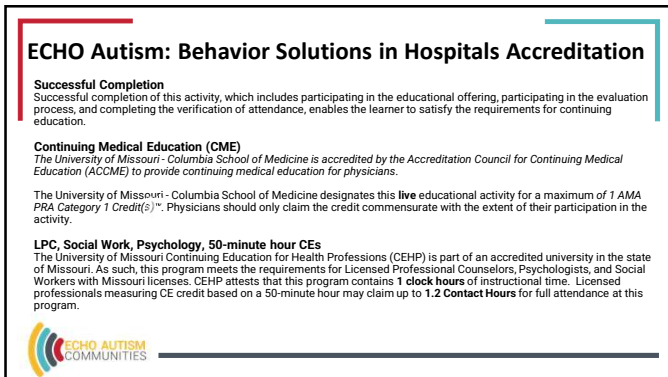




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ECHO Autism: Behavior Solutions in Hospitals

Relevant Financial Relationship Disclosures

Current ACCME (Accreditation Council for Continuing Medical Education) rules state that participants in CE activities should be made aware of any relevant affiliation or financial interest in the previous 24 months that may affect the planning of an educational activity or a speaker's presentation(s). Each planning committee member and speaker has been requested to complete a financial relationship reporting form for the ECHO Autism: Behavior Solutions in Hospitals

Speaker Disclosures:

Kristin Sohl, MD,FAAP receives support:

- Cognoa Behavior Health – research support
- Quadrant Biosciences – medical science collaborator

All relevant financial relationships for the presenter(s) have been mitigated.

No other speaker or planning committee member has a relevant financial interest



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Goals

- Review common co-occurring conditions
 - Medical
 - Psychiatric
- Review the possible impact of such conditions on behavioral crises
- Resource for thinking about evaluation of pain in medically complex patients (GRASP)



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Behavioral History that may indicate an underlying medical condition

- Sudden onset or change in frequency, intensity, duration, or form of self-injury
- Changes (especially regression) in skills, habits, routines (eating, sleep, toileting)
- Problem behavior that occurs during highly preferred events
- Problem behavior that occurs across settings, and activities with a wide variety of people



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Why might people with autism struggle, particularly with co-occurring conditions?

- Difficulty in communication
 - failure of normal conversations
 - reduced sharing of emotion and affect,
 - difficulties in understanding and integrating nonverbal communication
 - lack of facial expression and gesture
- Insistence/preference for sameness
 - Distress at small changes
 - Difficulties with transitions
- Hyper or hypo reactivity to sensory input
 - Indifference to pain/temperature
 - Adverse responses to specific sounds or textures



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Eating behaviors that may indicate an underlying medical condition

- Changes in chewing (one sided, only in the front, etc.)
- Eating more or less than usual, refusal of highly preferred foods
- Irritability, gagging/vomiting, posturing, agitation/behavior during or following meals
- Frequent burps, sour breath, hiccups, etc.



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Sleep issues that may indicate an underlying medical condition

- Sleeping more than usual, tired during the day, napping more than usual
- Wanting to lay in the dark during the day; sensitivity to light
- Frequent night waking, tantrums in the night, waking up engaging in SIB
- Frustration (agitation, whining, crying) when laying down



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Toileting changes that may indicate an underlying medical issue

- Increase in urinary and/or bowel accidents in a trained individual
- Urinary retention (refusing to urinate)
- Bowel movements during sleep
- Small, diarrhea accidents "skids"
- Small, hard, or infrequent bowel movements
- Rectal digging



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Common Medical Conditions

- Otitis media (ear infection)
- Sinusitis
- **Dental problems**
- Migraine Headaches
- Corneal Abrasion
- Ear or Nasal Foreign Body
- Urinary Tract Infection
- **Constipation, gas**
- **Gastro-esophageal reflux**
- Hydrocephalus or other intracranial pressure
- **Seizures**
- Fatigue
- Allergies
- Dysmenorrhea (i.e. pain during menstruation)
- Hernia



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Gastro intestinal issues

- Children with ASD have greater prevalence of GI symptoms, including alterations in bowel habit, constipation, chronic abdominal pain, reflux and vomiting.
 - G/I problems are associated with irritability and moodiness (Mazefsky et al 2013)
 - Clinical consensus supports assessment of g/i functionality as a contributor to increased agitation in this patient population
- Good history
- Physical exam
- Abdominal x ray to eliminate constipation/impaction
- Appropriate intervention – treat reflux, constipation, etc.



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Pain (dental and other)

- High tolerance for pain is common followed by explosive behavior when pain threshold is hit
- In most medical conditions that include pain, proactive pain management is recommended
- Behavioral signs of pain:
 - Breath holding
 - Wincing, grimace, etc.
 - Posturing – holding the body in a rigid, bizarre or different way
 - Unique, new or change in form of self-injury
 - Irritability, agitation, 'short fuse', crying, moaning for unknown reasons
 - Changes in the quality of a cry or scream



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Seizures

- Prevalence of seizures in patients with ASD is around 20-25%
- Risk is highest in those who also have intellectual disability
- **Seizures** are more common after age 10 years and may first present in adolescence or adulthood
 - 10/70 (14%) of patients admitted to psych hospital in Paris with ASD/challenging behaviors had new onset seizure disorder (Guinchat et al 2015)
- Look for precursors, post ictal states, confusion, beware of the possibility of nocturnal seizures
- Identify (low index of suspicion) and treat



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Co-occurring psychiatric conditions

- Pre-adolescent
 - ADHD, anxiety, mood disorders
- Adolescent
 - New onset of mood disorders, especially depression
 - Look for – sadness, tearfulness, irritability, lack of interest, lack of enjoyment etc.
 - Psychotic illnesses, including schizophrenia, do present, but are rare
 - Careful clinical evaluation and differential diagnosis are critical



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A few words about sleep

- Abnormal sleep occurs frequently in children with ASD (up to 80%), night awakenings are problematic
- Abnormal sleep is both the cause and the result of comorbid psychiatric conditions in patients with and without ASD
- It may also be an indicator of physical problems
- Treatment of sleep problems may have a significant impact on daytime behaviors (and also improve family dynamics)
- **Assess carefully; ask questions**
- **Sleep hygiene/CBT** non-pharmacological approaches that aim to address sleep problems should be implemented prior to considering the addition of a pharmacological intervention to target sleep.
- **Medication** - emerging evidence in support of the use of melatonin treatment for sleep problems in ASD. Other medications commonly utilized by psychiatry include trazodone and clonidine



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Information Gathering

- Careful medical and psychiatric history, and detailed physical examination and mental status exam should be a part of ANY and ALL analysis of problem behavior
- Physical exam must be more careful and detailed (and ongoing) for individuals with communication challenges.
- Limited by:
 - Lack of communication
 - Inability to describe or localize pain/discomfort
 - Caregivers may not be aware of behaviors indicating pain/discomfort



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Approach to intervention

- Emphasis on partnership with parents and other interventions
- Prompt and appropriate management of physical problems
- Biopsychosocial approach to psychiatric interventions
 - Safety
 - Family, school, community
 - Therapeutic interventions – focus on behavioral/cognitive behavioral
 - Medication
 - For the comorbid condition
 - For symptomatic relief



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Behavior management during suspected co-occurring conditions

- Continue behavior management strategies even when a comorbid medical/psychiatric condition is expected
- Respond in a way that reduces the likelihood the behavior will get reinforced
- Avoid "punishing" the problem behavior or using aversive strategies when a medical condition is suspected.
- Use proactive pain management.



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GRASP – Systems based approach

Differential Diagnoses	History, Signs, Symptoms	Further Evaluation
Neurologic		
VP shunt malfunction	Δ in mental status, nausea and/or vomiting, fever, abdominal pain	Shunt series, head CT scan and/or MRI
T tone and spasticity	spasticity	Response to treatment
T seizures	recurrent Δ in antiepileptic drug regimen	EEG, check drug interactions
Neuropathic pain	Recurrent pain behaviors, may be triggered by GI or bladder distention	Response to gabapentin
Infectious		
Menigitis	Δ in baseline temperature, mental status Δ, headache	Lumbar puncture
Sinusitis	Δ in baseline temperature, cough, nasal symptoms >10 days, face swelling	Sinus CT
Otitis media	Δ in baseline temperature, ↓ hearing, positive otoscopic examination results	No further evaluation suggested
Dental Abscesses	Δ in baseline temperature, onset of symptoms, recent dental work	Consult dentist, dental radiograph
Tracheitis	Barking cough after respiratory infection, respiratory stridor	Sputum culture, neck film
Pneumonia and/or pulmonary embolism	Δ in baseline temperature, aspiration, Δ in feeding, respiratory distress, secretions	Sputum cultures, venous blood gases
Chronic aspirations	Choking, cough, odor Δ with feeds, feeding refusal	Swallow study
Endocarditis	History of cardiac disease, fever, diaphoresis	ECG, echocardiogram
Urinary tract infection	Δ in baseline temperature, dysuria	Renal ultrasound
Clostridium difficile, GI infection	Δ in baseline temperature, antibiotic use, diarrhea, blood and/or mucus in stool	Stool culture
Cellulitis, infected implants	Δ in baseline temperature, ↑ implants: baclofen pump, rods, vagal nerve stimulator	Pro calcitonin, CK level, consult specialist
Osteomyelitis	Δ in baseline temperature, guarding or localized pain	Bone scan, imaging of suspected bone(s)



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GRASP – Systems based approach

Respiratory		
Pneumothorax	↑ WOB, respiratory distress	Venous blood gases
Gastro-intestinal		
Appendicitis	Δ in baseline temperature, anorexia, vomiting	Ultrasound, CT of abdomen
Bowel obstruction	Vomiting, abdominal distention, diarrhea, constipation	CT of abdomen
Gastritis, esophagitis, and/or PUD	Vomiting, Δ in feeding, worsening symptoms after feeds, asthma, chronic cough, pneumonia, need to position during or after feeds	Gastric pH and occult blood, upper GI radiograph series
Constipation	Δ in stool patterns, consistency	Response to treatment
Pancreatitis	Vomiting, risk factors, including valproic acid and hypothermia (fever)	Ultrasound, CT scan, or MRI of abdomen
Cholecystitis	Vomiting, Δ in baseline temperature	Ultrasound, HIDA scan, MRCP, CT scan of abdomen
GI dysmotility	Unspecified GI symptoms	Gastric emptying, motility studies
Small-bowel overgrowth	Dysmotility, flatulence, ↓ for fecal fat, KUB displays air	Stool sample for C difficile, fecal fat
GI tube issues (malposition, erosion)	Localized pain	GI tube study
Visceral hyperalgesia	Pain triggered by distention, vomiting	Response to gabapentin
Genitourinary		
Urinary retention	Incomplete voiding, long periods without voiding	Bladder scan >100 mL, urodynamic studies
Bladder rupture	Hematuria, suprapubic tenderness, distention, peritoneal signs	retrograde cystogram
Kidney stones	History of renal stones or UTIs, vomiting, hematuria, dysuria, genitourinary U structural abnormalities, ketogenic diet, medications associated with stone formation	UA for stones, CT scan of abdomen, ultrasound of kidney
Testicular torsion	Sudden onset of pain, nausea or vomiting, testicular tenderness, erythema, edema	Ultrasound of testicles
Ovarian Torsion	Sudden onset of pain, nausea, vomiting	Ultrasound of ovaries
Dysmenorrhea	Vomiting, diarrhea, headache, dizziness, pain around menstruation	Response to NSAID and/or oral contraceptive
Promenorrhea	Morning vomiting, abdominal distention, amenorrhea	HCG test



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GRASP – Systems based approach

Musculoskeletal		
Fractures (femur, spine)	Sudden onset of pain with movement	Skeletal radiograph, bone scan
Hip subluxation	Sudden onset of pain and with movement	Consult orthopedics
Scoliosis (worsening)	Pain with position change, improved with repositioning	Radiograph
Other		
Corneal abrasion or glaucoma	Tearing and redness of 1 eye	Fluorescein dye
Medication reactions or interactions	Serotonin or neuroleptic malignant syndrome, Δ in medications (last 3 months, i.e. SSRIs, tramadol, tricyclics, ropivacaine, fentanyl, metoprolol, gabapentin)	Improvement when drug(s) discontinued
Rheumatologic	Joint swelling, change in mobility	Rheumatology evaluation
Social concerns	Psychosocial challenges, PMH of trauma	Interviews with close or trusted contacts

[Initial Validation of GRASP: A Differential Diagnoses Algorithm for Children With Medical Complexity and an Unknown Source of Pain | Hospital Pediatrics | American Academy of Pediatrics \(aap.org\)](#)



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M Pediatrics
School of Medicine
University of Missouri

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