Week 2: Neonatal Health Services Research/Quality Improvement

Health Services Research: Neonatal & Hospital-based Care

Thursday, June 18 2:30-3:30 pm EDT

Moderators
Mandy Belfort
Mary Mariscalco

EDT	Abstract	Title	Presenting Author
2:30 pm		Introduction & General Information	
2:35 pm	3375883	The cost of Neonatal Abstinence Syndrome to the NHS: an economic analysis of a national database	Philippa Rees
2:45 pm	3378884	Limited Access to Children's Hospital and High-Level Neonatal Intensive Care in Low Premium ACA Plans	Scott Lorch
2:55 pm	3382092	Cost-Effectiveness of Herpes Simplex Virus Screening Strategies in the Newborn Period	Elizabeth Salazar
3:05 pm	3373420	Speaking Up for Safety: Family Reporting in Hospitalized Children with Medical Complexity	Alexandra Mercer
3:15 pm	3367975	Parent and Physician Perspectives on Reasons for Hospital Readmissions	Michelle Hamline
3:25 pm		Wrap Up	

Note: Schedule subject to change based on presenter availability.

CONTROL ID: 3375883

TITLE: The cost of Neonatal Abstinence Syndrome to the NHS: an economic analysis of a national database

PRESENTER: Philippa Rees

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CURRENT CATEGORY: Health Services Research

CURRENT SUBCATEGORY: None

KEYWORDS:

SESSION TITLE: Health Services Research: Neonatal & Hospital-based Care |Health Services Research: Neonatal & Hospital-based Care

SESSION TYPE: Platform|Webinar

ABSTRACT BODY:

Background: Globally, the opioid crisis has become a protracted public health problem. The crisis has negatively impacted society as a whole but disproportionately affects children. The resulting Neonatal Abstinence Syndrome (NAS) epidemic has become a pressing policy issue. This study therefore aims to explore healthcare utilization and the economic burden of NAS within the National Health Service (NHS), with a view to informing policy and practice.

Objective: To calculate the direct cost to the NHS of NAS managed in neonatal units.

Design/Methods: We performed an observational cohort study of all infants admitted to a neonatal unit in England, born between 2012-2017, who received a diagnosis of NAS. The incidence and direct costs of care associated with NAS were calculated. Using survival analyses and a cox proportional hazards model, the time-to-discharge was analysed. A multivariable linear model was fitted to explore mean-adjusted additional costs of care.

Results: Of 524,334 neonatal unit admissions, 6,411 had NAS. Infants with NAS accounted for 12/1,000 neonatal unit admissions and 2.3% of neonatal unit cot days nationally (Table 1). The direct economic cost of caring for infants with NAS was £62,646,661: the equivalent duration of postnatal care would have equaled £34,584,633 (Table 2). The median time-to-discharge for infants requiring pharmacotherapy was 18.2 days compared to 5.1 days for those not requiring pharmacotherapy (Figure 1). The hazard of discharge was significantly lower for infants requiring pharmacotherapy: adjusted Hazard Ratio (aHR) 0.16 95%CI (0.15, 0.17; Table 3). The hazard of discharge was also lower for formula-fed infants aHR 0.73 (0.66, 0.81) compared to breastfed infants; those discharged to foster care aHR 0.77 (0.72, 0.82); and infants of Asian mothers aHR 0.61 (0.49, 0.77). Almost half of infants received pharmacotherapy (n=2631; 49%). The greatest predictor of additional costs was need for pharmacotherapy, increasing additional mean-adjusted cost by £8,420 (Table 3).

Conclusion(s): This population-study highlights the substantial neonatal cot-usage and economic costs of caring for infants with NAS on neonatal units in England. Study recommendations include careful evaluation of national policy to explore routine use of postnatal wards for NAS care and increased provision of pharmacotherapy outside of the neonatal unit. A shift in how the NHS provides routine care for these infants could benefit infants and families whilst alleviating the burden on neonatal services and cost to the NHS.

Table 1: The temporal changes in healthcare utilisation amongst infants with NAS admitted to neonatal units 2012-2017.

Birth Year	No of NAS admissions per 1000	Number of neonatal unit cot days for infants with NAS (% Total cot days)	Median time to discharge, days (Interquartile range)	Pharmacotherapy duration: Mean time-to-discharge (SD)	Infants having pharmacotherapy (%)	Infants discharged to foster care (%)
2012	13.1	19,428 (2.1)	13.4 (6.7-23.5)	0.34 (0.4)	521 (50.6)	334 (32.4)
2013	12.9	21,397 (2.4)	13.92 (6.3-26.6)	0.37 (0.5)	589 (56.8)	342 (33)
2014	11.6	19,296 (2.14)	13.04 (5.7-25.4)	0.31 (0.4)	474 (48)	294 (29.8)
2015	11.6	20,550 (2.2)	12.71 (5.5-24.1)	0.33 (0.4)	517 (49.4)	331 (31.6)
2016	11.6	21,482 (2.3)	12.31 (4.9-25.9)	0.25 (0.3)	489 (45.9)	307 (28.8)
2017	12.7	21,637 (2.4)	10.28 (4.3-22.6)	0.22 (0.3)	509 (41.4)	367 (29.8)
Total	12.2	123,790 (2.3)	11.6 (5.1-22.6)	0.3 (0.4)	3099 (48.4)	1975 (30.9)

Table 2: The direct and average costs of care of a subgroup of neonates admitted primarily because of NAS to a neonatal unit in England between 2012-2017 This table contrasts the actual costs, with the equivalent costs for this population of 'normal postnatal' level care.

Year of birth	Total direct cost of actual care (£)	Total direct cost of 'normal care' (£)	Mean cost of actual care per baby (£)	Mean cost of 'normal care' (£)	Median cost of actual care per baby (£)	Median cost of 'normal care' (£)
2012	11,427,983	6,222,898	12,812	6,976	9,230	5,502
2013	11,569,927	6,265,645	13,178	7,136	9,455	5,079
2014	10,655,676	5,780,612	12,625	6,849	8,364	5,079
2015	9,445,081	5,162,681	11,311	6,183	7,346	4,656
2016	9,983,039	5,639,250	11,409	6,445	7,087	4,656
2017	9,560,955	5,513,547	9,448	5,448	5,593	3,386
Total direct cost	62,642,661	34,584,633	-	-	-	-
Mean annual direct cost	10,440,444	5,764,106	-	-	-	-

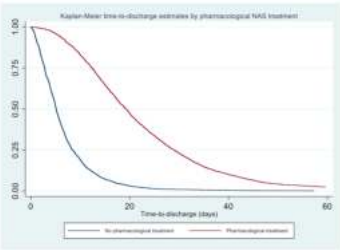

Figure 1: Kaplan-Meier plot estimating time to discharge, for sub group of infants without comorbidities, up to 60 days, by treatment group

Characteristic	Crude hazard ratio (95% CI)	Adjusted hazard ratio (95% CI)	Mean stay of care per patient (SD)	Mean adjusted additional cost of care per patient (95% CI)
Gender				
Male	1.04 (0.96, 1.07)	0.97 (0.92, 1.05)	£11,794 (11,232)	£10 (-76, 222)
Female	Reference	Reference	£11,718 (11,187)	Reference
Smoking in pregnancy				
Non-smoker	Reference	Reference	£10,281 (12,773)	Reference
Smoker	0.57 (0.05, 0.78)**	0.87 (0.41, 0.94)**	£11,180 (12,699)	£564 (173, 963)*
IMD quintile 2012				
1	0.78 (0.68, 0.89)***	0.91 (0.81, 1.02)	£12,218 (12,187)	£1,013 (130, 1,814)
2	1.02 (0.7, 0.91)	0.98 (0.77, 1.02)	£12,010 (12,899)	£198 (-52, 508)
3	1.00 (0.76, 0.96)	0.9 (0.78, 1.04)	£11,117 (11,855)	£9 (-75, 300)
4	0.95 (0.82, 1.11)	0.98 (0.82, 1.12)	£10,994 (11,293)	£1 (-90, 250)
5	Reference	Reference	£9,811 (9,555)	Reference
Gestation				
36-38 weeks	0.97 (0.87, 1.067)	0.31 (0.18,0.537)**	£11,805 (10,664)	£1,170 (811, 2020)**
38-37 weeks	1.10 (1.07, 1.23)**	0.9 (0.85, 0.97)**	£10,512 (10,410)	£153 (-8, 311)
38-39 weeks	1.11 (1.02, 1.17)*	1.06 (1.02, 1.17)*	£11,750 (12,736)	£145 (-220, 512)*
≥40 weeks	Reference	Reference	£12,750 (12,830)	Reference
Ethnicity				
White	Reference	Reference	£12,137 (12,830)	Reference
Black	1.42 (1.26, 1.75)**	1.05 (0.92, 1.1)	£11,886 (12,734)	£202 (-506, 80)
Asian	0.82 (0.66, 1.01)	0.61 (0.48, 0.75)**	£12,391 (14,250)	£342 (-32, 822)
Mixed	1.23 (0.99, 1.35)	1.23 (0.98, 1.35)	£11,498 (11,221)	£ 140 (-108, 379)
Other	0.95 (0.68, 1.34)*	0.88 (0.67, 0.95)*	£12,116 (17,190)	£108 (-487, 800)
Discharge to out of home foster care				
Not discharged to foster care	Reference	Reference	£10,090 (11,226)	Reference
Discharged to foster care	0.65 (0.61, 0.69)**	0.77 (0.72, 0.82)**	£12,220 (12,682)	£695 (620, 1114)
Maternal age				
<20 years	1.14 (0.9, 1.45)	1.14 (0.92, 1.47)	£8,492 (12,864)	£261 (-506, 41)
20-24 years	1.16 (1.05, 1.28)**	1.11 (1.03, 1.05)*	£10,693 (12,678)	£198 (-317, 707)
25-29 years	1.03 (0.96, 1.12)**	1.06 (1, 1.17)	£11,352 (11,992)	£80 (-207, 38)
30-34 years	0.96 (0.9, 1.05)	1.04 (0.96, 1.1)	£11,275 (12,026)	£5 (-146, 180)
≥35 years	Reference	Reference	£12,185 (11,017)	Reference
Discharge Year				
Before 2015	Reference	Reference	£8,605 (7,714)	Reference
Mixed	0.56 (0.48, 0.87)**	0.98 (0.87, 1.1)	£8,182 (9,867)	£85 (-88, 202)
Formula	0.47 (0.42, 0.52)**	0.75 (0.66, 0.81)**	£12,600 (12,826)	£695 (276, 982)**
With treatment				
No treatment	Reference	Reference	£4,720 (6,555)	Reference
Treatment	0.16 (0.15, 0.18)**	0.18 (0.15, 0.17)**	£10,851 (12,764)	£6,128 (7,164, 5,093.)**

IMAGE CAPTION:

CONTROL ID: 3378884

TITLE: Limited Access to Children's Hospital and High-Level Neonatal Intensive Care in Low Premium ACA Plans

PRESENTER: Scott Lorch

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CURRENT CATEGORY: Health Services Research

CURRENT SUBCATEGORY: None

KEYWORDS: Access to care, Insurance.

SESSION TITLE: Health Services Research: Neonatal & Hospital-based Care |Health Services Research: Neonatal & Hospital-based Care

SESSION TYPE: Platform|Webinar

ABSTRACT BODY:
Background: The implementation of the Affordable Care Act (ACA) introduced plans that differ in costs and plan benefits. Some plans limit where patients may receive care, especially at higher-cost hospitals such as academic medical centers. Because pediatric care is regionalized, such limited hospital networks may limit timely access to services associated with improved outcomes.

Objective: (1) Determine the percentage of ACA plans that do not include access to either a Children's Hospital (CH) or a high-level neonatal intensive care unit (NICU) and (2) identify the impact of plan characteristics on this access

Design/Methods: We identified 4,541 separate Silver ACA plans from www.healthcare.govin 2016-2019 in the 39 states that participated in the Federal exchange in 2019. Premiums were calculated for each plan based on a single parent with one child. We defined a CH as a member of the Children's Hospital Association excluding Shriners hospitals (N=189), and a high-level NICU as a hospital with a level 3 or level 4 NICU. We used each plan's website and calls to the insurer to determine whether its network included a CH or a high-level NICU. Multi-level nested random effect models determined the association of the amount of the premium, deductible, and copayment and the type of plan on access to either a CH or a high-level NICU, with state nested within year as random effects.

Results: 29.0% of all silver ACA plans did not include access to a CH; 14.1% of all plans did not include access to a high-level NICU. There were wide variations in access between states (Figures 1 and 2). In multivariable models, a $100 decrease in premiums was associated with a 31% reduction in the odds of access to CH (95% CI 0.63-0.76) and a 42% reduction in the odds of access to a high-level NICU (95% CI 0.51-0.66). The lowest premium quartile had lower odds of access to a CH (OR 0.22, 95% CI 0.14-0.34) and a high-level NICU (OR 0.12, 95% CI 0.06-0.22) compared to the highest premium quartile (Figure 3). Compared to HMO care, POS and PPO plan type was associated with lower odds of access to CH or NICU care.

Conclusion(s): A substantial number of silver ACA plans, particularly those with lower premiums, do not have routine access to a CH or a high-level NICU within their network. The decline in access could result in adverse outcomes related to reduced or delayed access to appropriate care. Provisions to limit this increase in costs to women and children are needed to optimize outcomes of high-risk mothers and children.

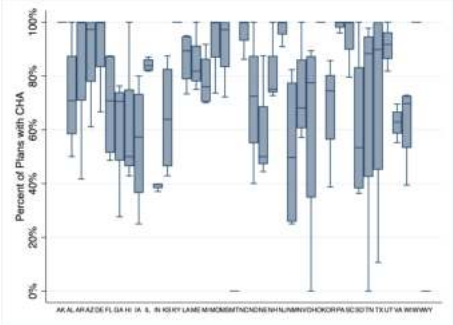

Figure 1: Variations in yearly access to a Children's Hospital in silver ACA plans, by state 2016-2019. Median percent access is shown as the bar in the middle of the box; 25th and 75th percentiles are shown at the edges of the boxes; and the 3rd and 98th percentiles as the capped bars. Significant intra and inter-state variation in access is noted.

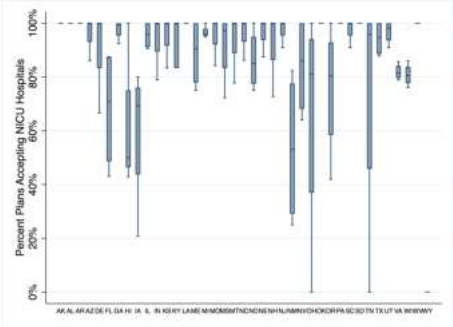

Figure 2: Variations in yearly access to a high-level NICUl in silver ACA plans, by state 2016-2019. Median percent access is shown as the bar in the middle of the box; 25th and 75th percentiles are shown at the edges of the boxes; and the 3rd and 98th percentiles as the capped bars. Significant intra and inter-state variation in access is noted.

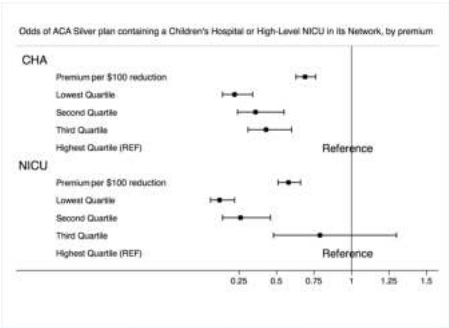

Figure 3: Odds ratios for having a Children's Hospital (top figure) or high-level NICU (bottom figure) within the network of silver ACA plans, 2016-2019, after adusting for premiums, deductibles, copayments, year, and state. Separate models calculated the effects of premiums as a continuous variable versus premiums as a quartile. Lower premiums are associated with a lower odds of having either a Children's Hospital or high-level NICU within the network of the silver ACA plan after adjustment for other plan, geographic, or year factors.

IMAGE CAPTION:

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calculated the effects of premiums as a continuous variable versus premiums as a quartile. Lower premiums are associated with a lower odds of having either a Children's Hospital or high-level NICU within the network of the silver ACA plan after adjustment for other plan, geographic, or year factors.

CONTROL ID: 3382092

TITLE: Cost-Effectiveness of Herpes Simplex Virus Screening Strategies in the Newborn Period

PRESENTER: Elizabeth Goodman Salazar

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CURRENT CATEGORY: Health Services Research

CURRENT SUBCATEGORY: None

KEYWORDS: Cost-Effectiveness, Neonatology, Value.

SESSION TITLE: Health Services Research: Neonatal & Hospital-based Care |Health Services Research: Neonatal & Hospital-based Care

SESSION TYPE: Platform|Webinar

ABSTRACT BODY:

Background: Neonatal herpes simplex virus (HSV) infections impose an increasing burden given rising incidence. Current guidelines recommend screening by maternal symptoms and have not been well studied using quantitative economic techniques.

Objective: To evaluate the cost-effectiveness of 4 specific HSV screening strategies in neonates from 0 to 28 days.

Design/Methods: We performed decision analysis modeling in TreeAge to obtain the primary outcome, an incremental cost-effectiveness ratio (iCER) of cost per quality-adjusted life-year (QALY). We compared 4 strategies: (1) HSV screen all neonates (2) HSV screen neonates of mothers with HSV history (3) HSV screen neonates of mothers with HSV symptoms at delivery (4) HSV screen symptomatic neonates (Figure 1). Outcome probabilities were obtained from the literature. Costs, expressed in 2012 dollars, were estimated from the Kid's Inpatient Database and the literature. The willingness-to-pay threshold was $100,000. Effectiveness was assessed using QALYs with a one-year time horizon. We performed one-way and probabilistic sensitivity analyses to assess the model's robustness.

Results: Screening symptomatic infants for HSV was the optimal strategy, with screening by maternal HSV history having a cost-effectiveness ratio of over $49 million/QALY and the other strategies less effective and more costly (Table 1). In one-way sensitivity analyses, the dominant strategy changed with variations in adverse outcomes, cost, and probability of death in asymptomatic neonates and in the probability of HSV in both asymptomatic and symptomatic mothers (Table 2). Probabilistic sensitivity analyses (PSA) demonstrated a large shift from the base-case model in dominant strategy, with testing symptomatic infants being cost-effective in 54.5% of trials and testing all neonates being cost-effective in 28.7% of trials (Figure 2). Comparison of these 2 strategies revealed wide variations in the iCER and dominant strategy using PSA.

Conclusion(s): Unlike current recommendations, this model suggests that screening strategies using neonatal symptoms or maternal history are most cost-effective. These recommendations were highly sensitive to changes in HSV prevalence as well as costs and complication rates of healthy neonates, suggesting that the correct screening strategy may vary between practice settings. When combined with unit-specific prevalence and complication rates, this decision analysis model can help identify the most cost-effective neonatal HSV screening strategy for individual practice settings.

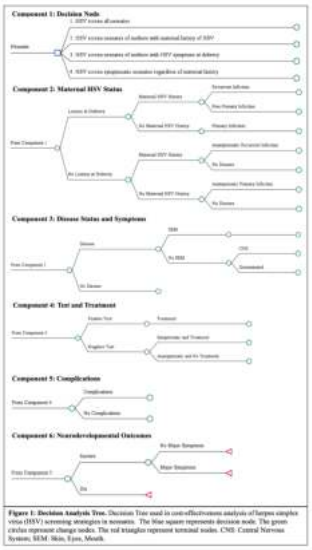

Figure 1: Decision Analysis Tree

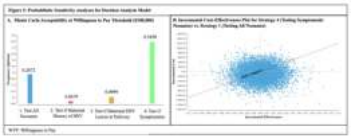

Figure 2: Probabilistic Sensitivity Analyses for Decision Analysis Model

Table 1: Base-Case Estimates of Incremental Cost-Effectiveness Ratios

Strategy	Cost	Incremental Cost	Effectiveness	Incremental Effectiveness	Cost-Effectiveness	Incremental Cost-Effectiveness
1) HSV screening of all neonates	$1,879.03	$2.26	0.999776	-1.03×10^{-4}	$1,879.45	Dominated
2) HSV screening of neonates of mothers with maternal history of HSV	$1,876.75	$461.00	0.999786	9.37×10^{-4}	$1,877.15	$49,257,527.75 per QALY
3) HSV screening of neonates of mothers with HSV symptoms at delivery	$1,420.28	$5.11	0.999770	-7.35×10^{-4}	$1,420.59	Dominated
4) HSV screening symptomatic neonates regardless of maternal history	$1,415.15	$0.00	0.999777	0.00	$1,415.46	$0.00 per QALY

Table 2: One-Way Sensitivity Analyses of Decision Analysis Model

Variable	Base Case Value	Range	Threshold	New Dominant Strategy
Probability of complications if no disease and no treatment received	0.00	0.0 - 0.3	0.15	2 - Test by maternal history
Probability of death if no disease and no complications	0.00	0.0 - 1.0	0.75	2 - Test by maternal history
Probability of complications in patient with no disease who received treatment late in course	0.09	0.0 - 1.0	0.03	2 - Test by maternal history
Probability of primary HSV in neonate of mother with no history of HSV or lesions at delivery	0.000176	0.0 - 1.0	1.00	1 - Test all neonates
Probability of maternal HSV if lesions at delivery	0.88	0.0 - 1.0	1.00	1 - Test all neonates
Cost of care of infant with no disease, no complications, and no major symptoms	$1,376.70	$0.00 - $150,000.00	$37,500.00	2 - Test by maternal history
Cost of care of infant with no disease, complications, and no major symptoms	$27,151.70	$0.00 - $150,000.00	$9.00	2 - Test by maternal history

IMAGE CAPTION:
Figure 1: Decision Analysis Tree

Figure 2: Probabilistic Sensitivity Analyses for Decision Analysis Model

Table 1: Base-Case Estimates of Incremental Cost-Effectiveness Ratios

Table 2: One-Way Sensitivity Analyses of Decision Analysis Model

CONTROL ID: 3373420

TITLE: Speaking Up for Safety: Family Reporting in Hospitalized Children with Medical Complexity

PRESENTER: Alexandra Noel Mercer

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CURRENT CATEGORY: Health Services Research

CURRENT SUBCATEGORY: None

KEYWORDS: Patient safety , Family centered care , Family engagement.

SESSION TITLE: Health Services Research: Neonatal & Hospital-based Care |Health Services Research: Neonatal & Hospital-based Care

SESSION TYPE: Platform|Webinar

ABSTRACT BODY:

Background: Hospitalized children with medical complexity (CMC; children with multifaceted clinical and functional needs) are prone to medical errors. Hospital incident reporting systems, which exclude patients/families, capture only 2-10% of safety events. Families of hospitalized CMC may be an unrecognized source of hospital safety data.

Objective: Describe 1) frequency and type of safety concerns reported by families of hospitalized CMC; 2) parent/patient characteristics associated with families reporting safety concerns

Design/Methods: 12-month (4/18-4/19) prospective study of all English- and Spanish-speaking parents of hospitalized CMC, before discharge from a complex care service, and its staff (eg, physicians and nurses). Participants completed surveys about family safety reporting and experiences. All parent-reported concerns underwent trained physician review and classification, and, when necessary, chart-review; 17% underwent 2-physician reliability check (K=0.77, 95% CI 0.53-1.00). Fisher's exact and t-tests compared categorical and continuous variables, respectively, and mixed-effects logistic regression with random intercepts controlling for clustering by participants examined characteristics associated with families reporting safety concerns.

Results: Overall, 156 parents and 214 staff completed surveys (89% and 93% response rate, respectively). Only 31.5%of parents (n=41) were told by staff how to report concerns about mistakes in their child's healthcare. Regardless, 67 parents (42.9%) reported a total of 115 safety concerns during hospitalization. Upon physician review, 90.4% of parent concerns were deemed safety or quality issues (68.7% errors, 21.7% non-safety related quality; Fig 1). Among parents with concerns, most (64.2%, n=43) reported to the hospital, primarily to their nurse (86.0%). Only 16.6% of staff (n=23) stated a parent reported a safety concern to them in the past week. Higher education (OR 5.32, 95% CI [1.51-18.87], adequate health literacy (6.28 [1.07-36.68]), and strongly disagreeing there are unit patient safety problems (0.15 [0.04-0.52]) were associated with families reporting safety concerns (Table 1 and 2).

Conclusion(s): Parents of CMC, particularly those with higher health literacy and education, frequently have valid safety concerns. Parents often report these to the hospital, mainly via their nurses, despite being infrequently told how to report concerns. Hospitals should provide clear mechanisms for families to report safety concerns and include families in incident reporting systems.

Table 1. Bivariate Associations Between Parent and Patient Characteristics and Families Reporting Safety Concerns

	No Family Safety Concern Reported	Family Safety Concern Reported	p-value
Characteristic	n (%)	n (%)	
Parent			
Age, y, mean (SD)	47.6 (11.4)	50.0 (11.7)	.10
Sex			.82
Male	11 (42.3)	15 (57.6)	
Female	56 (45.9)	66 (54.1)	
Race/Ethnicity			.66
Asian/Pacific Islander, non-Hispanic	1 (50.0)	1 (50.0)	
Black or African-American, non-Hispanic	1 (25.0)	3 (75.0)	
White, non-Hispanic	47 (42.3)	64 (57.6)	
Other, non-Hispanic	6 (60.0)	4 (40.0)	
Hispanic	12 (57.1)	9 (42.8)	
Unknown	7 (41.2)	10 (58.8)	
Ability to speak English			.06
Very well	56 (42.4)	76 (57.6)	
Well/not well/not at all	11 (68.8)	5 (31.2)	
Education level			<.0001
Less than college	43 (65.2)	23 (34.8)	
Completed college or higher	24 (28.6)	60 (71.4)	
Household income, dollars			.005
<$40,999	33 (56.9)	25 (43.1)	
≥$50,000	20 (36.1)	35 (61.4)	
Parent report that there are patient safety problems in this unit.			<.0001
Strongly Disagree	42 (62.6)	25 (37.3)	
Strongly agree/agree/neither agree nor disagree/disagree	25 (28.4)	58 (71.6)	
Health literacy (Newest Vital Sign)			.03
Limited literacy	20 (62.5)	12 (37.5)	
Adequate literacy	54 (40.6)	79 (59.4)	
Patient			
Age, y, mean (SD)*	13.0 (6.5)	13.8 (7.6)	.88
Length of stay, d, mean (SD)*	7.0 (11.1)	9.6 (11.2)	.30
Times admitted to hospital in past 12 months, mean (SD)	2.3 (2.3)	3.1 (2.4)	.04
Years part of complex care service, mean (SD)	6.7 (6.2)	8.4 (5.9)	.19

*Characteristics obtained from PHIS data (all other characteristics obtained from parent-reported surveys).

Table 2. Multivariate Associations Between Parent and Patient Characteristics and Families Reporting Safety Concerns*

Characteristic	OR (95% CI)	p-value
Parent		
Education level		.01
Less than college	REF	
Completed college or higher	5.33 (1.51-18.87)	
Parent report that there are patient safety problems in this unit.		.004
Strongly Disagree	0.15 (0.04-0.52)	
Strongly Agree/Agree/neither agree nor disagree/Disagree	REF	
Health literacy (Newest Vital Sign)		.04
Limited literacy	REF	
Adequate literacy	6.28 (1.07-36.68)	
Patient		
Times admitted to hospital in past 12 months	1.24 (0.98-1.56)	.07
Years part of complex care service	1.09 (0.98-1.21)	.10

*Multivariate model included candidate variables with p < .20.

IMAGE CAPTION:

CONTROL ID: 3367975

TITLE: Parent and Physician Perspectives on Reasons for Hospital Readmissions

PRESENTER: Michelle Y Hamline

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SESSION TITLE: Health Services Research: Neonatal & Hospital-based Care |Health Services Research: Neonatal & Hospital-based Care

SESSION TYPE: Platform|Webinar

ABSTRACT BODY:

Background: Hospital-to-home transitions are increasingly recognized as critical to patient safety and quality care. One in five parents report a problem in their child's hospital discharge, such as difficulty obtaining medications or follow-up. Difficulties in the transition process lead to decreased satisfaction, higher costs, and increased readmissions. While several studies have explored parent insights into discharge needs and readiness, few have explored parent or physician perceptions of causes for pediatric readmissions.

Objective: To investigate potential contributing factors to pediatric readmissions, from parent and physician perspectives, using qualitative methods.

Design/Methods: We used grounded theory methodology and purposive sampling to conduct semi-structured interviews with parents, discharging and readmitting physicians, and subspecialist consultants of children who were readmitted within 30 days of initial discharge from the pediatric ward at an urban teaching hospital. Participants were asked about care transition experiences during the initial admission and causes and preventability of readmission. Data were analyzed iteratively. After every triad/tetrad, 4 researchers independently performed focused coding of transcripts, met to compare and refine codes, adapt the interview guide, develop tentative categories, and identify theoretical direction. We identified major themes, solicited feedback from participants, and inferred relationships between themes to develop a conceptual model for preventing readmissions.

Results: We conducted 53 interviews from 20 patient readmissions, including 20 parents, 20 readmitting physicians, 11 discharging physicians, and 3 consulting subspecialists. Major themes included: 1) Unclear/inconsistent roles and responsibilities cause lack of ownership in patient care, 2) Incomplete hospital-to-home transitions result in a reliance on the hospital, and 3) Lack of collaborative communication among the family, specialist, and primary team leads to discordant understanding of care plans. Exemplary quotes supporting themes and subthemes are found in Table 1. Figure 1 shows the conceptual model for proposed solutions to prevent readmissions.

Conclusion(s): Parent and physician perspectives increased our understanding of potential contributing factors to pediatric hospital readmissions. Readmissions may be prevented by clear definition of team member roles, improved communication among physicians and between care teams and families, and enhanced care coordination to facilitate the hospital-to-home transition.

SUBTHEMES	SUPPORTING QUOTATIONS
Theme #1: Unclear/inconsistent roles and responsibilities cause lack of ownership in patient care	
Assumption that events/tasks are completed by someone else	I think it's one of those things that, because there's multiple teams, sometimes there are things that we take for granted that we don't think to say. [Consultant #17]
Primary team defers to specialist	The diagnosis we came up with was pyelonephritis...based on the interpretation of a CT scan by the radiologist...They were very clear that I should not do an MRI and that it was pyelonephritis. I didn't fully believe that. But I work in a team sport, and they're the experts. [Discharging Provider #19]
Theme #2: Incomplete hospital-to-home transition results in a reliance on the hospital	
Default plan for unexpected needs is back to the hospital	I was instructed to call this floor basically and talk to the nurse or any of the charge nurses that were working if my son had another elevated fever or anything like that. [Caregiver #10]
Lack of care coordination	[I] takes a lot of effort to try to find mental health and other services in the outpatient setting. And there isn't a whole lot readily available for our children. [Readmitting Provider #19]
Lack of outpatient access	I think this is a chronic issue that sometimes patients get diagnosed...and then they go home. And then there's a gap between when they can get seen in clinic. If they can even get seen in clinic. [Consultant #17]
Lack of phone number to reach outpatient providers	I suppose if they perhaps had had a really early neurology appointment and if they had access to neurology by phone, they may have been able to make a phone call...and have the medicine changed. [Readmitting Provider #6]
Discharge processes do not involve the PCP	I could have probably done a better job...communicating with the PCP and just helping to leverage the PCP as an outpatient person who could...help the family get through...without requiring a bounce back. [Readmitting Provider #9]
Discharge processes do not involve all caregivers	...his dad refuses to take any classes. His dad has never been to one doctor's appointment...and this is [Patient's], I think, second or third time being DKA from being in his dad's house. [Caregiver #2]
Theme #3: Lack of collaborative communication among family, specialist, and primary team leads to discordant understanding of care plan	
Family does not understand anticipated medical course	I'm not sure that mom ever really understood that there's a very high chance it could come back. I don't know if that was ever really put on her plate. At least not by me. [Readmitting Provider #20]
Family does not understand care plan	We didn't know what we were treating, so the primary pediatrician said it could be upper respiratory, lower respiratory infection. So, we had antibiotics...It could be asthma, so Albuterol. And...there was a steroid involved. [Caregiver #1]
Medical providers are not on the same page	Communication with some of the doctors is a bit of a problem. Like we got five different stories within an hour and we're like wait, wait, wait. Like you guys need to talk to each other... [Caregiver #4]

TABLE 1: Themes and subthemes with exemplary quotations.

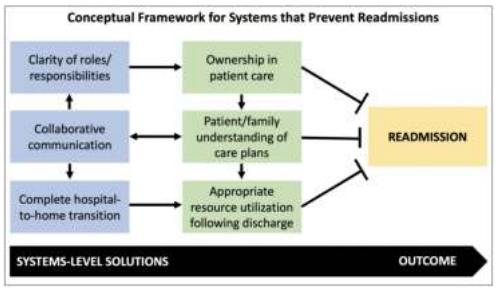

FIGURE 1: Conceptual Framework for Systems-Level Solutions that May Prevent Readmissions. Systems-level solutions (in blue) contribute to mediators (in green) to prevent readmission in pediatric patients.

IMAGE CAPTION:
TABLE 1: Themes and subthemes with exemplary quotations.

FIGURE 1: Conceptual Framework for Systems-Level Solutions that May Prevent Readmissions. Systems-level solutions (in blue) contribute to mediators (in green) to prevent readmission in pediatric patients.

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