

## Citation

Spitellie PH, Bowdle TA, Posner KL, Cheney FW, Domino KB: Injuries from Central Lines: A Closed Claims Analysis. *Anesthesiology*, 96: A1124, 2002.

## Abstract

### Summary

To assess patterns of injury and liability associated with central venous or pulmonary artery catheters, we analyzed claims for central line injuries in the ASA Closed Claims Project. These claims had a greater severity of injury but similar payment to claims for other injuries. Half of the central line claims were related to venous access and half to catheter use or maintenance. Use/maintenance claims were less common in the 1990s.

### Introduction

To assess patterns of injury and liability associated with central venous or pulmonary artery catheters, we analyzed claims for central line injuries in the American Society of Anesthesiologists Closed Claims Project. This database is a standardized collection of case summaries derived from the closed claims files of 35 professional liability insurance companies in the US.

### Methods

All claims for which a central line was the primary damaging event for the injury were compared to the rest of the claims in the database. Statistical analysis was performed using the Chi Square test or Fisher Exact test (proportions) and the Kolmogorov-Smirnov Test (payments).

### Results

There were 83 claims for injuries arising from central lines (1.5% of 5,475 claims) in the database. There was a lower proportion of temporary/non-disabling injuries (41%) and higher proportion of death (46%) in the central line claims compared to other claims (50% temporary/non-disabling and 30% death,  $p < 0.01$ ). The proportion of substandard care (35%), payment made (66%), and payment amount (median of \$75,000, range \$430 to \$2,700,000) in central line claims were not different than in other claims in the database. Half of the central line claims were related to venous access (carotid artery injury, other vessel injury, pneumothorax) and half were related to catheter use or maintenance (catheter/wire embolus, pericardial tamponade, fluid extravasation, air embolism, pulmonary artery rupture) (Table). Pericardial tamponade and pulmonary artery rupture had a higher proportion of death ( $p < 0.05$ ) and catheter/wire embolus and pneumothorax had a lower proportion of death ( $p < 0.05$ ) compared to the rest of the central line injuries. Claims for injuries due to catheter use or maintenance were less common in the 1990s compared to earlier decades ( $p < 0.001$ ).

## Conclusions

Claims for central line injuries had a greater severity of injury, but similar payment, compared to claims for other injuries. Half of the central line claims were related to venous access and half were related to catheter use or maintenance. Use/maintenance claims were less common in the 1990s.

## Table

Summary of severity of injury and payment in central line claims

Type of Central Line Injury	n	Death (%)	Payment (%)	Median Payment
<b>Venous Access</b>	<b>41</b>			
Carotid artery injury	14	36%	55%	\$60,000
Vessel (non-carotid, non-PA rupture) injury	18	61%	69%	\$75,000
Pneumothorax	9	11%*	38%	\$125,000
<b>Catheter Use/Maintenance</b>	<b>41</b>			
Catheter/wire embolus	12	0%*	83%	\$17,000
Pericardial tamponade	12	83%*	67%	\$120,000
Fluid extravasation	9	44%	86%	\$115,625
Air embolism	4	75%	100%	\$387,500
Pulmonary artery rupture	4	100%*	33%	\$30,000

\*  $p < 0.05$  compared to rest of central line injuries

*A copy of the full text can be obtained from the American Society of Anesthesiologists, 520 N. Northwest Highway, Park Ridge, Illinois 60068-2573. Reprinted with permission of [Lippincott Williams & Wilkins](#).*