Time

1:15-2:30 p.m.

Title: Electronic Medical Record-Based Clinical Decision Support Tools for Transitioning Adolescents and Young Adults from Pediatric to Adult Care

Presenter/Authors: Caren Steinway, **Katherine Wu**, John Berens, **Adam Greenberg**, Zia Gajary, Dava Szalda, Sophia Jan

Location: Convention Center Exhibit Hall DE Poster Session, Board 569

Background:
Despite nationally recognized recommendations for transitioning adolescents and young adults (AYA) from pediatric to adult health care settings, challenges persist. Electronic Medical Record (EMR)-based clinical decision support (CDS) tools have documented effectiveness at addressing many clinical scenarios.

Objective:
To test the effectiveness of an EMR-based CDS tool to improve discussion of transition-related services to adult care in a large, urban, pediatric primary care center.

Design/Methods:
An existing EMR-based best practice advisory (BPA) was adapted for a large, urban, primary care center affiliated with an academic children's hospital to prompt discussion of transition-related services. The alert is triggered by age (16 years and older) and care episode. The BPA includes bundled orders and links, including addition of a transition-to-adult-care problem to the problem list; list of printable patient education materials; transition summary letter template; release of information form, and the Transition Readiness Assessment Questionnaire form. To assess the effectiveness of the BPA on transition-related discussions during clinical visits, patients aged 16 and older were surveyed during their well visits to assess whether transition-related topics were discussed. Modeled after the 2005 National Survey of Children with Special Health Care Needs, survey topics included transfer to adult healthcare, self-management skills, healthcare system changes at age 18, time to speak privately with provider, and receipt of written transition plan. Surveys were collected 1 week/month x 2 months prior to BPA initiation, and continues to be collected monthly after initiation.

Results:
Since Aug 2017, the BPA has appeared for 833 patients. Providers opened the BPA for 23% (n=189) of those patients. At baseline, 57 patients completed the survey; 44 patients have completed surveys after implementation. Compared to baseline, the proportion of patients reporting discussion of 2 or more transition topics increased (73% vs. 54%) after BPA initiation. We also saw a trend towards more patients reporting no discussion of transition topics (12% vs. 4%), however samples sizes were small.

Conclusion(s):
EMR-based CDS may be an effective way to improve the quality of transition discussions for AYA. CDS may conversely intimidate some clinicians from transition discussions. Future work will focus on increasing provider uptake of CDS tools.

1:15-2:30 p.m.

Title: Disparities in Childhood ADHD Symptom Severity by Neighborhood Poverty

Time

Presenter/Authors: Bianca Nfonoyim, **Heather Griffis**, **James Guevara**

Location: Convention Center Exhibit Hall DE Poster Session, Board 338A

Background:
While the relationship between the home environment and childhood ADHD has been elucidated, little is known about the effect of neighborhood-level characteristics on childhood ADHD severity.

Objective:
To determine the association between neighborhood poverty and ADHD symptom severity among children residing in metropolitan Philadelphia.

Design/Methods:
We performed a secondary analysis of data from a randomized controlled trial conducted April 2016 to July 2017. Parent-child dyads were recruited from 11 pediatric practices in the Children's Hospital of Philadelphia Care Network. Our primary independent variable was an estimate of neighborhood poverty, for which we utilized 2015 American Community Survey data at the census tract level. Study participant addresses were geolocated using ArcGIS Version 10.5 and respective tract-level poverty estimates were attributed and divided into quintiles. Our main dependent variable was Vanderbilt Parent Rating Scale (VPRS) total symptom score, which we obtained from baseline participant surveys as a measurement of ADHD severity. Linear regression models were developed to estimate the association between ADHD severity and neighborhood poverty quintiles while controlling for demographic characteristics and concurrent medication usage.

Results:
Of 303 participants, 286 (94%) children aged 5-13 years old with ADHD had complete data and were successfully geolocated (Figure 1). Most (56%) children lived in low and low-medium poverty census tracts, but African American children made up the majority (80.9%) of individuals from high poverty tracts. In univariate analysis, increasing poverty quintile was correlated with higher VPRS total symptom scores (?=2.0, 95% CI 1.1, 2.9; Figure 2). Higher poverty was also associated with decreased medication use, with 19.1% of children in high poverty tracts on medication compared to 65.8% of children in low poverty tracts (p=0.001; Figure 2). After adjusting for demographic characteristics and concurrent ADHD medications, census tract poverty was no longer associated with VPRS total score, but VPRS scores were associated inversely with medication use (?= -5.9, 95% CI -8.5,-3.3).

Conclusion(s):
Neighborhood poverty was not associated with ADHD severity after adjustment for concurrent medication use. Since medication was related to ADHD severity, the association between poverty and use of ADHD medication warrants further exploration and public health interventions to address disparities and ensure that children from all communities receive adequate ADHD management.

1:15-2:30 p.m.

Title: How Suicidal Adolescents Experience Clinical Interactions During Hospitalization for Safety Observation

Presenter/Authors: Emily Barrios, **Diana Worsley**, Marie Shuter, Whitney Eriksen, **Stephanie Doupnik**

Time

Location: Convention Center Exhibit Hall DE Poster Session, Board 557

Background:
Two million adolescents per year exhibit suicide-related behavior. Adolescents with serious suicidal ideation or suicide attempt often access treatment through a medical emergency department (ED). Due to limited availability of inpatient psychiatric treatment beds, many of these patients board in EDs or medical hospitals for safety observation while awaiting inpatient psychiatric treatment. Little research to date has examined the patient experience of this common pathway into treatment, and minimal guidance is available on best practices to care for such patients.

Objective:
This study's objective was to understand the experience of adolescents hospitalized for safety observation. Specifically, we sought to understand: 1) how organization of the clinical team influences communication, and 2) patients' experiences communicating with clinicians.

Design/Methods:
Twenty adolescents (M = 7, F = 13) aged 9 to 18 (Median = 14.0 years) participated in a semi-structured interview in which they discussed their hospital experiences and their attitudes toward and understanding of future psychiatric treatment. Interviews were audio recorded, transcribed, and analyzed using NVivo 11 for emerging themes surrounding communication with clinicians.

Results:
Two major themes regarding clinician communication emerged:
1. Comfort with Select Clinicians: Participants reported that they found interactions with social workers and psychiatrists to be the most helpful. They cited their 1:1 staff observers as the people in the hospital with whom they felt comfortable.
2. Repetitive Inquiries: Participants felt overwhelmed by the many clinicians they interacted with and often found it difficult or painful to repeatedly recount their history. Some reported feeling confused about clinician roles.

Conclusion(s):
Patients felt comforted and understood by social workers, psychiatrists, and 1:1 staff observers during their safety observation hospital stays, but felt confused by the number of clinicians and overwhelmed by the frequency and repetitiveness of these conversations. Interventions to improve patient experiences could include:
prioritizing evaluation by a social workers or psychiatrist early in hospital visit, minimizing the number of times a patient is asked to repeat their history, and ensuring that clinicians clearly identify their role to the patient at the beginning of each conversation.

1:15-2:30 p.m.

Title: The impact of child physical abuse clinical pathways on the evaluation for occult injuries in high risk infants

Presenter/Authors: Natalie Stavas, Christine Paine, Justine Shults, Lihai Song, **Joanne Wood**

Location: Convention Center Exhibit Hall DE Poster Session, Board 284

Background:

Time

Across Children's Hospitals in the United States variation exisits in evaluation for occult injuries with a skeletal survey. Implementation of clinical pathways has been identified as a method to improve evaluation and detection of child abuse. Although, the implementation of child abuse pathways has demonstrated positive results in a few single center studies, the broader impact of pathway implementation on child abuse evaluation remains uncertain.

Objective:
To determine whether the presence of a child abuse clinical pathway affects the likelihood of evaluation for occult fractures with a skeletal survey in infants and to examine the influence a pathway has on disparities in performance of occult injury evaluation.

Design/Methods:
A retrospective study of children under 1 year of age diagnosed with femur fracture, humerus fracture or traumatic brain injury at 41 hospitals in the Pediatric Hospital Information System database from 2004-2015 was performed. Information regarding the presence of a child abuse clinical pathway at participating hospitals was collected via survey. We examined whether the presence of a child abuse pathway was associated with a greater likelihood of evaluation with a skeletal survey for occult injury in infants, adjusting for patient level factors and clustering by hospital.

Results:
In our regression model the presence of a child abuse pathway in a hospital was associated with greater odds of skeletal survey performance than in hospitals without pathways (OR 1.47, 95% CI 1.04-2.11). Children with public insurance had a greater odds of receiving a skeletal survey (OR 2.53, 95% CI 2.01-3.15). Marginal standardization was utilized to obtain the predicted probability of skeletal survey performance. We found that presence of a pathway increased occult injury evaluation for those with private insurance from 54% to 73%. For those with public insurance the presence of a pathway increased evaluation from 60% to 82%. The impact on evaluation was greater for children with public insurance than for children with private insurance (p-value <0.00) even in the presence of a pathway

Conclusion(s):
Implementation of clinical pathways related to the evaluation of child abuse is associated with increase odds of obtaining a skeletal survey but was not associated with a decrease in disparities in evaluation based on socioeconomic status. Infants with public insurance continued to have higher evaluation rates than those with private insurance regardless of the presence of a pathway.

1:15-2:30 p.m.

Title: Utility of routine urinalysis to screen for injury in children with suspected physical abuse

Presenter/Authors: Kristine Fortin, **Joanne Wood**

Location: Convention Center Exhibit Hall DE Poster Session, Board 290

Background:
The AAP clinical report on physical abuse notes that urinalysis may identify kidney trauma. However, the yield of screening urinalysis in suspected abuse is unknown.

Objective:

Time

1) Describe the prevalence and types of abnormalities identified on screening urinalyses, and clinical actions taken in response. 2) Identify the utility of screening urinalyses in identifying occult renal injury.

Design/Methods:
Retrospective study conducted at a hospital with a physical abuse clinical pathway that recommends urinalysis to screen for occult injury in children <7 years. Children evaluated for suspected physical abuse who underwent urinalysis over a 3 year period were included. Results of urinalyses and other indicators of abdominal trauma were extracted. Clinical actions in response to abnormal urinalyses were described, as were prevalence of abdominal imaging and radiographically evident abdominal trauma.

Results:
179 patients with median age 5 months (0 – 78) were included.

134 (75%) had ?1 abnormality on urinalysis (table 1). Abnormality lead to a clinical action in 21 (16%) cases: repeat urinalysis (14), culture (4), ultrasound (2), and rhabdomyolysis treatment (1). Urinalysis alone never prompted abdominal CT.

Prevalence of liver enzyme >120 was 35 (20%), and abdominal trauma sign/symptom was 16 (9%). 56 (31%) patients had abdominal imaging. ?1 abdominal injury was identified in 11 (6%) patients; liver (9), spleen (5), adrenal (3), kidney (3), pancreas (1), and intestine (1).

11/15 children with hematuria had other indicators of abdominal injury (table 2). 12/15 (80%) underwent abdominal imaging (9 CT, 3 ultrasound) and 5 (33%) had abdominal injury, specifically to liver (5) spleen (4), adrenal (3), and kidney (2). The 4 patients with hematuria and no other indicators of abdominal trauma did not have abdominal injuries.

3/3 children with renal injury had other abdominal injuries: liver (3), spleen (2), and adrenal (1). Of the 3 patients with renal injury, 1 did not have hematuria, but all had elevated liver enzymes (median AST 3166, 278 – 18054), and 2 had signs/symptoms of abdominal injury.

Conclusion(s):
The majority of urinalysis abnormalities had no impact on clinical care decisions. Urinalysis alone did not lead to detection of renal injury; all patients with renal injury had other indicators of abdominal trauma prompting imaging and diagnosis. Thus, routine urinalysis did not significantly contribute to clinical management or injury identification, and may not be necessary in the evaluation of suspected physical abuse.

1:15-2:30 p.m.

Title: Intersectionality: Experiences of Women of Color in Pediatric Emergency Medicine

Presenter/Authors: Ashley Martin, Bianca Nfonoyim, Angela Ellison, Joseph Wright, Tiffani Johnson

Location: Convention Center Exhibit Hall DE Poster Session, Board 208

Background:
Certain racial and ethnic groups remain underrepresented in medicine (URiM). Diversity among PEM faculty and their experiences in academic medicine has not been reported.

Time

Objective:
To describe the experiences of women of color faculty in PEM.

Design/Methods:
This is a preliminary analysis of data from 14 women of color from a sample of 50 semi-structured key informant interviews with PEM division chiefs, fellowship program directors, and faculty in the top NIH-funded Pediatric Departments and highest volume pediatric EDs in the country. Interviews were recorded, transcribed and edited to remove identifiers. Transcripts were imported into ATLAS.ti v. 7 and analyzed by two independent coders.

Results:
Women of color are seen as intimidating "in a way that I don't think it would be if I were a black man, or a white man, or a white woman." They also report mistrust from their patients. "Sometimes with my white, wealthy families I feel that they distrust me, and that they're looking for someone who's an older white gentleman with white hair." Thus, they feel the need to "go into a lot more detail with those [white] families because I anticipate, correctly or not, that they do not trust me because of who I am. I'm black and I'm a woman." Women of color report "subtle and subliminal" microaggresions from colleagues, nurses and leaders. Such discrimination creates "a feeling of wanting to justify what it is that you're doing, or justify your presence in a certain environment by going above and beyond." Support is found in mentors who establish"long-lasting relationships" and "provide and seek out opportunities" with them. Camaraderie among peer networks boosts resilience and provides a space to discuss "life's lessons." Diversity improvement strategies include a commitment to employing "doctors that represent the community" and "speaking up and advocating for the importance of a diverse workforce and the importance of guaranteeing opportunity." Similarly, "having members of under-represented faculty on recruitment committees" and ensuring that interviewing faculty "see people that look like them" is a step toward establishing a powerful "role modeling system."

Conclusion(s):
Women of color in PEM face subtle gender and racial discrimination at an institutional, peer and patient level. These experiences highlight a need for greater diversity in faculty and leadership and the development of essential strategies to foster environments of inclusion in PEM.

1:15-2:30 p.m.

Title: Evaluation of Sagittal STIR MRI as a Screening Tool for Identification of Spinal Trauma

Presenter/Authors: M. Katherine Henry, Tamara Feygin,, Joanne Wood

Location: Convention Center Exhibit Hall DE Poster Session, Board 297

Background:
Infants with head trauma, especially abusive head trauma, are at risk for spinal trauma, particularly ligamentous. Spinal MRI may reveal findings of clinical and/or forensic significance, yet MRIs are costly, time-intensive, and require sedation to obtain diagnostic quality images. Sagittal Short T1 Inversion Recovery (STIR) is an important MRI sequence to identify soft tissue/ligamentous injuries, because it suppresses signal

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from surrounding fat so that injuries in tissues of interest can be appreciated. This rapid, 2-minute sequence is adept at revealing bone marrow edema (to evaluate for fractures) and, to a lesser degree, spinal canal hemorrhages.

Objective:
To evaluate whether a brief sagittal STIR spinal imaging sequence has adequate sensitivity as screening spinal imaging study to inform whether the full-sequence spinal MRI protocol is warranted. If sensitive, we envision it could be performed at the time of a brain MRI to decide in real-time if further spinal imaging is needed.

Design/Methods:
We performed a retrospective study of children <1 year admitted with trauma from 2005 – 2016 who underwent spinal MRI. The primary outcome was sensitivity of sagittal STIR MRI in detecting spinal injuries. An attending neuroradiologist reviewed sagittal STIR images, blinded to case information and full-sequence spinal MRI results. Results of these sagittal STIR reviews were compared to injuries identified on the full-sequence spinal MRI to calculate sensitivity.

Results:
Of 88 spinal MRIs, the median age was 3 months, 52.3% were male, and 85.2% had traumatic brain injury. The child protection team was consulted in 87.5% of cases, and 64.8% were considered abused. Abnormal full-sequence spinal MRIs were found in 51.1%. The most common injuries were ligamentous (30.2%), spinal canal hemorrhage (23.9%), and vertebral (15.9%). Sagittal STIR had a sensitivity of 93.2% (95% CI 81.3, 98.6) and specificity of 52.3% (95% CI 36.7, 67.5) for identification of abnormal full-sequence MRIs. In a sensitivity analysis including findings not clearly injuries such as post-surgical changes and edema of unknown significance, sagittal STIR had a sensitivity of 91.1% (95% CI 80.4, 97.0) and specificity of 65.6% (95% CI 46.8, 81.4).

Conclusion(s):
Sagittal STIR demonstrates high sensitivity for spinal injury. If sagittal STIR continues to demonstrate high sensitivity in future research with larger sample size, our data suggest our field could employ a more tailored approach to spinal MRIs and reduce unnecessary imaging by approximately 25%.

1:15-2:30 p.m.

Title: Prematurity as an independent risk factor for the development of pulmonary disease

Presenter/Authors: Julie Fierro, Molly Passarella, Scott Lorch

Location: Convention Center Exhibit Hall DE Poster Session, Board 78

Background:
Children with bronchopulmonary dysplasia (BPD) have airway functional impairment and are at increased risk for the development of asthma and other respiratory system morbidities. It is less clear how premature birth without BPD influences diagnosis or health care use for respiratory diseases compared to those infants with BPD.

Objective:
To determine if children born prematurely who do not have a diagnosis of BPD or chronic lung disease of prematurity (CLD) are at risk for being diagnosed with pulmonary disease.

Time

Design/Methods:
We retrospectively abstracted information on diagnoses, medications, encounters with a subspecialist, and hospitalizations and emergency room visits from an electronic medical record from 1/1/2006 to 12/31/2015 of primary care patients in the 34 site CHOP network born at less than 30 weeks gestational age. Eligible subjects included infants that presented to care in the first 4 months of life, had at least one well visit after one year of life, and remained within the CHOP network for a minimum of 3 years since birth. Our cohort included 317 patients with CLD or BPD (ICD9 code 518.89 or 770.7) which were validated through chart review and 495 patients without these diagnoses. Outcomes of interest included a diagnosis of asthma or any respiratory disease, respiratory medications, and use of subspecialty, ED, or hospitalizations for respiratory disease. Multivariate poisson, Cox proportional hazard, and logistic regression models determined the impact of BPD on each outcome of interest while controlling for race, insurance type, gestational age, and gender.

Results:
Infants with BPD were significantly more likely to be diagnosed with asthma (OR 1.6, 95% CI 1.15–2.23), but not all respiratory diseases (OR 1.57, 95% CI 0.7–3.45) compared to those without BPD. Infants with BPD were more likely to be referred to a pulmonologist (RR 13.21, 95 % CI 11.69 – 14.93, p = 0.000) and be seen at a younger age (mean 550 +/- 597 d) compared to those without BPD (mean 1272 d +/- 740 d), which remained significant in multivariable analysis (hazard ratio 2.58, 95% CI 1.86-3.57). Infants with BPD were more likely to be hospitalized (RR 2.18, 95% CI 1.97-2.42) or have an emergency room visit for a respiratory disease (RR 1.15, 95% CI 1.01-1.31).

Conclusion(s):
BPD remains an added risk for asthma and acute visits for respiratory disease. However, preterm infants without BPD have a similar risk of pulmonary disease and were more likely to have delayed referral to a pulmonologist.

1:15-2:30 p.m.

Title: Differential Effect of Delivery Hospital on Mortality and Morbidity in Minority Premature and Low Birth Weight Neonates

Presenter/Authors: Gia Yannekis, Molly Passarella, Scott Lorch

Location: Convention Center Exhibit Hall DE Poster Session, Board 849

Background:
Previous work has shown decreased mortality for premature and low birth weight infants born at hospitals with level III or above neonatal intensive care units. Variation in these effects between racial/ethnic or insurance groups is unknown.

Objective:
To identify the differential impact of delivering at a high-level, high-volume (HL) hospital between racial/ethnic or insurance groups.

Design/Methods:
We constructed a retrospective cohort from birth and death certificates linked to hospital records of all infants born at gestational ages of 24-32 weeks or birth weights less than 2500g in California, Missouri, and Pennsylvania between 1995-2009 (N=136,702). We defined a

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HL hospital as a level III or IV NICU caring for more than 50 very low birth weight (VLBW) neonates per year based on AAP guidelines. We completed multivariable logistic random-effects models using pre-discharge mortality and a composite of mortality, retinopathy of prematurity, grade 3 or 4 intraventricular hemorrhage, bronchopulmonary dysplasia, and necrotizing enterocolitis as outcomes. Models determined the differential effect of race/ethnicity or insurance status on these outcomes through an interaction term between these variables and delivery at a HL hospital, after controlling for maternal chronic medical conditions, pregnancy complications, gestational age, and birth weight.

Results:
Non-Hispanic white and privately insured infants were more likely to deliver at HL centers and had a higher pre-discharge mortality rate than minority and publicly insured/uninsured infants (Table 1). There was a 35-38% reduction in odds of mortality for all neonates born at HL centers across gestational age and birth weight categories (OR 0.64, p-value 0.000, 95% CI 0.57-0.72 for 24–32 week neonates). Compared to non-Hispanic white infants, there was a 25% reduction in the composite outcome for non-white infants of gestational ages 24-28 weeks delivering at HL centers (OR 0.75, p-value 0.008, 95% CI 0.61-0.93) and an 18% reduction for VLBW non-white infants delivering at HL centers (OR 0.82, p-value 0.013, 95% CI 0.71-0.96) (Table 2). No such difference was noted by insurance status.

Conclusion(s):
Neonates of minority racial/ethnic status receive greater benefits than non-Hispanic white neonates from delivery at hospitals with high-level NICUs. Future perinatal care interventions should understand and mitigate barriers preventing minority women from delivering at hospitals with high-level NICU services.

1:15-2:30 p.m.

Title: The Impact of Paid Family Leave on Neonatal Outcomes and Infant Mortality

Presenter/Authors: Diana Montoya-Williams, Molly Passarella, Scott Lorch

Location: Convention Center Exhibit Hall DE Poster Session, Board 870

Background:
Protected unpaid leave after birth has been linked to a number of positive child health outcomes, including reduced infant mortality. Paid family leave may increase uptake of leave but remains unavailable at a national level in this country. In 2004, California became the first state in the United States to pass paid family leave (PFL) legislation. Afterwards, maternity leave-taking in California doubled. This PFL policy has been linked to increased breastfeeding rates and decreased hospitalization for abusive head trauma, but its effect on birth outcomes is unknown.

Objective:
We evaluated the impact of the 2004 implementation of paid family leave in California on statewide rates of preterm birth, low birth weight (LBW) and infant mortality.

Design/Methods:
A quasi-experimental design was used to compare the rates of these birth outcomes before (1999-2003) and after (2005-2008) implementation of the 2004 PFL policy in California (N= 2,386,402 births pre and 2,068,321 post). A difference-in-difference approach was employed, using Missouri (N=352,410 pre/297,798 post) and Pennsylvania (N=574,745 pre/489,935

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post) as controls to account for secular trends. Multivariable logistic regression models determined the change in outcomes after implementation of the PFL policy, adjusting for sociodemographic factors, delivery hospital, maternal medical morbidities such as diabetes and hypertensive disorders and perinatal complications such as chorioamnionitis and disorders of placentation.

Results:
After controlling for all covariates and clustering by hospital, implementation of the PFL policy in California was associated with decreased infant mortality (aOR 0.92, CI 0.86-0.98) and increased LBW rates (aOR 1.06, CI 1.02-1.11) (Table 1). When looking specifically at the impact of PFL on high-risk groups of women, the odds of infant mortality were lowest among non-Hispanic white, Hispanic and privately insured women (Table 2).

Conclusion(s):
Implementation of a statewide paid family leave policy in California was associated with a decrease in infant mortality rates. This decline was not driven by overall improved preterm birth or LBW rates. Of concern, the PFL policy in California did not improve birth outcomes for Black women or women with public insurance, groups at high risk of adverse birth outcomes, though effects among Hispanic women were similar to non-Hispanic white women. Future work will aim at understanding barriers to family leave uptake among high-risk groups that may be hindering potentially beneficial effects.

1:15-2:30 p.m.

Title: A Process Evaluation of Family Navigator Implementation: a DBPNet study

Presenter/Authors: Sarabeth Broder-Fingert, Andrea Chu, Nathan Blum, Marilyn Augustyn, Carol Weitzman, Amanda Bennett Palladino, James Guevara, Ada Fenick, Ivys Fernandez, Emily Feinberg

Location: Convention Center Exhibit Hall DE Poster Session, Board 354

Background:
Family Navigation (FN) is a case-management approach to reducing disparities in care. Despite multiple studies demonstrating both the effectiveness and the efficacy of FN, little data exists on how to successfully implement this intervention. Therefore, the aim of this study was to explore the process of implementing FN for children at high-risk for ASD, with a focus on identifying potential failures in the process.

Design/Methods:
Set within a randomized effectiveness trial of FN in 3 states and 12 primary care clinics, we conducted interviews with research staff, pediatricians, and Family Navigators in order to develop a process map of FN implementation. We then convened a meeting of individuals responsible for implementation (n=8) to select potential failures in the process. These potential failures were then scored via survey using a failure modes and effects analysis – a method of process map evaluation derived from engineering - to identify failures and assess their potential impact in the implementation process.

Results:
We identified 67 steps in the process of implementing FN. Of these, 7 were recognized as potentially "high-risk" for failure. The failure modes and effects analysis detected 2 failures that ranked as highest priority (based on likelihood of occurrence, detection, and severity of

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failure). These were "Setting up/recommending community-based services for the family" and "Attending intake and/or testing appointment with the family". Common reasons for these failure included: 1) navigator not being aware of appropriate services; 2) families not being receptive to the services; 3) difficulties with setting up services; 4) family scheduling conflicts; 5) transportation barriers; and 6) forgetting appointments. The step in the process rated as most severe if failure occurred was, "training of the navigators". The step in the process rated most likely to fail was "initial meeting with the patient/family and the navigator."

Conclusion(s):
FN is a promising model for how health systems can identify and engage families in early diagnostic and treatment services. The current study demonstrates the complexity of implementing FN, and clarifies potential barriers to implementation. These include: 1) the need for frequent, ongoing, and centralized supervision of Family Navigators; and 2) challenges to getting some families to engage with their Navigator. These data can inform organizations and investigators interested in implementing and testing FN as an intervention to improve access to care.

5-5:15 p.m.

Title: Early Literacy Promotion Among Medicaid-Insured Children

Presenter/Authors: James Guevara, Jordan Price, Sherry Winston, Margaret-Ellen Johnson, Kirsten Rogers, Manuel Jimenez, Alan Mendelsohn, Marsha Gerdes, Trude Haecker

Location: Convention Center 204 Platform

Background:
Reach Out and Read (ROR), a national program promoting parent-child shared reading and distribution of age-appropriate books for children 6 months to 5 years of age at well child visits, has been shown to improve poor children's language development. Yet children participating in ROR still have language scores below national averages. It isn't clear whether promoting shared reading in the newborn period can improve poor children's home reading environment and language development.

Objective:
To determine if initiating ROR in the newborn period is feasible and results in better home reading environment and language scores at 6 months.

Design/Methods:
We conducted a randomized controlled trial comparing early literacy promotion in the newborn period (ELP) to standard literacy promotion (SLP) using ROR framework. Parents in the ELP group received four developmentally appropriate books at well visits less than 6 months of age and weekly text messages promoting shared reading. Parents in the SLP arm received weekly text messages concerning child safety but no books or literacy promotion messages. We assessed feasibility as the proportion of well visits with books provided by clinicians prior to 6 months of age and outcomes as differences between groups on language acquisition (PLS-5 Score) and home reading environment (StimQ Reading Subscale Score) at 6 months of age.

Results:

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120 parent-infant dyads were enrolled, and 99 (83%) completed the 6-month follow-up. The majority of parents in both groups were single, African-American, or with a high school education or less (Table 1). In addition, there were no differences in the percent with depression (EPDS), adverse childhood expereinces (ACE Score), or health literacy (SAHL). In the ELP group, the proportion that received a book at well visits was 98% at 1 week, 71% at 1 month, 67% at 2 months, and 73% at 4 months. At 6 months, there were no differences in PLS-5 scores between groups, but the ELP group demonstrated greater StimQ scores than the SLP group (Table 2).

Conclusion(s):
An evidence-based literacy promotion program adapted for use beginning in the newborn period was feasible to implement and improved the home reading environment of poor urban children. Future research is needed to determine whether early literacy promotion translates into greater language development later in childhood.

5:45-6 p.m.

Title: Tailored Medication Adherence Reminders and Incentives for Children Frequently Hospitalized for Asthma

Presenter/Authors: Kavya Sundar, Siobhan Gruschow, Tyra Bryant-Stephens, William Quarshie, Victoria Miller, Chris Feudtner, Chen Kenyon

Location: Convention Center 206 A-D Platform

Background:
Urban, minority children with persistent asthma have high rates of asthma hospitalization and low adherence to prescribed inhaled corticosteroid (ICS) regimens. While technology-based adherence monitoring has shown promise, customized reminder and incentivizing strategies may further improve ICS adherence in this high-risk pediatric population.

Objective:
To assess the acceptability and feasibility of electronic medication monitoring and tailored ICS adherence reminders and incentives in children with frequent asthma hospitalization.

Design/Methods:
We conducted a 60-day single-arm, time series pilot study in a large pediatric health system. Families of children ages 5-11 years with >1 asthma hospitalization in the last year were recruited from both the inpatient and outpatient setting. Enrolled participants received electronic inhaler sensors and a smartphone app to track ICS use. For days 1-30, families received daily push reminders and children earned up to $1/day for complete adherence toward a reward tailored to the child's preference ($30 maximum value). No reminders or incentives were provided for days 31-60. Outcomes were acceptability (of daily reminders and medication incentives), medication use during each study interval, and 60-day ED and hospital revisits. We also conducted semi-structured interviews at 30 days to assess the families' experience of the intervention.

Results:
Of the 29 families approached, 20 enrolled (69%). Study participants were primarily Black (95%), publicly insured (75%), and averaged 2.9 hospitalizations in the prior year. Of the 17 caregivers who completed the follow-up surveys, 16 (94%) found the reminders helpful and 14 (82%) felt that the incentive heightened their child's interest in taking their medication.

Time

Mean adherence was significantly higher in days 1-30 (85.4%, SD 14.2) compared with days 31-60 (36.5%, SD 33.0) (p-value <0.001). (Figure) Only 1 participant had an ED or hospital revisit during the study period. Key themes from the interviews are presented in the table.

Conclusion(s):
Adherence reminders and incentives were acceptable and feasible in a high-risk cohort of children with asthma. Average ICS adherence was significantly higher when participants received incentives and daily medication reminders compared to when they received monitoring alone. Future controlled studies should assess the efficacy and duration of effect of ICS adherence incentives in children, as well as the cost effectiveness of such strategies.

6-6:15 p.m.

Title: Discharge on Oxygen: Impact on Resource Utilization and Outcomes up to 2 Years in Extremely Preterm Infants with Bronchopulmonary Dysplasia

Presenter/Authors: Sara DeMauro, Erik Jensen, Carla Bann, Edward Bell, Anna Maria Hibbs, Susan Hintz, Scott Lorch

Location: Convention Center 205 A-D Platform

Sat, May 05 6:00 PM - 6:15 PM Convention Center 205 A-D Platform

Background:
The risks and benefits of continuing supplemental oxygen after discharge for premature infants with BPD are unknown. This knowledge gap leads to significant variation in post-discharge care of these infants.

Objective:
To evaluate medical and developmental outcomes over the first 2 years of life in extremely preterm infants with BPD who were discharged on supplemental oxygen (O2 group) as compared to propensity score (PS) matched infants with BPD who were discharged breathing room air (RA group).

Design/Methods:
We performed a retrospective matched cohort study using the prospectively collected NICHD Neonatal Research Network Generic Database and Follow-up Registry. Study infants were born 22 to <27 weeks gestation between 2006-2014, received respiratory support at 36 weeks post-menstrual age, and had known 2 year outcomes. Infants who died or underwent tracheostomy before discharge and infants with congenital malformations were excluded.
Primary outcomes were weight z-scores at 2 years corrected age (CA) and respiratory rehospitalizations between discharge and 2y CA. Secondary outcomes were medical resource utilization, additional growth parameters and neurodevelopmental status at 2y CA. Propensity scores were developed to describe each infant's likelihood of discharge on O2 based on BPD severity, medications for BPD at discharge, and other a priori selected variables (listed in Table 1). PS was used to match infants in the O2 group 1:1 to infants discharged in RA despite similar likelinood of discharge on O2. Outcomes were compared with multivariable models adjusted for center and CA at follow-up.

Results:
Of 1,688 infants with BPD who were discharged on O2, 1,039 were matched (Table 1).

Time

Discharge on O2 was associated with a small but significant improvement in weight-for-length z-score, but no other differences in growth or neurodevelopmental outcomes at 2y CA (Table 2). However, infants in the O2 group had higher post-discharge resource utilization including respiratory rehospitalizations.

Conclusion(s):
We did not identify substantial benefits associated with post-discharge use of supplemental O2. Infants discharged on O2 had greater respiratory-related helathcare utilization. Prolonged O2 therapy may improve growth but may also worsen respiratory health or predispose infants to receive more aggressive respiratory care. Controlled prospective studies to evaluate the efficacy and safety of post-discharge supplemental O2 for children with BPD are urgently needed.

10:45-11 a.m.

Incidence of failure to thrive before and after switch to World Health Organization growth curves
Sun, May 06 9:30 AM - 9:45 AM Convention Center 803 B Platform
Background:
In 2010, the recommended growth curve for children under 2 years old in the U.S. changed from those produced by the Centers for Disease Control (CDC) to those created by the World Health Organization (WHO). The lower weight-for-age (WFA) percentiles for these growth curves differ considerably.

Objective:
To evaluate change in failure to thrive (FTT) incidence based on selected growth percentile criteria and diagnostic codes before and after a switch in growth curves in a large pediatric primary care network.

Design/Methods:
We performed a retrospective cohort study of children less than 2 years of age in a large primary care network that switched its default growth curve from the CDC reference to the WHO growth standards in July 2012. We compared the incidence of FTT as defined by growth percentile criteria (using the default growth curve at the time of each measurement) and by ICD-9 codes in the three years before and after the CDC-WHO switch using an interrupted time series analysis. We used three sets of growth criteria (weight-for-age (WFA) <5th percentile, weight-for-length <5th percentile, and weight-for-age decreasing across 2 major percentile lines) and two sets of ICD-9 criteria (broad definition: codes for FTT and similar diagnoses such as underweight; narrow definition: code for FTT only).

Results:
Among 83,299 patients, a significant decrease in FTT incidence at the CDC-WHO switch was observed for three growth criteria commonly used to define FTT: (all $p<0.05$; only WFA is shown in figure). No significant change in FTT incidence by either ICD-9 definition was found. There was a significant interaction between race and the change in FTT incidence by diagnostic codes that remained significant after controlling for payer and practice type.

Conclusion(s):
A change in default growth reference from CDC to WHO was associated with decreases in the incidence of children meeting common growth percentile definitions for FTT. However, we did not identify any decrease in ICD-9 FTT diagnoses. Factors beyond growth, including race, likely influence diagnosis of FTT. Both over-identification and under-identification

Time

of FTT may have significant consequences for children and families. Further research is needed to determine the factors that clinicians use to diagnose FTT and the factors that best identify children who would benefit from evaluation or intervention for inadequate growth.

Authors
Carrie Daymont
Penn State College of Medicine
Hershey, Pennsylvania, United States
Noah Hoffman
Maine Medical Center
Eric Schaefer
Penn State College of Medicine
Alexander Fiks
Childrens Hosptial Philadelphia
Philadelphia, Pennsylvania, United States

1:15-1:30 p.m.

Title: Mothers' Mental Health Care Utilization After Screening for Postpartum Depression at Well Child Visits

Presenter/Authors: Stacey Kallem, Meredith Matone, Rhonda Boyd, James Guevara

Location: Convention Center 203 A-D Platform

Background:
Postpartum depression (PPD) affects approximately 15% of women. Due to the negative effects of PPD on infant health and development, the American Academy of Pediatrics recommends that pediatricians screen mothers for PPD. It is unknown whether pediatric screening is effective in linking mothers to mental health services.

Objective:
The objectives of the current study are to determine: 1) mental health care utilization among women with Medicaid insurance after a positive PPD screen at the infant well child visit and 2) maternal and infant sociodemographic and clinical factors that predict the likelihood of mental health care utilization after a positive PPD screen.

Design/Methods:
Retrospective cohort design of mothers attending their infants' 2-month well child visit at one of five academic urban primary care practices between 2011-2014. A linked dataset of the child's electronic health records, maternal Medicaid claims, and birth certificate records was used. The primary outcome was mental health care utilization within six months of screening positive for PPD on the Edinburgh Postnatal Depression Scale (EPDS). Multivariate logistic regression was used to estimate maternal and infant clinical and sociodemographic factors that predict the likelihood of utilizing services.

Results:
3,052 mothers met study criteria, of whom, 1,986 (65.1%) completed the PPD screen, and 263 (13.2%) screened positive for PPD. Twenty-six women (9.9%) had at least one Medicaid claim for depression in the six months after screening positive for PPD of whom 11 mothers (4.2%) had two or more visits and 6 mothers (2.3%) had three or more visit [Figure]. In multivariate modeling, with the exception of the EPDS score and a maternal history of depression, no other maternal or infant clinical or sociodemographic factors were predictive

Time

of mental health care utilization. Mothers with higher EPDS scores (OR=1.11, p=0.03) and who had a history of depression in the year prior to the birth of their child screen (OR=3.38, p=0.02) were more likely to receive mental health services after a positive PPD [Table].

Conclusion(s):
Few mothers who screened positive for PPD received mental health services. Mothers with higher PPD symptoms received services. Nonetheless, mothers without a recent history of depression treatment may be especially at risk for inadequate follow up. Additional mechanisms to improve access to mental health services following PPD screening are needed.

1:30-1:45 p.m.

Title: Access to High Level Neonatal Intensive Care (HL NICU) and Children's Hospital (CH) Care in Affordable Care Act (ACA) plans, 2015-2017

Presenter/Authors: Scott Lorch, Madelyn Good, Ashley Martin, Molly Passarella, Jeannette Rogowski

Location: Convention Center 803 A Platform

Background:
As the ACA has matured, there are concerns about the narrowing of networks for specialty care, concurrent with reductions in the number of plan offerings. It is not known how access to care at CH or HL NICUs changed over time.

Objective:
To determine the change, and factors associated with such changes, in access to CH and HL NICU care within ACA plans at 241 urban, suburban, and rural areas

Design/Methods:
We constructed a cohort of all facilities within the network of each Silver ACA plan in the 2015, 2016, and 2017 ACA marketplace. For each plan, access to a CH was defined as having at least 1 member hospital of the Children's Hospital Association excluding Shriner's hospitals or a level 3 or 4 NICU in the network of that plan. We then separately determined the percentage of plans in each area that provided access to at least 1 CH or HL NICU by year. Areas included the 3 largest metropolitan areas for each state and other urban and rural areas to provide geographic coverage of the state. Linear and logistic multivariable regression models determined the association between access to CH or HL NICU and the presence of a CH or HL NICU in that area; insurance competition; median household income; population size; and # plans in the ACA marketplace.

Results:
The number of plans offered by region decreased from a median of 22 offerings in 2015 (interquartile range (IQR) 12-37) to 14 in 2017 (IQR 9-28), $p<0.05$. Access to HL NICU care saw a larger reduction in access from 2015 to 2017 compared to CH (Figure). Areas without any access to CH in their ACA plans remained constant (44.1% in 2015 to 45.9% in 2017), but areas without any access to a HL NICU increased from 9.7% in 2015 to 19.8% in 2017. Areas without access tended to be rural, low income, or low population areas without a CH or HL NICU within 25 miles of their community (Table). For CH, higher income areas experienced the greatest decline in access (-8.9%, 95% CI -0.3% to -17.6%) while lower competition markets (-10.5%, 95% CI -1.3% to 19.8%) and markets without a HL NICU (-19.5%, 95% CI -8.7% to -19.5%) had the greatest decline in HL NICU access.

Time

Conclusion(s):
Access to subspecialty pediatric care declined from 2015 to 2017, with a 2-fold increase in the number of markets whose ACA plans do not offer access to HL NICU care and persistent high percentage of markets without access to CH. Access remains poorest in communities with the greatest barriers to receiving care based on geography and socioeconomic status.

4:15-4:40 p.m.

Title: Readmissions and ER visits by Preterm Infants in the 60 Days After NICU Discharge

Presenter/Authors: Elizabeth Enlow, Tanvi Asthana, Adrienne King, Brianna Liberio, Eric Hall, Matthew Leonard Cole Brokamp, James Greenberg, Maria Britto, Scott Lorch

Location: Convention Center 803 A Platform

Background:
Preterm infants have high utilization in the first year of life. The incidence and preventability in the immediate post-discharge period, which may be linked to discharge care quality, are not well known.

Objective:
Identify the incidence and potential preventability of readmissions and ER visits of preterm infants in the first 60 days after NICU discharge, and associated medical or social risk factors.

Design/Methods:
Retrospective cohort study of a prospectively-constructed cohort of preterm infants <34 weeks discharged from 3 Cincinnati-area Level 3/4 NICUs and residing in the Cincinnati Children's primary market (n=3,214). Chart review captured information on medical risk factors, including major complications and insurance, while geocoded addresses defined census tract-level socioeconomic status. Potentially preventable encounters were defined using published methods. All unplanned readmissions were categorized as potentially preventable as determined by a fault-tree analysis or if principal diagnosis was an ambulatory sensitive condition (ASC). ER visits were considered potentially preventable if 1.) they did not require admission; and 2.) were low acuity, non-urgent, or if the primary diagnosis was an ASC. Univariable and multivariable logistic regression models determined the association between medical and socioeconomic risk factors and potentially preventable readmission or ER visits within 14, 30, and 60 days after adjusting for site of discharge.

Results:
Median gestational age was 31 weeks (IQR 28-32) and 35.5% experienced a major complication of prematurity. 54.1% were white, 37.3% were black, and 58.6% were Medicaid/self-pay. Table 1 shows the incidence of readmissions and ER visits. Only 14% of readmissions were potentially preventable yet 50% of ER visits were potentially preventable. Using fault tree analysis, only 2 total readmissions were found to be potentially prventable. After adjustment for medical and social risk factors, Medicaid/self-pay insurance was the strongest predictor of utilization, but increasing gestational age at birth was associated with increased odds of a preventable ER visit(see Table 2).

4:30 p.m.-4:45 p.m.

Conclusion(s):
Health care utilization is high in the immediate post-discharge period, yet the vast majority of readmissions are unpreventable. ER visits are more likely to be considered preventable

Time

and are a better target for interventions to improve post-discharge care. Understanding drivers of increased preventable use among the Medicaid/self-pay population is needed to help reduce such encounters.

Title: PROS: Precision Primary Care

Presenter/Authors: Alexander Fiks

Location: Convention Center 104 CD Invited Science

Precision public health promises to offer the right interventions at the right time for the right people in order to achieve maximal gains in well-being, quality of life, and health equity. The growth of research networks provides an unprecedented opportunity to improve the lives of the next generation of children by evaluating what interventions work best, for whom, and under what conditions. Results of research network studies inform guidelines development, are translated into practice and contribute to policies across a range of stakeholders. Of the more than 40 research networks across the US focused on children's health, 11 are sponsored by the Health Resources and Services Administration (HRSA).

Research networks operate in diverse settings including primary care, specialty care, and community venues. Yet, across these diverse settings, research networks share common features such as conducting multidisciplinary studies, focusing on the translation of research to practice, and training the next generation of child health researchers. They also recognize that behavioral and social factors strongly influence health outcomes and understand that social determinants must be addressed to achieve gains in health equity. As such, they have the promise of identifying core elements or precise services to promote equity and that may be developed, implemented, evaluated, and disseminated to achieve improved population level outcomes for varied subgroups. Research networks also share the need to engage communities as well as service providers and invest in data infrastructure in an effort to consider how to use science in support of a new research paradigm to achieve precision public health.

This plenary examines the role of research networks in addressing social determinants of health and promoting precision public health. HRSA's vision for advancing precision public health includes collaboration in strategy design and testing, fully specified conceptual frameworks and measurement of each component, innovative methods to identify what works and what doesn't for subgroups, a focus on active ingredients, and consideration of systems of care. Directors of three HRSA supported research networks will describe their work to advance population health, opportunities to align strategies with HRSA's vision, and progress to date. Time is allotted for interactive audience discussion.

5:45-7:30 p.m.

Title: Perceptions of caregivers and adolescents of the use of telemedicine for the child sexual abuse examination

Presenter/Authors: Natalie Stavas, Judy Shea, Joanne Wood, Catherine Cullen, Whitney Orji, Philip Scribano

Location: Convention Center 701 A Platform

Time

Sun, May 06 4:30 PM - 4:45 PM Convention Center 701 A Platform

Background:
There remains a persistent workforce shortage of Child Abuse Pediatricians to provide the comprensive child sexual abuse (CSA) exam. Telemedicine (TM) has emerged as a technology that may assist in overcoming this gap in services. TM has been accepted as a consultative model in other fields of pediatrics, however there is no literature addressing the acceptance and satisfaction of this technology for the CSA exam.

Objective:
The objective this study was to explore the patient and caregiver experience with TM during the CSA exam, as well as to understand what drives patient and caregiver satisfaction with TM.

Design/Methods:
We conducted semi-structured interviews with adolescents ages 12-17 and non-offending caregivers who presented to our county's Child Advocacy Center for a CSA examination. An interview guide was developed utilizing a modified Technology Acceptance Model (TAM) framework which identified variables that could influence one's acceptance of TM for the CSA exam. Purposive sampling was used to recruit participants, ensuring a sample with both genders and a range of types of sexual abuse disclosures. Interviews were audio-recorded and transcribed. An initial code book was created based on the TAM and expanded using modified grounded theory. Two coders reached an average inter-rater agreement of 80%. Recruitment ended when thematic saturation was met.

Results:
Twenty seven interviews were completed (10 adolescents and 17 parents). All adolescent participants were African American females; 14 mothers and 3 fathers were interviewed. Of the 27 interviews, 22 of the participants underwent the CSA exam with TM and 5 with standard colposcopy. The majority of participants described an overall positive experience. Common themes that emerged included TM as: 1) innovative and cool; 2) a good experience; 3) similar to Skype or FaceTime, and 4) professionalism and communication by the provider influenced the experience. External variables such as abuse disclosure or prior use of technology were not related to participants' responses.

Conclusion(s):
TM was widely accepted by adolescents and caregivers when used for the CSA examination. Participants had an overwhelming positive response regardless of severity of sexual abuse disclosures or prior experience with technology. Provider behaviors that helped patients and caregivers feel comfortable included a good explanation from the medical team and professionalism demonstrated by staff.

5:45-7:30 p.m.

Title: Envisioning Digital Story Time: A Qualitative Investigation of Print Books Versus E-Books for Low-Income Parents and Infants

Presenter/Authors: Danielle Erkoboni, Sherry Winston, Ivana Ganihong, Margaret-Ellen Johnson, James Guevara

Location: Convention Center Exhibit Hall DE Poster Session, Board 439

Time

Background:
Shared book reading starting in infancy can have a lasting impact on a child's development. As electronic libraries become increasingly popular, providing parents with cost-effective, easily accessed books, pediatricians struggle with how to address the priority of shared reading in the digital age. Research is needed to understand how digital book features impact crucial components of shared book reading.

Objective:
To assess the impact of digital book features on parents' perceptions of shared book reading with their infants.

Design/Methods:
Medicaid-eligible parents, recruited from 3 community pediatric clinics, completed a video-taped book reading exercise with their 9 to 12-month-old infants. As part of the exercise, parents read one book (Sandra Boynton's Barnyard Dance) in each of 3 formats: a print board book, a basic "kindle-style" e-book and an enhanced "app style" e-book. Parents were interviewed on their perceptions of and reactions to reading each of these book formats with their infants. Interviews were conducted until saturation was reached, and interview transcripts were coded for emergent themes using grounded theory.

Results:
Parents (n=29) felt strongly that interactive digital features altered the experience of shared book reading with their infant. Enhanced e-book features such as moving images and sound were perceived as distracting to both the parent and the infant and parents described feeling less engaged with their infant and the story when reading the enhanced e-book with these features. Though parents noted tactile and mechanical differences in using a basic e-book (versus board book), they felt similarly engaged with both the story and their infant using either format. Parents frequently noted a comfortability with holding and manipulating the print board book with their infant, but did not feel that the loss of these features in the basic e-book affected their shared reading experience.

Conclusion(s):
Parents perceived that the effect of technology on shared book reading with their infant comes not as much from the addition of a screen, but from distracting, "interactive" components often seen in enhanced e-books. These findings support those seen with solo e-book reading by older children and can play a critical role in a clinician's conversation with parents around the current American Academy of Pediatrics (AAP) media use guidelines.

5:45-7:30 p.m.

Title: Implementation of an Electronic Health Record Tool to Facilitate Pediatric to Adult Transitions for Patients with Intellectual/Developmental Disabilities

Presenter/Authors: John Berens, Dava Szalda, Caren Steinway, Zia Gajary, Christina Hanna, Emily Watkins, Adam Greenberg, Linda Tague, Sophia Jan

Location: Convention Center Exhibit Hall DE Poster Session, Board 18

Background:
Annually, 750,000 children with special health care needs become eligible to transition from pediatric to adult-based health care. This transition is a vulnerable period for all individuals,

Time

particularly for those with intellectual/developmental disabilities (ID/DD), who experience numerous health disparities compared to age-matched peers. To address deficiencies in the transition process, a framework for practice-based interventions was published by several leading medical societies. Among these is utilizing the electronic health record (EHR) to prompt providers to address transition, document progress, and provide relevant tools.

Objective:
1) Implement an EHR clinical decision support (CDS) for transition.
2) Assess provider comfort in discussing transition for patients with ID/DD versus those without, pre and post CDS implementation.

Design/Methods:
The study took place at a large, academic pediatric clinic in Philadelphia, PA, staffed by 40 attending physicians/nurse practitioners (NP) and 75 resident physicians. Through the EHR, a transition-focused CDS was created that alerted providers during all preventative visits for patients 16 years and older. The CDS provided a common space to document transition progress, assess health independence skills, and print patient-facing documents addressing specific aspects of transition.
Anonymous, voluntary surveys were sent to all clinic providers both prior to (PRE) and 3-4 months after (POST) CDS implementation, which measured local barriers to transition, comfort discussing transition, and frequency of assessing health care independence.

Results:
Survey response was 38 (33.0%) for PRE and 26 (19.1%) for POST survey with comparable numbers of residents and attendings/NPs.
Local barriers reflected national trends; additional barriers were lack of familiarity with transition processes and lack of patient continuity. Providers reported significantly less comfort and less frequent assessments of health independence skills for patients with ID/DD compared to those without; both domains improved post-intervention for the ID/DD group with a trend toward significance (Figures 1-2).

Conclusion(s):
Though a small sample size, this pilot suggests EHR-based CDS may be one method to improve comfort with and frequency of discussing transition to adult care for patients with ID/DD. More study is needed to investigate the differences in transition for individuals with ID/DD as well as interventions to improve those transitions.

5:45-7:30 p.m.

Title: Promising Practices in Providing Translated Discharge Materials for Families with Limited English Proficiency

Presenter/Authors: Seethalakshmi Davis, Julia Rosenberg, Jenny Nguyen. Manuel Jimenez, K. Casey Lion, Katherine Yun

Location: Convention Center Exhibit Hall DE Poster Session, Board 506

Background:
Language services are critical to the healthcare of children in households with limited English proficiency. Previous research has focused largely on interpretation. Less is known about the provision of translation services in hospital settings, where families need to follow complex discharge instructions to prevent readmissions and errors.

Time

Objective:
To identify and share promising practices for translating written pediatric inpatient discharge materials.

Design/Methods:
We conducted an online survey of language services directors or equivalent at Children's Hospital Association (CHA) member acute hospitals with available contact information. The survey included questions on inpatient language services and asked respondents to upload relevant policies. We collected county-level census data (2015 American Community Survey, 5-year estimates) for all hospitals in our sample. We examined survey and census data using descriptive statistics. We analyzed open-ended survey responses and interpretation/translation policies using content analysis.

Results:
We identified 68 contacts, 31 of whom completed the survey (45.6%). Survey respondents (n=31) included language and interpreter services directors (n=27) from 8 of 9 census divisions (Table 1). Most (81%) reported having a written translation policy. Some (58%) had trained translators on staff. Only 34% were "very satisfied" with translation services. The most commonly used translation modality was pre-translated materials (87%).

We identified several promising practices, particularly for Spanish-speaking families. These included pre-translated templates in the EHR; staff-edited machine translations; and sight translation of select documents. Some interpreters used phone-recorded discharge instructions, voicemails, or translated instructions by mail.

Respondents also shared barriers to providing inpatient discharge translation services. These included difficulty providing services in uncommon languages, mismatched time frames of discharge and translation processes, and inconsistent use of translation services by staff across different roles, clinical divisions, and shifts. Notably, resources available for translation and the degree to which translation is integrated into hospital culture and workflows varied widely, even within this small sample.

Conclusion(s):
We identified various barriers in providing translated discharge materials, but also promising strategies. How these practices can be adopted by other health systems warrants additional study.

5:45-7:30 p.m.

Title: No weight change following cholesterol testing

Presenter/Authors: Emily Gregory, Jeffrey Miller, Richard Wasserman, Roopa Seshadri, David Rubin, Alexander Fiks

Location: Convention Center Exhibit Hall DE Poster Session, Board 494

Background:
In 2011 NHLBI and the AAP concluded that both familial and obesity associated dyslipidemias "place [children] at increased risk for accelerated early atherosclerosis" and issued the first recommendation for universal cholesterol testing at ages 9 – 11. It remains unknown whether testing promotes modification of cardiovascular risk factors in childhood.

Time

Objective:
Determine whether cholesterol testing is associated with change in another modifiable cardiovascular risk factor, i.e. weight trajectory, over the following year.

Design/Methods:
In an urban/suburban practice network, we found 475 children who completed cholesterol testing at an 11 year well visit in 2014. Propensity score matching matched tested children with untested children who also completed an 11 year well visit in 2014 at a 2:1 ratio. Matching accounted for cardiovascular risks (BMI at testing and two years prior to testing), demographics (sex, race, ethnicity, insurance status), health care utilization (well and acute visits in the 9 – 11 window, prior testing), and clinician type (nurse practitioner, resident, or attending physician). Change in BMI z-score was assessed over the following year. T-tests compared for a difference in the z-score change between tested and untested children. We also examined subgroups by BMI category (normal, overweight, obese) and test result (normal vs. abnormally high).

Results:
The matched cohort contained 475 tested and 950 untested children, and was balanced on all characteristics mentioned above. Children were drawn from 27 clinic sites, 38% had Medicaid insurance, and most were non-Hispanic black (41%) or non-Hispanic white (37%). Of those tested 98 (21%) had abnormally high results.

Follow-up growth measurements were available for 853 children (61% of tested, 59% of untested). The tested and untested subgroups with available follow-up remained balanced on all characteristics used for matching.

For children with follow-up, mean BMI z-score at testing was 1.01 (85th%). BMI z-score decreased to a mean of 0.97 (83rd%) in the year following testing. There was no difference in z-score change between tested and untested in the full cohort (t-test p-value 0.41) or in any subgroups (see Table).

Conclusion(s):
Cholesterol testing provides individualized information related to long-term cardiovascular risk. In this small quasi-experiment, we found no evidence that providing this information leads to a change in weight trajectory. Additional strategies are needed to promote cardiovascular risk reduction.

5:45-7:30 p.m.

Title: Referral Rates after Failed Screening for Autism Spectrum Disorder in Toddlers in a Large Primary Care Network

Presenter/Authors: Kate Wallis, Judith Miller, Amanda Bennett, Marsha Gerdes, Kristin Fleming, Juhi Pandey, Susan Levy, David Mandell

Location: Convention Center Exhibit Hall DE Poster Session, Board 483

Background:
The American Academy of Pediatrics (AAP) developed guidelines for screening for autism spectrum disorder (ASD) in early childhood. In our large primary care network, which serves over 240,000 children, patients are screened for ASD with the Modified CHecklist of Autism

Time

in Toddlers (M-CHAT). The AAP recommends referral to Early Intervention (EI), audiology, and further diagnostic evaluation when children fail standardized screening. This study aims to determine whether demographic-based differences exist in the likelihood of referral after a failed M-CHAT in our primary care network.

Design/Methods:
Children were included who met the following criteria: aged 16-30 months at well-child visits between 2013 and 2016, received general developmental screening and M-CHAT, and failed M-CHAT. Children already receiving EI services were excluded (N=2138). White, black and Asian races were included in racial analyses; other races were excluded because of small sample sizes. Data were extracted by a data analyst directly from the electronic health record (EHR) and included demographic factors (sex, self-reported race, ethnicity, primary language) and referrals made during the visit. Cases were categorized as 1) referred during the visit for additional evaluation, audiology and/or EI, or 2) not referred. Manual chart review for a random subsample will be conducted to confirm accuracy of data extracted from the EHR.

Results:
Chi-square analysis demonstrated a statistically significant difference in referral rates by sex and race. Boys (57.8 %) were more likely to be referred than girls (42.6%, $p<0.001$). While 58.2% of white children were referred, only 41.6% of Asian and 50.0% of black children were referred ($p<0.001$), although effect sizes were small. There were no differences based on ethnicity or preferred language. Additional adjusted analyses using logistic regression will be conducted to statistically model the independent effects of these and other clinical and demographic variables on the probability of receiving a referral.

Conclusion(s):
Despite AAP guidelines and nearly universal screening in our large primary care network, referrals made in response to failed ASD screening are far from universal. Asian, black, and female children are less likely to be referred than white children and males, respectively. Demographic differences in referral rates may contribute to disparities in the age and rates of ASD diagnosis in minority patients, the causes for which are not yet fully understood.
Susan Levy, David Mandell

8:45-9 a.m.

Title: Barriers to care for transgender youth: Perspectives of experienced care providers, transgender youth and their parents

Presenter/Authors: Nadia Dowshen, Siobhan Gruschow, Susan Lee, Samantha Taylor, Linda Hawkins

Location: Convention Center Exhibit Hall DE Poster Session, Board 351

Background:
Transgender youth face many barriers to healthcare access. Few pediatric physicians and other service providers are trained to provide appropriate screening, referrals, and on-going care for these youth.

Objective:
To understand the challenges transgender youth and their families experience while accessing care and identify ways to improve care and support.

Time

Design/Methods:
In-depth, semi-structured interviews were conducted with provider stakeholders identified as having significant connection to and years of work with transgender youth. Findings were triangulated through two focus groups using nominal group technique with youth who identify as transgender and parents of transgender youth. In total, 24 individuals participated in this study. All interviews and focus groups were audio recorded, transcribed, de-identified, and analyzed for themes through a process of deductive coding and group discussion by the qualitative research team.

Results:
Of the 10 stakeholders participants, 8 identified as white, 2 identified as black, and majority as female (60%). For focus groups, 8 caregivers and 6 youth participated. The youth were on average 18 years old, 66.7% white, 33.3% multiracial, and 16.7% Hispanic. Findings were grouped into two main categories: (1) barriers to accessing care and (2) challenges within medical and mental health services while in care. Two major themes identified were difficulty obtaining insurance and approvals for appointments and medically necessary services, and lack of provider and staff knowledge and cultural competence. Youth and families specifically reported feeling reluctant to visit a care provider because of transphobia. When accessing care, youth were often disappointed by inappropriate language and limited provider knowledge of transgender health. Parents and care providers described spending large amounts of time appealing denials of insurance coverage for medically necessary services. Both parents and youth believed that providers need to be more informed about transgender health and resources, and providers advocated for more trainings for those who work with youth.

Conclusion(s):
This qualitative study identified key themes around barriers to accessing medical and mental health services for transgender youth. Future interventions should focus on provider knowledge about transgender health and cultural competence. Further, studies on new policies are also needed to address navigating and expanding insurance coverage for gender affirming care.

10:30 a.m.-12:30 p.m.

Title: Natural history of hypertension and prehypertension in children and adolescents: When to be concerned

Presenter/Authors: David Kaelber, A. Localio, Michelle Ross, Janeen Leon, Wilson Pace, Richard Wasserman, Alexander Fiks

Location: Convention Center 205 A-D Platform

Background:
Currently pediatric hypertension (HTN) is defined as 3 lifetime abnormal blood pressure (BP) measurements. Studies have shown significant under-diagnosis using this definition. Questions remain on how intensively to monitor and intervene in these children.

Objective:
To determine the natural history of HTN and pre-HTN in children and adolescents and identify factors associated with risk of persistent HTN and pre-HTN.

Time

Design/Methods:
We present a 6-year (72 month) retrospective primary care electronic health record cohort study. We followed blood pressures among 400,000 children at over 2 million visits (51% male; median age 5.25 years and BMI percentile 67.5 at cohort entry; 40% Caucasian, 25% African American, 7% Hispanic; and 32% with public insurance) drawn from 165 sites in 30 healthcare systems. Inclusion criteria included at least 3 BP measurements during each of two 36-month periods (n = 44,242). Observations in the first 36 months (Period 1) were used to predict BP percentile (and BP category) at 72 months (Period 2) using a 3-level mixed effects model. Rates of persistently high BP were tabulated by baseline characteristics.

Results:
826 patients met criteria for HTN and 1,236 patients for pre-HTN in Period 1. During Period 2, 167 (20%) of the 826 patients had no BPs in the hypertensive range, 332 (40%) patients had only 1 or 2 elevated BPs, and 327 (40%) of patients had 3 or more BPs in the hypertensive range. Children with one BP in the Stage 2 HTN range at baseline, age <10 years of age, and male gender were at greatest risk (>40%) of predicted blood pressures >90th%ile at the end of Period 2 (see Table). Race/ethnicity, BMI%, insurance type, diagnosis of HTN, and prescription of an anti-hypertensive medications, were not statistically significant factors in the prediction. Of the 1,236 children who had pre-HTN, 872 (71%) did not meet criteria for HTN in period 2, 7.1% had persistent pre-HTN, and 22% developed HTN.

Conclusion(s):
In a large cohort of U.S. children from diverse practice settings monitored over a six-year period, we found that most children initially meeting criteria for HTN eventually have subsequent normal BP. Children with certain baseline criteria are more likely to have persistently high BP. These results call into question the validity of a HTN diagnosis based on 3 lifetime in-office BP measurements, and, consistent with current guidelines, indicate the potential value of ambulatory blood pressure monitoring before a formal diagnosis of hypertension is made.

10:30 a.m.-12:30 p.m.

Title: Pediatric primary care provider knowledge, attitudes, and skills in caring for transgender youth

Presenter/Authors: Siobhan Gruschow, Sara Kinsman, Natasha Graves, Nadia Dowshen

Location: Convention Center 206 A-D Poster Symposia

Background:
Transgender youth have specific healthcare needs. Pediatric primary care providers may be the first or only point of contact for these children in the healthcare system, and thus can play an essential role in their health and well-being.

Objective:
The objective of this study is to better understand pediatric primary care providers' knowledge, attitudes, and skills in caring for transgender youth.

Design/Methods:
Between January and May 2017, we conducted a cross-sectional survey of 460 pediatric primary care providers employed in two pediatric hospital care networks and in city health department clinics in a large metropolitan area. Participants from hospital network

Time

practices were recruited via email and those at city health centers were recruited in-person. Surveys were administered electronically or on paper and included 18 items about knowledge, experience, and comfort providing care for transgender youth. Data were analyzed using descriptive statistics and Pearson chi square for bivariate analyses.

Results:
Of the 161 respondents (35% response rate), 134 (83%) were physicians and 11% were nurse practitioners and in practice for a mean of 18.6 years (sd: 10.9, range: 1-44). The majority of respondents were female (83%), and 80% were white, 7% Asian, and 5% African American. More than half (54%) of participants did not know there were professional guidelines to support puberty blocking medications for a child who identifies as transgender. Providers who reported having prior experience caring for LGBT youth reported feeling more comfortable knowing where to refer patients than providers with no experience (68.3% and 23.08%, respectively, p=0.002). Providers with personal experience with someone who identifies as transgender reported feeling more comfortable talking to patients about gender identity than those without personal experience (88.5% vs 48.8%, p=0.002). The majority of participants (86.3%) agreed they would be better clinicians if they had more training on supporting transgender youth

Conclusion(s):
Prior experience with transgender youth, whether personal or professional, was associated with increased comfort in providing care. There was also poor knowledge of existing guidelines and high levels of interest in additional training. Our findings suggest an urgent need for targeted educational interventions addressing the care of transgender youth for practicing pediatricians.

10:30 a.m.-12:30 p.m.

Title: Trends in prevalence of medical claims related to gender dysphoria among children and adolescents in the US from 2010 to 2014

Presenter/Authors: Nadia Dowshen, Siobhan Gruschow, Jennifer Faerber, Amy Hillier

Location: Convention Center 206 A-D Poster Symposia

Background:
Transgender youth face numerous challenges to their physical and mental health and well-being, but little is known about the prevalence and patterns of youth accessing care for gender dysphoria (GD).

Objective:
To identify trends in prevalence of children and adolescents with GD-related claims by age and geographic region.

Design/Methods:
We conducted a retrospective analysis of medical administrative claims from Clinformatics Data Mart, a large database of privately insured enrollees in the US. Transgender youth aged 5 -21 were identified using claims from inpatient and outpatient services with International Classification of Diseases ninth edition (ICD-9) diagnosis codes related to GD between 2010 and 2014. Age was categorized as <13, 13-18, and 19-21 and geographic location was categorized into nine census regions. In each year, we determined the proportion of the population with at least one related diagnosis code. Using claims from 18.4 million youth

Time

with any coverage during 2010 to 2014, we estimated annual age- and census region-standardized rates of youth with a GD-related claim.

Results:
From 2010-2014, the number of children and adolescents with a GD-related claim increased from 113 to 464 and the total number of claims increased from 576 to 3,495. Age- and region-adjusted prevalence of GD increased steadily from a rate per 1000 persons of 0.024 (95% CI: (0.018, 0.032) in 2010 to 0.13 (95% CI: (0.11, 0.14) in 2014. The rate of diagnosed children and adolescents within each age group (<13, 13-18, and 19-21) was not found to vary across years, but there was a significant region-by-year trend in the rate of diagnoses. The East and West South Central regions had the lowest prevalence of children and adolescents with a GD-related claim pooled across the years (mean rates=0.00064 and 0.025, respectively) compared with regions with higher mean rates (New England, Pacific, and West North Central, with rates 0.10, 0.087, and 0.091, respectively).

Conclusion(s):
From 2010-2014 there was a significant increase in the prevalence of youth with GD-related claims and there was variation by geographic region. Identifying transgender children and adolescents in large administrative datasets and describing their care utilization will be critical to future health services research for this vulnerable and often invisible population of youth.

2:15-2:30 p.m.

Title: Attitudes Towards Fertility Preservation Among Transgender Youth and Their Parents

Presenter/Authors: Rebecca Persky, Siobhan Gruschow, Claire Carlson, Jill Ginsberg, Nadia Dowshen

Location: Convention Center 206 A-D Poster Symposia

3320 Adolescent Medicine II: Access and Education
10:30 AM - 12:30 PM
Info

Background:
Fertility preservation (FP) is an important issue to address with transgender and gender non-conforming (T/GNC) youth and their families prior to starting gender-affirming hormones. However, little is known about transgender youths' and their parents' attitudes about FP.

Objective:
To better understand attitudes of T/GNC youth and their parents about fertility preservation.

Design/Methods:
Between January 2017 and December 2017, we conducted a cross-sectional survey of T/GNC youth and their parents who obtained medical care at a pediatric hospital-based clinic for T/GNC youth. Surveys were administered electronically and contained 36 items about knowledge of FP, desire to have biologic children, and other factors that may influence their decision to pursue FP procedures. Logistic regression was used to examine the relationship

Time

between willingness to delay treatment preserve fertility, desire to have biologic children, and demographic factors.

Results:
Sixty-six youth and 52 parents completed the survey. Youth participants were mean age 16 and majority (63%) assigned female sex at birth. Parents were mean age 48. Only 20% of youth and 11.5% of parents found it important to have biologic offspring, and for youth, importance of having biologic children was associated with perceiving it as important to their parents (OR = 6.07 9% CI: 1.28, 28.7). Very few youth (4.5%) agreed they would be willing to delay hormone treatment to undergo FP, but for those who did, the importance of having biologic children was the most important predictor (OR: 6.76, 95% CI: 6.53, 6.99). Lack of information about whether hormone therapy definitely prevents biologic fertility was associated with parent willingness to delay treatment for FP (OR: 24.57, 95% CI: 3.9, 154.15). Further, 70% of youth agreed that discomfort with a part of the body they don't identify with was a factor that influenced their decision to undergo FP. Religious, financial, ethical, and demographic factors were not associated with willingness to delay treatment for FP.

Conclusion(s):
While the majority of transgender youth and their parents did not find it important to have biologic offspring and would not be willing to delay starting hormone therapy to pursue FP, parental concern about uncertainty of effect on biologic fertility was associated with willingness to delay treatment. More qualitative research is needed to understand youth and parent decisions regarding FP.

2:30-3 p.m.

Title: Bronchopulmonary dysplasia and its effects on medical treatment for asthma in prematurity

4:45-5 p.m.

Presenter/Authors: Julie Fierro, Molly Passarella, Scott Lorch

Location: Convention Center 204 Platform

Background:
Infants with BPD are more likely to be diagnosed with wheezing and asthma. It is unclear if premature infants without BPD are at a similarly increased risk and if there are differences in treatment for asthma care.

Design/Methods:
We retrospectively abstracted information from an electronic medical record from 1/1/2006 to 12/31/2015 of primary care patients in the 34 site CHOP network born at less than 30 weeks gestational age. Eligible subjects included infants that presented to care in the first 4 months of life, had at least 1 well visit after 1 year of life, and remained in the CHOP network for a minimum of 3 years since birth. Our cohort included 317 patients with CLD or BPD (ICD9 code 518.89 or 770.7) which were validated through chart review and 495 patients without these diagnoses. In this cohort, 285 patients without BPD and 218 patients with BPD were diagnosed with asthma. Outcomes included a diagnosis of asthma or wheezing, respiratory medications, subspecialty care visits, and ED use or hospitalizations for asthma. Multivariate poisson and logistic regression models determined the impact of BPD on each outcome in patients diagnosed with asthma while controlling for race, insurance, gestational age, and gender.

Time

Results:
Infants with BPD were significantly more likely to be diagnosed with asthma as compared to infants without BPD (OR 1.6, 95% CI 1.14 – 2.23). Infants with BPD were more likely to be prescribed an inhaled corticosteroid (OR 2.32, 95 %CI 1.48 – 3.66). The majority of patients in both cohorts were prescribed albuterol. There was not a statistically significant difference in prescribing of asthma equipment (OR 0.82, 95% CI 0.51 – 1.35) or oral steroids (OR 1.23, 95% CI 0.78 – 1.93). Patients with BPD were more likely to be referred to a pulmonologist (RR 12.34, 95% CI 10.82 – 14.07) and be hospitalized for asthma (RR 1.48, 95% CI 1.2 – 1.82). There was no significant difference in ED visits (RR 0.98, 95% CI 0.77 – 1.25).

Conclusion(s):
Infants with BPD were more likely to be diagnosed with asthma. However, both cohorts have similar rates of prescriptions for albuterol and oral steroids suggesting that infants born premature without BPD are just as likely to have a wheezing related illness. It is possible that having a diagnosis of BPD induces providers to be more aggressive in their treatment of infants with BPD when in reality it may be prematurity that is the risk factor for a wheezing related illness. More objective measures of asthma severity are needed to assess this disparity.

Title: The Impact of Interventions on Mitigating Health Disparities in the Neonatal Population

Presenter/Authors: Scott Lorch

Location: Convention Center 103 Invited Science

5:45-7:30 p.m.

Title: Engaging patients and parents to improve mental health for youth with rheumatologic disease

Presenter/Authors: Oluwatunmise Fawole, Michelle Vickery, Lauren Faust, Julia Harris, Aimee Hersh, Martha Rodriguez, Karen Onel, Erica Lawson, Emily von Scheven, Tamar Rubinstein, Kaveh Ardalan, Esi Morgan, Anne Paul, Judith Barlin, Paola Daly, Mitali Dave, Shannon Malloy, Shari Hume, Suzanne Schrandt, Laura Marrow, Angela Chapson, Donna Napoli, Michael Napoli, Miranda Moyer, Rachel Adamski, Vincent Delgaizo, Andrea Knight

Location: Convention Center 104 CD Platform

Background:
Mental health conditions are common in youth with rheumatologic disease, yet intervention strategies for pediatric subspecialty patients is understudied. Patient-engaged research, involving patients and families on the research team, is a valuable technique for examining sensitive topics such as mental health.

Objective:
To investigate mental health needs of youth with rheumatologic disease.

Design/Methods:
An online survey examined beliefs and experiences with mental health for patients with

Time

juvenile arthritis, juvenile dermatomyositis, or systemic lupus erythematous. Youth ages 14-24 years and parents of youth 8-24 years were eligible to participate. The survey was developed in collaboration with patient and parent advisors, the Childhood Arthritis & Rheumatology Research Alliance (CARRA), and the Patients, Advocates, and Rheumatology Teams Network for Research and Service (PARTNERS). Participants were recruited through the Arthritis Foundation, Lupus Foundation of America, and Cure JM Foundation. We compared youth and parent responses using regression models (adjusted for demographic and disease covariates) to examine the prevalence of mental health problems, and Likert ratings for the impact of disease aspects on mental health, and comfort level with potential mental health providers.

Results:
352 respondents included 93 youth (26%) and 259 (74%) parents. Mental health problems were highly prevalent, with clinician-diagnosed anxiety reported by 45%, depression 32%, and adjustment disorders 26% (Figure 1); another 13%, 21% and 11% reported self-diagnosed symptoms of these disorders, respectively. Mean Likert scores indicated that disease aspects most impacting mental health (0=low, 4=high) were physical limitation at 2.7 (SD 1.1), taking medications at 2.6 (1.2), and dealing with disease flares at 2.5 (1.2). Adjusted models showed no difference between youth and parents for reported mental health problems or impacting factors. Youth were significantly less comfortable interacting with all potential mental health providers than parents, particularly social workers and school counselors (Figure 2); both groups felt most comfortable with rheumatologists and primary care providers.

Conclusion(s):
Youth with rheumatologic disease have high rates of diagnosed and undiagnosed mental health problems, which are impacted by their disease. Mental health intervention strategies are needed, focusing on both primary care and subspecialty care settings to provide mental health education, screening and treatment for these youth.

5:45-7:30 p.m.

Title: Hospital Market Competition and Infant Mortality Rates

Presenter/Authors: Scott Lorch, Jeannette Rogowski, Jeffrey Horbar, Erika Edwards, Jochen Profits, Ciaran Phibbs

Location: Convention Center Exhibit Hall DE Poster Session, Board 62

3806 Health Services Research 5: Neonatal
5:45 PM - 7:30 PM
Info

Background:
Wide variation in hospital and state-level infant and neonatal mortality rates persists. Prior work suggests that increased concentration of neonatal intensive care unit (NICU) and obstetric markets with reduced competition (i.e. regionalization) should improve outcomes. However, in other areas of health care, reduced competition has been associated with lower quality of care delivery.

Objective:
To test the association between infant and neonatal mortality and market competition in the largest 187 hospital markets in the United States

Time

Design/Methods:
We extracted county-level infant and neonatal (<28 day) mortality from CDC Wonder for 2000-2014. Counties were linked to Dartmouth Hospital Referral Regions (HRRs) to calculate mortality rates for each HRR/year. The competitiveness of each delivery market was defined as the Hirschman-Herfindahl Index (HHI) for the share of births in each HRR, using the reported number of births for each hospital within a given HRR from the AHA Annual Survey of Hospitals. We used multivariable linear and Poisson regression, adjusting for year and number of delivery hospitals per HRR, to test the association between mortality rates and hospital competition, categorized as competitive (HRR <0.2), moderately concentrated (HRR 0.2-0.25), and highly concentrated (HRR >0.25).

Results:
Delivery markets were moderately concentrated with average market concentration increasing significantly from a mean of 0.201 in 2000 to a mean of 0.253 in 2014, with considerable variability across regions (Table). Infant and neonatal mortality remained widely variable between markets (Figure 1) and by degree of competition with the lowest mortality seen in moderately concentrated deciles (Figure 2). In multivariable models, moderately concentrated HRR had a lower mortality rate compared to competitive markets (RR 0.97, 95% CI 0.96-0.99) with a 0.35/1000 births reduction in mortality (95% CI 0.11-0.59/1000 births). Highly concentrated markets had higher mortality rates (RR 1.04, 95% CI 1.03-1.06). Similar results were observed for neonatal mortality. The number of delivery hospitals explained part of this result, as highly concentrated markets had 3.9 ± 2.1 delivery hospitals compared to 6.3 ± 2.8 in moderately concentrated markets and 16.4 ± 9.7 in competitive markets.

Conclusion(s):
5:45-7:30 p.m.
The relation between market competition and neonatal mortality is U-shaped, indicating an area where competitive pressures and regionalization are balanced. Further testing of the effect of multi-level factors on this association will help understand this relationship.

Title: Variation in Care for Croup

Presenter/Authors: Amy Tyler, Rita Mangione-Smith, Chuan Zhou, Mersine Bryan, Derek Williams, David Johnson, Chen Kenyon, Irit Rasooly, Hannah Neubauer, Karen Wilson

Location: Convention Center Exhibit Hall DE Poster Session, Board 40

Background: The Pediatric Respiratory Illness Measurement System (PRIMES) is a previously published quality of care measurement tool that uses medical records data to measure adherence to a set of care processes for four respiratory conditions including croup.

Objective:
Objective: To use the PRIMES Croup (PRIMES-C) score, comprised of 15 individual indicators, to 1) assess the variation in care for croup across 4 US tertiary care children's hospitals, and 2) compare patients receiving high vs. low adherent care.

Design/Methods:
Methods: We enrolled patients aged 6 months to 6 years seen in the ED (n=63) or admitted (n=267) with croup across the 4 hospitals between 7/1/14-6/30/16. PRIMES-C adherence

Time

scores were calculated (0-100 scale) by dividing the number of times indicated care was received by the number of eligible cases. We used a box plot to display the summary statistics for PRIME-C scores by hospital. Scores were then categorized into low (<25th%ile), medium (25th-75th%ile), and high (>75th%ile) adherence. We performed logistic mixed-effects regression to compare patients receiving a high vs low category PRIMES-C adherence score. The model controlled for patient demographics, ED/observation vs. inpatient care (as a marker of severity), patient complexity, and hospital site.

Results:
Results: Of the 330 enrolled subjects, 64% were male, 57% white, 13% Black, 16% Hispanic, 55% were privately insured, and the median age was 18 months. We did not observe statistically significant variation in PRIMES-C scores across hospitals (FIGURE). In comparing adherence categories, there was no significant association between patient characteristics and adherence category (low, medium, high). In comparing patients in the high adherence vs. low adherence categories, hospital site significantly changed the odds of receiving highly adherent care for croup. Compared to site 1, the odds of receiving a high adherence PRIMES-C score was 11.65 times higher at site 2 (95%CI 10.5-12.8, p=<0.001), and 7.63 times higher at site 3 (95%CI 6.4-8.8, p=0.001). The odds of a patient receiving a high adherence PRIMES-C score at site 4 was similar when compared to site 1 (OR 1.26, 95%CI 0.26-2.27, p=0.65).

Conclusion(s):
The hospital where a patient received care significantly changed the odds of receiving highly adherent croup care. These results highlight a need for quality improvement at the lower performing sites and suggest a potential opportunity for lower performing sites to learn from higher performing sites.

5:45-7:30 p.m.

Title: A Better Chance at a Healthy Start: Optimizing an existing prenatal risk screener for improved prediction of adverse birth outcomes

Presenter/Authors: Diana Montoya-Williams, Melissa Bright, Silvio Martinez, Rebeccah Mercado, Scott Lorch, Lindsay Thompson

Location: Convention Center Exhibit Hall DE Poster Session, Board 63

Background:
Florida's Healthy Start (HS) Program is a mandatory statewide universal prenatal screening program that aims to identify pregnant women at risk of adverse birth outcomes. The screening tool uses an index of weighted risk factors to generate a score; higher scores prompt preventive social service referrals. However, the tool achieves a poor sensitivity, which may be due to the selective scoring of only some of the screened risk factors.

Objective:
We aimed to improve the tool's predictive ability by linking first trimester self-reported HS screener data to birth outcomes. Maternal risk factors for infants with adverse outcomes (low birth weight [LBW, <2500 g] and/or prematurity [<37 weeks gestational age]) were compared to those reported by mothers of infants born with normal weight and gestation.

Design/Methods:
A retrospective cohort of all mothers and infants who delivered at our tertiary care center

Time

between January and April 2015 was created. HS responses, maternal socio-demographics, comorbidities and perinatal complications were manually extracted from the electronic health record. Multivariate regressions characterized associations between endorsed risk factors and birth outcomes.

Results:
After reviewing 1242 maternal-infant dyads, 304 dyads met study inclusion criteria. Exclusions were primarily for missing or illegible HS data. After adjusting for maternal age, race, insurance and education, women who reported having a child with special health care needs were 4.3 times more likely to deliver a preterm or low birth weight infant (p = 0.017, 95% CI 1.30-14.13). An adverse birth outcome was also 2.8 times more likely if mothers endorsed difficulty paying their bills (p = 0.031, 95% CI 1.10-7.28) and 5.2 times more likely if the HS form identified mothers as having a chronic illness (p<0.001, 95% CI 2.21-2.41). Of these three significant risk factors, only maternal chronic illness is currently used in the calculation of the weighted score for referral purposes.

Conclusion(s):
These data suggest that modernizing the HS screening form by adjusting how these social determinants contribute to the risk score may enhance its ability to identify women who will be most impacted by adverse birth outcomes. Future work will examine risk factor reporting among racial minorities to better tailor the screener for these high-risk populations. The ultimate goal is to optimize public health services delivery statewide through more accurate identification of at-risk families.

5:45-7:30 p.m.

Title: Community Medication Burden at School Age for Prematurely Born Children

Presenter/Authors: Jo Ann D'Agostino, Molly Passarella, Ashley Martin, Scott Lorch

Location: Convention Center Exhibit Hall DE Poster Session, Board 65

Background:
Premature infants (PT) have high medication use in the first year of life. As neonatal issues resolve, little is known about what medication burden they face as they enter school. Although a higher risk of asthma has been described, the role of prematurity, socio-economic factors, and chronic lung disease on the need for medication at school age remains unclear.

Objective:
To explore medication use by PT children in the community setting compared to full term (FT) children between 5-8 years of age.

Design/Methods:
Retrospective review of ambulatory prescriptions for a cohort of infants with births between 2005-2008 (n=2435) presenting for primary care to a 34-site network by 6 months corrected age and at least 1 visit after age 7 up until 2015. Prescriptions by therapeutic classification between 5-8 years of age were compared for those < 36 weeks to those 37+ weeks gestation. Poisson regression identified socio-demographic (SES) and medical factors associated with prescriptions.

Results:
PT children averaged 8.99 (+/- 12.27) prescriptions between 5-8 years of age compared

Time

to 6.99 (+/- 9.61) for FT children (<.0001). On univariate Poisson analysis, PT's were more likely than FT's to receive medications from nearly all classifications (11 of 14). On multivariate analysis controlling for SES and CLD, PT children remained more likely to receive medications at 5-8 years of age compared to FT children (IRR 1.17; 95% CI 1.1-1.24) [Table]. Anti-infective, endocrine, GI, GU and respiratory medications remained significant. With the addition of asthma, prematurity remained a significant predictor for any medication (IRR 1.07; 95% CI 1.01-1.13). Those with asthma (IRR 2.8; 95% CI 2.71-2.89), CLD (IRR 1.45; 95% CI 1.18- 1.78), Medicaid (IRR 1.33; 95% CI 1.28-1.39) and who were male (IRR 1.04; 95% CI 1.01-1.08) were more likely to receive prescriptions, and those who were Hispanic were less likely (0.92; 95% CI 0.85-0.99).

Conclusion(s):
PT children continue to have a higher medication burden at 5-8 years of age than FT children that includes medications from most therapeutic classifications. Part of the prematurity association is the result of asthma independent of having the diagnosis of CLD. However, even after controlling for asthma, prematurity remained an independent risk factor for higher medication burden at 5-8 years of age. These findings suggest that PT children continue to have increased costs and health service use at early school age associated with their PT birth.

5:45-7:30 p.m.

Title: Partitioning Neonatal Costs and Mortality by Gestational Age and Congenital Anomalies

Presenter/Authors: Ciaran Phibbs, Jochen Profit, Henry Lee, Jeffrey Gould, Susan Schmitt, Jeannette Rogowski, Scott Lorch

Location: Convention Center Exhibit Hall DE Poster Session, Board 66

Background:
There are conflicting statements about the share of neonatal-related mortality and costs that are attributable to preterm delivery and congenital anomalies.

Objective:
Estimate the shares of neonatal-related mortality and costs that can be attributed to preterm delivery and congenital anomalies, with adjustment for the mortality risk of anomalies.

Design/Methods:
2009-2013 California linked birth certificate-patient discharge data for infants. Of 1.5 million linked records, 200,000 were excluded for missing charge data. We used cost to charge ratios to estimate costs. Mean DRG-specific reimbursement was used to estimate physician payments. We excluded about 50,000 cases due to data problems, for a final sample of 1,255,844. Anomalies were classified in two ways; having any diagnoses of a congenital anomaly (yes/no) and having a potentially fatal anomaly (yes/no), classified by previously published algorithm. Neonatal-related mortality was defined as any death before hospital discharge. We categorized the data by anomaly status and gestational age (GA), and calculated the shares of mortality and costs for each group.

Results:
Total costs for all infants was $8.4 billion and there were 3428 deaths. Infants with any diagnosed anomaly comprised 60% of neonatal deaths, but only 38% of deaths had a

Time

diagnosis of a potentially fatal anomaly. Preterm infants accounted for 84.4% of the deaths; those without a potentially fatal anomaly diagnosis comprised 56.8% of all neonatal deaths, while preterm infants with a potentially fatal anomaly comprised 27.6% of all deaths. Table 1 shows the mortality results with GA subsets; anomalies are a much more important cause of death for older infants, and most preterm deaths do not have a potentially fatal anomaly. For costs (Table 2), preterm infants without a potentially fatal anomaly account for 47.8% of neonatal costs and the share for preterm infants with a potentially fatal anomaly was 15.7%. Infants with potentially fatal anomalies account for 24.4% of costs.

5:45-7:30 p.m.

Conclusion(s):
Infants with a diagnosis of a potentially fatal congenital anomaly are responsible for about 40% of neonatal deaths and 24% of neonatal costs. While anomalies account for 2/3s of mortality for term infants, most deaths and 63% of costs are to preterm infants. These results are conservative as many anomalies are not fatal and many potentially fatal anomalies carry only moderate mortality risk to the infant. Thus, these results suggest that preterm birth is the primary driver of neonatal deaths and costs in the US.

Title: Readmissions After Pediatric Hospitalization for Suicide Ideation and Suicide Attempt

Presenter/Authors: Stephanie Doupnik, Jonathan Rodean, Bonnie Zima, Tumaini Coker, Diana Worsley, Kris Rehm, James Gay, Jay Berry, Matt Hall, Steven Marcus

Location: Convention Center Exhibit Hall DE Poster Session, Board 121

Background:
Suicide is the second leading cause of death for adolescents and young adults and an increasingly common cause of death among pre-adolescent children in the United States. Each year, 60,000 children and adolescents are hospitalized for suicide ideation (SI) or suicide attempt (SA); yet little is known about their trajectories after hospitalization.

Objective:
In order to inform resource allocation towards a continuum of care for youth at risk of suicide, we conducted this study to determine prevalence and risk factors for unplanned 30-day readmissions after pediatric SI or SA hospitalization.

Design/Methods:
We conducted a retrospective cohort study of a nationally representative sample of hospitalizations for SI or SA among 6- to 17-year-old patients to determine prevalence, risk factors, and characteristics of 30-day readmissions using the 2013 and 2014 Nationwide Readmissions Dataset. Risk factors for readmission were modeled using logistic regression.

Results:
We identified 119,037 hospitalizations for SI and 62,538 hospitalizations for SA. Readmission rates within 30 days of SI and SA hospitalizations were 8.9% and 7.4%, respectively. Among 30-day readmissions, 34.1% occurred within 7 days after hospitalization. For both SI and SA hospitalizations, the strongest risk factor for readmission was hospitalization in the previous 30 days (SI Adjusted Odds Ratio [AOR]: 3.03, 95% Confidence Interval [CI] 2.64-3.49; SA AOR: 3.69, 95%CI: 2.95-4.62). Other characteristics associated with higher risk of readmission included bipolar disorder (SI AOR: 1.19, 95% CI: 1.03-1.38; SA AOR: 1.35, 95%

Time

CI: 1.1-1.66) and psychosis (SI AOR: 1.49, 95% CI: 1.22-1.81; SA AOR: 1.27 (0.85, 1.9). Among readmissions, 94.5% were for a psychiatric condition.

Conclusion(s):
Type of psychiatric condition and prior hospitalization were among the strongest risk factors for readmission after pediatric SI and SA hospitalizations. Knowing the prevalence, timing, and characteristics of 30-day readmissions can inform strategic planning of services for youth at risk of suicide.

Title: Randomized controlled trial of Home Plate, a cooking intervention for parents of toddlers

5:45-7:30 p.m.

Presenter/Authors: Senbagam Virudachalam, Karen Glanz, Cadence Bowden, Justine Shults, Charmaine Wright, Frances Barg, Rachel Rogers, Chris Feudtner

Location: Convention Center Exhibit Hall DE Poster Session, Board 490

Info
Background:
While cooking interventions for adults and older children have been shown to improve diet quality, no such intervention has targeted families during the critical early childhood period.

Objective:
Test the effect of Home Plate (a series of 6 weekly classes to improve food preparation and planning skills) on the diet quality and home food environments of low-income, urban toddlers and their parents.

Design/Methods:
Families with children ages 1-3 years were recruited from community settings and randomized to intervention (n=45) or waitlist control (n=43) groups. Intervention group parents received the Home Plate intervention after enrollment and baseline data collection. Follow-up data were collected immediately following the completion of Home Plate and 3 months later. The primary outcome was child diet quality measured through 24-hour dietary recalls assessing daily intake of total calories, fruits, vegetables, fat, added sugar, and fiber. Other outcomes included parent diet quality, home food environment, and engagement in Home Plate. Intent-to-treat, per-protocol, and dose-response analyses were done using linear mixed effects models with random intercepts for family and an AR(1) correlation structure. Semi-structured interviews were analyzed using a modified grounded theory approach.

Results:
Adult participants (median age 28 years) were predominantly female, low-income, and self-reported Black. 30 intervention group parents attended ?3 Home Plate classes. 3 months after Home Plate, 70% of participants had provided data. Intent-to-treat and per-protocol analyses showed no dietary differences between intervention and control groups. Dose-response analyses (see table) of intervention group children whose parents attended ?1 Home Plate class showed that for each additional class attended, children had significantly ($p<0.05$) decreased daily intake of total calories (-73kcal; 95% CI: -145, -1), total fat (-4.7g; 95% CI: -9, -0.3), saturated fat (-1.6g; 95% CI: -3.2, -0.1), added sugar (-4.9g; 95% CI: -9.2, -0.5), and fiber (-0.6g; 95% CI: -1.2, -0.05). In semi-structured interviews, parents said they

Time

enjoyed connecting with others at Home Plate classes and took home healthier cooking habits.

Conclusion(s):
Although parents reported healthier cooking habits following the Home Plate intervention, intent-to-treat and per-protocol analyses showed no effect on toddler or parent diet quality. Dose-response analyses showed statistically significant dietary improvements among children whose parents attended more classes.

*Linear mixed effects models were used to analyze whether the number of Home Plate classes intervention group parents attended had incremental effects on child diet quality.
**p<0.05

7:30-9:30 a.m.

Title: Weight Gain and Metabolic Syndrome in Children Exposed to Second-Generation Antipsychotic Medications

Presenter/Authors: Angela Czaja, Alexander Fiks, Christoph Hornik, Chad Livingston, Lindsay Berrigan, Lihai Song, Jennifer Steffes, Warren Bilker, Robert Grundmeier

Location: Convention Center Exhibit Hall DE Poster Session, Board 76

Background:
Adverse metabolic changes, including early weight gain, are associated with second-generation antipsychotic (SGAM) use, as described on Food and Drug Administration approved labels. National guidelines recommend screening for these adverse effects after SGAM initiation, but data on guideline adherence is limited.

Objective:
Describe screening and detection rates of metabolic syndrome and weight changes among children & adolescents exposed to SGAM within a multi-center research network consisting of 222 U.S. pediatric primary care practices.

Design/Methods:
We analyzed health data from 2000-2016 for 873,840 children aged 3–18y with a minimum 180 days observation time to identify children prescribed SGAM. Measures of metabolic syndrome by World Health Organization definitions of obesity, hypertension, dyslipidemia, and high glucose were reported at baseline and after SGAM initiation (follow-up extended to 6mo after last SGAM prescription). Changes from baseline weight measured at 3, 6, 12 mo for children with SGAM were compared to propensity-matched children without SGAM. Separate analyses were performed by age (<11y vs ?11y) and sex.

Results:
Over the study period, 12,911 (1.5%) eligible subjects had ?1 SGAM prescription (50% risperidone, 30% aripiprazole, 14% quetiapine). Median treatment duration among children with ?2 SGAM prescriptions was 1.1yr (IQR 0.4-2.3 yr). Males had younger age at SGAM initiation than females (47% vs 29% <11yrs). After SGAM initiation, 56% had ?1 BMI measured, 54% blood pressure measured, 14% had cholesterol testing and 16% had glucose testing. Only 851 (7%) had all four domains assessed, with obese children (BMI?95%ile) more frequently tested (360/2145 [17%], p<0.001). Within the follow-up period, 64 children (7.5% of the 851 tested children) met criteria for metabolic syndrome (Table 1). Baseline

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weight was available for 4,986 (39%) exposed subjects. In all age/sex groups, the average weight gain during follow-up was greater for SGA-exposed than matched unexposed children, with greatest difference among males ?11yrs (Table 2).

Conclusion(s):

9:45-10 a.m.

Screening for metabolic syndrome after SGAM initiation is infrequent in pediatric primary care, which is concerning given the accelerated weight gain observed. Prospective studies are needed to better delineate metabolic changes and identify targets for invention including greater adherence to screening recommendations.

Title: Resident Screening for Unmet Social Needs by Health Care Setting

Presenter/Authors: Aditi Vasan, Chen Kenyon, Deepak Palakshappa

Location: Convention Center Exhibit Hall DE Poster Session, Board 713

Background:

The American Academy of Pediatrics recommends that all pediatricians routinely screen for social determinants of health (SDH), in order to identify families in need and connect them to available community resources. Pediatric residents often serve as front-line providers for children living in poverty and can play an important role in identifying and addressing families' psychosocial needs. However, little is known about how and when residents screen families for unmet social needs.

Objective:

To examine residents' self-reported rates of screening for SDH and potential barriers and facilitators to screening in both the outpatient and inpatient settings.

Design/Methods:

We conducted a cross-sectional study at a large academic pediatric health system where residents provide inpatient care at a tertiary care children's hospital and outpatient care at 3 urban primary care practices that serve a majority Medicaid-insured and minority population. Residents were invited to participate in a brief electronic survey assessing (1) screening practices for unmet social needs in outpatient and inpatient settings and (2) barriers to routinely implementing screening. Data was analyzed using descriptive statistics and 2-tailed statistical tests, considered significant at $p < 0.05$.

Results:

Ninety-two pediatric residents (64% of the residency program) responded to the survey. Demographic characteristics of participating residents are summarized in Table 1. Resident rates of screening for social needs are summarized in Figure 1. Overall, pediatric residents reported significantly higher rates of social needs screening in the outpatient setting as compared to the inpatient setting (98% vs. 37%, $p < 0.01$). Residents were more likely to screen for specific social needs if they were included in EHR-based templates (OR = 6.5, 95% CI = 4.7, 9.1). In both the outpatient and inpatient setting, residents cited time constraints, lack of knowledge about available resources, and discomfort with screening questions as the most common barriers to screening (Figure 2).

Conclusion(s):

12:45-1 p.m.

Pediatric residents were significantly more likely to screen for SDH in the outpatient setting

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than in the inpatient setting, despite reporting similar barriers to screening in both settings. There may be an opportunity to improve SDH screening rates by incorporating screening questions into EHR-based templates and providing educational sessions for residents focused particularly on screening in the inpatient setting.

Title: Racial Differences in Pediatric Sepsis Alert Performance in a Children's Hospital Emergency Department

Presenter/Authors: Jenny Raman, Tiffani Johnson, Katie Hayes, Frances Balamuth

Location: Convention Center 201 A-D Platform

Background:
Sepsis is a leading cause of morbidity and mortality in children worldwide. Quality improvement efforts have improved timeliness and effectiveness of sepsis care. Equity is an element of quality healthcare that has not been examined in pediatric sepsis. We aimed to determine if there were racial differences in pediatric sepsis recognition in a pediatric emergency department (ED) with an established electronic sepsis alert

Design/Methods:
Retrospective cohort study using a quality improvement data set from 6/1/16-5/31/17. All ED visits for patients who identified as either black or white and non-Hispanic were included. The sepsis alert consisted of two stages. The first alert was based on vital signs and the second alert on nursing assessment. We compared frequency of first and second alerts, as well as the frequency of sepsis treatment protocol initiation between black and white patients. The sepsis protocol could be initiated either through the huddle process or by clinician judgment. Frequencies and percentages were reported for descriptive elements. Multivariable logistic regression was used to determine the association between race and sepsis protocol treatment while adjusting for potential confounders of high risk condition and insurance.

Results:
There were 97338 ED visits, 57985 (59.6%) and 24472 (25.1%) from black and white patients respectively. White patients were more likely to have a positive first stage alert (OR 1.1 95% CI 1.1, 1.2), and more likely to have a positive second stage alert (OR 3.0, 95% CI 2.5, 3.3). There was no difference in sepsis protocol initiation among sepsis alert patients (OR 1.2, 95% CI 0.9, 1.7), but white patients were more likely to be treated with the sepsis protocol outside of the alert process (OR 3.6, 95% CI 2.2, 6.1), a difference which persisted after adjustment for presence of a high risk condition and insurance status (AOR 1.5, 95% CI 1.0, 2.1).

Conclusion(s):
White patients were more likely than black patients to have a positive sepsis alert, although there were no differences in sepsis protocol use in this subset of patients. Interestingly, white patients were more likely than black patients to be treated with the sepsis protocol outside of the alert system based on clinical judgment. These differences persisted after adjusting for high risk conditions and insurance status. One possible conclusion is that sepsis treatment using an electronic alert reduces racial differences in care compared to sepsis treatment using clinician judgment alone.

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Title: The Value of Adherence to Pediatric Respiratory Illness Measurement System (PRIMES) Metrics

Presenter/Authors: Davene Wright, Kathryn Whitlock, Rebecca Jennings, Derek Williams, David Johnson, Chen Kenyon, Ricardo Quinonez., Amy Tyler, Karen Wilson, Rita Mangione-Smith

Location: Convention Center 104 AB Platform

Background:
PRIMES generates process of care quality scores using medical record data for children hospitalized with common respiratory illnesses.

Objective:
To assess whether PRIMES adherence improves the value of care.

Design/Methods:
Children (n=2334) 2 weeks-16 years old admitted to 5 US children's hospitals for asthma (n=669), bronchiolitis (n=749), croup (n=345), and pneumonia (n=571) from 7/14 to 6/16 were enrolled. Scores representing adherence to PRIMES indicators were calculated by dividing the number of times indicated care was received by the number of eligible cases. Scores were grouped into low (<25th %ile, n=572), medium (25-75th %ile, n=1115) and high (>75th %ile, n=647) adherence. Outcomes were direct healthcare costs and length of stay (LOS) in days, assessed using Pediatric Health Information System data, and improvement at follow-up on the Pediatric Quality of Life Inventory (PedsQLTM) 4.0 Physical Functioning subscale, obtained by survey. Mixed effects regression models were used to predict outcomes adjusted for demographics, condition, and site. Net outcomes were calculated as the differences in costs, LOS, and PedsQLTM between high and low adherence groups. Economic value was assessed using a series of incremental cost-effectiveness ratios (ICERs) for each condition, net costs divided by net healthcare outcomes (LOS and PedsQLTM). In cases where ICERs are dominant, high adherence cost less and had better healthcare outcomes than low adherence, therefore PRIMES adherence provides good value. In cases where ICERs are dominated, high adherence cost more and had worse healthcare outcomes than low adherence, therefore PRIMES adherence provides no value. In all other cases, we cannot assess whether adherence is value-adding without information on stakeholder willingness to pay for more favorable LOS and PedsQL improvement scores. (Figure 1) 95% CIs around net outcomes and ICERs were bootstrapped.

Results:
Results are shown in Table 1. High adherence cost significantly less than low adherence for bronchiolitis and croup, resulting in negative net costs. PedsQLTM improvement scores at follow-up were not significantly different between high and low adherence groups for any condition. High adherence groups had a significantly shorter LOS than low adherence groups for bronchiolitis.

Conclusion(s):
With both cost savings and a shorter LOS, ICERs show that PRIMES adherence significantly improved the value of care for bronchiolitis.

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