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Methods

We used hospital chargemaster records from Premier Healthcare Database, a geographically diverse dataset representing ~25% of U.S. inpatient encounters, to identify pediatric hospitalizations (<18 years) with ATc use between January 1, 2016 and November 30, 2025. ATc use was characterized descriptively, including ICD-10-based procedural context and underlying clinical diagnoses. AHA survey weights were applied to generate national utilization estimates.

Results

A total of 232 pediatric patients received ATc during an inpatient hospitalization between January 2016 and November 2025, of whom 5% had hATD. Overall, the cohort predominantly encompassed neonates and infants (73.7%), with most admissions occurring on an emergent, urgent, or newborn basis (83.2%), and treated in large (≥500 beds), urban, teaching hospitals (67.7%, 99.6%, and 85.3%, respectively). The most commonly observed associated conditions were congenital cardiac disease (67.7%), respiratory failure/pulmonary disease (58.2%), and neonatal/perinatal conditions (51.3%). ATc use did not coincide with a procedure on the same day in 37.5% of hospitalizations; overall, respiratory support (75.4%), ECMO (50.9%), and cardiac surgery (48.3%) were the most frequently observed procedures among ATc-associated hospitalizations. Using AHA weights, we estimated 740 pediatric ATc hospitalizations nationally. The majority occurred in neonates/infants (73.4%), and annual weighted utilization ranged from 6.9% in 2023 to 14.2% in 2018, with 94.4% involving ICU- level care.

Conclusions

Pediatric ATc use was rare and predominantly observed among neonates and infants with substantial clinical complexity, often driven by congenital cardiac disease and major cardiopulmonary interventions, where AT depletion and heightened consumption contribute to coagulopathy. Following recent label updates, these findings provide timely real-world context and inform ongoing evaluation of ATc use in pediatric populations.

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PB2247

Multicenter Validation of a Pediatric Hospital-Wide Venous Thromboembolism Risk Assessment Model: A Children's Healthcare Advancements in Thrombosis (CHAT) Study

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Background

Hospital-associated venous thromboembolism (HA-VTE) is one of the most serious and potentially preventable complications in hospitalized children. Despite pediatric HA-VTE rates increasing, prevention and treatment strategies are primarily extrapolated from adult data but the safety and efficacy of this approach are unknown. A critical component of necessary future thromboprophylaxis trials in children is selection of participants at elevated baseline HA-VTE risk. Pediatric-specific validated HA-VTE risk assessment models (RAMs) are therefore urgently needed to tailor prevention measures to those most in need. To identify which children are at the highest risk of developing a HA-VTE, the Children's Healthcare Advancements in Thrombosis (CHAT) Consortium previously developed a multi-institutional risk model consisting of 11 clinical variables present at hospital admission (CHAT HA-VTE RAM).

Aims

To externally validate the CHAT HA-VTE RAM.

Methods

This was a multicenter case–control external validation study conducted at 13 CHAT centers between August 2022 and July 2025. Children aged 0–21 years admitted to any hospital unit were eligible. All incident HA-VTE cases were consecutively identified at each site until an enrollment target of 10–20 cases was reached. For each case, two hospitalized controls without HA-VTE were randomly selected from the same institution within ±30 days of the case's hospitalization. Multiple imputation via fully conditional specification was used to address missing data. Discrimination was assessed using the area under the receiver operating characteristic (AUROC) curve. Calibration was evaluated using decile-based calibration plots.

Results

Sites enrolled 213 HA-VTE cases and 415 non-HA-VTE controls. Demographics and RAM variables are presented in Table 1. Complete-case validation included 106 HA-VTE cases and 207 controls, yielding an AUROC of 0.82 (95% CI: 0.77–0.87) (Figure 1a). The imputed cohort included 213 cases and 415 controls with an AUROC of 0.80 (95% CI: 0.79–0.81) (figure 1b). Calibration assessment demonstrated systematic miscalibration, consistent with differences in baseline HA-VTE risk across participating institutions.

Conclusions

This work from CHAT represents the largest, multicenter derivation and external validation of a HA-VTE RAM in children admitted hospital-wide. While discrimination was strong, calibration findings highlight the anticipated need for site-level recalibration prior to clinical implementation.

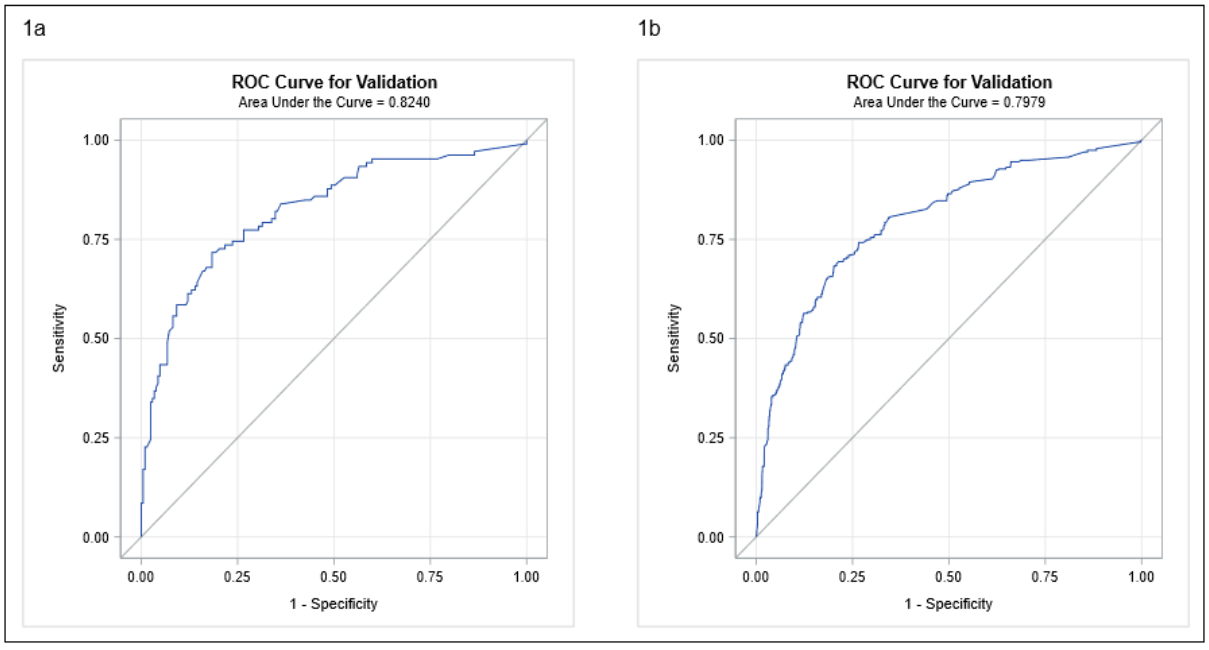
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Table 1. Patient characteristics and RAM variables.

Characteristics		Controls (n=415)	Cases (n=213)	Total (n=628)	p
Age, years median (IQR)		5.7 (0.5, 13.1)	2.0 (0.1, 12.6)	4.3 (0.3, 13.1)	0.11
Sex, n (%)	Female	203 (48.9)	95 (44.6)	298 (47.5)	0.31
	Male	212 (51.1)	118 (55.4)	330 (52.6)	
Ethnicity, n (%)	Hispanic	137 (33.7)	68 (33.3)	205 (33.6)	0.94
	Non-Hispanic	270 (66.3)	136 (66.7)	406 (66.5)	
Race, n (%)	White	240 (60.0)	121 (58.2)	361 (59.4)	0.076
	Black or African American	67 (16.8)	29 (13.9)	96 (15.8)	
	Asian	14 (3.5)	8 (3.9)	22 (3.6)	
	Native Hawaiian or Pacific Islander	1 (0.3)	2 (1.0)	3 (0.5)	
	American Indian or Native Alaska	0 (0)	4 (1.9)	4 (0.7)	
	Other	78 (19.5)	44 (21.2)	122 (20.1)	
CHAT-VTE RAM Variables					
Age at admission, (years) n (%)	Less than 1 year	125 (30.2)	95 (44.8)	220 (35.1)	0.0003
	1 year-to-10 years	143 (34.5)	46 (21.7)	189 (30.2)	
	10 years or greater	146 (35.3)	71 (33.5)	217 (34.7)	
Past/current cancer, n (%)	None	373 (89.9)	195 (91.6)	568 (90.5)	0.08
	Hematology cancer	9 (2.2)	9 (4.2)	18 (2.9)	
	Non-hematology cancer	33 (8.0)	9 (4.2)	42 (6.7)	
Congenital heart disease, n (%)		36 (8.7)	48 (22.5)	84 (13.4)	<.0001
Other high risk medical conditions*, n (%)		50 (12.1)	39 (18.3)	89 (14.2)	0.033
Recent hospitalization, n (%)		70 (16.9)	61 (28.6)	131 (20.9)	0.001
Mobility on day of admission, n (%)	No limitation	128 (61.5)	27 (25.5)	155 (49.4)	<.0001
	Limited/slightly limited	67 (32.2)	49 (46.2)	116 (36.9)	
	Very limited	9 (4.3)	7 (6.6)	16 (5.1)	
	Completely limited	4 (1.9)	23 (21.7)	27 (8.6)	
Platelet count on day of admission	<350K or not tested	367 (88.4)	166 (77.9)	533 (84.9)	0.001
	≥350k	48 (11.6)	47 (22.1)	95 (15.1)	
Central venous catheter (CVC) prior to admit, n (%)		21 (5.1)	25 (11.7)	46 (7.3)	0.002
Recent surgery, n (%)		62 (14.9)	66 (31.0)	128 (20.4)	<.0001
Steroids on day of admission, n (%)		66 (15.9)	34 (16.0)	100 (15.9)	0.98
CVC and mechanical ventilation on admission, n (%)	None	335 (80.7)	75 (35.2)	410 (65.3)	<.0001
	CVC only	5 (1.2)	15 (7.0)	20 (3.2)	
	Mechanical ventilation only	63 (15.2)	72 (33.8)	135 (21.5)	
	CVC and mechanical ventilation	12 (2.9)	51 (23.9)	63 (10.0)	

*High risk conditions: Inflammatory/autoimmune disease, blood-related disorder, protein-losing state, total parenteral nutrition dependence, thrombophilia/history of VTE

Figure 1. AUROC curve of the validated models.



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