

Supplemental Information

SUPPLEMENTAL TABLE 6 Rates of Admission and Evaluations Performed for Infants in Return Visits in the 2015 and 2017 Study Cohorts

	0–60 d of Age			61–365 d of Age		
	2015 Cohort (<i>n</i> = 561), <i>n</i> (%)	2017 Cohort (<i>n</i> = 370), <i>n</i> (%)	Percent Difference (95% CI)	2015 Cohort (<i>n</i> = 409), <i>n</i> (%)	2017 Cohort (<i>n</i> = 318), <i>n</i> (%)	Percent Difference (95% CI)
Admitted from ED	291 (51.9)	171 (46.2)	5.7 (−1.1 to 12.4)	217 (53.1)	153 (48.1)	4.9 (−2.7 to 12.5)
Clinical investigations						
ECG	57 (10.2)	38 (10.3)	−0.1 (−4.2 to 4.0)	45 (11.0)	36 (11.3)	−0.3 (−5.2 to 4.6)
EEG	43 (7.7)	28 (7.6)	0.1 (−3.5 to 3.7)	45 (11.0)	40 (12.6)	−1.6 (−6.6 to 3.4)
Radiology studies						
Head CT	24 (4.3)	14 (3.8)	0.5 (−2.3 to 3.3)	13 (3.2)	21 (6.6)	−3.4 (−6.9 to 0.1)
Brain MRI	19 (3.4)	18 (4.9)	−1.5 (−4.4 to 1.4)	15 (3.7)	20 (6.3)	−2.6 (−6.1 to 0.9)
Echocardiogram	30 (5.3)	20 (5.4)	−0.1 (−3.1 to 3.0)	24 (5.9)	16 (5.0)	0.8 (−2.8 to 4.4)
Chest radiograph	100 (17.8)	60 (16.2)	1.6 (−3.5 to 6.7)	83 (20.3)	57 (17.9)	2.4 (−3.7 to 8.4)
Abdominal sonogram	29 (5.2)	28 (7.6)	−2.4 (−5.9 to 1.1)	13 (3.2)	12 (3.8)	−0.6 (−3.6 to 2.4)
Upper gastrointestinal series	30 (5.3)	17 (4.6)	0.8 (−2.3 to 3.8)	16 (3.9)	7 (2.2)	1.7 (−1.0 to 4.5)
Laboratory studies						
Blood gas	44 (7.8)	20 (5.4)	2.4 (−1.0 to 5.9)	43 (10.5)	36 (11.3)	−0.8 (−5.7 to 4.1)
Capillary blood sugar	75 (13.4)	50 (13.5)	−0.1 (−4.8 to 4.5)	53 (13.0)	45 (14.2)	−1.2 (−6.5 to 4.1)
Complete blood count	146 (26.0)	100 (27.0)	−1.0 (−7.0 to 5.0)	106 (25.9)	94 (29.6)	−3.6 (−10.5 to 3.2)
Electrolyte studies	140 (25.0)	103 (27.8)	−2.9 (−8.9 to 3.1)	101 (24.7)	103 (32.4)	−7.7 (−14.6 to −0.8)
Hepatic function studies	81 (14.4)	63 (17.0)	−2.6 (−7.6 to 2.4)	59 (14.4)	57 (17.9)	−3.5 (−9.2 to 2.2)
CSF studies	47 (8.4)	24 (6.5)	1.9 (−1.7 to 5.5)	10 (2.4)	8 (2.5)	−0.1 (−2.4 to 2.3)
Urinalysis	77 (13.7)	69 (18.6)	−4.9 (−10.0 to 0.2)	47 (11.5)	39 (12.3)	−0.8 (−5.8 to 4.3)
Metabolic studies	35 (6.2)	23 (6.2)	0.0 (−3.2 to 3.2)	43 (10.5)	30 (9.4)	1.1 (−3.6 to 5.7)
<i>B pertussis</i> testing	4 (0.7)	2 (0.5)	0.2 (−1.0 to 1.4)	3 (0.7)	2 (0.6)	0.1 (−1.2 to 1.4)

SUPPLEMENTAL TABLE 7 Associated Diagnoses of High to Extreme Severity (PECARN DGS Severity Scores 4 and 5) in the 2015 and 2017 Study Cohorts With 30-Day Return Visits

	0–60 d of Age			61–365 d of Age		
	2015 Cohort (<i>n</i> = 561), <i>n</i> (%)	2017 Cohort (<i>n</i> = 370), <i>n</i> (%)	Percent Difference (95% CI)	2015 Cohort (<i>n</i> = 409), <i>n</i> (%)	2017 Cohort (<i>n</i> = 318), <i>n</i> (%)	Percent Difference (95% CI)
Return visits with moderate to severe acuity	146 (26.0)	88 (23.8)	2.2 (−3.6 to 8.1)	131 (32.0)	79 (24.8)	7.2 (0.3 to 14.0) ^a
Allergic, immunologic, and rheumatologic	0 (0.0)	0 (0.0)	—	0 (0.0)	0 (0.0)	—
Child abuse	1 (0.2)	0 (0.0)	0.2 (−0.3 to 0.7)	1 (0.2)	0 (0.0)	0.2 (−0.5 to 1.0)
Circulatory and cardiovascular disease	23 (4.1)	9 (2.4)	1.7 (−0.8 to 4.2)	32 (7.8)	22 (6.9)	0.9 (−3.2 to 5.0)
Eye disease	0 (0.0)	1 (0.3)	−0.3 (−1.0 to 0.5)	0 (0.0)	0 (0.0)	—
Endocrine, metabolic, and nutritional disease	14 (2.5)	4 (1.1)	1.4 (−0.5 to 3.3)	9 (2.2)	5 (1.6)	0.6 (−1.6 to 2.9)
ENT, dental, and mouth disease	10 (1.8)	2 (0.5)	1.2 (−0.3 to 2.8)	9 (2.2)	2 (0.6)	1.6 (−0.4 to 3.5)
Fluid and electrolyte disorders	6 (1.1)	7 (1.9)	−0.8 (−2.7 to 1)	8 (2.0)	4 (1.3)	0.7 (−1.4 to 2.8)
Gastrointestinal disease	5 (0.9)	2 (0.5)	0.4 (−1.0 to 1.7)	7 (1.7)	5 (1.6)	0.1 (−1.9 to 2.1)
Genital and reproductive disease	0 (0.0)	0 (0.0)	—	0 (0.0)	0 (0.0)	—
Hematologic disease	2 (0.4)	0 (0.0)	0.4 (−0.4 to 1.1)	2 (0.5)	2 (0.9)	0.5 (−2.0 to 1.1)
Musculoskeletal and connective-tissue disease	0 (0.0)	0 (0.0)	—	1 (0.2)	2 (0.6)	−0.4 (−1.7 to 0.9)
Neoplastic disease (cancer, not benign neoplasms)	0 (0.0)	0 (0.0)	—	2 (0.5)	1 (0.3)	0.2 (−0.9 to 1.3)
Neurologic disease	27 (4.8)	6 (1.6)	3.2 (0.8 to 5.6) ^a	32 (7.8)	28 (8.8)	−1.0 (−5.3 to 3.4)
Psychiatric, behavioral, and substance abuse	2 (0.4)	0 (0.0)	0.4 (−0.4 to 1.1)	4 (1.0)	0 (0.0)	1.0 (−0.3 to 2.2)
Respiratory disease	67 (11.9)	39 (10.5)	1.4 (−2.9 to 5.7)	68 (16.6)	41 (12.9)	3.7 (−1.7 to 9.2)
Skin, dermatologic, and soft-tissue disease	1 (0.2)	0 (0.0)	0.2 (−0.3 to 0.7)	0 (0.0)	0 (0.0)	—
Systemic states	14 (2.5)	14 (3.8)	−1.3 (−3.8 to 1.3)	9 (2.2)	8 (2.5)	−0.3 (−2.8 to 2.2)
Toxicological emergencies	1 (0.1)	0 (0.0)	0.2 (−0.3 to 0.7)	1 (0.2)	0 (0.0)	0.2 (−0.5 to 1.0)
Trauma	3 (0.5)	0 (0.0)	0.5 (−0.3 to 1.4)	0 (0.0)	1 (0.3)	−0.3 (−1.2 to 0.6)
Urinary tract disease	2 (0.4)	4 (1.1)	−0.7 (−2.1 to 0.7)	2 (0.5)	0 (0.0)	0.5 (−0.5 to 1.4)
Other	29 (5.2)	27 (7.3)	−2.1 (−5.6 to 1.3)	4 (1.0)	2 (0.6)	0.3 (−1.2 to 1.9)

Because patients may have >1 high-acuity diagnosis, summed numbers of individual diagnoses do not equal total patients with high-acuity diagnoses. ENT, ear, nose, and throat; —, not applicable.

^a 95% CIs do not cross 0.

SUPPLEMENTAL TABLE 8 Associated Diagnoses of High Acuity (PEGARN DGS Severity Scores 4 and 5) From Initial Visits for Infants in the 2015 and 2017 Control Cohorts

	0–60 d of Age			61–365 d of Age		
	2015 Cohort (<i>n</i> = 85 499), <i>n</i> (%)	2017 Cohort (<i>n</i> = 88 053), <i>n</i> (%)	Percentage Difference (95% CI)	2015 Cohort (<i>n</i> = 372 977), <i>n</i> (%)	2017 Cohort (<i>n</i> = 376 563), <i>n</i> (%)	Percentage Difference (95% CI)
Patients with a severe diagnosis	6565 (7.7)	6397 (7.3)	0.4 (0.2 to 0.7) ^a	15 910 (4.3)	14 604 (3.9)	0.4 (0.3 to 0.5) ^a
Allergic, immunologic, and rheumatologic	4 (0.0)	0 (0.0)	0.0 (0.0 to 0.0)	198 (0.0)	0 (0.0)	0.1 (0.0 to 0.1)
Child abuse	105 (0.1)	38 (0.0)	0.1 (0.1 to 0.1)	559 (0.1)	200 (0.1)	0.1 (0.1 to 0.1)
Circulatory and cardiovascular disease	417 (0.5)	403 (0.5)	0.0 (0.0 to 0.1)	2017 (0.5)	1793 (0.5)	0.1 (0.0 to 0.1)
Eye disease	12 (0.0)	5 (0.0)	0.0 (0.0 to 0.0)	75 (0.0)	53 (0.0)	0.0 (0.0 to 0.0)
Endocrine, metabolic, and nutritional disease	427 (0.5)	398 (0.5)	0.0 (0.0 to 0.1)	1791 (0.5)	2176 (0.6)	−0.1 (−0.1 to −0.1)
ENT, dental, and mouth disease	247 (0.3)	43 (0.0)	0.2 (0.2 to 0.3) ^a	417 (0.1)	183 (0.0)	0.1 (0.1 to 0.1) ^a
Fluid and electrolyte disorders	209 (0.1)	159 (0.2)	0.1 (0.0 to 0.1)	288 (0.1)	311 (0.1)	0.0 (0.0 to 0.0)
Gastrointestinal disease	887 (1.0)	818 (0.9)	0.1 (0.0 to 0.2)	1498 (0.4)	1621 (0.4)	0.0 (−0.1 to 0.0)
Genital and reproductive disease	21 (0.0)	17 (0.0)	0.0 (0.0 to 0.0)	15 (0.0)	5 (0.0)	0.0 (0.0 to 0.0)
Hematologic disease	107 (0.1)	123 (0.1)	0.0 (0.0 to 0.0)	232 (0.1)	229 (0.1)	0.0 (0.0 to 0.0)
Musculoskeletal and connective-tissue disease	1 (0.0)	2 (0.0)	0.0 (0.0 to 0.0)	26 (0.0)	13 (0.0)	0.0 (0.0 to 0.0)
Neoplastic disease (cancer, not benign neoplasms)	5 (0.0)	4 (0.0)	0.0 (0.0 to 0.0)	170 (0.0)	140 (0.0)	0.0 (0.0 to 0.0)
Neurologic disease	731 (0.9)	749 (0.9)	0.0 (−0.1 to 0.1)	3234 (0.9)	3175 (0.8)	0.0 (0.0 to 0.1)
Psychiatric, behavioral, and substance abuse	13 (0.0)	6 (0.0)	0.0 (0.0 to 0.0)	18 (0.0)	18 (0.0)	0.0 (0.0 to 0.0)
Respiratory disease	648 (0.8)	652 (0.7)	0.0 (−0.1 to 0.1)	2525 (0.7)	2031 (0.5)	0.1 (0.1 to 0.2) ^a
Skin, dermatologic, and soft-tissue disease	391 (0.5)	42 (0.0)	0.4 (0.4 to 0.5) ^a	5 (0.0)	2 (0.0)	0.0 (0.0 to 0.0)
Systemic states	464 (0.5)	553 (0.6)	−0.1 (−0.2 to 0.0)	1890 (0.5)	2679 (0.7)	−0.2 (−0.2 to −0.2) ^a
Toxicological emergencies	32 (0.0)	1 (0.0)	0.0 (0.0 to 0.1)	282 (0.1)	5 (0.0)	0.1 (0.1 to 0.1) ^a
Trauma	155 (0.2)	1 (0.0)	0.2 (0.2 to 0.2) ^a	863 (0.2)	4 (0.0)	0.2 (0.2 to 0.2) ^a
Urinary tract disease	100 (0.1)	111 (0.1)	0.0 (0.0 to 0.0)	536 (0.1)	526 (0.1)	0.0 (0.0 to 0.0)
Other	2118 (2.5)	2742 (3.1)	−0.6 (−0.8 to −0.5) ^a	473 (0.1)	442 (0.1)	0.0 (0.0 to 0.0)

Because patients may have >1 high-acuity diagnosis, summed numbers of individual diagnoses do not equal total patients with high-acuity diagnoses. ENT, ear, nose, and throat.
^a 95% CIs do not cross 0.

SUPPLEMENTAL TABLE 9 Rates of Admissions, Diagnostic Testing, and Revisits in the Control Cohort When Comparing Patients in Encounters From 2015 and 2017

	All Patients ≤365 d of Age		Percent Difference (95% CI)
	2015 (n = 458 476), n (%)	2017 (n = 464 616), n (%)	
Admitted from ED	23 853 (5.2)	25 572 (5.5)	-0.3 (-0.4 to -0.2) ^a
Clinical investigations			
ECG	4 193 (0.9)	4 601 (1.0)	0.1 (0.0 to 0.1)
EEG	1 836 (0.4)	2 149 (0.5)	0.1 (0.0 to 0.1)
Radiology studies			
Head CT	7 959 (1.7)	8 195 (1.8)	0.0 (0.0 to 0.1)
Brain MRI	903 (0.2)	1 217 (0.3)	0.1 (0.0 to 0.1)
Echocardiogram	874 (0.2)	955 (0.2)	0.0 (0.0 to 0.0)
Chest radiograph	42 864 (9.3)	39 050 (8.4)	-0.9 (-1.1 to -0.8) ^a
Abdominal sonogram	13 141 (2.9)	15 297 (3.3)	0.4 (0.4 to 0.5) ^a
Upper gastrointestinal series	930 (0.2)	1 008 (0.2)	0.1 (0.1 to 0.1) ^a
Laboratory studies			
Blood gas	2 821 (0.6)	3 340 (0.7)	0.1 (0.1 to 0.1) ^a
Capillary blood sugar	12 258 (2.7)	13 555 (2.9)	0.2 (0.2 to 0.3) ^a
Complete blood count	44 056 (9.6)	43 996 (9.5)	-0.1 (-0.3 to 0.0)
Electrolyte studies	34 755 (7.6)	36 899 (7.9)	0.4 (0.3 to 0.5) ^a
Hepatic function studies	20 053 (4.4)	22 419 (4.8)	0.5 (0.4 to 0.5) ^a
CSF studies	4 246 (0.9)	3 622 (0.8)	-0.1 (-0.2 to -0.1) ^a
Urinalysis	48 973 (10.7)	48 966 (10.5)	-0.1 (-0.3 to 0.0)
Metabolic studies	2 675 (0.6)	2 989 (0.6)	0.1 (0.0 to 0.1)
<i>B pertussis</i> testing	6 784 (1.5)	6 206 (1.3)	-0.1 (-0.2 to -0.1) ^a
Revisits			
3-d revisits	29 680 (6.5)	28 146 (6.1)	-0.4 (-0.5 to -0.3) ^a
7-d revisits	43 138 (9.4)	42 122 (9.1)	-0.3 (-0.5 to -0.2) ^a
30-d revisits	97 444 (10.6)	98 263 (10.6)	-0.1 (-0.3 to 0.1)

^a 95% CIs do not cross 0.

SUPPLEMENTAL TABLE 10 Intercepts for Each Covariate of Interest (Year [2015 or 2017], Presence of an ALTE or BRUE Diagnosis, and Interaction Effect Between Year and ALTE or BRUE Diagnosis) in Multivariable Models for Each Outcome of Interest

Outcome of Interest	Model Intercepts		
	Year (Referent: 2015)	ALTE or BRUE Diagnosis (Referent: no ALTE or BRUE)	Interaction Effect of Year and Diagnosis
Admitted from ED	0.06*	5.08*	-0.57*
Clinical investigations			
ECG	0.08*	4.19*	-0.00
EEG	0.14*	3.53*	-0.49*
Radiology studies			
Head CT	0.02	1.57*	-0.33*
Brain MRI	0.29*	3.00*	-0.70*
Echocardiogram	0.08	4.32*	-0.12
Chest radiograph	-0.12*	2.14*	-0.29*
Abdominal sonogram	0.14*	0.17	-0.14
Upper gastrointestinal series	0.07	3.01*	-0.78*
Blood gas	0.16*	3.09*	-0.42*
Capillary blood sugar	0.09*	2.39*	-0.33*
Complete blood count	-0.02*	2.19*	-0.43*
Electrolyte studies	0.05*	2.36*	-0.39*
Hepatic function studies	0.10*	2.36*	-0.30*
CSF studies	-0.17*	3.08*	-0.25*
Urinalysis	-0.02*	1.23*	-0.35*
Metabolic studies	0.10*	2.78*	-0.43*
<i>B pertussis</i> testing	-0.10*	-0.83*	0.05
Revisits			
3-d revisits	-0.07*	-0.23*	-0.28*
7-d revisits	-0.04*	-0.19*	-0.15
30-d revisits	-0.01	-0.25*	-0.07

* $P < .05$ in the multivariable model.

SUPPLEMENTAL TABLE 11 Control ITSAs of Weekly Admission Rates for all ED Encounters Without a Diagnosis of BRUE Before and After Clinical Practice Guideline Publication

	Estimate (95% CI)	<i>P</i>
Infants 0–60 d of age		
Intercept (β_0)	0.090 (0.085 to 0.095)	.000
Baseline trend (β_1)	0.000 (–0.001 to 0.001)	.896
Level change after CPG (β_2)	–0.002 (–0.009 to 0.004)	.528
Trend change after CPG (β_3)	0.000 (0.000 to 0.000)	.053
Postintervention linear trend	0.000 (0.000 to 0.000)	<.001
Infants 61–365 d of age		
Intercept (β_0)	0.044 (0.042 to 0.046)	<.001
Baseline trend (β_1)	0.000 (0.000 to 0.000)	.674
Level change after CPG (β_2)	–0.001 (–0.003 to 0.001)	.239
Trend change after CPG (β_3)	0.000 (0.000 to 0.000)	.016
Postintervention linear trend	0.000 (0.000 to 0.000)	<.001

CPG, clinical practice guideline.