MSPR Poster Symposium I - Pulmonary; COVID-19; Racial / Ethnic Studies; Neurological; and Endocrine

Wednesday, October 7 4:45-6:00 PM CDT

Moderators
Ulrike Mietzsch – University of Washington School of Medicine
Jane Taylor – University of Pittsburgh Medical Center
Jae Kim – Cincinnati Children's Hospital Medical Center
Katherine Satrom – University of Minnesota

CDT	Abstract	Title	Presenting Author
4:45 PM		Introduction & General Information	
4:50 PM	3475863	Generating a cell interaction map from single cell RNA-sequencing data of developing lungs	Shelby Steinmeyer
4:55 PM	3476132	Comparison of a spectrum of Multisystem Inflammatory Syndrome in Children due to Severe Acute Respiratory Syndrome Coronavirus 2 associated COVID-19	Livia Philip
5:00 PM	3476644	Examining the efficacy of online modules to prepare pediatric providers to care for adult patients during the COVID-19 pandemic	Gianna Bosco
5:05 PM	3476016	Lived Experiences of Stress by Racially and Ethnically Diverse Mothers of Preterm Infants.	Rachel Witt
5:10 PM	3475832	Extremely Preterm Neonates Born 22-26 Weeks who Positively Respond to Inhaled Nitric Oxide for Hypoxic Respiratory Failure have a Lower Risk of Death or Ventilator Dependence at 36 Weeks	Timothy Boly
5:15 PM	3471996	Repeat course of dexamethasone for bronchopulmonary dysplasia: effect on respiratory support, growth, and long-term neurodevelopment	Kevin Varghese
5:20 PM	3476516	Neuroinjury biomarkers are elevated and predict cognitive performance in pediatric chronic kidney disease	Olivia Lullmann
5:25 PM	3476213	Thyroid Hormone Function in Small for Gestational Age Term Newborns	Dinushan Kaluarachchi
5:30 PM	3476162	Using Late Supplemental Oxygen to Prevent Retinopathy of Prematurity Progression In Premature Infants: a Retrospective Study	Robert Minturn
5:35 PM	3476022	Racial Disparities in NICU Care of Preterm Infants: Perspectives of Non-Hispanic Black Mothers.	Rachel Witt
5:40 PM	3473857	Does respiratory severity modify the effect of routine late surfactant on survival without bronchopulmonary dysplasia among extremely preterm infants? — Secondary analysis of the TOLSURF study	Phani Chevuru

CDT	Abstract	Title	Presenting Author
5:45 PM	3476486	Multisystem Inflammatory Syndrome Among Return Visits of Children Evaluated for Fever in the Emergency Department During the COVID-19 Pandemic.	Cloe Nazeer
5:50 PM	3476324	Self-identified Race/Ethnicity is Significantly Associated with Microbiome Variation in Infants	Abrielle Dillon
5:55 PM		Wrap Up	

Note: Schedule subject to change based on presenter availability.

CONTROL ID: 3475863

TITLE: Generating a cell interaction map from single cell RNA-sequencing data of developing lungs

DIGITAL OBJECT IDENTIFIER (DOI): Poster#: 1

ABSTRACT STATUS: Sessioned

PRESENTER: Shelby H Steinmeyer

AUTHORS/INSTITUTIONS: W. Zacharias, H. Deshmukh, Division of Pulmonary Biology, Cincinnati Children's Hospital Medical Center, Cincinnati, Ohio, UNITED STATES|W. Zacharias, Medicine, University of Cincinnati, Cincinnati, Ohio, UNITED STATES|S.H. Steinmeyer, Cincinnati Children's Hospital Medical Center, Cincinnati, Ohio, UNITED STATES|H. Deshmukh, Division of Neonatology, Cincinnati Children's Hospital Medical Center, Cincinnati, Ohio, UNITED STATES|

CURRENT CATEGORY: Basic Science

CURRENT SUBCATEGORY: None

ABSTRACT BODY:

Background: During lung development, there is a coordinated migration and contemporaneous development of lung resident innate lymphoid cells (ILCs), suggesting that the ontogenies of pulmonary nonimmune and immune cells are closely linked. This linkage is thought to be mediated by bidirectional communication between the stromal cells and lung resident ILCs in the developing lung. However, the elements of such a bidirectional communication network remain unclear.

Design/Methods: We analyzed single cell RNA-sequencing (scRNA-seq) data previously published by Cohen et al (PMID: 30318149). This study catalogued stromal, parenchymal, and immune cells in the developing lung, spanning the pseudo glandular to postnatal alveolarization stages of development. We used the Metacell package for data normalization, clustering of cell populations, and initial gene expression analysis. Once data was partitioned into metacells, we used a database of known ligand-receptor interactions (PMID: 268862012) to identify novel signaling networks between immune and nonimmune cell subsets. Ligand receptor interaction networks were visualized using the Circlize package.

Results: We recapitulated canonical signaling pathways directing lung development. We confirmed prior observations linking ILCs and stromal cells and identified several novel ligand receptor pathways between ILCs and nonimmune cells (fig 1). We found that ILCs express Semaphorin 4D, while its receptor, Plexin B2, is expressed on alveolar fibroblast and epithelial cells (fig 2a). Although not previously studied in pulmonary development, this signaling pathway is known to affect cytoskeleton formation as well as activity of MAP and PI3 kinase, all important aspects of alveologenesis. Furthermore, DLL1-Notch3 signaling is implicated in ILC function in the intestine, and we found that DLL1 is also expressed on ILCs in the developing lung, while alveolar fibroblasts express its receptor, Notch3 (fig 2b). Notch signaling is known to play an important role in budding alveologenesis during development.

Conclusion(s): Analysis of scRNA-seq data spanning embryonic and postnatal lung development identified novel signaling networks linking ILCs and postnatal lung development. Future studies to investigate the hypotheses generated from this work using ex vivo lung organoids are currently underway.

(no table selected)

IMAGE CAPTION: Figure 1: scRNA-seq of the developing lung demonstrates communication between innate lymphoid cells and nonimmune cells. A) UMAP representation of Fibroblasts, alveolar type 1 (AT1) and 2 (AT2) epithelial cells, and type 3 innate lymphoid cells (ILC3). **B)** Circlize graph of signaling network. Each line represents signaling connection between two cell types, lines are color coded based on ligand source, and size of line is proportional to the number of ligands detected. **Figure 2: Type 3 innate lymphoid cells express ligands recognized by alveolar fibroblast and epithelial cells. A)** Violin plots showing expression levels of Semaphorin 4D and its receptor Plexin-B2. B) Violin plots showing expression levels of Delta-like Ligand 1 and its receptor Notch3.

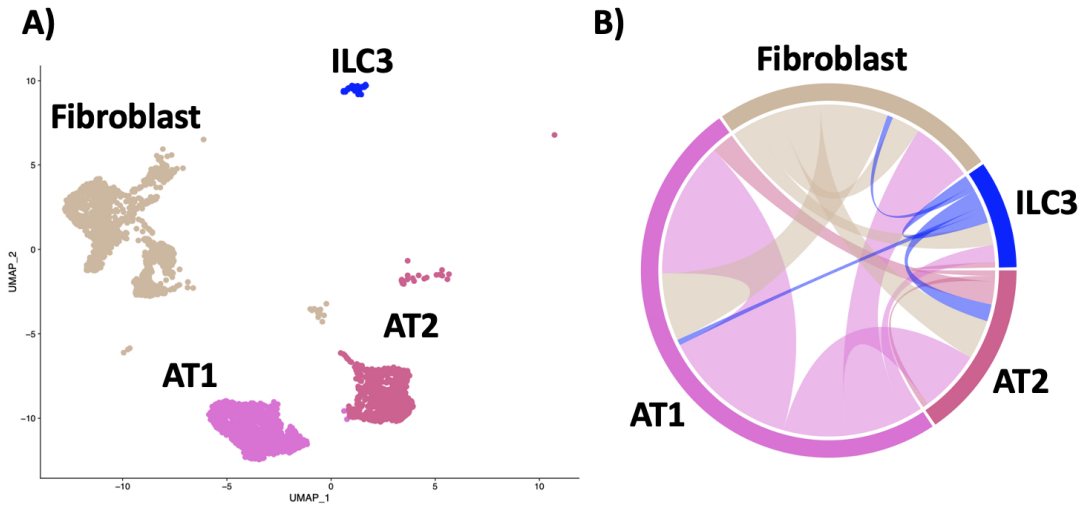


Figure 1: scRNA-seq of the developing lung demonstrates communication between innate lymphoid cells and nonimmune cells. A) UMAP representation of Fibroblasts, alveolar type 1 (AT1) and 2 (AT2) epithelial cells, and type 3 innate lymphoid cells (ILC3). **B)** Circlize graph of signaling network. Each line represents signaling connection between two cell types, lines are color coded based on ligand source, and size of line is proportional to the number of ligands detected.

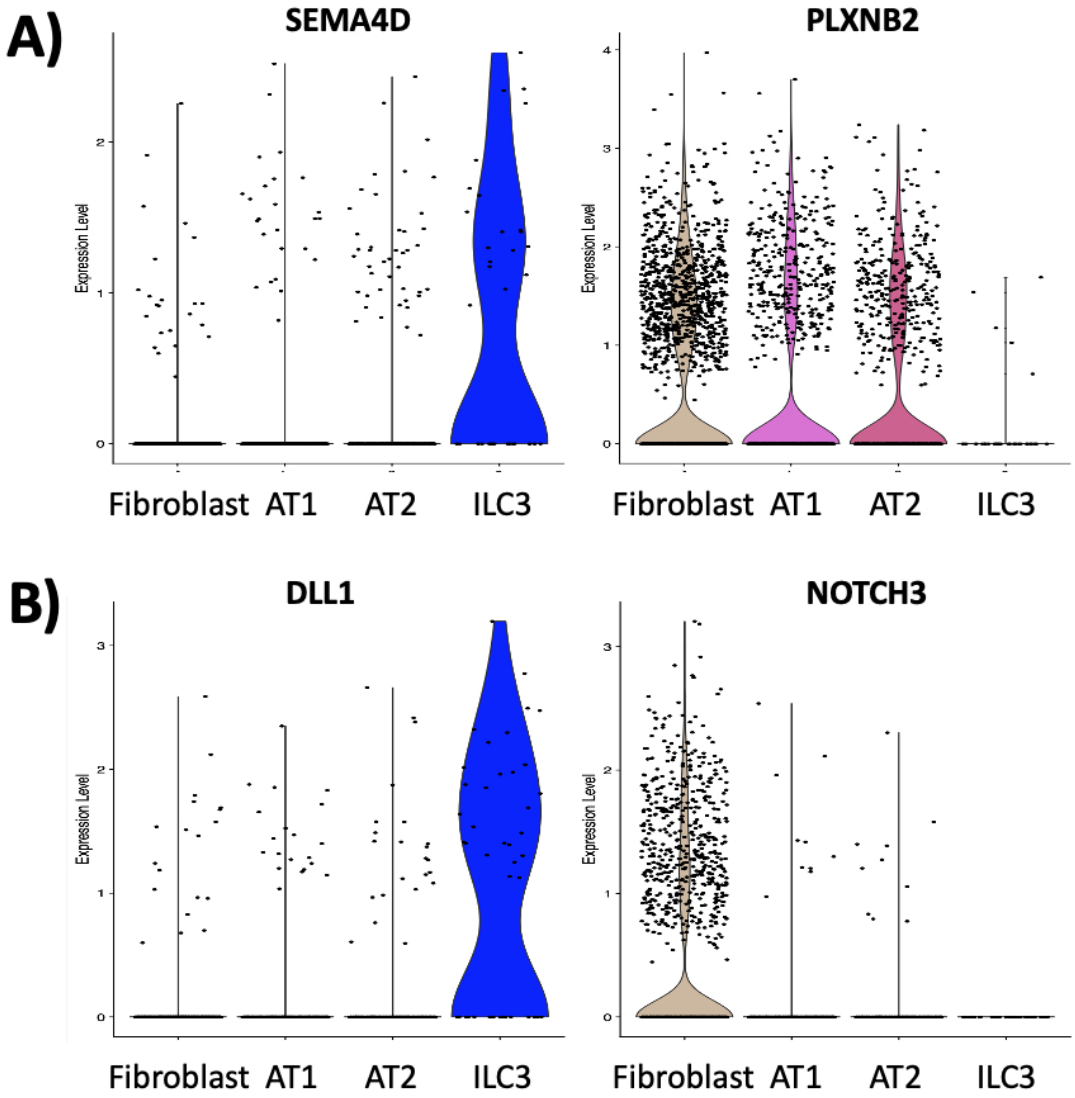


Figure 2: Type 3 innate lymphoid cells express ligands recognized by alveolar fibroblast and epithelial cells. A) Violin plots showing expression levels of Semaphorin 4D and its receptor Plexin-B2. B) Violin plots showing expression levels of Delta-like Ligand 1 and its receptor Notch3.

CONTROL ID: 3476132

TITLE: Comparison of a spectrum of Multisystem Inflammatory Syndrome in Children due to Severe Acute Respiratory Syndrome Coronavirus 2 associated COVID-19

DIGITAL OBJECT IDENTIFIER (DOI): Poster#: 2

ABSTRACT STATUS: Sessioned

PRESENTER: Livia Philip

AUTHORS/INSTITUTIONS: L. Philip, C. Nazeer, Wayne State University, Detroit, Michigan, UNITED STATES|U. Sethuraman, Emergency Medicine/Department of Pediatrics, Central Michigan University, Mount Pleasant, Michigan, UNITED STATES|N. Kannikeswaran, Division of Emergency Medicine/Department of Pediatrics, Central Michigan University, Mount Pleasant, Michigan, UNITED STATES|

CURRENT CATEGORY: Clinical Investigation

CURRENT SUBCATEGORY: None

ABSTRACT BODY:

Background: A multisystem inflammatory syndrome (MIS-C) in children associated with COVID-19 has been recently reported. A spectrum of MIS-C appears to exist ranging from mild to severe cases.

Objective: Our objectives were to describe and compare the demographics, clinical, and laboratory features of the various spectra of MIS-C.

Design/Methods: A retrospective study of all children < 21 years with fever who were admitted for suspected MIS-C from an Emergency Department (ED) of a tertiary pediatric hospital between April 16 to June 3, 2020, was performed. Patients were classified into no MIS-C (admitted but discharged with alternate diagnosis), mild (no treatment with IVIG), moderate (treated with IVIG but no requirement for mechanical ventilation or pressors) or severe (IVIG and mechanical ventilation required) MIS-C groups. COVID-19 exposure was noted as either h/o recent exposure, positive PCR, or positive IgG antibodies. Information on demographics, clinical, and lab features were noted. The study was approved by the Institutional Review Board.

Results: A total of 214 patients were included in the final analysis (No MIS-C: 101, Mild MIS-C: 75, Moderate MIS-C: 20, Severe MIS-C: 18). The demographics are given in Table1. The majority of children in the study cohort were males and nearly 10% had asthma as comorbidity. The average duration of fever was 3.1(±1.9) days. The comparison of laboratory data between the four groups is noted in Table 2. There was a significant difference among the four groups in levels of inflammatory markers. C reactive protein, ferritin, fibrinogen, creatinine, and troponin levels were higher among moderate and severe groups compared to the mild and no MIS-C groups. Length of stay was higher among children with moderate and severe disease compared to the mild and no MIS-C groups (6.7±5.6 days vs 2.4±2.8 days,95% CI: 3.08-5.5; p<0.0001).

Conclusion(s): We found that MIS-C due to COVID-19 may manifest as a spectrum with some children having mild clinical and laboratory features. Inflammatory markers except LDH are higher in those with moderate or severe disease compared to the mild forms. Further large scale studies are required to confirm these findings.

(no table selected)

IMAGE CAPTION:

Table 1: Demographics and Clinical features of study cohort

Demographic, n=214	**Number (%)**
Age in years, mean (±SD)	4.7±4.7
Males	120 (56.1%)
Race	AA: 107 (50%) Caucasian: 40 (18.7%) Other: 24 (11.2%) Unknown: 43 (20.1%)
PMH	
Asthma	20 (9.3%)
Obesity	6 (1.9%)
Others	40(12.3%)
MIS-C type, n=113 **N(%)**	
Mild	75 (66.3)
Moderate	20 (17.6)
Severe	18 (15.9)
No MIS-C, n (%)	101 (47.2)
Clinical features, n=214 **N (%)**	
Duration of fever in days, mean±SD	3.1± 1.9
GI symptoms, n(%)	104 (48.6%)
Rash, n(%)	66 (30.8%)
Sore Throat, n(%)	33 (15.4%)
Shock, n(%)	16 (7.4%)
Coronary artery ectasia/dilation, n(%)	3 (1.4)
COVID-19 PCR positive, n(%)	16(7.4%)
COVID -19 IgG positive, n(%)	21(9.8)
Treatment	
Mechanical ventilation, n(%)	10(4.6)
Pressors	19(8.8)
Intravenous Immunoglobulin	35 (16.3%)
Methylprednisolone	4(1.2)
Infliximab	14(6.5)
Aspirin	34(15.8)

Table 2: Comparison of the spectra of MIS-C and non MIS-C

Laboratory feature		MIS-C Type, median (IQR)			
	No MIS-C	**Mild**	**Moderate**	**Severe**	**P-value**
***CRP (mg/L)**	15 (51.5)	54.5(117)	45.5 (151)	160(102)	<0.001
Na (mMol/L)	136 (4)	136 (3)	133.00 (3)	131 (6)	<0.001
Creatinine (mg/dL)	0.34 (0.21)	0.30 (0.13)	0.50 (0.39)	0.80 (0.45)	<0.001
****ALT (units/L)**	17(15)	16.5 (12)	27.50 (23)	22 (57)	<0.002
*****LDH (units/L)**	340(191)	367 (208)	437 (138)	368(160)	0.489
Albumin (gm/dL)	4.3(0.5)	4.2 (0.6)	4.00 (1)	3.50 (0.9)	<0.001
Ferritin (ng/mL)	70(81.2)	98.5 (88)	138 (132)	394.5 (337)	<0.001
Troponin (ng/L)	7(7)	7.00 (9.00)	13.5 (38.00)	61(153)	<0.001

*CRP: C Reactive protein

**ALT: Alanine aminotransferase

***LDH: Lactate dehydrogenase

CONTROL ID: 3476644

TITLE: Examining the efficacy of online modules to prepare pediatric providers to care for adult patients during the COVID-19 pandemic

DIGITAL OBJECT IDENTIFIER (DOI): Poster#: 3

ABSTRACT STATUS: Sessioned

PRESENTER: Gianna Bosco

AUTHORS/INSTITUTIONS: G. Bosco, J.F. Hays, A. Vissing, Internal Medicine-Pediatrics, Rush University Medical Center, Chicago, Illinois, UNITED STATES|M. Wilkerson, Department of Pediatric Critical Care Medicine, Rush University Medical Center, Chicago, Illinois, UNITED STATES|

CURRENT CATEGORY: Clinical Investigation

CURRENT SUBCATEGORY: None

ABSTRACT BODY:

Background: The World Health Organization declared coronavirus (COVID-19) a pandemic on March 11, 2020. Hospitals across the nation struggled with limited PPE, over-crowded hospitals, and an insufficient number of providers. In response, countries deployed healthcare workers to areas of medicine outside of their expertise.

Our hospital underwent many changes to accommodate the influx of hospitalized patients including an expansion of our adult intensive care units. To staff the growing number of ICU beds, a group of resident physicians from various residency programs, including pediatric residents, were deployed to work in these new ICUs.

Objective: We set out to create a curriculum of high-yield information via online modules to increase the comfort and knowledge base of the pediatric residents deployed to work in the adult ICU. The aim of this study was to examine the effectiveness of this internet-based learning approach.

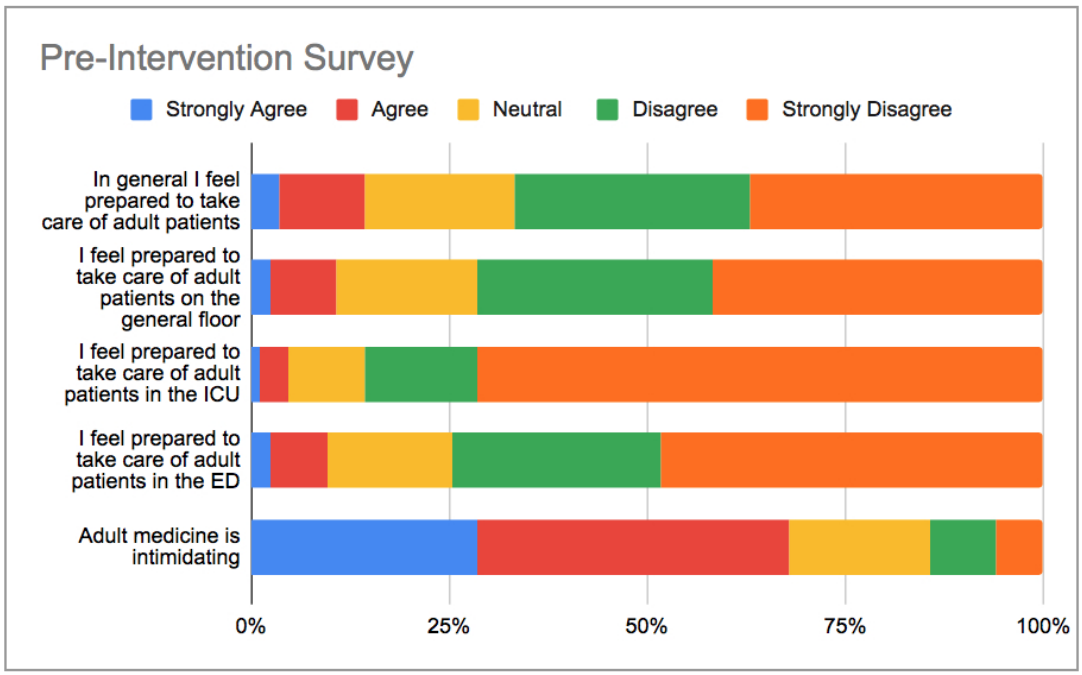
Design/Methods: Eleven modules were created to cover high yield topics in adult medicine. We sent pre- and post-deployment surveys to the pediatrics department to assess the efficacy of our online modules. Responses gauging provider comfort in taking care of adult patients were scored on a Likert scale and collected via an online survey tool. Responses were compared using the Fisher’s exact test and the student's t-test method of statistical analysis.

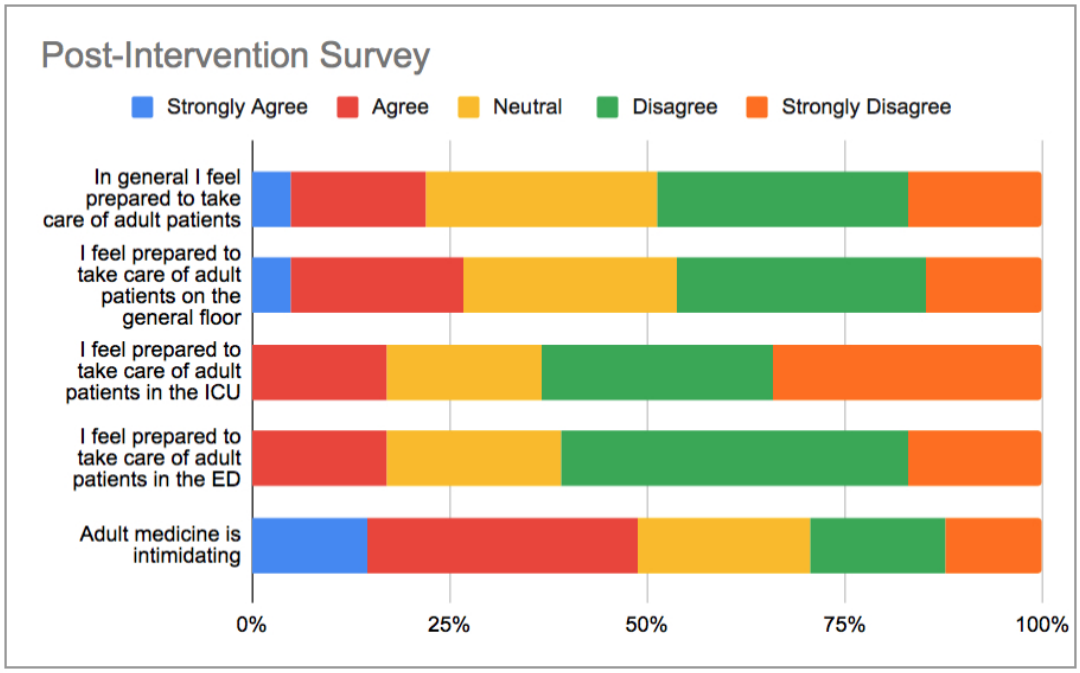
Results: The pre- and post-intervention surveys collected 87 and 41 responses, respectively. There was a statistically significant difference in distribution of the responses between residents and attendings to Likert scale questions on the pre-intervention survey, favoring high levels of provider comfort among residents. There was no difference in use of online modules when stratified by provider age. There was no difference in frequency of module use when comparing residents and attendings. Overall there was an increase in mean Likert scale between the pre- and post-intervention populations. Based on subgroup analysis comparing providers who used the modules to those who did not, this increase was only present in providers who used the online modules.

Conclusion(s): It was evident that a majority of pediatric providers felt unprepared to treat the adult population and found adult medicine intimidating. After completion of the online modules, the comfort level of these providers improved significantly when compared to those who did not use the modules, thus supporting the role for internet based learning in the medical field.

(no table selected)

IMAGE CAPTION:


Pre-Intervention Survey
Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree
In general I feel prepared to take care of adult patients
I feel prepared to take care of adult patients on the general floor
I feel prepared to take care of adult patients in the ICU
I feel prepared to take care of adult patients in the ED
Adult medicine is intimidating
0%
25%
50%
75%
100%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75%
100%

CONTROL ID: 3476016
TITLE: Lived Experiences of Stress by Racially and Ethnically Diverse Mothers of Preterm Infants.
DIGITAL OBJECT IDENTIFIER (DOI): Poster#: 4
ABSTRACT STATUS: Sessioned
PRESENTER: Rachel E Witt
AUTHORS/INSTITUTIONS: R.E. Witt, B.N. Colvin, E.R. Colson, Pediatrics, Washington University in Saint Louis School of Medicine, Saint Louis, Missouri, UNITED STATES|E.S. Forbes, Slone Epidemiology Center, Boston University School of Medicine, Boston, Massachusetts, UNITED STATES|S.N. Lenze, C.E. Rogers, Psychiatry, Washington University in St Louis School of Medicine, Saint Louis, Missouri, UNITED STATES|M.G. Parker, Pediatrics, Boston Medical Center, Boston, Massachusetts, UNITED STATES|S.S. Hwang, Pediatrics, University of Colorado, Denver, Colorado, UNITED STATES|
CURRENT CATEGORY: Health Services Research
CURRENT SUBCATEGORY: None
ABSTRACT BODY:
Background: Preterm birth rate in the United States (U.S.) is increasing, with mothers of color disproportionately burdened. Research suggests that maternal stress in the neonatal intensive care unit (NICU) is common and negatively impacts maternal and infant health outcomes. However, there is still limited understanding of the lived experience of maternal stress related to the NICU by a racially and ethnically diverse population.
Objective: To characterize the lived experience of stress related to the NICU by racially and ethnically diverse mothers of preterm infants.
Design/Methods: We performed a qualitative content analysis of data from 46 in-depth interviews with mothers of preterm infants at 3 U.S. NICUs to provide an in-depth understanding of stressors. Researchers from diverse backgrounds participated in the analysis and used the constant comparative method to select important concepts and to develop codes and subsequent themes. We identified themes and subthemes which fit the socio-ecological model (SEM) framework for targeting health promotion interventions.
Results: Mothers described stressors at multiple levels of influence consistent with the SEM framework, which included Public Policy, Community, Institutional, Interpersonal and Intrapersonal. Participants noted many stressors that more commonly affect Black and Hispanic families in the U.S. due to pervasive social inequalities.

Table 1 shows the characteristics of the participants in the studies. Table 2 shows the themes aligned with the SEM framework levels, subthemes and exemplar quotes.
Conclusion(s): We identified maternal stressors related to the NICU at multiple levels of influence. The SEM framework could be used to develop screening tools and subsequently target interventions for racially and ethnically diverse mothers of preterm infants.
(no table selected)
IMAGE CAPTION:

Table 1. Participant demographics.

Characteristics	Data Set 1	Data Set 2
Number of interviews	23	23
	Median (Range)	
Maternal age (years)	28 (21-40)	34 (21-38)
Infant gestational age (weeks)	30 (24-37)	33 (25-35)
Infant birth weight (grams)	1,015 (620-1,760)	1,770 (790-2,980)
	N (%)	
Multiples	2 (9%)	3 (13%)
Non-Hispanic Black, English speaking	11 (48%)	8 (35%)
Hispanic (any race), Spanish speaking	9 (39%)	7 (31%)
Hispanic (any race), English speaking	3 (13%)	1 (4%)
Non-Hispanic white, English speaking	0 (0%)	6 (26%)
AI/AN, English speaking	0 (0%)	1 (4%)

* Greater Boston, MA; Denver, CO; St. Louis, MO

** Greater Boston, MA

Table 2. SEM levels, themes, and exemplar quotes.

SEM Level	Themes	Quotes
Public Policy	Lack of material and financial resources	"It was very stressful because I always worked and my husband works and I had to stop working and you know that when you have less money at home… that was one of the things that also stressed me out… we were short of cash."
	Difficulty with transition back to work	"Since I had to go back to work in two weeks I felt pressured that I didn't want to have to go back to work and not be able to see her… I didn't want to be at work and her be in the NICU. That was a huge, huge fear of mine."
Community	Competing childcare commitments	"But when I left [the NICU] it was hard, because I didn't want to leave, but I also have another child who I couldn't leave alone, or I couldn't neglect."
	Additional caretaker responsibilities	"Then my schedule became kind of hectic at the time. My mom was in the hospital she had just had open heart surgery so I did a lot of running back and forth trying to help her and stuff."
Institutional	Poor quality of health care provider communication	"So there were many times that I wanted to discuss things with them and they didn't understand me. That's when I used the interpreter, at first; then I learned to communicate better with them. I used the translator on the phone and so did they, so with time we started to get used to it. But yeah, it's quite difficult and complex. When you don't know English it's quite hard."
	Inconsistency of health care team	"I mean they try to give you the same team members every day…but that never works out… all of a sudden something's changed and someone was supposed to call you that night but no one did."
	Logistical problems in the hospital and NICU	"I would park in the garage, which was expensive. I feel like they should have a better parking system for that, especially if my child is here and I have no option. I feel like that is something that they should work on, because it's like… just adding more stress, especially with me. We weren't expecting a baby at 7 months, so… it's like if we're put under a burden like… buying everything on top of the parking. I feel like they should have a better parking system for people that have no choice to be there, that type of hardship."
Interpersonal	Perceived severity of infant illness	"When the cords dangle, the machines go off… you're staring at the machines all day while you're holding your baby…parents with premature babies, they'll find that to be very, very stressful. That monitor – that monitor alone is so stressful…It's terrifying."
	Uncertainty regarding infant prognosis	"[The NICU hospitalization was] traumatic and nerve-wracking… It's very scary to have your kid be in the NICU and one minute you get good news and smiles, and the next minute you're hearing, "I'm sorry for your loss," or, "I'm sorry that he's just not responding with things.""
Intrapersonal	Lack of parental role	"You just feel like you have no control over your baby at all. And, it felt like I was almost like not even a mom at that point, you know? Someone was telling you when you could hold your baby, how you could your baby, when you could feed your baby, how you could feed your baby."
	Post-partum recovery	"It was stressing, it was traumatic, honestly. So many painkillers, antibiotics, because after the two surgeries my wound got infected in the hospital. So, all that depressed me, stressed me out, and I think it affected me."
	Prior stressful and/or traumatic life events	"I used to feel bad because I didn't have a way to get up here all the time. I would take the bus. I know a lot of people would say "Take the bus," but before I got pregnant, I went through an incident where my cousin was paralyzed and I was stabbed, so I'm really paranoid when it comes to public transportation. I always feel better when I'm in a cab or in a car."

CONTROL ID: 3475832

TITLE: Extremely Preterm Neonates Born 22-26 Weeks who Positively Respond to Inhaled Nitric Oxide for Hypoxic Respiratory Failure have a Lower Risk of Death or Ventilator Dependence at 36 Weeks

DIGITAL OBJECT IDENTIFIER (DOI): Poster#: 5

ABSTRACT STATUS: Sessioned

PRESENTER: Timothy J Boly

AUTHORS/INSTITUTIONS: T.J. Boly, J.M. Dagle, J.M. Klein, P. McNamara, R. Giesinger, Pediatrics, University of Iowa Hospitals and Clinics, Iowa City, Iowa, UNITED STATES|

CURRENT CATEGORY: Clinical Investigation

CURRENT SUBCATEGORY: None

ABSTRACT BODY:

Background: Hypoxic respiratory failure (HRF) is common among neonates born ≤26 weeks gestational age (GA). The value of inhaled nitric oxide (iNO) at the limits of viability is highly controversial. We hypothesized that extreme preterms who respond to iNO have improved survival with less bronchopulmonary dysplasia (BPD).

Objective: To evaluate whether response to iNO among extreme preterms is associated with the composite of death or ventilator dependence at 36 weeks postmenstrual age (PMA).

Design/Methods: A retrospective cohort of neonates ≤26 weeks GA who received iNO for ≥12h for HRF was collected [2010-17]. HRF was defined as fraction of inspired oxygen (FiO2≥0.5) or oxygenation index (OI≥10). After 2h, iNO response was classified as positive if either FiO2 or OI declined by 0.2 or 20% respectively, negative if either increased by the same margin, and non-response if neither occurred. Response was independently categorized by 3 neonatologists by and finalized by consensus. Primary outcome was a composite of death or severe BPD defined as ventilator dependence at 36 weeks PMA. Secondary outcomes included duration of post-iNO ventilation and neonatal morbidities. Univariate/ANOVA analysis were performed. Logistic regression was used to evaluate the relationship between response, postnatal age and GA with outcome.

Results: Of 107 infants included, 67 were classified as responders, 27 as non-responders, and 13 as negative responders. Demographics and illness severity were similar across groups but responders received iNO at a younger postnatal age [Table 1, p<0.001]. On logistic regression, postnatal age [OR 1.1(1.0, 1.1), p=0.01) but not GA [OR 0.9(0.7, 1.3), p=ns] was associated with positive response. Responders had a reduced risk of death or severe BPD (p=0.01) which was independent of GA [OR 4.7(1.4, 15.4), p=0.01]. Responders required fewer days of positive pressure ventilation following iNO [Table 2, p=0.01]. Negative responders (12%) had high rates of death, severe BPD and ROP requiring laser therapy.

Conclusion(s): Among neonates born at 22-26 weeks GA with HRF, a positive response to iNO is associated with improved oxygenation, particularly in the transitional period, and those infants have a lower risk of death or severe BPD. Infants can have a negative response, which is associated with a poor prognosis. Further study into modulators of iNO response may identify patients likely to benefit.

(no table selected)

IMAGE CAPTION: Table 1: Baseline characteristics of positive responders, non-responders and negative responders ≤26+6 weeks gestation at birth who received iNO for at least 12 consecutive hours. PPROM = premature preterm rupture of membranes; mean ± standard deviation; median [interquartile range]; frequency (percent). **Table 2:** Neonatal Outcomes. BPD = bronchopulmonary dysplasia; iNO = inhaled nitric oxide; ROP = retinopathy of prematurity; mean ± standard deviation; frequency (percent).

	Positive Responders (n=67)	Non-responders (n=27)	Negative Responders (n=13)	p-value
Gestational age (weeks)	24.1 ± 1.4	24.1 ± 1.4	23.6 ± 1	ns
Age at administration (hours)	10 [4, 40]	204 [40, 318]	144 [24, 234]	<0.001
Weight at administration (grams)	579 ± 171	617 ± 206	526 ± 158	ns
Female	42 (63)	11 (41)	6 (46)	ns
Complete maternal steroids	58 (87)	24 (89)	11 (85)	ns
Vaginal delivery	32 (48)	14 (52)	7 (54)	ns
Chorioamnionitis	17 (25)	6 (22)	2 (16)	ns
Gestational Diabetes	3 (5)	1 (4)	0 (0)	ns
Gestational hypertension/pre-eclampsia	4 (6)	5 (18)	0 (0)	0.07
Multiple gestation	16 (24)	7 (26)	5 (38)	ns
Duration of membrane rupture (hours)	0 [0, 114]	0 [0, 21]	3 [0, 50]	ns
Cord arterial pH	7.3 ± 0.1	7.33 ± 0.05	7.36 ± 0.09	ns
Apgar score at 5 minutes	5.8 ± 2	5.8 ± 1.9	5.7 ± 2	ns
Chest compressions in the delivery room	7 (10)	2 (7)	1 (8)	ns
Pneumothorax	10 (15)	8 (30)	4 (31)	ns
Pre-Nitric Oxide Clinical Illness Severity				
High frequency jet ventilation	53 (79)	21 (78)	11 (85)	ns
Respiratory severity score	8.1 ± 3	8.4 ± 3.2	7.3 ± 2.7	ns
Oxygenation Index	20.6 ± 9	24.6 ± 12	12.9 ± 7.1	ns
Fraction of inspired oxygen (FiO_2)	0.81 ± 0.19	0.75 ± 0.19	0.76 ± 0.17	ns
PH	7.20 ± 0.15	7.26 ± 0.15	7.26 ± 0.19	ns
Partial pressure of carbon dioxide (CO_2)	59 ± 15	58 ± 15	59 ± 16	ns
Systolic arterial pressure	41 ± 9	47 ± 9	42 ± 9	ns
Diastolic arterial pressure	24 ± 6	26 ± 5	26 ± 8	ns
Receiving cardiotropic support	15 (21)	6 (21)	4 (31)	ns
Inotrope score	7.2 ± 2.7	6.5 ± 2.9	8.8 ± 4.3	ns

Table 1: Baseline characteristics of positive responders, non-responders and negative responders ≤26+6 weeks gestation at birth who received iNO for at least 12 consecutive hours. PPROM = premature preterm rupture of membranes; mean ± standard deviation; median [interquartile range]; frequency (percent).

	Positive Responders (n=67)	Non-responders (n=27)	Negative Responders (n=13)	p-value
Primary Outcome				
Death or Invasive ventilation at 36 weeks	45 (67)	25 (85)	13 (100)	0.01
Secondary Outcomes				
Death	16 (24)	9 (33)	7 (54)	0.08
Severe BPD	29/51 (57)	15/19 (79)	6/6 (100)	0.04
Duration of ventilation post iNO (days)	62 ± 39	74 ± 17	73 ± 9	ns
Duration of positive pressure post iNO (days)	143 ± 81	166 ± 55	235 ± 60	0.01
ROP requiring treatment among survivors	10/54 (18)	4/20 (20)	4/6 (67)	0.02
Necrotizing enterocolitis	9 (13)	0 (0)	0 (0)	ns
Intraventricular hemorrhage	28 (39)	8 (28)	4 (33)	ns
Periventricular leukomalacia among survivors	9/54 (17)	1/22 (5)	1/8 (13)	ns
Age at discharge (weeks)	44.1 ± 9	43.3 ± 3	49.0 ± 8	ns

Table 2: Neonatal Outcomes. BPD = bronchopulmonary dysplasia; iNO = inhaled nitric oxide; ROP = retinopathy of prematurity; mean ± standard deviation; frequency (percent).

CONTROL ID: 3471996

TITLE: Repeat course of dexamethasone for bronchopulmonary dysplasia: effect on respiratory support, growth, and long-term neurodevelopment

DIGITAL OBJECT IDENTIFIER (DOI): Poster#: 6

ABSTRACT STATUS: Sessioned

PRESENTER: Kevin Varghese

AUTHORS/INSTITUTIONS: K. Varghese, A. Cheng, W. Troug, A. Cuna, University of Missouri Kansas City, Kansas City, Missouri, UNITED STATES|A. Quigley, G. Ciccolari-Micaldi, University of Kansas School of Medicine, Kansas City, Kansas, UNITED STATES|C.S. Oliveros, M. Norberg, W. Troug, A. Cuna, Children's Mercy Hospitals and Clinics, Kansas City, Missouri, UNITED STATES|

CURRENT CATEGORY: Clinical Investigation

CURRENT SUBCATEGORY: None

ABSTRACT BODY:

Background: Preterm infants who remain chronically ventilated are at risk for developing bronchopulmonary dysplasia (BPD) – a form of chronic lung disease of prematurity. The safety and effectiveness of repeat course of dexamethasone for treatment of BPD are poorly defined.

Objective: Our objectives were to describe effectiveness of repeat dexamethasone for BPD, to examine factors associated with successful improvement in lung function, and to document potential effects on growth and long-term neurodevelopment.

Design/Methods: This was a single-center observational study of infants <29 weeks gestational age at birth treated with dexamethasone for BPD. Effectiveness was defined as step-down in mode of respiratory support from baseline by end of treatment. Adverse effects on growth and neurodevelopment were analyzed and compared to controls.

Results: We identified 132 infants with a mean gestational age of 25.2 ± 1.6 weeks and mean birth weight of 727 ± 191 grams. Sixty-nine infants successfully extubated to non-invasive ventilatory support after a single course of dexamethasone (52%) and twelve out of thirty-four (35%) following a second course (Fig 1). Infants on conventional ventilation were more likely to extubate following dexamethasone compared to infants on high-frequency ventilation (odds ratio 4.9, 95% CI 2.3, 10.3, P<0.0001). Length z-scores were reduced in infants who received repeat dexamethasone compared to untreated controls (0.06 ± 1.07 vs -0.40 ± 1.27, mean difference 0.55, 0.07 to 1.04, P=0.02), while weight and head circumference were unaffected (Fig 2). Infants treated with repeat dexamethasone also demonstrated lower Bayley development cognitive scores compared to infants not exposed to steroids (76.7 ± 12.6 vs 86.4 ± 13.3, P=0.02), while no statistically significant differences in Bayley language and motor scores were seen.

Conclusion(s): Repeat dexamethasone for BPD demonstrated diminished effectiveness in facilitating extubation compared to first course. Repeat dexamethasone was also associated with decreased linear growth at discharge and lower Bayley cognitive development scores at 2 years of age.

(no table selected)

IMAGE CAPTION:

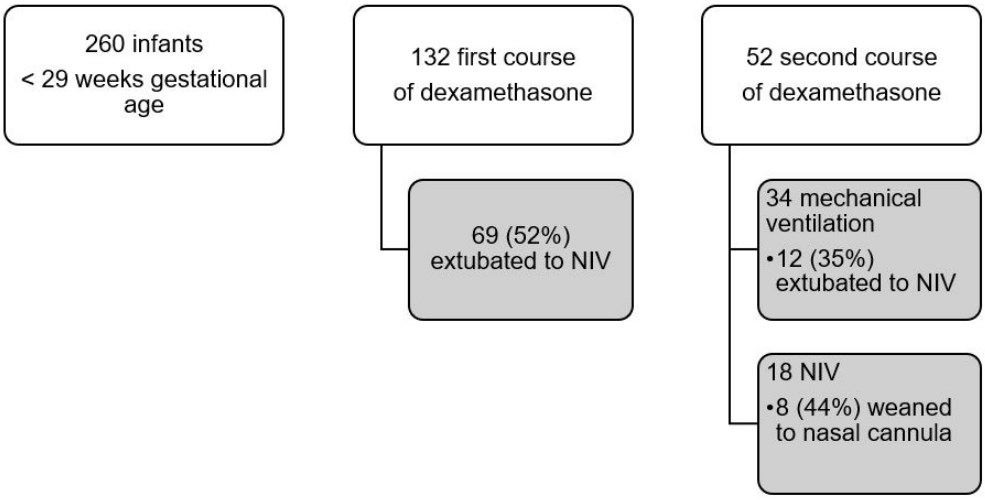

Fig 1: Flowchart showing outcomes of infants treated with dexamethasone. Overall effectiveness of dexamethasone to wean respiratory support decreased from 52% (69/132) with first course to 44% (20/52) with second course. Comparing only infants on mechanical ventilation, the proportion of infants extubated decreased from 52% with the first course to 35% with the second course of dexamethasone.

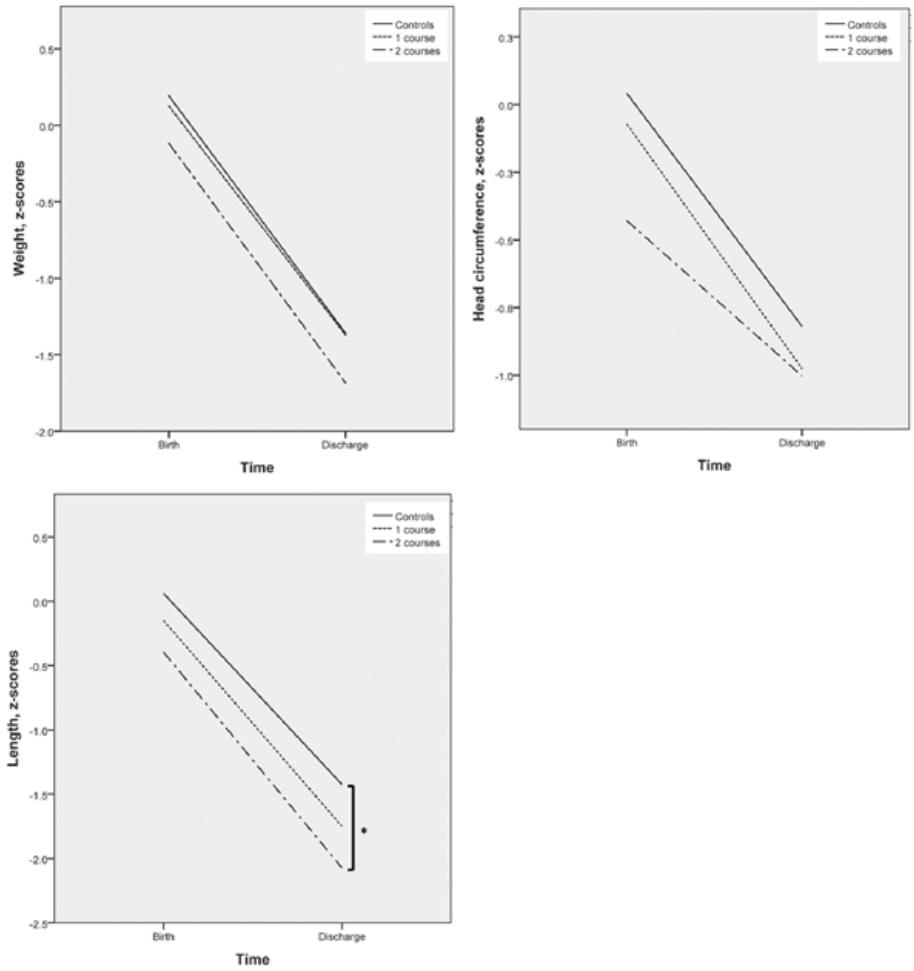

Fig 2: Changes in growth parameters from birth to discharge. Weight, head circumference, and length z-scores were calculated using the Fenton 2013 Growth Calculator for Preterm Infants. Asterisk indicates significant decrease in length z-score of infants treated with 2 courses of dexamethasone compared to untreated controls.

CONTROL ID: 3476516

TITLE: Neuroinjury biomarkers are elevated and predict cognitive performance in pediatric chronic kidney disease

DIGITAL OBJECT IDENTIFIER (DOI): Poster#: 7

ABSTRACT STATUS: Sessioned

PRESENTER: Olivia Lullmann

AUTHORS/INSTITUTIONS: L. Harshman, Pediatrics/Nephrology, The University of Iowa Stead Family Department of Pediatrics, Iowa City, Iowa, UNITED STATES|O. Lullmann, E. van der Plas, Psychiatry, The University of Iowa Roy J and Lucille A Carver College of Medicine, Iowa City, Iowa, UNITED STATES|M. Solomon, The University of Iowa Stead Family Department of Pediatrics, Iowa City, Iowa, UNITED STATES|

CURRENT CATEGORY: Clinical Investigation

CURRENT SUBCATEGORY: None

ABSTRACT BODY:

Background: Progression of chronic kidney disease (CKD) is associated with cognitive impairment. Studies in adults with CKD suggest that inflammatory biomarkers predict cognitive impairment. The novel neuroinjury biomarker neurofilament light chain (NfL) is a sensitive biomarker for white matter damage that can reliably be measured from plasma and may predict cognition in other disease states. The presence of neuroinjury/inflammatory (Ni/I) biomarkers in pediatric CKD has not been evaluated.

Objective: We sought to 1) determine if biomarkers of Ni/I are abnormal in early pediatric CKD, prior to dialysis or transplant; and 2) identify the association of Ni/I biomarkers with cognition in CKD

Design/Methods: Male patients age 6-16 with congenital causes of CKD (mild/moderate disease; eGFR 30-90 ml/min/1.73m^2) participated in a single-site study (N_{cases}=16, $N_{control}$=23). Cognitive evaluation and blood draw were performed during the research visit. Ni/I biomarkers were assessed in triplicate at the Quanterix Accelerator Laboratory via the validated single molecule array (Simoa®) multiplex immunoassay platform. Dilution corrected biomarker concentrations (pg/mL) were analyzed in parallel with cognitive data and CKD-specific clinical variables. All models were adjusted for age, maternal education, and parent socioeconomic status. CKD diagnosis was due to a congenital disease; thus, age was used as a surrogate for CKD duration. Univariate analysis was performed to compare Ni/I level between CKD/control participants. Linear regression was performed to evaluate the relationship between significant Ni/I biomarkers and cognition.

Results: In univariate analysis, CKD participants had higher levels of the neuroinjury biomarker NfL ($F_{(38)}$= 8.5, $p < 0.001$), compared to controls. No other inflammatory biomarkers were abnormal between groups. NfL level increased with age (diseae duration) in the CKD group (Figure 1). Lower serum bicarbonate was associated with increased NfL levels ($F_{(38)}$=3.6, p = 0.002). In adjusted models, higher NfL was associated with worse cognitive motor performance on all measures of the Grooved Pegboard task: number of drops, ($F_{(38)}$=3.2, p = 0.046); time to complete, ($F_{(38)}$= 3.0, p = 0.04; time to first move, ($F_{(38)}$=4.0, p = 0.006).

Conclusion(s): Neurofilament light chain, a neuroinjury biomarker, is elevated in early pediatric CKD. NfL levels appear to increase with disease duration, decreased serum bicarbonate, and predict performance on cognitive tests of motor function in the CKD population.

(no table selected)

IMAGE CAPTION: Figure 1 - NfL increases disproportionately with age in the CKD sample.

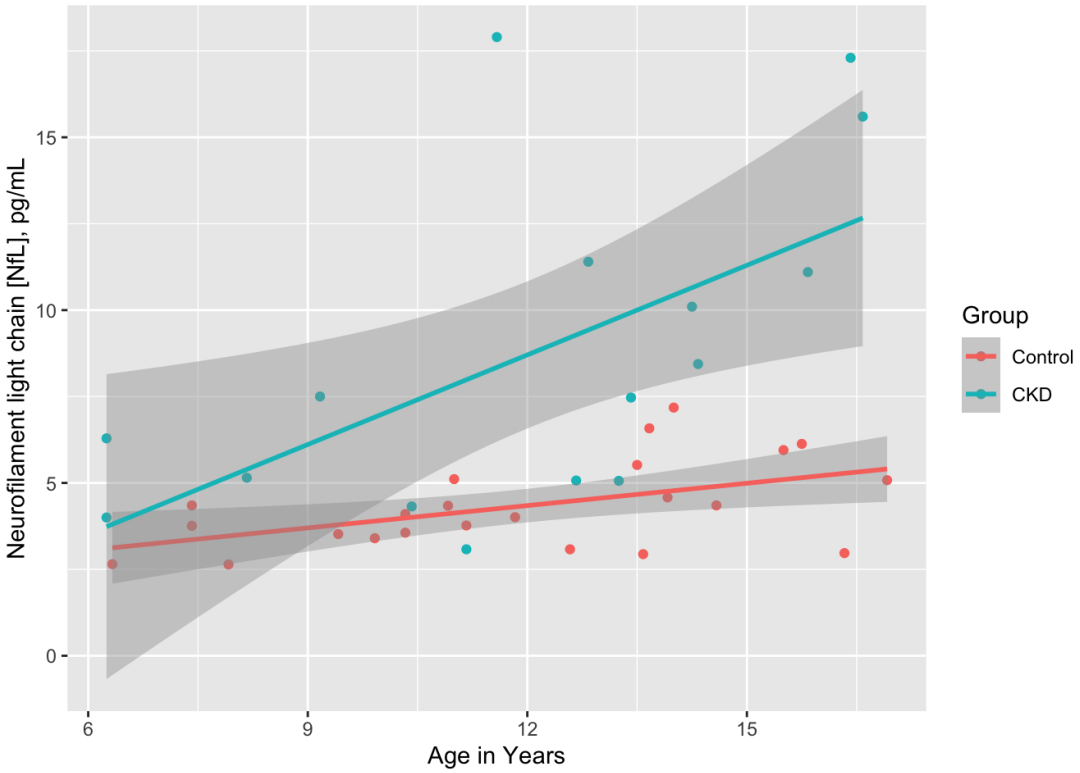

Figure 1 - NfL increases disproportionately with age in the CKD sample.

CONTROL ID: 3476213

TITLE: Thyroid Hormone Function in Small for Gestational Age Term Newborns

DIGITAL OBJECT IDENTIFIER (DOI): Poster#: 8

ABSTRACT STATUS: Sessioned

PRESENTER: Dinushan C Kaluarachchi

AUTHORS/INSTITUTIONS: D.C. Kaluarachchi, M. Baker, Pediatrics, University of Wisconsin-Madison, Madison, Wisconsin, UNITED STATES|V.B. Nicksic, Pediatrics, University of Wisconsin, Middleton, Wisconsin, UNITED STATES|D.B. Allen, Pediatrics, University of Wisconsin School of Medicine and Public Health, Madison, Wisconsin, UNITED STATES|P.J. Kling, Pediatrics, University of Wisconsin-Madison, Madison, Wisconsin, UNITED STATES|J. Eickhoff, Biostatistics and Medical Informatics, University of Wisconsin, Madison, Wisconsin, UNITED STATES|

CURRENT CATEGORY: Clinical Investigation

CURRENT SUBCATEGORY: None

ABSTRACT BODY:

Background: Small for gestational age (SGA) status at birth increase the risk of chronic medical issues in later life. Small cohort studies have found that SGA infants are at higher risk of thyroid hormone dysfunctions. Effects of SGA status on thyroid hormone function has not been replicated in large cohort studies. In this study we hypothesized that SGA infants born at term gestation have higher thyroid-stimulating hormone (TSH) concentrations than appropriate for gestational age (AGA) neonates and an increased incidence of congenital hypothyroidism (CH).

Objective: To determine the association between SGA status and TSH concentration and incidence of CH in term infants.

Design/Methods: This is a retrospective cohort study of all term newborns (37-41 weeks of gestation) born in Wisconsin in 2015 and 2016. Study cohort was divided in to SGA and non SGA groups. SGA status was defined as infants with birth weight percentile <10. Birth weight percentiles were calculated from WHO 0-2 gender specific growth charts. TSH concentration on first newborn screening performed between birth and 96 hours of life and incidence CH were compared between the two groups.

Results: Total of 115 466 of term infants including 11 498 (9.96%) SGA infants were included in the study. TSH concentration was significantly higher in the SGA group (mean TSH 11.4 vs 10.7, p= <0.0001). Incidence of CH in the SGA group was more double that of non SGA (13 vs 6 per 10 000, p= 0.007). Both these associations remained statistically significant after correcting for gestational age, gender, race and multiple births.

Conclusion(s): Incidence of CH although uncommon, was higher in SGA term newborns compared to non SGA newborns. SGA infants require close monitoring and follow up of thyroid hormone function. Effects of mildly elevated TSH on development of chronic medical conditions in SGA infants need to be studied in long term follow up studies.

(no table selected)

(No Image Selected)

CONTROL ID: 3476162

TITLE: Using Late Supplemental Oxygen to Prevent Retinopathy of Prematurity Progression In Premature Infants: a Retrospective Study

DIGITAL OBJECT IDENTIFIER (DOI): Poster#: 9

ABSTRACT STATUS: Sessioned

PRESENTER: Robert Minturn

AUTHORS/INSTITUTIONS: K.M. Haider, Pediatric Ophthalmology, Indiana University Health, Indianapolis, Indiana, UNITED STATES|R. Minturn, Indiana University School of Medicine, Indianapolis, Indiana, UNITED STATES|M. Koch, E. Anderson, K. Kua, Pediatric/Neonatal-Perinatal Medicine, Indiana University School of Medicine, Indianapolis, Indiana, UNITED STATES|K. Kua, Midwest Eye Institute, Indianapolis, Indiana, UNITED STATES|

CURRENT CATEGORY: Clinical Investigation

CURRENT SUBCATEGORY: None

ABSTRACT BODY:

Background: Retinopathy of Prematurity (ROP) is a leading cause of childhood blindness. It affects 15,000 surviving US preterm infants annually, with 1,400 infants developing severe ROP and 500 infants developing legal blindness. The pathogenesis of ROP involves 2 phases: During phase 1, the immature retinal vascularization is obliterated due to hyperoxia. During phase 2 (>4 weeks postnatally), abnormal neovascularization occurs due to hypoxia, sometimes requiring surgical intervention. We retrospectively evaluated the impact of late supplemental oxygen (>4 weeks postnatally) on ROP progression in infants born <28 weeks.

Design/Methods: Preterm infants <28 weeks with >stage 2 ROP admitted to the Riley Hospital for Children Neonatal Intensive Care Unit (NICU) from 7/2017- 12/2019 were included. Nine patients treated with supplemental oxygen therapy were compared to a control cohort managed by a standard protocol after the diagnosis of stage 2 ROP. The primary outcome was the need for surgical intervention with either laser or bevacizumab treatment. Continuous data was analyzed using unpaired t-test, and categorical data was analyzed using Fisher's exact test.

Results: There was no statistical difference in regard to clinical variables contributing to risk of severe ROP (sex, race, birthweight necrotizing enterocolitis, bronchopulmonary dysplasia, or length of stay) between the two study cohorts. There was a statistically significant decrease in the need for treatments (laser or bevacizumab) in patients receiving supplemental oxygen (control: 35/83 patients treated, late O2: 0/9 patients treated, p=0.012).

Conclusion(s): Supplemental oxygen therapy seems to have a protective effect on the development of treatable ROP (type I). Limiting surgical intervention (laser or bevacizumab) would directly benefit the babies by decreasing the need for sedation and any inherent risks of surgery. This initial data suggests the need for future studies with a higher sample size to validate the efficacy of late supplemental O2 in ROP.

(no table selected)

IMAGE CAPTION:

	Study Group		Control		
	Number (Mean)	% (SD)	Number (Mean)	% (SD)	p-value
Population (N)	9	-	83	-	
Sex					
Male	2	22.2%	35	42.2%	N.S.
Female	7	77.8%	48	57.8%	N.S.
Race					
Caucassian	5	55.6%	44	53.0%	N.S.
Non-Caucassian	4	44.4%	39	47.0%	N.S.
Birthweight (grams)	698	145.26	721	197.09	N.S.
Gestational Age (Weeks)	24.94	1.19	25.32	1.72	N.S.
Length of Stay (Days)	129.22	27.13	148.58	67.97	N.S.
Necrotizing Enterocolitis					
Yes	3	33.3%	21	25.3%	N.S.
No	6	66.7%	62	74.7%	N.S.
Sepsis					
Yes	6	66.7%	41	49.4%	N.S.
No	3	33.3%	42	50.6%	N.S.
Bronchopulmonary Dysplasia					
Yes	9	100.0%	80	96.4%	N.S.
No	0	0.0%	2	2.4%	N.S.
Need for Additional Treatment (Inpatient)					
Yes	0	0.0%	35	42.2%	N.S.
No	9	100.0%	48	57.8%	N.S.
Need for Additional Treatment (Outpatient)					
Yes	0	0.0%	35	42.2%	0.012
No	9	100.0%	48	57.8%	

CONTROL ID: 3476022
TITLE: Racial Disparities in NICU Care of Preterm Infants: Perspectives of Non-Hispanic Black Mothers.
DIGITAL OBJECT IDENTIFIER (DOI): Poster#: 10
ABSTRACT STATUS: Sessioned
PRESENTER: Rachel E Witt
AUTHORS/INSTITUTIONS: R.E. Witt, B.N. Colvin, E.R. Colson, Pediatrics, Washington University in Saint Louis School of Medicine, Saint Louis, Missouri, UNITED STATES|M. Malcolm, Family Partners, BJC/St. Louis Children's Hospital, Saint Louis, Missouri, UNITED STATES|N. Sood, J.K. Ofori, Washington University in St Louis School of Medicine, Saint Louis, Missouri, UNITED STATES|S.N. Lenze, C.E. Rogers, Psychiatry, Washington University in St Louis School of Medicine, Saint Louis, Missouri, UNITED STATES|
CURRENT CATEGORY: Health Services Research
CURRENT SUBCATEGORY: None
ABSTRACT BODY:
Background: Racial disparities in quality of care exist within neonatal intensive care units (NICUs). Non-Hispanic Black (NHB) infants are at the greatest risk for suboptimal outcomes, which may be attributable to suboptimal care. NICU clinicians and family advocates have observed racial disparities in quality of care. However, little is known regarding NHB parents' perspectives of these disparities and the role of racism, defined as race prejudice plus power.
Objective: To characterize the perspectives of NHB mothers on racial disparities in quality of care and lived experiences of racism in the NICU.
Design/Methods: A grounded theory approach was used to iteratively collect and analyze in-depth interviews with 10 NHB mothers of preterm infants at a single, urban U.S. NICU. Researchers from diverse backgrounds participated in the analysis and used the constant comparative method to select important concepts and to develop codes and subsequent themes. This is part of an ongoing study, with plans to conduct theoretical sampling until theoretic saturation achieved.
Results: We identified three types of suboptimal care: neglectful care, judgmental care and systemic barriers to care. We found three levels of racism operating within the NICU: institutionalized, personally mediated and internalized. We identified three strategies utilized by mothers to cope with race-related stress associated with racism: avoidance, acceptance and seeking peer support.

When mothers described suboptimal care, it was directed toward their families, suggesting the lack of equitable family-centered care. Although some mothers described overt experiences with racism in the NICU, most described microaggressions consistent with their encompassing lived experience of being Black in the U.S. Nearly all mothers felt that peer support, specifically from other Black NICU mothers and family advocates, was the most effective strategy to cope with race-related stress associated with racism. Nearly all mothers felt that increased representation of Black people, specifically in positions of power, in the health care work force is the single most effective method for improving inclusivity in NICU.

Table 1 shows the characteristics of the participants in the studies. Table 2 shows key themes and subthemes found and exemplar quotes.
Conclusion(s): We have identified categories of suboptimal care and mechanisms of racism in the NICU that may be able to be addressed in future interventions, which could decrease race-related stress and improve care for Black families.
(no table selected)
IMAGE CAPTION:

Table 1. Participant demographics.

Characteristics	***N (%)***
Age Range	
18-24 yo	3 (30%)
25-34 yo	6 (60%)
35-44 yo	1 (10%)
U.S. State of Birth	
Missouri	3 (30%)
Illinois	4 (40%)
Georgia	1 (10%)
New York	1 (10%)
Prefer not to answer	1 (10%)
Education Level	
High school degree or equivalent (e.g. GED)	2 (20%)
Some college, no degree	2 (20%)
Associate degree (e.g. AA, AS)	2 (20%)
Bachelor's degree (e.g. BA, BS)	4 (40%)
Marital Status	
Single	6 (60%)
Married or in a partnership	3 (30%)
Separated	1 (10%)
Employment Status	
Employed full time (40 or more hours per week)	4 (40%)
Unemployed and currently looking for work	4 (40%)
Unemployed and not currently looking for work	1 (10%)
Unable to work	1 (10%)
Insurance Type	
Private	3 (30%)
Public (e.g. Medicare, Medicaid)	7 (70%)
Household Income Level	
$0 to $9,999	4 (40%)
$10,000 to $24,999	3 (30%)
$25,000 to $49,999	1 (10%)
$50,000 to $74,999	2 (20%)

Table 2. Themes, subthemes, and exemplar quotes.

Theme	Subtheme	Exemplar Quote
Types of suboptimal care	**Neglectful care**	"…There was times where… those requests were ignored… if I didn't stay on top of it, I was going to get lost… I wasn't gonna be informed about what happened or what's going on… it got to the point where I didn't leave to go to the bathroom until I knew that they rounded, you know, that type of things."
	Judgmental care	"For him [infant's father] it would be like, if he's wearing his… hoodies through the halls, they would be like, "Oh, why does this Black guy have his hoody on?"… "What are you going to do? Why is he walking through here like that? It's a hospital setting.""
	Systemic barriers to care	"I actually moved into a transitional home… when I was only four months pregnant with [my infant]… I did not have work… the dad was there, but he had his struggles, and we both were trying to find a place to stay so that made it harder… she [the social worker] gave me some resources, but… it was only for families who lived far away from [the hospital]. So they really didn't have… nothing to help us."
Levels of racism	**Institutionalized**	"It was kind of weird that there wasn't as much representation because it seemed like when I had gotten to St. Louis… there was a lot of Black people that live there. So I felt like there probably should have been more in… the nursing, and… the doctors. More than just like the cleaning staff…"
	Personally-mediated	"She was just so rude with what she said to me. And I just remember telling her, "You know, you cannot work and speak to people that way"… And she was taken aback… like she… expected to scream or get… "ghetto"… maybe that's what she was expecting, so she just met me with aggression but… I've observed her speaking to others… I just always felt that there was more aggression with… Black young mothers."
	Internalized	[In response to lack of diversity in health care work force] "It's a lack of education. I mean, as far as pushing, you know, their kids to go to school… even though you do see some kids nowadays focusing on going to school… it's a gap… they don't know what they gonna do. They don't know if they're going to be hustlers… So it's like it's no surprise that when we go to some place…uh, you don't got to say the hospital is elite, but it's just… it's not surprising that you don't see a lot of people of color."
Strategies for coping with race-related stress	**Avoidance**	"A lot of nurses were cliqued up like together… they would talk, and it was kind of gossipy… sometimes they have those moments where they're not as professional as they should be… I don't want to get anybody in trouble… but if you rubbed somebody the wrong way, and then they end up going through the grapevine of nurses and then all of a sudden, I have a slew of nurses that don't like taking care of my baby… I knew how things went in the NICU, and I just didn't want it to be uncomfortable for me and [my infant]… I tried to keep it as…pass and go as possible…"
	Acceptance	"It's just something—and this has nothing to do with the NICU— this is just being a Black woman in America. You know, it's just always… the first thing I think people insinuate is uneducated. Especially in situations of being in doctor's offices or schools or parent teacher meetings… I think it's always assumed. And I feel like if it were a white mother, you know, just some regular… young white girl, they probably would have went forward asking her what she thinks of certain treatment or given her more of an opinion when it comes to her child versus telling me, "These are the steps we're going to take.""
	Seeking peer support	"It's just given already when you're talking to a Black mom… like every Black person knows it might be like a bit of like a struggle that comes with being Black. Like you might be classified as being, like, "loud" or maybe "ghetto" or maybe not the smartest person… or not the richest person in the room… so when you walk into a room full of people and they're not Black, you're just like, "Oh, these people are probably judging me. They might think I'm poor. They might think I'm "ghetto." They might think that I live in a bad area. Or they might think I talk funny." But if you walk in the room full of Black people, you just instantly feel kind of accepted because, like, you know, "Okay, these people… they're not probably judging me. They're not worried about where I live or if I talk funny because they probably talk like me, or, you know, sound like, they look like me, or they're not worried about my hair because, you know, it's like the same struggle"… when you meet a Black person, there's more of an understanding from the beginning because you know how it has been and the struggles you might go through."

CONTROL ID: 3473857

TITLE: Does respiratory severity modify the effect of routine late surfactant on survival without bronchopulmonary dysplasia among extremely preterm infants? — Secondary analysis of the TOLSURF study

DIGITAL OBJECT IDENTIFIER (DOI): Poster#: 11

ABSTRACT STATUS: Sessioned

PRESENTER: Phani Chevuru

AUTHORS/INSTITUTIONS: P. Chevuru, M. Rysavy, E.F. Bell, Pediatrics, The University of Iowa Hospitals and Clinics, Iowa City, Iowa, UNITED STATES|M. Zimmerman, Biostatistics, The University of Iowa College of Public Health, Iowa City, Iowa, UNITED STATES|R. Ballard, P. Ballard, Pediatrics, University of California San Francisco School of Medicine, San Francisco, California, UNITED STATES|

CURRENT CATEGORY: Clinical Investigation

CURRENT SUBCATEGORY: None

ABSTRACT BODY:

Background: Deficient or dysfunctional surfactant may contribute to the development of bronchopulmonary dysplasia (BPD) in extremely preterm infants. The Trial of Late Surfactant for Prevention of Bronchopulmonary Dysplasia (TOLSURF) tested whether routine late administration of surfactant to intubated preterm infants starting at 1-2 postnatal weeks improved survival without BPD at 36 weeks postmenstrual age (J Pediatr 2016;168:23-9). The trial found no difference in the primary outcome between treatment and control groups. However, it is unclear whether infants' baseline severity of respiratory illness affected their potential for benefit from the use of surfactant.

Objective: To determine whether the degree of respiratory support at baseline modified the effect of routine late surfactant on survival without BPD.

Design/Methods: We performed a post-hoc analysis of individual-level patient data from the TOLSURF trial. The daily average respiratory severity score (RSS), defined as the fraction of inspired oxygen (FiO_2) multiplied by the mean airway pressure (MAP), was calculated for enrolled intubated infants one day before and after the initiation of routine surfactant or sham control. We evaluated whether baseline RSS modified the effect of routine late surfactant on survival without BPD using a log-binomial model with an interaction term for treatment assignment and baseline RSS.

Results: Of 511 infants, 252 were randomized to routine late surfactant and 259 to sham control, of which 79 (31.3%) and 82 (31.7%) survived without BPD, respectively. The median RSS, FiO_2 and MAP in the surfactant group prior to randomization were 2.87 (IQR: 2.20-4.11), 0.36 (0.27-0.43) and 8.67 (7.68-10.33), respectively. In the surfactant group, the average RSS, FiO_2 and MAP changed one day post-treatment by 0.15 (95% CI: -0.21, -0.50), 0.01 (-0.01, -0.04) and 0.15 (-0.23, 0.54), respectively. Baseline RSS did not modify the effect of routine late surfactant on survival without BPD (p = 0.38).

Conclusion(s): Routine late surfactant did not affect survival without BPD regardless of the degree of respiratory support at baseline. Moreover, it did not significantly change the RSS one day post-treatment. Future studies on therapies to prevent development of BPD in extremely preterm infants are needed.

(no table selected)

(No Image Selected)

CONTROL ID: 3476486

TITLE: Multisystem Inflammatory Syndrome Among Return Visits of Children Evaluated for Fever in the Emergency Department During the COVID-19 Pandemic.

DIGITAL OBJECT IDENTIFIER (DOI): Poster#: 12

ABSTRACT STATUS: Sessioned

PRESENTER: Cloe Nazeer

AUTHORS/INSTITUTIONS: C. Nazeer, L. Philip, Wayne State University, Detroit, Michigan, UNITED STATES|U. Sethuraman, N. Kannikeswaran, Division of Emergency Medicine/Department of Pediatrics, Central Michigan University, Detroit, Michigan, UNITED STATES|

CURRENT CATEGORY: Clinical Investigation

CURRENT SUBCATEGORY: None

ABSTRACT BODY:

Background: The occurrence of Multisystem Inflammatory Syndrome in Children (MIS-C) among return visits (RV) of children who were evaluated for fever in the Emergency Department (ED) is unknown.

Objective: Our objective was to describe the 72-hour revisits and outcomes of children evaluated for fever in the ED during the pandemic.

Design/Methods: This was an observational study of 72-hour RVs of children < 21 years of age who were evaluated for fever and discharged from the ED of a children's hospital between April 16th and June 3rd, 2020. Children without fever or those admitted to the hospital during the first visit were excluded. Demographics, clinical and laboratory features, and outcomes were noted. The Institutional Review Board approved this study.

Results: A total of 324 patients (51.2% males) were evaluated in the ED for fever and discharged home during the study period. The mean age was 3.9 ± 4.4 years. Demographics, clinical features, and laboratory results are given in Table 1. Of the total, 29 children were investigated for MIS-C prior to discharge.

Sixteen patients (4.9%) returned within 72 hours; of these only one had been investigated for MIS-C during the first visit. Of those who returned, 13 (81.2%) were evaluated for MIS-C during the second visit. Four children (25%) had cardiogenic shock with moderate to severe left ventricular dysfunction and five (31.3%) were diagnosed with MIS-C. Compared to those without MIS-C at the RV, MIS-C patients were older albeit not significantly (8.4 years ± 5.3 years vs 3.7 ±4.4 , 95% CI: -10 to 0.6), had asthma as a comorbidity (80% vs 9%, 95% CI: 19.8-88.9, p<0.005), had a higher duration of fever (4.6 days ± 0.5 vs 1.9 days ± 1.7, 95% CI: -4.3 to -1.0, p<0.004), had more gastrointestinal symptoms (100% vs 36.3%, 95% CI: 11.9-84.9, p<0.02) and had a higher admission rate to the hospital (100% vs 36.3%, 95% CI: 11.9-84.9, p<0.02). All five children with MIS-C were treated with immunoglobulin and aspirin.

Conclusion(s): Revisits among children evaluated in the ED for a fever during the COVID pandemic was low. However, among those who returned, one fourth had cardiogenic shock and nearly one third were diagnosed with MIS-C. These children were older, had predominantly gastrointestinal symptoms, and higher duration of fever. Further studies are required to confirm these findings and establish guidelines for safe discharge of children presenting with fever.

(no table selected)

IMAGE CAPTION:

Table 1: Demographics, Clinical features, and Laboratory investigations at the first visit of study cohort

Characteristic	**Number**
Demographics, n=324	
Age in years (Mean ± IQR)	3.9 ± 4.4
Males (n, %)	166 (51.2)
Length of stay in days (Mean ± IQR)	2.5 ± 2.9
Race, n=324	**n (%)**
African American	195 (60)
Caucasian	48 (14.8)
Other	43 (13.3)
Comorbidities, n=324	**n (%)**
Asthma	20 (6.1)
Obesity	3 (0.92)
Clinical features, n=324	**n (%), unless stated otherwise**
Fever duration in days (Mean ±IQR)	2.3 ± 2.8
Anorexia	92 (28.5)
GI symptoms	119 (36.7)
Rash	44 (13.6)
Conjunctivitis	4 (1.2)
Sore throat	43 (13.3)
Extremity swelling	9 (2.8)
Lymphadenopathy	10 (3.1)
Laboratory investigations, n=324	**n(%)**
CRP mg/L	68 (20.9)
Sodium mMol/L	62 (19.1)
Lactate dehydrogenase (LDH) Units/L	7 (2.16)
Alanine Aminotransferase (Units/L)	41 (12.7)
Albumin gms/dL	40 (12.3)
Ferritin ng/ml	28 (8.6)
Troponin ng/L	22 (6.8)
Absolute Lymphocyte Count (ALC) K/CUMM	60 (18.5)
D Dimer mg/L FEU	25 (7.7)
Fibrinogen mg/dL	20 (6.2)

Table 2: Demographics, Clinical Features and Outcomes of return visits during the study period

Demographics, n=16	**n (%), unless stated otherwise**
Age in years, (Mean±SD)	5.2 ± 5.0
Males	7 (43.8)
Evaluation for MIS-C	13 (81.2)
Clinical Features, n=16	**n (%), unless stated otherwise**
Duration of fever in days, (Mean±SD)	2.8 ± 1.9
Anorexia	8 (50.0)
Gastrointestinal symptoms	11 (68.8)
Rash	6 (37.5)
Sore throat	2 (12.5)
Conjunctivitis	1 (6.3)
Swollen extremities	1 (6.3)
Shock	4 (25.0)
Admission	11 (68.8)
IVIG treatment	5 (31.3)
Aspirin Treatment	5 (31.3)
Length of Stay in days, (Mean±SD)	3.0 ±3.2

CONTROL ID: 3476324

TITLE: Self-identified Race/Ethnicity is Significantly Associated with Microbiome Variation in Infants

DIGITAL OBJECT IDENTIFIER (DOI): Poster#: 13

ABSTRACT STATUS: Sessioned

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CURRENT CATEGORY: Basic Science

CURRENT SUBCATEGORY: None

ABSTRACT BODY:

Background: Gut microbial communities are involved in the development of health, highlighting the importance of identifying early-life microbiome modulators. This is of particular importance for people of color as they are systemically more susceptible to adverse health outcomes, specifically birth outcomes. Recent studies show that gut microbiomes and breastmilk content differ by ethnicity in adults. The role of race/ethnicity in infant microbiome development remains unknown.

Objective: We investigated how infant and maternal race and ethnicity are associated with microbiomes in a cohort of diet-controlled (exclusively breastfed) infants.

Design/Methods: Healthy mother-infant dyads (n=115) were recruited as part of the Mothers and Infants Linked for Healthy Growth (MILk) study. Bacterial microbiomes were characterized in infant feces (1 and 6 months of age) and maternal breastmilk (1 month post-partum) by sequencing 16S rDNA amplicons. Race and ethnicity were self-identified (by mothers) according to National Institutes of Health definitions (including identification with multiple races) and then combined into 2 groups for each (Race, Minority (13%) and White (87%); Ethnicity, Hispanic/Latinx (5%) or Not (95%)). P-values <0.05 and false discovery rate corrected p-values (q) <0.25 were considered significant.

Results: Gut microbiomes of 1-month-old infants differed by infant and maternal race (beta-diversity PERMANOVA, $p < 0.05$). Infants of Hispanic/Latinx descent had higher abundances of 5 bacterial taxa at 1 month (Wilcoxon rank-sum test $p < 0.05$, $q < 0.25$). A higher relative abundance of Staphylococcus was observed in breastmilk of Minority women (Wilcoxon $p < 0.001$, $q < 0.25$). Gut microbiomes of 6-month-old infants differed by infant and maternal race with respect to abundance of 2 taxa, with Minority infants having higher abundance of both (Wilcoxon $p < 0.05$, $q < 0.25$). Six month gut microbiomes for infants of Hispanic/Latinx descent had lower biodiversity (Shannon index, Welch's t-test, $p < 0.05$, effect size = -1.17, 95% CI [-2.16, -0.18). For all comparisons, race/ethnicity groups did not differ with respect to antibiotic exposure, birth mode, or infant sex (Fisher's exact tests, $p > 0.05$).

Conclusion(s): Self-identified race/ethnicity is associated with early-life microbiome variation, highlighting the need for further research into underlying mechanisms and how microbiome variation translates to health disparities. We postulate that the mechanism will be complex and include social, ecomomic, cultural, and genetic factors.

(no table selected)

(No Image Selected)