2019 LLSA ARTICLES
1-4

PAYAL SHAH, M.D.
ASSOCIATE RESIDENCY DIRECTOR
DEPARTMENT OF EMERGENCY MEDICINE
BEAUMONT HEALTH SYSTEM, ROYAL OAK, MI

I HAVE NO DISCLOSURES.

BRIEF RESOLVED UNEXPLAINED EVENTS (FORMERLY APPARENT LIFE-THREATENING EVENTS) AND EVALUATION OF LOWER-RISK INFANTS: EXECUTIVE SUMMARY

JOEL S. TIEDER, JOSHUA L. BONKOWSKY, RUTH A. ETZEL, WAYNE H. FRANKLIN, DAVID A. GREMSE, BRUCE HERMAN, ELIOT S. KATZ, LEONARD R. KRILOV, J. LAWRENCE MERRITT II, CHUCK NORLIN, JACK PERCELAY, ROBERT E. SAPPHIRE, RICHARD N. SHIFFMAN, MICHAEL B.H. SMITH AND SUBCOMMITTEE ON APPARENT LIFE THREATENING EVENTS

OBJECTIVES OF THE CLINICAL PRACTICE GUIDELINES
- The term BRUE to replace the previous ALTE and the original SIDS
- Approach to evaluation and management:
  - At risk for repeat event.
  - At risk for underlying disorder.

EVALUATION OF SIDS AND ALTE

- ALTE: Apparent Life-Threatening Event:
  - An episode that frightens the observer involving:
    - Apnea
    - Color change
    - Change in muscle tone
    - Limping
    - Gagging
- Pitfalls:
  - Encompasses a broad range of disorders.
  - Creates uncertainty in the caregiver and the clinician.

BRUE

Observer reports an event that is sudden, brief, and resolved in an infant < 1 year of age involving:

- Cyanosis or pallor
- Difference in breathing
- Change in tone
- Altered responsiveness

Diagnosis requires that adequate history and physical is performed.

Applies only to lower-risk patients.
BRUE DIAGNOSIS

- Well-appearing versus not well-appearing.
  - Well-appearing.
    - BRUE criteria present.
  - Perform adequate history and physical exam.
  - No explanation for the event.
  - Diagnosis of Brief Resolved Unexplained Event (BRUE) is made.

- Move on to BRUE risk classification.

BRUE GUIDELINES APPLY TO LOWER RISK PATIENTS

- Define low risk patients:
  - Age > 60 days.
  - Gestational age > 32 weeks.
  - Single (1) BRUE; not recurrent or repetitive.
  - Duration < 1 minute.
  - No CPR by medical professional required.
  - No concerning history findings.
  - No concerning physical exam findings.

- If low-risk then apply management recommendations.

BRUE MANAGEMENT RECOMMENDATIONS FOR LOW-RISK PATIENTS

- Educate caregivers about BRUE.
- Engage in shared decision-making for evaluation, disposition, and follow-up.
- Offer resources for CPR training to the caregiver.
- Consider pertussis testing, 12 lead ECG, brief monitoring with continuous pulse oximetry, serial observations.

NOT RECOMMENDED FOR LOW RISK BRUE PATIENTS

- Extensive laboratory studies.
- CXR, Echo, EEG, neuroimaging.
- Home cardio-respiratory monitoring.
- Prescribing of acid suppression or anti-epileptic therapy.
- Admission for cardiorespiratory monitoring.

BRUE SUMMARY

Brief Resolved Unexplained Events (BRUE) has replaced ALTE.

Brief, in infants < 1 month old, meeting strict criteria, and short-lived event.

If guidelines are appropriately applied to low-risk patients then:

- Minimal testing is required.
- Admission is not required.

EXECUTIVE LEADERSHIP AND PHYSICIAN WELL-BEING:
NINE ORGANIZATIONAL STRATEGIES TO PROMOTE ENGAGEMENT AND REDUCE BURNOUT

- Executive Leadership.
- Physician Well-being.
- Nine Organizational Strategies.
- Promote Engagement.
- Reduce Burnout.
THE CHALLENGES FACING HEALTHCARE EXECUTIVES

- Price competition.
- Narrowing insurance networks.
- Affordable Care Act.
- Increased productivity.
- Improved efficiency demands.
- Expense reductions.

THE THREATS FACING HEALTHCARE ORGANIZATIONS

- Increasing mergers.
- Meeting higher quality measures and subsequent public reporting of these metrics.
- Maintaining adequate staffing.
- Assessment of patient satisfaction and hospital quality.
- Maintaining information security.

NAVIGATION OF EXTERNAL AND INTERNAL THREATS

- Requires executive leadership to work with physicians.
  - But...
    - National studies indicate that at least 50% of physicians are experiencing professional burnout.
    - What is burnout?
      - A syndrome characterized by exhaustion, cynicism, and reduced effectiveness.
      - Specialties at the frontline are at highest risk.
      - This article focuses on burnout in the US Physician.

IMPLICATIONS OF PHYSICIAN BURNOUT: PERSONAL AND PROFESSIONAL

- Broken relationships
- Alcohol abuse
- Physician suicide
- Patient-physician contact
- Patient quality of care
- Patient safety
- Prescribing patterns
- Risk of malpractice suits
- Physician turnover and professional work effort

A SHARED RESPONSIBILITY

- Healthcare organizations have a vested interest in developing physician engagement.
  - Vigor, dedication, and absorption in work.
  - The organization itself and the practice environment play a critical role in burnout versus engagement.
  - Introducing the concept of 7-driver dimensions.
WHERE WE ARE FAILED

- Organizations place sole responsibility on the individual physician.
- Insincere efforts to address or place a Band-Aid on the problem.
- Effective interventions to reduce burnout will be cost prohibitive.

NINE ORGANIZATIONAL STRATEGIES TO PROMOTE PHYSICIAN WELL-BEING

NINE ORGANIZATIONAL STRATEGIES TO PROMOTE PHYSICIAN WELL-BEING

- Strategy 1. Acknowledge and Address the Problem:
  - Name the issue and have willingness to lean at the highest level (CEO).
  - Have multiple meetings and forums to maintain an ongoing dialog.
  - Assess a variety of dimensions of physician well-being.
  - Benchmark against national data to provide a context for interpretation.
  - Anonymous at the individual level; aggregated at the work-unit level.

NINE ORGANIZATIONAL STRATEGIES TO PROMOTE PHYSICIAN WELL-BEING

- Strategy 2: Harness the Power of Leadership
  - The leadership behaviors of the physician supervisor play a critical role in the well-being of the physicians they lead.
  - Select the right leader:
    - Identify individuals that have the ability to listen to, engage, develop, and lead.
    - Individuals themselves must be developed, prepared, and equipped for a leadership role.
    - The performance of leaders should be regularly assessed by the individuals they lead.
    - Know what motivates your group.
      - Evidence suggests that physicians who spend at least 20% of their professional effort focused on a dimension of work they find most meaningful are dramatically lower risk for burnout.
    - Organizations must also have the courage to make leadership changes when necessary.

NINE ORGANIZATIONAL STRATEGIES TO PROMOTE PHYSICIAN WELL-BEING

- Strategy 3: Develop and Implement Targeted Interventions.
  - Use strategies 1 & 2 to identify high-opportunity work units using external benchmarks.
  - Systematically engage these units to identify local factors that could be rapidly altered to improve physician burnout and satisfaction.
  - Focus on the specific issue(s) in the local work unit, and identify, develop, and implement an initial intervention.

DEVELOP AND IMPLEMENT TARGETED INTERVENTIONS

- Assemble a team
- Team meets with unit leader
- Focus groups established
- Pass the baton back to the unit leader
- Unit leader facilitates the change
- Assess outcomes

NINE ORGANIZATIONAL STRATEGIES TO PROMOTE PHYSICIAN WELL-BEING

- Strategy 4: Cultivate Community at Work
  - Deliberate organizational strategies are needed to counter the forces eroding connection with colleagues.
  - Introduce dedicated meeting areas with the comfort.
  - Providing physicians with protected time to meet with a small group of colleagues and discuss topics relating to physician-ideal improved meaning in work and reduced burnout.
  - Training new (COMPASS groups).
NINE ORGANIZATIONAL STRATEGIES TO PROMOTE PHYSICIAN WELL-BEING

• Strategy 5: Use Rewards and Incentives Wisely
  • Productivity-based compensation increases the risk of physician burnout.
  • Incentives to overwork.
  • Self-care and well-being focused efforts may add a needed dimension to incentives.

• Strategy 6: Align Values and Strengthen Culture
  • Task force to ensure that all players are working towards a common goal: happy staff and happy patients.
  • Create value alignment: a working document containing shared commitments.
  • Ensure working towards common goals.
  • Provides candid feedback on areas of improvement.
  • Enduring document that articulates needs.

• Strategy 7: Promote Flexibility and Work-Life Integration
  • Physicians are nearly twice as likely to be dissatisfied with work-life integration as US workers in other fields.
  • High work hours expected in a full-time position.
  • Reducing professional work hours can help individual physicians recover from burnout.
  • Organizations may want to seek providing physicians greater flexibility in when and how they work.
  • Examine the structure of:
    • Vacation benefits, life events, scheduling, coverage of nights and weekends.

• Strategy 8: Provide Resources to Promote Resilience and Self-Care
  • Individual offerings should be part of a broader strategy that demonstrates system and environment issues.
  • Provide self-calibration for self-care based on national data.
  • Physicians who take better care of their own health have been found to provide more optimal counseling and screening practices to their patients.

• Strategy 9: Facilitate and Fund Organizational Science
  • Creation of new knowledge and evidence on how to reduce burnout and promote engagement in physicians through organizational science.

CONCLUSION

Addressing burnout is a shared responsibility.
Engaged physician workforce aligns with an organizations mission.
Review the 9 strategies to achieve this at Mayo Clinic.
Leadership and attention from the highest level are key to make progress.
MANAGEMENT OF AN UNEXPECTED DELIVERY IN THE EMERGENCY DEPARTMENT

INTRODUCTION TO THE UNEXPECTED DELIVERY

PREPARING FOR THE UNEXPECTED DELIVERY

- If you can, obtain the following information:
  - Did the patient receive prenatal care?
  - Was the pregnancy known to the patient?
  - How many babies are expected to be delivered?
  - What is the approximate gestational age in weeks?
  - Date of last menstrual period?
  - Any major complications during the pregnancy?
  - Any complications with prior labor?
  - Always pre-brief your team if possible
  - Leave room, team baby

PRINCIPLES AND STEPS OF NEWBORN RESUSCITATION

1) Initial stabilization
   - Warming, drying, airway, and stimulation
   - We want HR > 100 and adequate respiratory effort

2) HR < 100 or inadequate respiratory effort
   - Initiate BVM and corrective measures

3) HR < 60
   - Chest compressions
   - 3 compressions: 1 breath (120 events per minute)
   - If HR remains low despite optimization, consider IV epi and other causes

SPECIAL CONSIDERATIONS AT THE TIME OF DELIVERY

- Delayed umbilical cord clamping
  - Clamping 30-60 seconds after birth
- Thermoregulation
  - Maintain temp between 36.5-37.5 C
  - Use of pre-heated radiant warmer, plastic wrap, linens, warmed humidified gases
ELEMENTS OF NEONATAL RESUSCITATION

Airway
- Adjust the airway
- Major update: It is no longer recommended to immediately tracheal suction or intubate newborns with meconium-stained amniotic fluid

Breathing
- Initiate PPV with BVM if HR<100bpm
- Place pulse ox on the RUE
- Assess HR, Spontaneous respiratory effort, effectiveness of assisted breaths, predault oxygen saturations
- Consider placement of an advanced airway if BVM is non-effective or you are performing chest compressions

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ELEMENTS OF NEONATAL RESUSCITATION

Circulation:
- Auscultation of the HR or palpation of the pulse at the base of the umbilicus is most effective
- Use a 3-lead EKG for continuous monitoring
- 3:1 coordinated compressions and ventilations
- Two-thumb technique for chest compressions

Medications and fluids:
- The foundation of neonatal resuscitation is adequate ventilation
- If bradycardia >40 bpm persists, add IV epinephrine at a dose of 0.01 to 0.03 mg/kg, of 1:1000 concentration
- If resusciation is not available, consider a, subcutaneous dose of epinephrine 0.05 to 0.1 mg/kg until venous access is established
- Lines: IV, IO, Umbilical vein cannulation点评短缆留有长

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POST-RESUSCITATION CARE, MONITORING, AND EVALUATION

While awaiting newborn nursery focus on:
- Thermoregulation
  - Avoid hyperthermia and hypothermia
- Consider if the baby needs therapeutic hypothermia
- Infants 28 weeks gestation with surgical evidence to severe hypoxic ischemic encephalopathy
- Glucose monitoring
- Optimize to allow for neurodevelopment
- D10 water at 2cc/kg
- Review of critical prenatal labs

POST-RESUSCITATION CARE, MONITORING, AND EVALUATION

While awaiting newborn nursery focus on:
- Apgar and CDC recommendation of erythromycin 0.5% ophthalmic ointment
- AAP recommendation of Vitamin K 0.5-1mg dose in the anterolateral proximal thigh
- Prevent early or late Vitamin K deficient bleeding
- Apgar Scores at 1- and 5-minutes following birth then every 5 mins until score is greater than 7.
  - Color, heart rate, reflexes, muscle tone, respirations on a 0, 1, 2 scale
SUMMARY OF NEONATAL RESUSCITAION

90% of births do not require intervention, only 1% require more advanced procedures.

The full-term precipitous delivery that is breathing, crying, moving → delayed cord clamping, keep warm, and give to mom.

Anything but this → consider all aspects of resuscitation and escalate accordingly.

Heart rate will determine level of intervention:
• HR<100 review for adequate ventilation
• HR<60 escalate to CPR, access, intubation, epinephrine

With ROSC, go to NICU with thermoregulation, glucose monitoring, neonatal medications.

TREATMENTS FOR HYPEREMESIS GRavidarum and Nausea and VOMITing in Pregnancy: a Systematic Review


INTRODUCTION

• 85% of women experience nausea and vomiting in pregnancy
• Frequent complaint in various severities in the ED
• <3% experience hyperemesis gravidarum
  • Occurs as early as 6 weeks and subsides by 20 weeks
  • Includes intractable vomiting, dehydration, electrolyte imbalance, ketosis, nutritional deficiencies and weight loss
  • Association with pre-term delivery and small-for-gestational age infants
  • No association with congenital anomalies or perinatal death

METHODS

• Searched electronic databases for specific phrases.
• Exclusion included pregnancy>20 weeks

RESULTS

13,075 TITLES → 222 FULL REVIEWS, 178 MET INCLUSION CRITERIA → 35 STUDIES

• First-line treatment
  • Lifestyle changes
  • OTC remedies

• Second-line treatment
  • Escalate to care-provider
  • Concerns for dehydration and ketosis

• Third-line treatment
  • Severe persistent symptoms
  • Initiated in the hospital setting (steroids, TPN)

TREATMENT REVIEW IN HYPEREMESIS GRavidarum
FIRST-LINE TREATMENTS OF HYPEREMESIS GRAVIDARUM FOR MILD TO MODERATE SYMPTOMS

- Ginger: improvement in symptoms regardless of form (Level A Class A)
- Acupressure, acupuncture, nerve stimulation
  - Acupressure was associated with symptom improvement in mild cases (Level A Class A)
- Vitamin B6 (pyridoxine)
  - Reduces nausea, not actual vomiting, better in higher doses
  - B6 Associated with symptom improvement in mild cases (Level A Class A)

SECOND-LINE TREATMENTS OF HYPEREMESIS GRAVIDARUM FOR MODERATE TO SEVERE SYMPTOMS

- Vitamin B6 10mg with doxylamine 10 mg
  - Symptom improvement in the mild to moderate group (Level A Class A)
- Antihistamines
  - Limited quality evidence for symptom improvement in mild-moderate cases (Level B Class IIa)
- Psychotherapy
  - 8) 50 minutes sessions over 3 weeks plus Vitamin B6 40mg
  - Limited quality evidence that psychotherapy plus vitamin B6 is associated with greater benefit than vitamin B6 alone (Level B Class IIb)

SECOND-LINE TREATMENTS OF HYPEREMESIS GRAVIDARUM FOR MODERATE TO SEVERE SYMPTOMS

- Dopamine antagonists such as Reglan, Phenergan
  - Associated with improved symptoms (Level A Class IIa)
- Serotonin antagonists such as Zofran
  - Associated with improvement in symptoms of all severities (Level A Class IIa)
  - OUTCOME MANAGEMENT
    - Dopamine antagonists associated with better outcomes than normal saline in moderate severe cases (Level B Class IIa)
- Outpatient management
  - Outpatient treatment was associated with benefits that are not better or worse than in patient intravenous therapy in patients with moderate symptoms (Level A Class IIa)

THIRD-LINE TREATMENTS OF HYPEREMESIS GRAVIDARUM FOR MODERATE TO SEVERE SYMPTOMS

- Corticosteroids
  - Benefits of corticosteroids were unclear. Treatment may be considered in severe cases (Level A Class IIb)
- Transdermal clonidine
  - Limited evidence indicates treatment with transdermal clonidine is associated with symptom improvements but currently this is not an established treatment (Level B Class IIb)

SUMMARY

- For mild symptoms of hyperemesis: Consider ginger, pyridoxine, antihistamines and metoclopramide
- For moderate symptoms of hyperemesis: Consider pyridoxine, doxylamine, promethazine and metoclopramide
- Zofran may be beneficial in all severities, consider corticosteroids