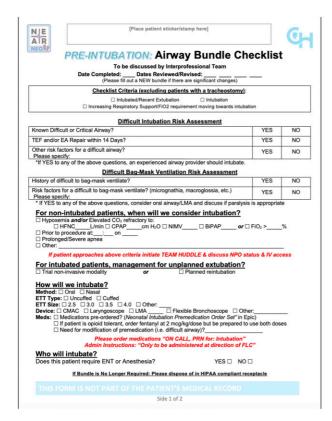
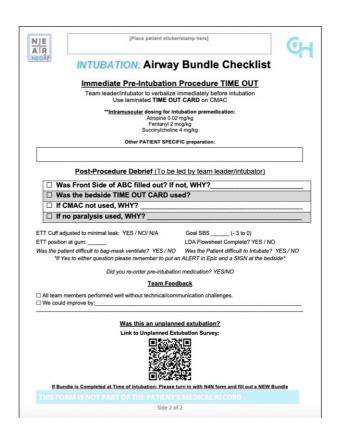
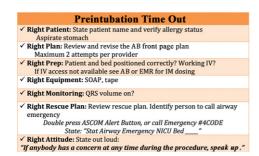
Supplemental Information





SUPPLEMENTAL FIGURE 9

Airway Bundle. BiPAP, bilevel positive airway pressure; CPAP, continuous positive airway pressure; EA, esophageal atresia; ENT, otolarngology; ETT, endotracheal tube; FiO2, fraction of inspired oxygen; HFNC, high-flow nasal cannula; LMA, laryngeal mask airway; NIMV, nasal intermittent mandatory ventilation; SBS, state behavioral scale; TEF, tracheoesophageal fistula.



SUPPLEMENTAL FIGURE 10

Time out card. IM, intramuscular; SOAP, suction, oxygen, airway, personnel.

SUPPLEMENTAL TABLE 3 Patient Characteristics by 12 Month Time Epoch

Patient Characteristics	November 2016-October 2017, n = 344	November 2017–October 2018, $n = 276$	November 2018–October 2019, $n = 323$	November 2019—August 2020, a $n = 239$	Р
Birth GA, median (IQR), wk	32 (26–36)	32 (26–37)	30 (25–37)	28 (25–36)	.06
Birth wt, median (IQR), g	1705 (750-2660)	1500 (790-2725)	1330 (730–2560)	1240 (680-2500)	.09
Day of life at intubation, median (IQR)	57 (18.5–110.5)	42.5 (13-88.5)	49 (20-89)	45 (14–99)	.11
Corrected GA at time of intubation, median (IQR), wk	40 (35–46)	39 (35–42) ^b	39 (34–44) ^b	38 (32–44) ^b	.03
Wt at intubation, median (IQR), g	3100 (2000-4200)	2900 (2000-3600)	2800 (1800-3800)	2900 (1600-3800)	.09
Male sex, n (%)	217 (63)	185 (67)	202 (63)	139 (58)	.43
Diagnoses, ^c n (%)					
Chronic respiratory failure	122 (35)	96 (35)	109 (34)	79 (33)	.93
Acute respiratory failure	104 (30)	83 (30)	95 (29)	74 (31)	.98
Congenital anomaly requiring surgery	71 (21)	47 (17)	60 (19)	52 (22)	.51
Neurologic impairment (HIE, seizure, stroke)	32 (9)	21 (8)	29 (9)	30 (13)	.28
Congenital heart disease (excluding isolated PDA)	32 (9)	19 (7)	29 (9)	26 (11)	.46
Airway or craniofacial anomaly	35 (10)	26 (9)	22 (7)	18 (8)	.39
Surgery or procedure for acquired disorder	4 (1)	18 (7) ^b	37 (11) ^{b,d}	33 (14) ^{b,d}	<.001
Sepsis	17 (5)	13 (5)	15 (5)	7 (3)	.66
Indication for intubation, c n (%)					
Ventilation failure	103 (30)	75 (27)	104 (32)	63 (26)	.34
Reintubation after unplanned extubation	36 (10)	48 (17) ^b	59 (18) ^b	50 (21) ^b	.004
Intubation for procedure	54 (16)	32 (12)	36 (11)	28 (12)	.26
Oxygenation failure	44 (13)	32 (12)	34 (11)	38 (16)	.27
Frequent apnea or bradycardia events	23 (7)	24 (9)	29 (9)	20 (8)	.70
Upper airway obstruction	12 (3)	9 (3)	11 (3)	9 (4)	.99
Unstable hemodynamics	10 (3)	7 (3)	2 (1)	5 (2)	.13
Other indication	10 (3)	$0_{\rm p}$	5 (2)	3 (1)	.02
Surfactant administration	6 (2)	5 (2)	2 (1)	3 (1)	.52
Difficult airway, n (%)					
Difficult airway features ^e	98 (28)	85 (31)	79 (24)	82 (34)	.07
History of difficult airway	37 (11)	50 (18) ^b	52 (16) ^b	45 (19) ^b	.02

GA, gestational age; HIE, hypoxemic-ischemic encephalopathy; IQR, interquartile range; PDA, patent ductus arteriosus.

^a Only includes 10 mo.

b Statistically significant compared with November 2016–0ctober 2017 epoch.

 $^{^{\}rm c}$ >1 diagnosis or indication could be selected. Indications occurring in <1% of the population are not reported.

^d Statistically significant compared with November 2017–October 2018 epoch.

e Defined as presence of any of the following: a known previous history of difficult airway, upper airway obstruction, limited mouth opening, limited neck extension, micrognathia, midfacial hypoplasia, cleft palate and a short thyromental distance (per NEAR4NEOS definitions).