The Anesthesia Closed Claims Project

Karen Posner, PhD

Research Professor of Anesthesiology and Pain Medicine Laura Cheney Professor in Anesthesia Patient Safety University of Washington, Seattle, WA

Project Manager, Anesthesia Closed Claims Project

Disclosures

Sources of Funding

- Anesthesia Quality Institute
- American Society of Anesthesiologists
- Society for Anesthesia and Sleep Medicine
- Laura Cheney Endowment in Anesthesia Patient Safety
- Department of Anesthesiology & Pain Medicine, University of Washington

Trends in Death & Permanent Brain Damage



Outline

- Brief history and introduction to the Anesthesia Closed Claims Project
- Trends in anesthesia malpractice claims
 - Death/brain damage and respiratory events
 - Chronic pain management
 - Burns and OR fires
- Other topics
- Conclusions

Anesthesia Closed Claims Project: How It All Started

1980's malpractice crisis:

- Insurance difficult to obtain
- Expensive:
 - > \$41,000 (in 2015 dollars)

Anesthesia Closed Claims Project: How It All Started

- 1985: ASA assigns project to the Committee on Professional Liability
- F.W. Cheney, M.D., Committee Chair
- Faculty at the Department of Anesthesiology, University of Washington, Seattle



Ellison "Jeep" Pierce, ASA President



Fred Cheney, Chair, ASA Committee on Professional Liability

ASA Closed Claims Project Objectives

Closed anesthesia malpractice claims:

- Identify causes of anesthesia-related patient injury
- Identify liability risk patterns
- Improve patient safety

ASA Closed Claims Project: Data Collection

- Malpractice insurance companies provide access to claims
- ASA member anesthesiologists volunteer to review claims
- Database grows by ~250 claims/yr
- Current database = 10,546 claims

Anesthesia Closed Claims Project

- 35 insurers
- 20 in active panel
- Insure 13,000+ anesthesiologists
- Organizations cover ~30% of practicing anesthesiologists in the U.S.



Utility of Closed Claims Data

- Study of rare serious outcomes
- Collection of sentinel events

Sentinel Events Associated with Anesthesia

| | # Claims |
|--------------------------------|----------|
| Permanent brain damage | 1,035 |
| Spinal cord injury | 694 |
| Airway injury | 671 |
| Difficult intubation | 530 |
| Aspiration of gastric contents | 258 |
| Central venous catheter injury | 220 |

Anesthesia Closed Claims N=10,546

Utility of Closed Claims Data

- Study of rare serious outcomes
- Collection of sentinel events
- Identify areas of recurrent risk
- Provide direction for in-depth analysis
- Snapshot of anesthesia liability

Most Common Complications 2000 or later



Malpractice Claims Data: Limitations and Bias

- No denominator for calculating risk
- Small subset of injuries
- More severe, permanent injuries
- More substandard anesthesia care



How Have the Data Been Used?

- Support ASA Standards of Practice
 - Pulse Oximetry for all anesthetics: 1990
 - End tidal CO₂ for verification of endotracheal intubation: 1991
 - Pulse oximetry in PACU: 1992
- Support for ASA Practice Guidelines
 - Guidelines for Management of the Difficult Airway: 1993
 - Practice Advisory for the Prevention of Perioperative Peripheral Neuropathies: 2000
- Stimulate Research to Improve Patient Safety

How Have the Data Been Used?

- Support ASA Standards of Practice
 - Pulse Oximetry for all anesthetics: 1990
 - End tidal CO₂ for verification of endotracheal intubation: 1991
 - Pulse oximetry in PACU: 1992





Endotracheal Intubation



The Airway vs. The Esophagus



Esophageal Intubation Claims in Year



How Have the Data Been Used?

- Support ASA Standards of Practice
 - Pulse Oximetry for all anesthetics: 1990
 - End tidal CO₂ for verification of endotracheal intubation: 1991
 - Pulse oximetry in PACU: 1992
 - EARLY RESULTS IMPROVED PATIENT SAFETY:
 - ✓ REDUCTION IN RESPIRATORY EVENTS ASSOCIATED WITH DEATH AND BRAIN DAMAGE

Trends in Death/Permanent Brain Damage and Respiratory Events



Types of Anesthesia Management 2000 or later



Trends in Chronic Pain Over Time



N=10,546



Outcomes in Chronic Pain Claims by Decade



Treatment Trends in Chronic Pain Claims



*p<0.01

Centers for Disease Control and Prevention.

CDC 24/7: Saving Lives, Protecting People

Drug overdose deaths in the United States hit record numbers in 2014

- The majority of drug overdose deaths (more than six out of ten) involve an opioid.
- From 2000 to 2014 nearly half a million people died from drug overdoses.
- 78 Americans die every day from an opioid overdose.
- Overdoses from prescription opioid pain relievers are a driving factor in the 15-year increase in opioid overdose deaths.



prescription opioid.

Copyright © 2010, the American Society of Anesthesiologists, Inc. Lippincott Williams & Wilkins

Malpractice Claims Associated with Medication Management for Chronic Pain

Dermot R. Fitzgibbon, M.D.,* James P. Rathmell, M.D., + Edward Michna, M.D., + Linda S. Stephens, Ph.D., & Karen L. Posner, Ph.D., Karen B. Domino, M.D., M.P.H.#

What We Already know about This Topic

Opioid prescribing is common in chronic pain management, yet legal claims relating to such prescribing by anesthesiologists have not been reviewed.

Outcomes in Medication Management Claims



Fitzgibbon et al.: Anesthesiology 2010; 112:948-56

Medication Management for Chronic Pain (n=51)

| | <u>n (%)</u> |
|----------------------------------|--------------|
| Male | 29 (57%) |
| At least one risk factor | 41 (80%) |
| Depression | 23 (45%) |
| Drug or alcohol problems | 18 (35%) |
| Inappropriate MD management only | 7 (14%) |
| Patient compliance | 12 (24%) |
| Both physician and patient | 23 (45%) |

Fitzgibbon et al.: Anesthesiology 2010; 112:948-56

Issues in Medication Management (n=51)



45%

Fitzgibbon et al.: Anesthesiology 2010; 112:948-56

Copyright @ 2010, the American Society of Anesthesiologists, Inc. Uppincott Williams & Wilkins

Malpractice Claims Associated with Medication Management for Chronic Pain

Dermot R. Fitzgibbon, M.D.,* James P. Rathmell, M.D., + Edward Michna, M.D., + Linda S. Stephens, Ph.D., & Karen L. Posner, Ph.D., Karen B. Domino, M.D., M.P.H.#

What We Already know about This Topic

- Opioid prescribing is common in chronic pain management, yet legal claims relating to such prescribing by anesthesiologists have not been reviewed.
 <u>What This Article Tells Us That Is New</u>
- In a review of the American Society of Anesthesiologists Closed Claims Database from 2005-2008, medication management represented 17% of claims in chronic pain
- Malpractice claims in this area involved opioid prescribing, especially in young men with back pain, were commonly associated with patient and physician contribution, and often involved death

Types of Anesthesia Management 2000 or later



Closed Claims Project N=10,546

Burns from Warming Devices in Anesthesia

A Closed Claims Analysis

F.W. Cheney, M.D., K.L. Posner, Ph.D., R.A. Caplan, M.D., W.M. Gild, M.B., Ch.B., J.D.

Anesthesiology 80:806–810, 1994 © 1994 American Society of Anesthesiologists, Inc. J. B. Lippincott Company, Philadelphia

- Maintenance of body temperature is an important part of anesthetic management
- Methods for temperature maintenance can cause burns
- Few reports in the literature

Burns from Warming Devices



Cheney et al.: Anesthesiology 1994; 80:806-10

Warming Devices Recurring Patterns

- Literature was "silent" on bags and bottles 1970-1993
- Bags and bottles: warmed in oven then applied to skin
- Controlled warming devices associated factors
 - Extremes of age
 - Applied to ischemic skin
 - Excess contact (e.g. "hosing")

Cheney FW: Anesthesiology 1994; 80:806-10 Kressin KA: ASA Newsletter 2004; 68(6):9-11

Burns from Warming Devices in Anesthesia

A Closed Claims Analysis

F.W. Cheney, M.D., K.L. Posner, Ph.D., R.A. Caplan, M.D., W.M. Gild, M.B., Ch.B., J.D.

Anesthesiology 80:806–810, 1994 © 1994 American Society of Anesthesiologists, Inc. J. B. Lippincott Company, Philadelphia

Conclusions:

- IV bags warmed in the OR oven represent a hazard to anesthetized patients
- IV bags are an inefficient method of patient warming
- There seems little justification for their use

OR Burns Follow-Up



Analysis of burns in malpractice claims before and after Cheney 1994 report

Kressin KA, et al: Burn injury in the OR: A Closed Claims Analysis. ASA Abstract A-1282, 2004.

Trends in Burn Claims Over Time



OR Burns

- Cause of burns changed
- Cautery fires
- Fire triad
 - Oxygen
 - Alcohol prep
 - Cautery



Fire Triad

IGNITION SOURCE (cautery, laser)

COMBUSTIBLE SUBSTANCE

OXIDIZER (oxygen, nitrous oxide)



0 seconds

0.25 seconds

0.9 seconds

1.8 seconds



0.25 seconds





1.8 seconds

Operating Room Fires A Closed Claims Analysis

Sonya P. Mehta, M.D., M.H.S.,* Sanjay M. Bhananker, M.D., F.R.C.A.,† Karen L. Posner, Ph.D.,‡ Karen B. Domino, M.D., M.P.H.§ Anesthesiology 2013; 118:1133-9

What We Know about This Topic

• The relative importance of factors contributing to operating room fires remains unclear



Cautery Fires by Year of Event



N=10,093

Mehta SP: Anesthesiology 2013; 118:1133-9

Cautery Fire Trends Over Time by Anesthetic Technique



N=10,093

On-Patient Fires during Monitored Anesthesia Care (1985 or later)

101 (22%) of 463 MAC claims involved burns due to on-patient fires.



Masks and drapes (not alcohol prep) were the most common fuel.

Closed Claims N=10,546

ASA Practice Advisory for the Prevention and Management of OR Fires - Updated

- Place drapes open to room for O₂ venting
- Allow flammable skin prep to dry
- Place moistened sponges near cautery
- Surgeon to give notice before cautery use
- STOP or reduce O₂ delivery to minimum, STOP nitrous oxide, WAIT a few minutes
- Use LMA or ETT if high O₂ requirement

Reduce Oxidizer Risk

Use "open draping" to avoid O₂ build-up under drapes





Operating Room Fires A Closed Claims Analysis

Sonya P. Mehta, M.D., M.H.S.,* Sanjay M. Bhananker, M.D., F.R.C.A., + Karen L. Posner, Ph.D., + Karen B. Domino, M.D., M.P.H. Anesthesiology 2013; 118:1133-9

What We Know about This Topic

• The relative importance of factors contributing to operating room fires remains unclear

What This Article Tells Us That Is New

• In evaluation of the Closed Claims database, electrocautery was responsible for 90% of the fire claims

• Most fire claims occurred in patients who had monitored anesthesia care with open oxygen delivery for upper chest, neck, and head procedures



Other Recent Topics

- Massive hemorrhage
- Postoperative respiratory depression
- Obstetrics
- Situational awareness
- Communication

Lessons Learned

- Study of rare events
- Low cost
- Improved patient safety for specialty
- Interaction with ASA's practice parameters
- Respiratory monitoring
 - Esophageal intubation detection
 - End-tidal CO₂ during sedation
- Oxygen/cautery fire risk



CLOSED CLAIMS PROJECT and Its Registries

www.asaclosedclaims.org

Welcome to the Closed Claims Project and its Registries

- Closed Claims Project
 OSA
- Anesthesia Awareness Registry
 NINS

www.asaclosedclaims.org posner@uw.edu

Thank you!

Questions?