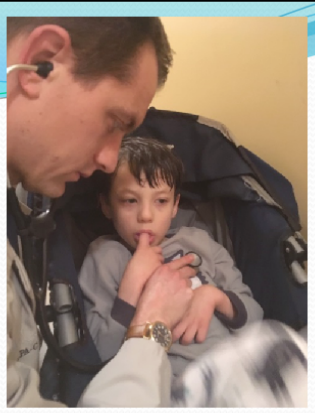
- Intro/Demographics/Terminology
- Sensory Concerns
- Communication Concerns
- Safety concerns (Anxiety/Fear)
- Mobility concerns
- Research

Anxiety (Gillis, Natof, Lockshin, & Romanczyk, 2009).

- Anxiety and fear associated with medical evaluation is increased in the pediatric ASD population.
  - Specific phobias affect
    - 44% of children with ASD
    - 5% of typically developing children (Gillis et al., 2009)
- Minimizing anxiety to medical instruments and procedures higher yield even in ASD population (Gillis et al., 2009).

Mountain of Emotion

(Hudson, 2006)



-Child "meltdown"
-Extreme behavior/emotions
-Fight or flight

-Child overwhelmed
-Environment loaded with stimuli
-Lack understanding

-Remind child of coping technique
-Talk through cues
-Adult intervention
-Encourage positive aspects

-Give space and quiet
-No intervention besides safety

-Child Calms down
-Begins to relax

-Adult review of episode
-Strategize for future episodes

Phobias in ASD

- Communication tools and distractive items may decrease anxiety/stress and assist the clinician with performing an exam (Drake et al., 2012).

Distraction Tools (Breslin & Liu, 2015; Drake et al., 2012)

- Examples:
  - Coping kits
  - Social stories/Written schedules
  - Sensory input activities
  - Other visual communication techniques
- Limit auditory and verbal instructions to short verbal commands

Distractive Items/Techniques

- Otoscope light onto a child's hand, moving forward and back to display the lights scope (Narula-Isaac, 2005)
  - Repetition of this routine beneficial in ASD
- Chewable toy (Drake et al., 2012)
- Light-up spinning fan toy (Drake et al., 2012)
- Bubble wand (Weltman, 2007).
- Tablet/Smartphone

Other Distractive Items in Coping Kit

- Sand
- Ear plugs / ear phones
- Visors/ hats
- Fidget toys
- Weighted vest / weighted blanket
- Soothing music
- Lava Tubes (bubbles/floating objects)

Big Picture Check

- Question: Besides communication, what are the other two main areas of focus for your physical examination of the ASD/DD child in this lecture?
  - A. Sedation
  - B. Restraints
  - C. Safety Concerns (anxiety/phobias)
  - D. Mobility Concerns

Roadmap

- Intro/Demographics/Terminology
- Sensory Concerns
- Communication Concerns
- Safety concerns (Anxiety/Fear)
- Mobility concerns
- Research

Mobility/Examination

- ASD (Breslin & Liu, 2015).

  (Recommendations adapted from article assessing motor skills in school)
  - Attire
    - Logos on clinician clothing may be distracting/point of perseveration
    - Child clothing preferences may be related to tactile input
      - Shirt tags
      - Loud clothing
  - Equipment
    - Substitute for different color/texture if distracting or child is tactile sensitive
  - Rely on support personnel

ASD Needs Assessment

- Noncompliance during exam (Cuvo et al., 2010):
  - Low passive compliance with exam requirements
  - Receptive language deficits
  - Challenges in learned behavior/mimicking
    - Visual discrimination
    - Opening mouth
    - Taking deep breath
- So how do we ensure we are meeting children's needs and assessing their level of functioning?

ASD Needs Assessment

- Ideal:
  - Quick
  - Easy
  - Parent/caretaker facilitated
  - Administered at the point of entry/triage for medical care
  - Non-invasive
  - Inexpensive
  - Take into consideration communication, anxiety and mobility for each child

Initial Assessment (Hudson, 2006)

- Childs Name:
- Medical Diagnosis:
- Reason for medical visit:

- Excels in these skills:
- Activities in which the child enjoys:
- Activities the child avoids:
- Motivators:
- Stress triggers:
- Adaptations already in place:
- Communication system in place:
- Known Sensory issues:
- Special Diet/food allergies:
- Optional add ons:
  - Mobility Needs:
  - S.W.O.T

Roadmap

- Intro/Demographics/Terminology
- Sensory Concerns
- Communication Concerns
- Safety concerns (Anxiety/Fear)
- Mobility concerns
- Research

Coping Kit Study

(Drake et al., 2012)

- Coping kits were used by clinical staff to:
  - Reduce anxiety
  - Distract
  - Provide additional communication to children with ASD
- Improved willingness to cooperate through an observed change in child behavior in 79% of cases (19/24).

Training Compliance with PE (Cuvo et al., 2010)

- Applied Behavioral Analysis (ABA)
- Health care procedures analyzed as a behavioral sequence of steps
  - Steps scored
  - Compliance analysis
- Reason for non-compliance identified with functional behavioral analysis techniques
- Developed tailored procedures based on the reasons for non-compliance

Training Compliance with PE (Cuvo et al., 2010)

- Medical Office setting
- ASD and Pervasive Developmental Disorder NOS patients
- 10 component, 10-minutes physical exam performed by PA (pretest)
- 6 subjects
  - Aged 3-6 years-old
  - Male and female
- Inclusion Criteria
  - ASD/PDD-NOS
  - Failure to pass all 10 components of exam
  - History of exam non-compliance
  - Joint attention
  - Reactive to response consequences
  - Follow a visual schedule
  - Follow simple instructions

Training Compliance with PE (Cuvo et al., 2010)

- Participants watched 9-min DVD modelling successful exam
  - Dinosaur puppet narrated steps of exam praising good behavior
  - Close ups of medical equipment
  - Target responses modelled
  - Still photos taken of completed step to use for during exam
- Children examined in a videotaped 10 component PE
- Compliance with exam component graded
- Parent Questionnaire

Training Compliance with PE (Cuvo et al., 2010)

- Children provided
  - Medical instruments used
  - Picture of peer modeling terminal step
  - Verbal instructions
  - Praise for compliance – progress to next step
  - Response consequences for non-compliance
  - Video modelling behavior viewed daily after intake

Training Compliance with PE (Cuvo et al., 2010)

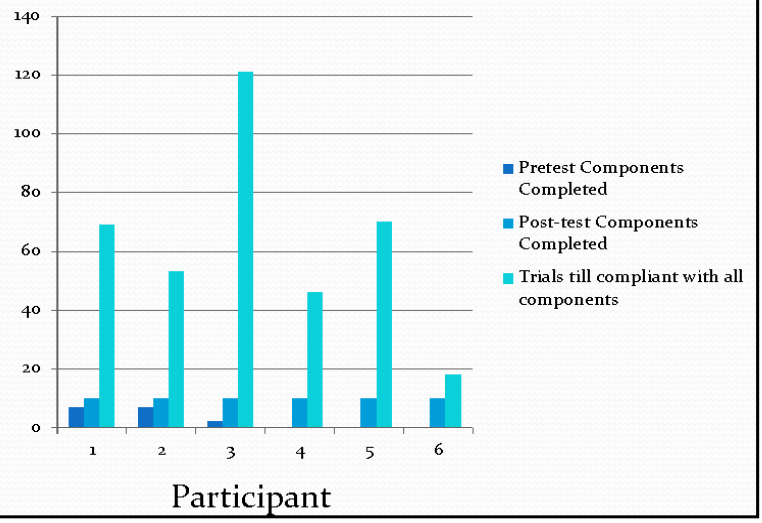
- Each exam/training session
  - Contact desensitization – gradual exposure to non-preferred stimuli
  - Shaping – address skill deficits
  - Differential reinforcement of other behavior (DRO) – use of preferred reinforcers
  - Escape extinction – aversive stimuli present for at least 10 seconds

Training Compliance with PE (Cuvo et al., 2010)

- Response maintenance probes – weekly maintenance of passed components until post-test
- Stimulus generalization – subjects examined by different examiner (PA)
- Post-test

Training Compliance with PE (Cuvo et al., 2010)

- Results
- All participants eventually completed all 10 exam components
- Most problematic exam components:
  - Lung
  - Mouth/throat
  - Nose
  - Ear



TEACCH (Orellana, Martínez-Sanchis, & Silvestre, 2014)

- Treatment and Education of Autistic and related Communication Handicapped Children Model Study
  - Study aim – reduce use of unnecessary general anesthesia and high dose sedation during dental procedures using TEACCH
  - Participants with Aspergers, ASD, and PVD-NOS
  - N= 72
    - Children (n=38) – 4-9 years, Adults (n=34)- 19-41
  - 10-component dental exam
  - Pre-test
  - Five training sessions
  - Post-Test

TEACCH (Orellana et al., 2014)

- Successive training approaches
  - Interact with exam equipment/instruments and with dentist
  - Tell-Show-Feel-Do (T-S-F-D) – For example…
    - Tell what's going to happen, Show what they will do, Feel instrument, Do the exam technique.
  - Visual pedagogy – 20 step-by-step photos
  - A-V modeling – live modeling videotaped and played back
  - Behavioral trials – step through 10 component exam
  - Auto modeling – photos of subjects modeling behavior used later in practice sessions

TEACCH (Orellana et al., 2014)

- Results
  - Higher cognitive functioning pts showed larger improvements in exam completion and behavior.
  - Pre-test – 73% of children and 67% adults showed reluctant behavior
  - Post-test- 81.6% of children and 100% of adults showed positive behavior

TEACCH (Orellana et al., 2014)

- Conclusions of this study
  - Value of teaching
  - Point of view of "culture of autism"
    - Take into account sensory profile of ASD
  - Effective protocol for ASD exams
  - Guideline can be extended to other health care practices

Exposure-based interventions in children with ASD (Gillis et al., 2009)

- Population
  - Mean age of 8.4 years
  - Majority non-verbal (10/18)
  - All students of specialized ASD school
- Results:
  - Repeated exposure to a clinical setting to fearful stimuli during a routine exam decreased fear-related behaviors
    - 83% of participants (15/18)
    - 3 remaining participants still fearful
    - Still showed progress after 38, 42, and 62 visits
    - Did not complete protocols, but still made progress

Exposure-based interventions in children with ASD (Gillis et al., 2009)

- Take home:
  - This type study may be difficult to implement clinically
  - May still be facilitated in:
    - Applied behavioral analysis (ABA)
    - Specialized ASD school
    - Intensive behavioral health setting

More Tricks of the Trade (M. Bellatuono, personal communication, November 28, 2018)

- Use clear, simple language
- Give child time to process information
- Repeat instructions
- Redirect by using visual tools

Post-Test Question 1

- All of the following represent established approaches to facilitate the physical examination of a resistant/agitated patient with ASD except:
  - A. Use of distractive tools such as those found in a coping kit.
  - B. Using specific and detailed verbal and written instructions to outline the entire procedure all at once.
  - C. Modifying the physical environment to tailor the stimuli experience (i.e.- dimming lights, providing head phones, and chewy tubes).
  - D. Providing visual cues of the procedure/exam using visual models such as dolls or stuffed animals prior to performing the procedure.

Post-test Question 2

- All of the following are methods of alternative communication that you may see commonly used by children with ASD to assist their communication and decrease anxiety/fear with health care providers during their exam EXCEPT:
  - A. Speech Generation Devices (SGD)
  - B. Picture Exchange (PE)
  - C. Functional Magnetic Resonance Imaging (fMRI) enabled speech device
  - D. Micro Switches

Post-test Question 3

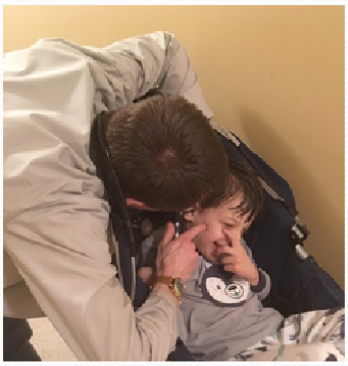
- Based on research performed on the physical examination of children with ASD/DD, which of the following techniques is NOT a preferred technique for the routine behavioral management of fear/anxiety related to physical exam:
  - A. Intermittent graduated exposure to fearful stimuli
  - B. Tell-Show-Feel-Do (T-S-F-D)
  - C. Differential reinforcement of other behavior (DRO)
  - D. General sedation

Clinical Scenario Revisited

- Jack, 6-year old
- Needs assessment completed
  - Sensory
    - Oral hyposensitivity/seeking
    - Light hypersensitivity
  - Communication
    - Non-verbal, uses visual communication
  - Mobility
    - Stroller/Community Access Device
  - Anxiety
    - Hates ENT exams

Putting it all together

- Accommodations made
  - Lights
  - Chewy tube
  - Examine in stroller
  - Specialized Techniques used
    - Custom First-Then Board
    - T-S-F-D
    - Repetition
    - Video after completion



Take Home Points

- These are simple techniques
- Effective resources are inexpensive
- Donate your time (a.k.a.- hit the breaks)
- Identify and address sensory needs/ triggers-crucial to smooth outcomes. DON'T REINVENT THE WHEEL, ASK PARENTS!
- One child unnecessarily sedated/restrained/traumatized is one too many
- Small efforts make big differences in special needs
- Bail out your colleagues – grab these charts- help these kiddos!

One last thought…

"I don't want to be autistic. But I am, so don't be mad. Be understanding." – Carly Fleischman

References

- Atkinson, R. (2013). *Helping your child live with a developmental delay: A practical guide to the Dos and Don'ts.* Stillwater, OK: New Forums Press.
- Autism Speaks (2018). DSM-5 Criteria. Retrieved from https://www.autismspeaks.org/dsm-5 criteria.
- Autism Speaks. (2018). Facts and Figures. Retrieved from https://www.autismspeaks.org/autism facts-and-figures
- Autism Speaks (2018). Sensory Issues. Retrieved from https://www.autismspeaks.org/sensory issues
- Benameur, K. (2018). Functional anatomy of our brains [Online Presentation]. Retrieved from www.coursera.com.
- Bernard, A., & Fernandez, M. [TheCGBros]. (2014, August 31). Listen [Video File]. Retrieved from https://www.youtube.com/watch?v=AIoTBfDZzU8
- Breslin, C. M., & Liu, T. (2015). Do you know what I'm saying? Strategies to assess motor skills for children with autism spectrum disorder. *The Journal of Physical Education, Recreation & Dance, 86*(1), 10-15. Retrieved from https://www.tandfonline.com/loi/ujrd20
- Brownlee, F., & Munro, L. (2010). *Fuzzy Buzzy Groups for Children with Developmental and Sensory Processing Difficulties: A Step-by-Step Resource.* London: Jessica Kingsley Publishers. Retrieved from http://p.atsu.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=e90xww&AN=299383&site=eds-live
- Cable, A. (2015). Communication disorders: School-aged children with intellectual disability. *CINAHL Rehabilitation Guide*. https://www.ebscohost.com/nursing/products/cinahl databases/cinahl-complete.

References

- CDC increases estimate of autism's prevalence by 15%, to 1 in 59 children (2018 April 26). Retrieved from https://www.autismspeaks.org/science/science-news/cdc-increases estimate autism%E2%80%99s-prevalence-15-percent-1-59-children
- Chew Stixx Orange Citrus Flavor (2018). Retrieved from https://funandfunction.com/chew stixx orange-citrus-flavor.html
- Cuvo, A. J., Reagan, A. L., Ackerlund, J., Huckfeldt, R., & Kelly, C. (2010). Training children with autism spectrum disorders to be compliant with a physical exam. *Research in Autism Spectrum Disorders, 4*(2), 168-185. https://doi.org/10.1016/j.rasd.2009.09.001
- Developmental Delay (2014). Retrieved from https://www.listenandlearn.com.au/developmental-delay/
- Drake, J., Johnson, N., Stoneck, A. V., Martinez, D. M., & Massey, M. (2012). *Evaluation of a coping kit for children with challenging behaviors in a pediatric hospital. Pediatric Nursing, 38*(4), 215-221. Retrieved from https://www.pediatricnursing.org/
- Facts and Figures. (2018). Retrieved from https://www.autismspeaks.org/autism-facts-and figures
- Ganz, J.B., Mason, R.A., Goodwyn, F.A., Boles, M.B., Heath, A.K., ...Davis, J.L.(2014). Interaction of participant characteristics and type of AAC with individuals with ASD: A meta-analysis. *American Journal of Intellectual and Developmental Disabilities, 119*(6), 516-535. http://dx.doi.org/10.1352/1944-7558-119.6.516.
- Gillis, J. M., Natof, T. H., Lockshin, S. B., & Romanczyk, R. G. (2009). Fear of routine physical exams in children with autism spectrum disorders: Prevalence and intervention effectiveness. *Focus on Autism and Other Developmental Disabilities, 24*(3), 156-168. Retrieved from https://doi.org/10.1177/1088357609338477

References

- Goldbart, J., Chadwick,D, & Buell, S. (2014). Speech and language therapists' approaches to communication intervention with children and adults with profound and multiple learning disability. International Journal of Language and Communication Disorders, 49(6), 687-701. https://doi.org/10.1111/1460-6984.12098
- Hagan, L., & Thompson, H. (2013). It's good to talk: Developing the communication skills of an adult with an intellectual disability through augmentative and alternative communication. *British Journal of Learning Disabilities, 42*, 68-75. http://dx.doi.org/10.1111/bld.12041.
- Harris, J. (2013). New terminology for mental retardation in the DSM-5 and ICD-11. *Current Opinion in Psychiatry, 26*(3). 260-262. https://doi-org.p.atsu.edu/10.1097/YCO.0b013e32835fd6fb
- Hudson, J. (2006). Prescription for success: Supporting children with austism spectrum disorders in the medical environment. Autism Asperger Publishing Co., Shawnee Mission, Kansas.
- Kaiser, A.P., & Roberts, M.Y. (2013). Parent-implemented enhanced milieu teaching with preschool children who have intellectual disabilities. *Journal of Speech, Language, and Hearing Research, 56*, 295-309. http://jslhr.pubs.asha.org/.
- Lancioni, G.E., O'Reilly, M.F., Basili, G. (2001). Use of microswitches and speech output systems with people with severe/profound intellectual or multiple disabilities: A literature review. *Research in Developmental Disabilities, 22*, 21-40.
- Lathe, R. (2006). Autism, Brain, and Environment. London: Jessica Kingsley Publishers. Retrieved from http://p.atsu.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=nlebk&AN=173689&site=ehost-live&scope=site
- Lim, H. A. (2011). Developmental speech-language training through music for children with autism spectrum disorders : Theory and clinical application. London: Jessica Kingsley Publishers. Retrieved from http://p.atsu.edu/login?url=http://search.ebscohost.com.p.atsu.edu/login.aspx?direct=tru&db=nlebk&AN=420408&site=eds-live

References

- Monz, B., Houghton, R., Law, K., & Loss, G. (2019). Treatment patterns in children with autism in the United States. *Autism Research, 12* (3), 517-526. https://doi.org/10.1002/aur.2070
- Mulhern, T., Lydon, S., Healy, O., Mollaghan, G., Ramey, D., & Leoni, M. (2017). A systematic review and evaluation of procedures for the induction of speech among persons with developmental disabilities. *Developmental Neurorehabilitation, 20*(4), 207–227. https://doi.org.p.atsu.edu/10.3109/17518423.2016.1150360
- Narula-Isaac, M (2005). Ear exams: Watch the light. Listen for the "shhh". *Contemporary Pediatrics, 22*, (7). Retrieved from http://www.modernmedicine.com/modernmedicine/Pediatrics/home/40165
- Newman, S. (2008). *Small Steps Forward : Using Games and Activities to Help Your Pre-School Child with Special Needs Second Edition (Vol. 2nd ed).* London: Jessica Kingsley Publishers. Retrieved from http://p.atsu.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=nle&AN=236366&site=eds-live
- Nieto, C., López, B., & Gandía, H. (2017). Relationships between atypical sensory processing patterns, maladaptive behaviour and maternal stress in Spanish children with autism spectrum disorder. *Journal of Intellectual Disability Research, 61*(12), 1140-1150. https://doi.org/10.1111/jir.12435
- Orellana, L., Martínez-Sanchis, S., & Silvestre, F. (2014). Training adults and children with an Autism Spectrum Disorder to be compliant with a clinical dental assessment using a TEACCH-based approach. *Journal of Autism & Developmental Disorders, 44*(4), 776 785. https://doi-org.p.atsu.edu/10.1007/s10803-013-1930-8
- Palisano, R. J., Shimmell, L. J., Stewart, D., Lawless, J. J., Rosenbaum, P. L., & Russell, D. J. (2009). Mobility Experiences of Adolescents with Cerebral Palsy. Physical & Occupational Therapy in Pediatrics, 29(2), 135–155. Retrieved from http://p.atsu.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=s3hAN=38419578&site=eds-live

References

- Sensory Issues. (2018). Retrieved from https://www.autismspeaks.org/sensory-issues
- Vandereet, J., Maes, B.Lembrechts, D., & Zink, I. (2011). Expressive vocabulary acquisition in children with intellectual disability: Speech or manual signs? *Journal of Intellectual and Developmental Disability, 36*(2), 91-104. http://dx.doi.org/10.1080/13668250.2011.572547.
- Weltman, E.A. (2007). Bubbles and the ART of medicine. *Contemporary Pediatrics, 24*, (3) 88. Retrieved from *http://www.modernmedicine.com/modernmedicine/Pediatrics/home/40165*
- Wexler, B.E., Holmes, A.S., Shore, S.M., and Rollins, P.R. (2015). Autism in the health care and community setting. International Board for Credentialing and Continuing Education Standards. 1-15.
- Zablotsky, B., Black, L.I., & Blumberg, S.J. (2017). Estimated prevalence of children with diagnosed developmental disabilities in the United States, 2014-2016. Retrieved from https://www.cdc.gov/nchs/products/databriefs/db291.htm

Questions???
Comments?
Tips?
Criticism?

- E-mail: tmmeersman@noctrl.edu