



Complications, Consequences, and Practice Patterns of Endobronchial Ultrasound-Guided Transbronchial Needle Aspiration

Results of the AQuIRE Registry

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e-Appendix 1.

IRB APPROVAL DATA:

Note: Some Institutional Review Boards do not review Quality Improvement Registries. The AQuIRE Registry is an example of such a prospectively collected, de-identified quality improvement database.

Institution	IRB Name	Protocol Approval Number
U.T. MD Anderson Cancer Center	MDACC IRB 4	DR09-0101
Johns Hopkins University	JHM-IRB X	NA_00049720
Kaiser Permanente Northwest	KPNW IRB	Pro00001301
Henry Ford Hospital	HFH IRB	D4054
Chicago Chest Center	ABMC and CDH IRB	Exempt
Beth Israel Deaconess Medical Center	BIDMC IRB	Exempt

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e-Table 1—Outcomes by Hospital

Outcome	Hospital						
	No. (%)						
	A (n = 201)	B (n = 88)	C (n = 153)	D (n = 570)	E (n = 213)	F (n = 92)	Total (N = 1,317)
Complications*[†]							
No	200 (99.5)	86 (97.73)	150 (98.04)	563 (98.77)	210 (98.59)	89 (96.74)	1298
Yes	1 (0.50)	2 (2.27)	3 (1.96)	7 (1.23)	3 (1.41)	3 (3.26)	19 (1.44)
Escalation in care[‡]							
No	200 (99.50)	88 (100)	153 (100)	564 (98.95)	210 (98.59)	88 (95.66)	1,303 (98.94)
Yes	1 (0.49)	0 (0)	0 (0)	6 (1.05)	3 (1.41)	4 (4.35)	14 (1.06)

* Any complication occurring within 24 hours. [†]Fisher exact $P = 0.37$. [‡]Fisher exact $P = 0.07$.



e-Table 2—Multivariate Hierarchical Logistic Regression Models

Outcome and Covariates	OR	95% CI	<i>P</i> Value
Outcome: 24-h morbidity			
Transbronchial biopsy: yes vs no	2.85	0.75-10.3	0.09
Outcome: 24-h pneumothorax			
Transbronchial biopsy: yes vs no	15.49	1.79-134.42	0.022
Outcome: escalation in level of care			
Age: > 70 y vs ≤ 70 y	3.75	0.89-15.85	0.06
Service: inpatient vs outpatient	4.71	0.76-29.16	0.08
Anesthesia type: deep sedation or general anesthesia vs moderate sedation	5.85	0.59-57.9	0.10

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e-Table 3—ROSE and Transbronchial Biopsy Utilization by Hospital

Practice Pattern	Hospital*						Total (n = 1,317)
	A (n = 201)	B (n = 88)	C (n = 153)	D (n = 570)	E (n = 213)	F (n = 92)	
ROSE*							
No	198 (98.5)	9 (10.2)	20 (13.1)	0 (0)	9 (4.2)	83 (90.2)	319 (24.2)
Yes	3 (1.5)	79 (89.8)	133 (86.9)	570 (100)	204 (95.8)	9 (9.8)	998 (75.8)
Transbronchial biopsy*							
No	168 (83.6)	61 (69.3)	88 (57.5)	545 (95.6)	184 (86.4)	84 (91.3)	1,130 (85.8)
Yes	33 (16.4)	27 (30.7)	65 (42.5)	25 (4.4)	29 (13.6)	8 (8.7)	187 (14.2)

ROSE = rapid on-site cytologic evaluation

*Fisher exact $P < 0.001$.



e-Table 4—Utilization of Transbronchial Biopsy by Hospital when Rapid Onsite Cytologic Evaluation Was Used

Hospital	EBUS-TBNA no specific diagnosis made*		EBUS-TBNA specific diagnosis made [†]	
	TBBx performed No. (%)	No TBBx No. (%)	TBBx performed No. (%)	No TBBx No. (%)
A	1 (50)	1 (50)	0 (0)	1 (100)
B	17 (40)	26 (60)	5 (14)	31 (86)
C	35 (45)	42 (55)	18 (32)	38 (68)
D	16 (6)	248 (94)	9 (3)	297 (97)
E	24 (26)	68 (74)	1 (1)	111 (99)
F	0 (0)	3 (100)	0 (0)	6 (100)
Total	93 (19)	388 (81)	33 (6)	484 (94)

EBUS-TBNA = endobronchial ultrasound-guided transbronchial needle aspiration; TBBx = transbronchial biopsy.

*Fisher exact $P < 0.001$ comparison for between hospital differences in use of TBBx when no specific diagnosis was made by EBUS-TBNA.

[†] $P < 0.001$ comparison for between hospital differences in use of TBBx when a specific diagnosis was made by EBUS-TBNA.



e-Table 5. Utilization of Transbronchial Biopsy by Hospital when Rapid Onsite Cytologic Evaluation Was not Used

Hospital*	EBUS-TBNA no specific diagnosis made [†]		EBUS-TBNA specific diagnosis made [‡]	
	TBBx performed No. (%)	No TBBx No. (%)	TBBx performed No. (%)	No TBBx No. (%)
A	17 (18)	80 (82)	15 (15)	86 (85)
B	2 (33)	4 (67)	1 (33)	2 (67)
C	5 (36)	9 (64)	3 (50)	3 (50)
E	4 (50)	4 (50)	0 (0)	1 (100)
F	5 (11)	40 (89)	3 (8)	35 (92)
Total	39 (23)	131 (77)	22 (15)	127 (85)

EBUS-TBNA = endobronchial ultrasound-guided transbronchial needle aspiration; TBBx = transbronchial biopsy.

*Hospital D performed all procedures with rapid onsite evaluation so they are not included here.

[†]Fisher exact $P < 0.001$ comparison for between hospital differences in use of TBBx when no specific diagnosis was made by EBUS-TBNA.

[‡]Fisher exact for sites with more than 5 cases $P < 0.001$ comparison for between hospital differences in use of TBBx when a specific diagnosis was made by EBUS-TBNA.