

Summer Webinar Series

WEBINAR

Hospital-based Medicine: Miscellaneous

Thursday, August 13 4:30-6:00 pm EDT

Moderators

Rebecca Rosenberg

Alisa Khan

EDT	Abstract	Title	Presenting Author
4:30 pm		Introduction & General Information	
4:35 pm	3376496	Challenges Faced by Caregivers During and Post Pediatric Hospitalizations	Judit Marquez
4:45 pm	3378302	The attitude-behavior gap among families, nurses, and physicians about family-centered rounding	Shilpa Patel
4:55 pm	3368533	High Flow Nasal Cannula for Pediatric Respiratory Illnesses at a Community Hospital: Is pCO ₂ a Valuable Screening Tool?	Jillian Cotter
5:05 pm	3380353	Early weight loss nomograms and feeding practices for neonatal abstinence syndrome (NAS) infants managed via the Eat, Sleep, Console (ESC) approach	Frances Cheng
5:15 pm	3381864	Patient Characteristics, Risk, and Outcomes for Brief Resolved Unexplained Events: A Multicenter Study	Joel Tieder
5:25 pm	3377098	Development of a collaborative care model for neonatal abstinence syndrome: a multi-site community hospital qualitative study	Corrie McDaniel
5:35 pm		Wrap Up	

Note: Schedule subject to change based on presenter availability.

CONTROL ID: 3376496

TITLE: Challenges Faced by Caregivers During and Post Pediatric Hospitalizations

PRESENTER: Judit Marquez

AUTHORS (LAST NAME, FIRST NAME): Vaz, Louise E.¹; Jenisch, Celeste¹; Jungbauer, Rebecca M.²; Everist, Steven J.¹; Libak, Alyssa J.¹; Marquez, Judit¹; Wagner, David¹; Vega, Raul³; Austin, Jared P.¹; Harris, Michael A.¹; Zuckerman, Katharine¹

AUTHORS/INSTITUTIONS: L.E. Vaz, C. Jenisch, S.J. Everist, A.J. Libak, J. Marquez, D. Wagner, J.P. Austin, M.A. Harris, K. Zuckerman, Pediatrics, Oregon Health & Science University, Portland, Oregon, UNITED STATES; R.M. Jungbauer, Pacific Northwest Evidence-based Practice Center, Oregon Health & Science University, Portland, Oregon, UNITED STATES; R. Vega, General Pediatrics, Oregon Health & Science University, Portland, Oregon, UNITED STATES;

CURRENT CATEGORY: Hospital-based Medicine

CURRENT SUBCATEGORY: None

KEYWORDS:

SESSION TITLE: Hospital-based Medicine: Miscellaneous |Hospital-based Medicine: Miscellaneous

SESSION TYPE: Webinar|Platform

ABSTRACT BODY:

Background: Caregivers of inpatient children likely experience challenges during admission that impact child health and child/caregiver quality of life post-discharge. Better understanding of these stressors and interventions to address these concerns have not been thoroughly explored.

Objective: To qualitatively assess challenges caregivers face in the context of a pediatric hospitalization and their perception of potential interventions to mitigate stress and improve the quality of care during and following hospitalization.

Design/Methods: Patient-caregiver dyads (n=24) were enrolled from a general pediatric hospitalist service at a Pacific Northwest children's hospital from December 2018 – June 2019. Caregivers completed a pre-discharge survey and a semi-structured qualitative interview to capture their perception of challenges and potential solutions as part of a broader IRB-approved study on social risks. Interviews were audio recorded, transcribed, and coded for thematic content using Dedoose data analysis software and a framework analytic approach. A coding structure was created by the study team with at least two study team members independently coding each transcript. Coded data were analyzed and categorized thematically.

Results: 58% of enrolled caregivers completed the qualitative interview. Caregivers were predominantly female (100%), English-speaking (100%), White (71%), and publicly insured (83%). Half had a high school education or less (50%). Several recurrent themes related to challenges and stress during pediatric hospitalization arose: 1) Lack of basic caregiver physiologic needs (e.g. insufficient access to food, hygiene, and/or sleep); 2) psychological support from family or friends as a source of resiliency when available, or a challenge when not, particularly for one-third of caregivers who were single parents; 3) family-provider communication difficulties, specifically relating to rounding, the discharge process and primary care provider follow-up; and 4) financial stress as a result hospitalization costs. Caregivers were then asked to suggest and reflect on specific intervention ideas that might allow hospitals to address caregiver areas of high need (Table 1).

Conclusion(s): A caregivers' ability to cope and focus on their child's health may be affected due to the immediate and post-effects of a pediatric hospitalization. Caregiver-derived interventions included specific examples that could potentially modify caregivers' perception of stress and influence the downstream events of the hospitalization and transition to home.

Table 1. Caregiver-Reported Stressors and Opportunities for Intervention

Themes	Quote	Caregiver-Reported Intervention
Physical Needs		
Sleep	"The hardest thing about being in the hospital is that there is somebody coming in every hour and it is really hard to get rest..."	<ul style="list-style-type: none"> Posting of signs on door related to parental (not just child) sleep Coordination of examinations and rounding; clustering of cares to minimize disruption
Personal Care	"You don't think about your own needs, so you don't think about the last time you showered, you don't think about the last time you ate, you don't think about the last time you brushed fresh air..."	<ul style="list-style-type: none"> Offer essential personal hygiene items upon arrival Family shower rooms
Food	"I would take what he didn't eat - it was pretty much gobbled over - that is how I ate for 2 weeks."	<ul style="list-style-type: none"> Affordable or free food options Access to refrigerator/microwave, particularly for families in isolation due to infection Attention to breastfeeding mothers and additional lactation support
Housing	"We barely have an address to give now... and in the meantime, I'll try to find a safe environment for him to live."	<ul style="list-style-type: none"> Resource navigator/social work
Psychological Needs		
Social Support	"When [my husband] is gone for a couple days, it is overwhelmingly stressful not to have another set of hands at all, not to have a for the night. We have to look at, are we gonna pay somebody for care for other children?..."	<ul style="list-style-type: none"> Additional support from volunteers Counseling services Parent partner advocate (support navigating services from third-party parent who has been through similar) Shuttle services for parents without transportation Community shared spaces/family hang-out area
Feelings of isolation	"I think it gets tricky when you're not the patient as well. So, being able to say, 'Hey, I'm really struggling with something, and I know I'm not the patient, so there somebody here I could talk to?' Like, who do I - is there somebody I can break down in front of if I don't have family and friends available?"	<ul style="list-style-type: none"> Provide pager for parents so they can step away from child's room without feeling like they are missing information
Parental Stress	"People are really stressed out sitting there dwelling on exactly what's happening, or they're trying to figure out how they're	

	going to manage. They really do have a lot of free-thinking time on their minds..."	<ul style="list-style-type: none"> Activities geared toward parents
Communication Stress		
Transfer of information	"Constant miscommunication between doctors and specialists and then her regular team being excluded - which I think is absolutely wrong. For us, that was the deal breaker was getting out of the hospital and then realizing her regular providers had no idea what was going on..."	<ul style="list-style-type: none"> Ensure parents are able to access patient portal, case labs and results, know when appointments are scheduled Use a parent advocate when there is communication breakdown Improve multidisciplinary teamwork Care conferences Slow down the discharge process so families do not feel rushed Fewer people in the room in rounds
Discharge Process	"When the [nurse] came back I go, 'Well are you gonna go over these papers with me?' And she said, 'Oh, I thought someone already went over them with you.' I said, 'No.' And she said, 'I go over them...'"	
Care Team	"My daughter seized for three hours because no one could make up their mind on what to do about it..."	
Rounds	"They forgot I was in the room - [I] need to feel included in the conversation..."	
Financial Stress		
Short Term (during hospitalization)	"If I didn't have the money, [I] couldn't order food or food's not accessible to me. I was kind of in shock [how much it cost]..."	<ul style="list-style-type: none"> Food vouchers or subsidized options
Long Term (Post hospitalization)	"It's when we got home reality hit us again, and now we have to pick up our life that is missing a huge portion of its parts, basically. That entire month that I missed and wasn't able to pick back up on - it really does put a financial burden on our family..."	<ul style="list-style-type: none"> Someone to discuss budgets, finances etc. to help plan ahead Follow-up support with navigation of resources at home

IMAGE CAPTION:

CONTROL ID: 3378302

TITLE: The attitude-behavior gap among families, nurses, and physicians about family-centered rounding

PRESENTER: Shilpa J Patel

AUTHORS (LAST NAME, FIRST NAME): Patel, Shilpa J.¹; Khan, Alisa³; Baird, Jennifer D.²; Markle, Peggy⁵; Cray, Sharon⁴; Liss, Isabella³; Graham, Dionne³; Bass, Ellen J.⁶; Knighton, Andrew J.⁷; Study Group, I-PASS SCORE³

AUTHORS/INSTITUTIONS: S.J. Patel, Pediatrics, Hawaii Pacific Health/Univ of Hawaii John A. Burns School of Medicine, Honolulu, Hawaii, UNITED STATES;

J.D. Baird, Institute for Nursing and Interprofessional Research, Children's Hospital Los Angeles, Los Angeles, California, UNITED STATES;

A. Khan, I. Liss, D. Graham, I. Study Group, Boston Children's Hospital, Boston, Massachusetts, UNITED STATES;

S. Cray, St Christophers Hospital, Philadelphia, Pennsylvania, UNITED STATES;

P. Markle, Children's National Medical Center, Washington, District of Columbia, UNITED STATES;

E.J. Bass, Drexel University, Philadelphia, Pennsylvania, UNITED STATES;

A.J. Knighton, Intermountain Healthcare Delivery Institute, Murray, Utah, UNITED STATES;

CURRENT CATEGORY: Hospital-based Medicine

CURRENT SUBCATEGORY: None

KEYWORDS: Family-centered rounding, Communication with families, Attitudes and behavior gap.

SESSION TITLE: Hospital-based Medicine: Miscellaneous |Hospital-based Medicine: Miscellaneous

SESSION TYPE: Webinar|Platform

ABSTRACT BODY:

Background: Family-centered rounding (FCR) is associated with improved safety outcomes, however variation in use persists nationally. Understanding variation in provider and family beliefs and attitudes regarding FCR may support implementation efforts.

Objective: To elucidate attitudes and behaviors regarding FCR among families, nurses, and physicians.

Design/Methods: The first step in our implementation project to improve communication between families, nurses, and physicians during FCR included a cross-sectional survey with a purposeful sample of stakeholders (hospitalized pediatric patients/families and providers (unit nurses and physicians)) at 19 geographically diverse US community and academic hospitals. The Theory of Planned Behavior (Image 1) and the Consolidated Framework for Implementation Research guided question development. Rates of support for (very or extremely important) and reported practice of (often or always occurs) FCR elements were estimated with mixed effects logistic regression to control for hospital clustering. Logistic regression was used to test for differences in survey responses between groups.

Results: Response rate=62%: 42% of 1,138 surveys were from families, 24% from nurses, 34% from physicians. Over 75% of providers stated the main purpose of rounds was to share information with families. Mixed effects logistic regression showed that beliefs and attitudes varied by role; physicians rated most key FCR elements lower than other roles ($p<0.01$) (Image 2). Support for use of key FCR elements ratings were higher than reported practice ($p<0.01$) where 88% of providers believed family participation was important but only 67% reported it often/always occurred. This gap persisted and varied in spread by FCR element (Image 3). Behaviors that stakeholders rated as important were more often performed; providers who rated family participation on rounds as very/extremely important were more likely to report that patients/families expressed concerns on rounds (70% vs. 43%) ($p<0.01$) (Image 4).

Conclusion(s): Support for family participation on FCR is high among providers. However, significant differences exist between what nurses and physicians endorse as important elements of FCR and what they report being practiced. Behaviors were reported to occur more frequently when endorsed as important. Understanding underlying attitudes and behaviors can help address barriers to effective implementation of FCR in order to improve communication among providers and families.

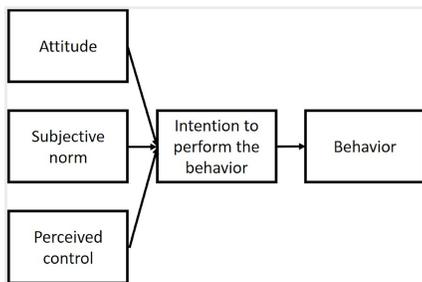


Image 1: Theory of Planned Behavior framework

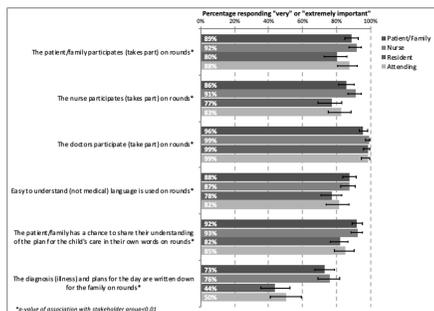


Image 2: The importance of various elements of FCR, as rated by stakeholder groups.

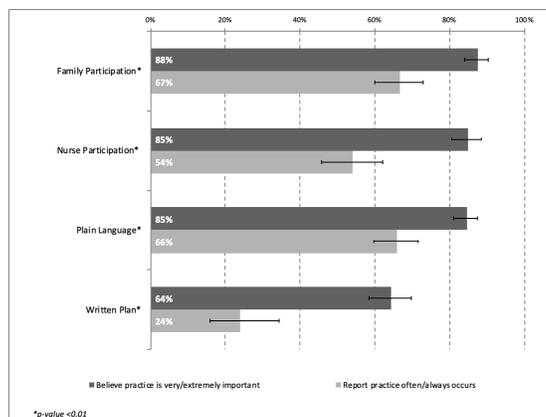


Image 3. The gap between provider beliefs and practice regarding FCR.

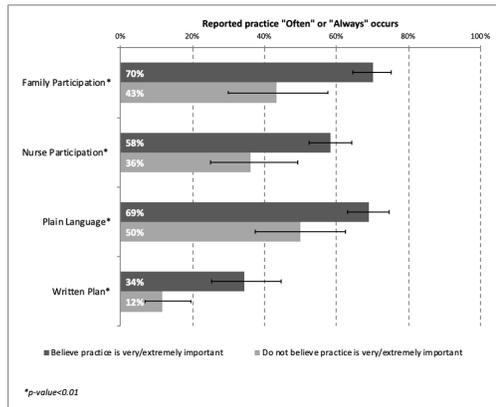


Image 4. Individual providers who rate a practice as very/extremely important are more likely to report that it often/always occurs.

IMAGE CAPTION:

Image 1: Theory of Planned Behavior framework

Image 2: The importance of various elements of FCR, as rated by stakeholder groups.

Image 3. The gap between provider beliefs and practice regarding FCR.

Image 4. Individual providers who rate a practice as very/extremely important are more likely to report that it often/always occurs.

CONTROL ID: 3368533

TITLE: High Flow Nasal Cannula for Pediatric Respiratory Illnesses at a Community Hospital: Is pCO₂ a Valuable Screening Tool?

PRESENTER: Jillian Cotter

AUTHORS (LAST NAME, FIRST NAME): Cotter, Jillian¹; Dempsey, Amanda F.¹; Moultrie, Sarah¹; Moss, Angela²; Nathaniel, Emma¹; Nosek, Gayle S.¹; Bakel, Leigh Anne¹

AUTHORS/INSTITUTIONS: J. Cotter, A.F. Dempsey, S. Moultrie, E. Nathaniel, G.S. Nosek, L. Bakel, University of Colorado, Denver, Colorado, UNITED STATES; A. Moss, ACCORDS, University of Colorado, Aurora, Colorado, UNITED STATES;

CURRENT CATEGORY: Hospital-based Medicine

CURRENT SUBCATEGORY: None

KEYWORDS: high flow nasal canula, bronchiolitis, community hospital .

SESSION TITLE: Hospital-based Medicine: Miscellaneous |Hospital-based Medicine: Miscellaneous

SESSION TYPE: Webinar|Platform

ABSTRACT BODY:

Background: Heated high flow nasal cannula (HHFNC) is commonly used to deliver supplementary oxygen in acute respiratory illnesses. Patients who do not improve with HHFNC, also known as HHFNC failure, often require escalation of care to an intensive care unit (ICU). To safely implement HHFNC in community settings without an ICU, it is important to identify patients at risk for HHFNC failure, enabling early transfer prior to clinical deterioration. Studies suggest that partial pressure of carbon dioxide (pCO₂) greater than 50mmHg can predict HHFNC failure, but there is limited literature on the impact of a pCO₂-driven protocol in the community setting.

Objective: To determine the ability of pCO₂ to predict HHFNC failure in pediatric patients at a community hospital.

Design/Methods: We performed a retrospective cohort study of patients <19 years of age who had a venous blood gas (VBG) obtained prior to HHFNC initiation at a community hospital over 2 years (7/2017-2019). Patients with complex

neuromuscular or respiratory comorbidities were excluded. Per protocol, VBG was obtained prior to HHFNC initiation, and patients were transferred to a quaternary-care hospital with an ICU if pCO₂ was >50mmHg or based on the clinical discretion of treating providers. The primary outcome was HHFNC failure, defined as the need for non-invasive positive pressure ventilation (e.g. CPAP, continuous positive airway pressure) or intubation. Demographic and clinical characteristics were compared between those with pCO₂>50mmHg and ≤50. We calculated sensitivity and specificity of the pCO₂ threshold of 50mmHg for predicting HHFNC failure and used receiver operating characteristic (ROC) analysis with Youden's J statistic to determine a more optimal threshold.

Results: Of 257 patients requiring HHFNC, 187 (73%) had a pCO₂ obtained, and 11% of these patients had a pCO₂ >50. There were some demographic differences between the groups, and those with pCO₂ >50 had a higher likelihood of HHFNC failure compared to those with pCO₂ ≤50 (67% vs 40%, p=.02, Table 1). A pCO₂ >50 had a 93% specificity and 18% sensitivity for predicting HHFNC failure. Based on the ROC analysis, the optimal pCO₂ threshold predictive of HHFNC failure was 44 with a sensitivity of 38% (Figure 1, Table 2).

Conclusion(s): pCO₂ was rarely >50mmHg and no threshold was sensitive enough to be used as a screening tool to predict HHFNC failure. A pCO₂-based screening protocol for implementing HHFNC in the community setting does not appear to be a high-value clinical practice.

	Patients with pCO ₂ ≤50 mmHg (N=166)	Patients with pCO ₂ >50 mmHg (N=21)	P-value*
Age (months) - median [IQR]	18.5 [12-24]	7.7 [3-24]	<0.01
Gestational age			<0.01
Preterm (28-36 weeks)	15 (9%)	9 (43%)	
Term or Post-term (37-42wks)	82 (49%)	12 (57%)	
Unknown	69 (42%)	0	
Length of stay (days) - median [IQR]	3.5 [2.5-5]	4.3 [3-7]	0.48
Transfer rate	109 (66%)	21 (100%)	<0.01
HHF failure	66 (40%)	14 (67%)	.02

Table 1. Demographics and Clinical Characteristics of Patients who had a pCO₂ Obtained Prior to Initiation of HHFNC in the Community Setting

*Wilcoxon rank sum test or Chi-squared analysis as applicable

pCO ₂ Threshold (mmHg)	Sensitivity	Specificity	Youden (J) Index
44	38%	86%	0.235
45	31%	90%	0.210
47	26%	93%	0.188
42	43%	75%	0.182
46	28%	91%	0.182
48	25%	93%	0.175
43	39%	79%	0.173
40	51%	64%	0.148
41	44%	70%	0.138
39	57%	55%	0.126

Table 2. Sensitivity and Specificity for Other PCO₂ Thresholds Identified by Top 10 Youden Indexes

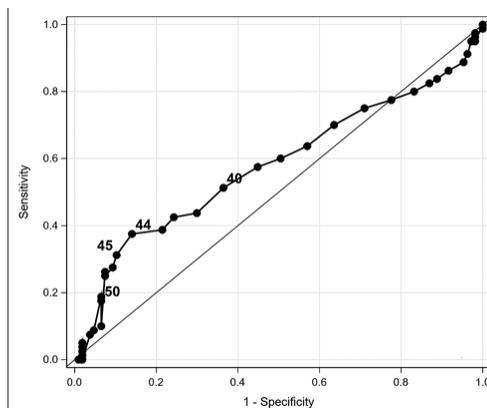


Figure 1. Receiver Operating Characteristic (ROC) Curve

ROC curve labeled with PCO₂ thresholds for predicting HHFNC failure.. The optimal pCO₂ threshold predictive of HHFNC failure was 44mmHg with a sensitivity of 38% and specificity of 86%.

IMAGE CAPTION:**Table 1. Demographics and Clinical Characteristics of Patients who had a pCO₂ Obtained Prior to Initiation of HHFNC in the Community Setting**

*Wilcoxon rank sum test or Chi-squared analysis as applicable

Table 2. Sensitivity and Specificity for Other PCO₂ Thresholds Identified by Top 10 Youden Indexes**Figure 1. Receiver Operating Characteristic (ROC) Curve**

ROC curve labeled with PCO₂ thresholds for predicting HHFNC failure.. The optimal pCO₂ threshold predictive of HHFNC failure was 44mmHg with a sensitivity of 38% and specificity of 86%.

CONTROL ID: 3380353

TITLE: Early weight loss nomograms and feeding practices for neonatal abstinence syndrome (NAS) infants managed via the Eat, Sleep, Console (ESC) approach

PRESENTER: Frances Yun Cheng

AUTHORS (LAST NAME, FIRST NAME): Cheng, Frances Y.¹; Shabanova, Veronika¹; Berkwitt, Adam¹; Grossman, Matthew¹

AUTHORS/INSTITUTIONS: F.Y. Cheng, V. Shabanova, A. Berkwitt, M. Grossman, Pediatrics, Yale University School of Medicine, New Haven, Connecticut, UNITED STATES;

CURRENT CATEGORY: Hospital-based Medicine

CURRENT SUBCATEGORY: None

KEYWORDS: neonatal abstinence syndrome, weight loss, eat, sleep, console approach.

SESSION TITLE: Hospital-based Medicine: Miscellaneous |Hospital-based Medicine: Miscellaneous

SESSION TYPE: Webinar|Platform

ABSTRACT BODY:

Background: While infants with neonatal abstinence syndrome (NAS) are at risk for increased weight loss in the newborn period compared to otherwise healthy infants, natural weight loss patterns for NAS infants managed via the Eat, Sleep, Console (ESC) approach have yet to be described and feeding practices during hospitalization for these infants vary widely.

Objective: To describe weight loss patterns and feeding practices of infants hospitalized for NAS at Yale New Haven Children's Hospital (YNHCH).

Design/Methods: We retrospectively examined maximum weight loss for opioid-exposed infants at YNHCH from Dec 2013 – July 2019. Infants were managed using the ESC approach. We excluded infants who were transferred to the NICU at any point of their hospital stay. Weight loss nomograms for infants delivered via vaginal and cesarean delivery were created using mixed effects quantile modeling with spline effect for hour of life and 95% confidence intervals (CIs) based on 500 bootstrapped samples. Weight loss percentiles were determined up to 7 days after birth. We compared weight loss patterns to published early weight loss nomograms using the 95% CIs.

Results: Of infants in our cohort (n = 366), 71.9% were delivered vaginally and 28.1% by Cesarean. Median length of stay was 6 days, and 90% of infants did not require pharmacologic treatment for NAS (see Table 1). We found median percent weight loss for NAS infants delivered vaginally was -6.9% (95% CI -8.5, -5.8) by 48 hours of age, compared with -2.9% according to early weight loss nomograms (see Figure 1). For NAS infants delivered via cesarean, median percent weight loss was -6.5% (95% CI -9.1, -4.1) and -7.2% (95% CI -9.9, -4.7) by 48 and 72 hours, respectively, compared with 3.7% and 3.5% according to early weight loss nomograms (see Figure 2). Exclusive breastfeeding or breastfeeding for > 50% of feeds at 7 days of life occurred in 43.7% of infants, caloric density was increased in 39% of infants, and nasogastric tube feeds were used in 4.6% of infants.

Conclusion(s): In this study, we demonstrate natural weight loss and feeding patterns of infants hospitalized with NAS. Further studies will be aimed at assessing timing of increased caloric density to evaluate effectiveness of early caloric supplementation. Elucidating patterns of weight loss in infants with NAS and cost-effective, easily implementable

methods of weight loss prevention in these neonates can help guide management of feeding in this vulnerable population.

Table 1.	Vaginal (N=263)	Cesarean (N=103)	Total (N=366)
Birth weight, kg			
Mean (SD)	3.10 (0.41)	3.13 (0.53)	3.11 (0.45)
Median (Range)	3.10 (2.1-4.4)	3.1 (2.0-4.8)	3.1 (2.1-4.8)
Gender			
Male (%)	111 (42.2%)	48 (46.6%)	159 (43.4%)
Female (%)	152 (57.8%)	55 (53.4%)	207 (56.6%)
Gestational Age, wk			
Mean (SD)	39.2 (1.5)	39.1 (1.3)	39.2 (1.5)
Median (Range)	39.4 (35-42.1)	39.1 (36-42.4)	39.3 (35-42.4)
Newborn, hospital length of stay, days			
Mean (SD)	6.6 (2.8)	6.3 (3.6)	6.5 (3.1)
Median (Range)	6.0 (2.0 - 22.0)	6.0 (3.0 - 39.0)	6.0 (3.0 - 39.0)
Maternal Opioid, n			
Methadone (%)	180 (68.4%)	68 (66.0%)	248 (67.8%)
Mean Dose, mg (SD)	84.6 (37.8)	79.4 (36.1)	83.1 (37.3)
Median Dose, mg (Range)	80.0 (1.0-210.0)	80.0 (12.0-160.0)	80.0 (1.0-210.0)
Subutex/Suboxone (%)	46 (17.5%)	27 (26.2%)	73 (20.0%)
Mean Dose, mg (SD)	11.2 (7.5)	11.1 (6.8)	11.2 (7.2%)
Median Dose, mg (Range)	8.0 (1.0-24.0)	8.0 (1.0-24.0)	8.0 (1.0-24.0)
Other (%)	37 (14.1%)	8 (7.8%)	45 (12.3%)
Newborn, treatment, n			
Non-pharmacologic (%)	235 (87.5%)	94 (91.3%)	329 (89.9%)
Morphine (%)	28 (10.6%)	9 (8.7%)	37 (10.1%)
Clonidine (%)	19 (7.2%)	5 (4.9%)	24 (6.6%)

Table 1. Patient Demographics and Clinical Characteristics.

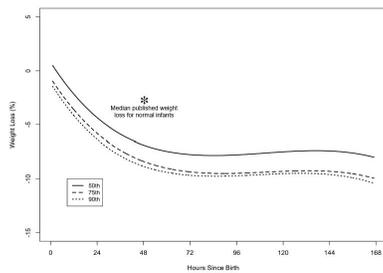


Figure 1. Early weight loss nomogram for NAS infants delivered vaginally.

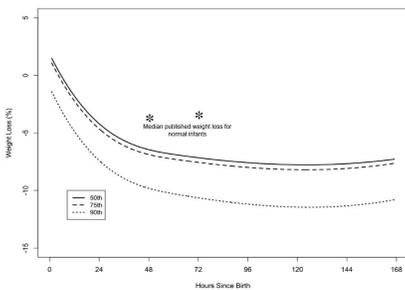


Figure 2. Early weight loss nomogram for NAS infants delivered via Cesarean section.

IMAGE CAPTION:

Table 1. Patient Demographics and Clinical Characteristics.

Figure 1. Early weight loss nomogram for NAS infants delivered vaginally.

Figure 2. Early weight loss nomogram for NAS infants delivered via Cesarean section.

CONTROL ID: 3381864

TITLE: Patient Characteristics, Risk, and Outcomes for Brief Resolved Unexplained Events: A Multicenter Study

PRESENTER: Joel Tieder

AUTHORS (LAST NAME, FIRST NAME): Tieder, Joel¹; Stephans, Allayne⁴; Sullivan, Erin²; Hall, Matt³; Quality Improvement Research Collaborative, BRUE¹

AUTHORS/INSTITUTIONS: J. Tieder, B. Quality Improvement Research Collaborative, Pediatrics, Seattle Children's Hospital, Seattle, Washington, UNITED STATES;

E. Sullivan, Seattle Children's Hospital, Seattle, Washington, UNITED STATES;

M. Hall, Informatics, Children's Hospital Association, Lenexa, Kansas, UNITED STATES;
 A. Stephans, Hospital Medicine, University Hospitals, Rainbow Babies and Children's Hospital, Cleveland, Ohio,
 UNITED STATES;

CURRENT CATEGORY: Hospital-based Medicine

CURRENT SUBCATEGORY: None

KEYWORDS: Brief Resolved Unexplained Event, Apparent Life Threatening Event, Hospital outcomes.

SESSION TITLE: Hospital-based Medicine: Miscellaneous |Hospital-based Medicine: Miscellaneous

SESSION TYPE: Webinar|Platform

ABSTRACT BODY:

Background: The American Academy of Pediatrics (AAP) established the definition, risk criteria, and management recommendations for Brief Resolved Unexplained Events (BRUEs) using the heterogeneous, less specific Apparent Life Threatening Event research populations. An understanding of risk factors and outcomes specific to the more precisely defined BRUE population can improve management decisions.

Objective: To describe patient characteristics, risk factors and outcomes after an initial emergency department (ED) evaluation for a BRUE.

Design/Methods: As part of a 14-hospital quality improvement and research collaborative, we reviewed the medical records of children < 1 year of age with an ED visit between 10/1/2015 and 9/30/2018. We identified potential patients using ICD-10 codes for BRUE, BRUE symptoms (e.g., apnea), associated diagnoses (e.g., seizure and gastroesophageal reflux), and excluded children with comorbidities. Using the AAP guideline, chart review determined BRUE qualification, risk criteria and stratification, discharge diagnoses, and outcomes. Outcomes included a 1) serious underlying explanatory diagnosis (i.e., prompt diagnosis or treatment prevents morbidity or mortality), 2) recurrent BRUE in the ED or hospital during the index visit or 3) hospital revisit before 1-year of age related to the index BRUE.

Results: A total of 4,446 records were reviewed across 14 academic and community hospitals; 2036 (45%) patients met inclusion criteria and 1286 (63%) of these were hospitalized. [Table 1] Patients meeting higher-risk AAP criteria accounted for 74% of ED discharges and 93% of inpatient admissions. Of patients discharged from the ED, 48% (360) had a probable or definite diagnosis compared to 24% (306) of hospitalized patients. The most common explanations for the BRUE episodes included gastroesophageal reflux, choking or gagging, and breath-holding spells. There were 43 patients (2%) with a serious explanatory diagnosis, the most common included airway abnormalities requiring surgery(21%), seizures requiring treatment (21%), and occult respiratory infections requiring treatment (21%). [Table2] Risk of a recurrent BRUE in the ED or hospital was 21% and hospital revisit before 1-year of age was 9%.

Conclusion(s): Although BRUEs are often explained by normal infant immaturity and serious underlying diagnoses are rare, risk of recurrent events and readmission are relatively high. Further study of risk factors may identify patients most likely to benefit from diagnostic evaluation and hospitalization.

Patient characteristics	ED Discharge			Hospitalized		
	Meets BRUE Criteria Upper Discharge N=200	Lower-risk BRUE N=200	Higher-risk BRUE N=296	Meets BRUE Criteria Upper ED Discharge N=680	Lower-risk BRUE N=71	Higher-risk BRUE N=909
Median age, days	71 (20.0 - 137.0)	145 (62.3 - 217.0)	463 (137.0 - 110.0)	56 (13.0 - 41.0)	113 (82.0 - 182.0)	51 (23.0 - 68.0)
Gender - female	106 (53.0%)	59 (29.5%)	103 (34.8%)	30 (44.1%)	31 (43.8%)	47 (52.3%)
Ethnicity - Hispanic	34 (16.5%)	23 (11.5%)	69 (23.0%)	11 (16.2%)	20 (28.3%)	25 (27.6%)
Race - White	120 (60.0%)	68 (34.0%)	147 (49.3%)	50 (73.5%)	37 (52.1%)	48 (52.8%)
Primary language - English	185 (92.5%)	83 (41.5%)	143 (48.3%)	87 (12.8%)	34 (47.9%)	78 (84.8%)
Insurance - Medicaid	120 (60.0%)	37 (18.5%)	129 (43.6%)	60 (88.2%)	47 (66.2%)	389 (42.8%)
Patient risk factors						
Term	179 (89.5%)	77 (38.5%)	201 (67.9%)	600 (88.2%)	54 (76.1%)	576 (63.4%)
Premature and corrected < 45 weeks	33 (16.5%)	0 (0.0%)	33 (10.8%)	27 (39.7%)	0 (0.0%)	22 (24.3%)
Age < 180 days	180 (90.0%)	0 (0.0%)	180 (57.4%)	699 (100.0%)	0 (0.0%)	699 (76.9%)
Phar BRUE/Conver event	34 (16.5%)	0 (0.0%)	36 (11.8%)	37 (54.4%)	0 (0.0%)	37 (41.2%)
Quality of events	71 (35.5%)	0 (0.0%)	75 (25.0%)	318 (46.8%)	0 (0.0%)	318 (35.1%)
Family history of sudden death	31 (15.5%)	0 (0.0%)	31 (10.1%)	31 (45.7%)	0 (0.0%)	31 (34.2%)
Social history exposure to abuse	34 (17.0%)	0 (0.0%)	31 (10.1%)	41 (60.3%)	0 (0.0%)	41 (45.3%)
Insurance/medical history	74 (37.0%)	0 (0.0%)	74 (25.0%)	73 (10.7%)	0 (0.0%)	112 (12.4%)
BRUE/complications						
Color change	166 (82.5%)	44 (22.0%)	122 (41.2%)	576 (84.7%)	41 (57.8%)	533 (58.6%)
Swallowing absent, decreased, or irregular	254 (127.0%)	86 (43.0%)	184 (62.2%)	737 (108.2%)	51 (71.8%)	488 (53.6%)
Change in tone	181 (90.5%)	63 (31.5%)	124 (41.9%)	654 (96.3%)	41 (57.8%)	603 (66.4%)
Abnormal responsiveness	141 (70.5%)	63 (31.5%)	96 (32.4%)	367 (53.8%)	43 (60.6%)	324 (35.6%)
Outcomes						
Recurrent event/BRUE in ED or hospital	20 (10.0%)	0 (0.0%)	20 (6.7%)	266 (39.1%)	7 (9.9%)	259 (28.5%)
Readmission related to index BRUE before 1 year of age	37 (18.5%)	0 (0.0%)	21 (7.1%)	100 (14.6%)	4 (5.6%)	96 (10.6%)

Table 1. Patient Characteristics, Risk Factors, and Outcomes by Setting

Diagnosis	n
URI in premature infant	43
Bronchiolitis in premature infants	4
Apnea of prematurity	2
Severe central apnea, no specified	2
Epilepsy treated with antiepileptic drug	6
Infantile spasms treated with antiepileptic drug	2
Seizure due to perinatal brain injury treated with antiepileptic drug	1
Partusitis	2
Urinary tract infection	1
Bacteremia treated with antibiotics (Staphylococcus)	2
Community acquired pneumonia treated with antibiotics	3
Laryngomalacia/Tracheomalacia	7
Chlond atresia or stenosis	2
Severe oropharyngeal dysphagia requiring thickened feeds	1
Hyperglycemia	1
Hypocalcemia	1
Hyperalbuminemia/hyponatremia/genetic disorder	1
Intussusception	3
Accidental ingestion	1

*Underlying condition that requires prompt diagnosis or treatment to prevent morbidity or mortality

Table 2. Serious diagnoses for patients evaluated for a BRUE (i.e., an underlying condition that requires prompt diagnosis or treatment to prevent morbidity or mortality)

IMAGE CAPTION:

Table 1. Patient Characteristics, Risk Factors, and Outcomes by Setting

Table 2. Serious diagnoses for patients evaluated for a BRUE (i.e., an underlying condition that requires prompt diagnosis or treatment to prevent morbidity or mortality)

CONTROL ID: 3377098

TITLE: Development of a collaborative care model for neonatal abstinence syndrome: a multi-site community hospital qualitative study

PRESENTER: Corrie E McDaniel

AUTHORS (LAST NAME, FIRST NAME): McDaniel, Corrie E.¹; Jacob-Files, Elizabeth A.⁴; Deodhar, Parimal²; McGrath, Caitlin¹; Desai, Arti³

AUTHORS/INSTITUTIONS: C.E. McDaniel, C. McGrath, Pediatrics, Seattle Children's Hospital, Seattle, Washington, UNITED STATES;

P. Deodhar, Hospital Medicine, Seattle Children's Hospital, Seattle, Washington, UNITED STATES;

A. Desai, University of Washington, Seattle, Washington, UNITED STATES;

E.A. Jacob-Files, Pediatrics, Seattle Childrens Hospital, Seattle, Washington, UNITED STATES;

CURRENT CATEGORY: Hospital-based Medicine

CURRENT SUBCATEGORY: None

KEYWORDS: NAS, collaborative care, family-centered care.

SESSION TITLE: Hospital-based Medicine: Miscellaneous |Hospital-based Medicine: Miscellaneous

SESSION TYPE: Webinar|Platform

ABSTRACT BODY:

Background: Recent shifts to prioritize non-pharmacologic care of neonatal abstinence syndrome (NAS) are associated with reductions in length of stay, cost, and total post-natal opioid exposure. Non-pharmacologic care requires intensive caregiver presence and multidisciplinary team-based care, yet how to optimally deliver this type of care in community hospitals is not known.

Objective: To develop a conceptual model for family-provider collaborative care for infants hospitalized with NAS in community hospitals.

Design/Methods: Using a Donabedian framework, we conducted a multi-site qualitative study employing pragmatic inquiry to elicit the perspectives of diverse stakeholders. We conducted semi-structured interviews at 3 community hospitals with parents of infants hospitalized with NAS, nurses, social workers, physicians, lactation nurses, child protective service (CPS) providers, patient “cuddlers”, and hospital administrators. We used thematic analysis to identify structures, processes, and outcomes for optimal care of NAS, and applied axial coding to examine interrelationships between these domains. We established trustworthiness of the data through triangulation and member checking.

Results: We interviewed 45 interdisciplinary stakeholders, including 35 healthcare providers and 10 parents. Based on participant perspectives, we developed a conceptual model for optimal NAS care (Figure 1). Participants reported that integrating a family’s previous experiences with opioid addiction and withdrawal in order to create a customized care plan for NAS infants empowers families and mitigates parental experience of judgement and guilt. Transparent collaboration with external partners (e.g. CPS, methadone clinics, social support services) and establishing a flattened provider hierarchy improves the timely delivery of NAS-specific care and decreases barriers to parental involvement. Participants also identified best practice recommendations to optimize collaborative care for NAS (Figure 2).

Conclusion(s): We identified unique structural factors, care processes, and meaningful outcomes to optimize collaborative care for NAS, such as individualizing care plans, transparency in the CPS process, developing strong coordination with social services, and cultivating NAS-prioritized teams and facilities that support parental presence and engagement. This care model highlights recommendations from stakeholders to inform future quality improvement interventions to optimize NAS care.

Figure 1: A Patient-Centered Collaborative Care Model for Infants with Neonatal Abstinence Syndrome (NAS)

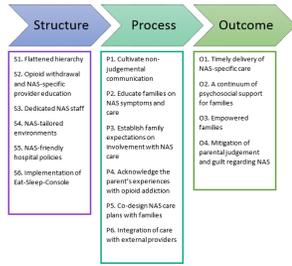


Figure 2: Best Practice Suggestions for Optimal Care for Infants with Neonatal Abstinence Syndrome (NAS)

Structure	<p>Team structure</p> <ul style="list-style-type: none"> Expectation for shared decision making between providers, nurses, and families around decisions of non-pharmacologic and pharmacologic management Development of a specific complement of nurses with skill training in recognizing, assessing, and supporting infants going through withdrawal and their families. Transparency of the out-of-hospital child protective services structure <p>Hospital facilities</p> <ul style="list-style-type: none"> Facilities that accommodate rooming-in for parents Establishment of quiet areas with less stimulation, preferably in an area specific for the care of infants with NAS <p>Family support</p> <ul style="list-style-type: none"> Cadence programs available in the day or night Flexible visitation hours to optimize parental presence, accommodate off-site medication dosing, and encourage extended family involvement Providing transportation for parents to obtain prescribed methadone or buprenorphine <p>Medical support</p> <ul style="list-style-type: none"> Pre-delivery coordination with methadone clinics, obstetrics, & family medicine to help set expectations Development of follow-up primary care NAS clinics <p>Psychosocial support</p> <ul style="list-style-type: none"> Establish support groups for families of infants with NAS Recognize and evaluate for post-partum depression and anxiety Connect families with out-of-hospital social programs that assist in finding employment, housing, food, and other living essentials.
Process	<p>Prioritizing parental goals and values</p> <ul style="list-style-type: none"> Limit hurdles for direct communication around medical decision making and withdrawal symptoms with families Utilize communication notebooks to facilitate prioritizing family's values and goals of care Customize care plans to account for a family's opioid addiction and withdrawal experience Notify families about how long to expect to be in the hospital, what to bring, and what levels of support are available <p>Non-judgmental communication</p> <ul style="list-style-type: none"> Educate families on NAS symptoms and set expectations early within the hospitalization Develop a NAS-specific educational set for families during and after hospitalization Establish multidisciplinary rounds with physicians, nursing, and social work

IMAGE CAPTION: