

“We undertook this multicenter study to estimate the incidence of immediate catheter-related pneumothorax in community EDs and to determine associations with site of access, failed access, and positive pressure ventilation” Vinson et al (2014).

Reference:

Vinson, D.R., Ballard, D.W., Hance, L.G., Stevenson, M.D., Clague, V.A., Rauchwerger, A.S., Reed, M.E. and Mark, D.G. (2014) Pneumothorax is a rare complication of thoracic central venous catheterization in community EDs. The American Journal of Emergency Medicine. October 18th. .

Incidence of pneumothorax following central venous catheterization [#ivteam](http://ctt.ec/z7t2F+@ivteam)

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Abstract:

**STUDY OBJECTIVES:** The rate of iatrogenic pneumothorax associated with thoracic central venous catheterization in community emergency departments (EDs) is poorly described, although such information is vital to inform the procedure’s risk/benefit analysis. We undertook this multicenter study to estimate the incidence of immediate catheter-related pneumothorax in community EDs and to determine associations with site of access, failed access, and positive pressure ventilation.

**METHODS:** This was a secondary analysis of 2 retrospective cohort studies of adults who underwent attempted thoracic central venous catheterization in 1 of 21 EDs. Pneumothorax was identified by postprocedural anteroposterior chest radiograph or emergent evacuation for presumed tension pneumothorax. Frequencies were compared using Fisher’s exact test.

**RESULTS:** Among 1249 patient encounters, the initial vein of catheterization was internal jugular in 1054 cases (84.4%) and subclavian in 195 cases (15.6%). Success at the initial internal jugular vein was more common than at the initial subclavian vein (95.4% vs 83.6%,  $P < .001$ ). Periprocedural positive pressure ventilation was administered in 316 patients (25.3%). We identified 6 pneumothoraces (0.5%; 95% confidence interval, 0.2%-1.1%). The incidence of pneumothorax was higher with the subclavian vein than the internal jugular vein (2.3% vs 0.1%,  $P < .001$ ), with failed access at the initial vein (2.5% vs 0.3%,  $P = .05$ ), and among patients receiving positive pressure ventilation (1.6% vs 0.1%,  $P < .01$ ).



CONCLUSION: The incidence of pneumothorax from thoracic central venous catheterization in community EDs is low. The risk of pneumothorax is higher with a subclavian vein approach, failed access at the initial vein, and positive pressure ventilation.

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