




**TO ERR IS HUMAN, TO AIR IS TO IMPROVE**

Transforming the safety of your practice

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## Disclosures




Travel & Expense support from the ASA, AQI, Omnicell, and Epic  
Presentation contains unpublished data from the AQJ registries


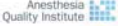
I am very biased towards event reporting and data

## Objectives



1. Identify the basic principles of errors in medicine
2. Analyze how anesthesia incident reporting can improve your practice
3. Illustrate the principles that help make a successful incident reporting system
4. Describe the AQI's reporting initiatives
4. Discuss the results and impact of the national anesthesia incident reporting system and NACOR





## Video






## To Error is Human

What's wrong with this picture?






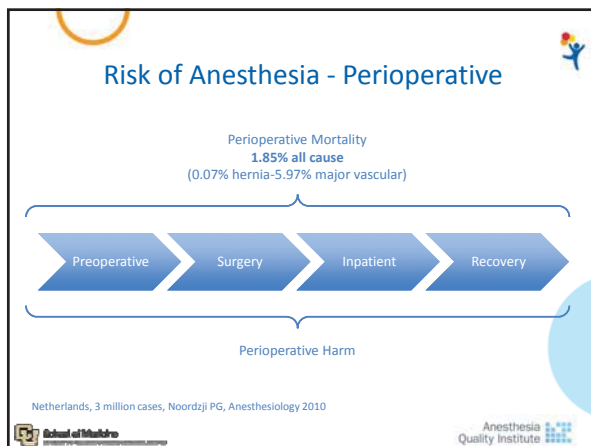
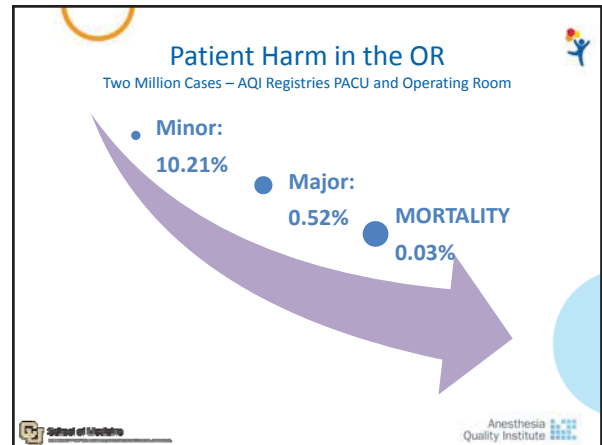
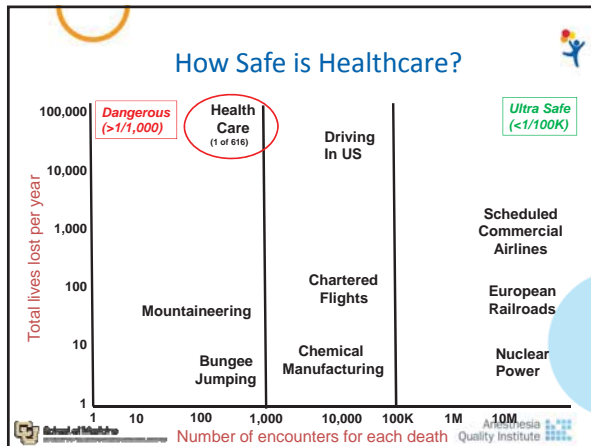
Humans make hundreds of mistakes every day

## To Error is Human

- Death every 5.5 minutes
- 100K a year in US
- 10X Significant harm
- 10X Minor harm
- 10X Near Miss



### What is an Error?

Circumstances in which planned actions fail to achieve the desired outcome  
- Dr. James Reason

Adverse Event - Patient did not respond optimally to an appropriate treatment

- Side Effects, Patient Differences, Expected complications
- Undesirable & Unintentional


Error - an adverse event that could be prevented given the current state of medical knowledge.

## Basic Tenets of Human Error

Everyone commits errors

Human error is generally the result of circumstances beyond the control of those committing the errors


Systems or processes that depend on perfect human performance are inherently flawed




E. SMITH

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## Types of Errors



The resident pathophysiology, equipment, fatigue, and other deficiencies.



pressure, inadequate equipment, and construction

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## Near Misses

A **Near-Miss** is an opportunity to improve safety, health, environmental and security aspects of an operation based on a condition or an incident with potential for more serious consequence

Wharton Risk Center - Wharton School of the University of Pennsylvania

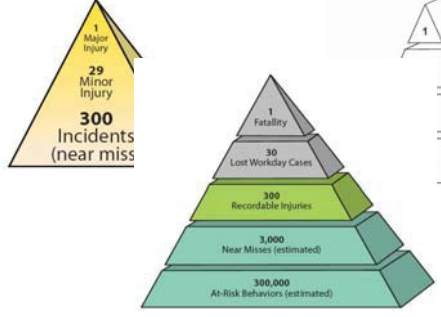
A **Near-Miss** is an unplanned event that did not result in injury, illness, or damage - but had the potential to do so

A **Near-Miss** is a close call

A **Near-Miss** is an event that does not result in harm, but may result in an elevated pulse, profuse sweating, blanching of the skin, abdominal cramping and the speaking of involuntary expletives on the part of the anesthesiologist

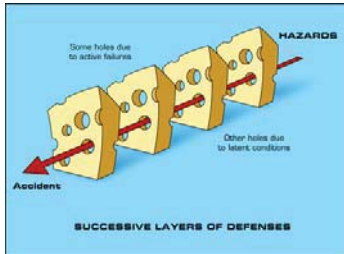

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## Pyramid of Safety



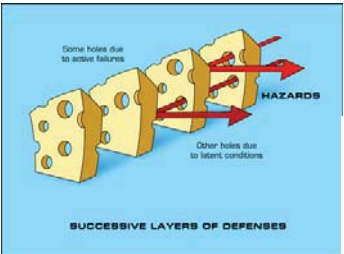
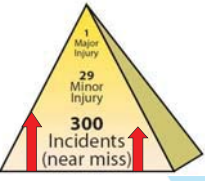
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## Direct Hits

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## Preventing Errors - Near Miss

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## Reducing Injury

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## Culture of Medical Error

**Past:** Individual is always responsible  
Shame and blame culture  
Hiding mistakes  
Improvement difficult  
Low morale - fear

**Future: Culture of Safety**  
Recognize systems contribute  
Speak openly about mistakes / errors  
Concerns are valued and acted upon  
Participants take ownership

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## The System

Humans make mistakes

The system stops human error from reaching the patient

Systems or processes that depend on perfect human performance are inherently flawed

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## Fix the System

Incredibly complex

Dependencies on everything and everyone

Highly variable

Can't fix what we don't know about

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## A history of Reporting in Aviation

1974 - TWA Flight 514

Pilots misunderstood Air Traffic Control instructions and the plane impacted Mt. Weather on final approach

Investigation yielded near misses from the exact same problem and one airline reported the issue to its pilots

The Aviation Safety Reporting System was formed to detect and collect near misses. This system is administrated by NASA

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## A History of Reporting in Anesthesia

The Australian Incident Monitoring System  
Created 20 years ago, retired in 2005. Was expanded to all events, internationally and lost anesthesia significance. Reporting stopped.

The Australian and New Zealand Tripartite Anaesthetic Data Committee  
Formed in 2006, now has a new electronic reporting system, the AQI system uses much of the same terminology / format

The Critical Incident Reporting System (CIRS)  
Successful system in Switzerland, may be expanded across Europe

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## A History of Reporting in Anesthesia

University of California, San Francisco & University of Colorado  
 Focused on near misses  
 3500 reports from faculty, housestaff and CRNA/AAs  
 Researched why individuals choose not to report and optimized system to address needs of anesthesiologists  
 With interventions, reporting increased ~20 fold compared to using hospital systems.

United States - Patient Safety Organization  
 Creates a framework of aggregating information across institutions  
 Approved in 2009  
 Allows for a national anesthesia reporting system that is secure

## Disincentives for Reporting

**Cognitive and behavioral reasons**  
 Poor education about what constitutes an event  
 Concern over legal or credentialing consequences  
 Personal shame  
 Fear of implicating others

**Systems reasons**  
 Time consuming  
 Difficult to access  
 Lack of anonymity  
 Potentially discoverable  
 Slow infrastructure  
 Arduous, poorly designed interfaces  
 Lack of feedback and follow-up, no perceived value

## Tenets of a successful system

Secure and non-discoverable  
 AIRS is part of AQI which is a registered PSO

Quick entry time and ease of use  
 Balance of data resolution against time

Accessibility  
 Ideally, from any computer, anywhere in the world

Captures both near misses and incidents of patient harm

Option of anonymity

Searchable

Summary reports to departments, hospitals  
 Many events are locally influenced

## Near Miss Reporting

## Near Miss Reporting

**Near Miss Statistics for 1/7/09-1/30/09**

	OR	ICU	PACU	Rem.	Day	Call
ASC	3	0	0	0	5	18
ML	81	0	0	0	5	18
SFGH	2	0	0	0	0	18
VA	0	0	0	0	0	18
Zon	3	0	0	0	11	2

Area	Shift	Count	Incident/Comments
ASC	OR Day	1	OTHER (Reassign based on incident Description)- I am not sure where it fits so here is a short description: Unexpected difficult intubation due to narrow lower jaw and being very anterior. McCormack IV, should not be treated though. FastTrach allowed ventilation but not advancement of tube. Eventually switched to LMA S. After the 2nd DL, I would have liked to have a GlideScope but didn't see for it so I was working on the assumption that we don't have a GlideScope that we
	OR Day	1	HUMAN-Acceptable Error-Practitioner Flu-based: Failure to perform a routine task yellow somed tag on desflurane vaporizer contributed to turning desflurane on instead of sevoflurane which was adjacent
ML	OR Call	1	SYSTEMS-Technical-Facilities/Equipment-Malfunction Premade succinylcholine in 100mg male given 300mg resulted in intubate with fiberoptic. Pt buckled upon intubation. The patient had eaten 4 hours prior and needed A/E for acute stroke. I even requested a refrigerated bag prior to induction but none was available. This problem has happened before and a complaint was made to pharmacy but the problem still was not remedied
	OR Day	1	HUMAN-Acceptable Error-Practitioner Flu-based: Failure to perform a routine task We gave a propofol bar block unintentionally to our patient because the BPI cuff was placed on the IV arm and the stp failed to notice this as she administered the induction drugs.

## AQI AIRS

**Demographic Information**  
 Please begin by telling us some information about yourself.

All fields are optional. While this information is useful to us, you do not need to enter any information that you are not comfortable providing.

First Name:   
 Last Name:   
 Year of Birth:   
 Gender:  Male  Female  
 Title:   
 Institution/Facility:   
 City:   
 State:   
 Facility Type:   
 Your default email recipients:   
 These email addresses will receive a copy of this report. \*Separate addresses with semicolon.

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**Anesthesia Quality Institute**  
Anesthesia Incident Reporting System

Like only the navigation buttons provided. Please do not use your browser's Back, Forward, or Refresh buttons.

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Patient:

ASA Physical Status:

Area:

Time Incident Occurred:

Anesthesia Staffing: Immediate Provider:  Supervising Provider:  Other Provider:

Procedural Service Involved:

Incident Description:

Was this event impacted by a drug shortage?  Yes  No

Is this a case of respiratory depression?  Yes  No

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**Event Classification**  
Use the list boxes to properly classify the incident. You may use the 'Add Another Classification' button to add as many as necessary.

Category	Subcategory	Type
None	Clinical assessment (inadequate/incorrect)	None
Airway Management	Docmt. (delay in availability)	
Anesthetic/Operative Complications	Docmt. (missing or illegible)	
Blood	Incorrect patient	
Cardiac	Op list changed (selective case)	
Documentation	Op list changed (emergency case)	
Equipment	Operating schedule incorrect	
Immunological	Risk assessment (inadequate/incorrect)	
Medi	Test results not available	
Mortality	Tests performed inadequate	
Neuro	Other	
Pulmonary/Resp		
Regional Anesthesia		
Renal		
Vascular Complications		

Click to Add Another Classification

**Level of Harm to Patient (per AHRQ Scale):**

- Unsafe Condition** - Any circumstance that increases the probability of a patient safety event.
- Near Miss** - Event occurred but did not reach patient.
- No Harm** - Reached patient, but no harm was evident.
- Emotional Distress or Inconvenience** - Mild and transient anxiety, pain, or physical discomfort.
- Additional Treatment** - Injury limited to additional intervention during admission but no other injury.
- Temporary Harm** - Bodily or psychological injury, but likely not permanent.
- Permanent Harm** - Lifelong bodily or psychological injury or increased susceptibility to disease.
- Severe Permanent Harm** - Severe lifelong bodily or psychological injury or disfigurement.
- Death** - Death at the time of the assessment.

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**Reflection**

Do you think this incident was preventable?  Yes  No

In responding to this event, did the team use any emergency manual? (a.k.a cognitive aid, checklist)  Yes  No

Why not? (Select all that apply.)

- Not applicable for this event
- I did not think to consult one
- Not readily accessible
- Event was too fast
- Colleagues or supervisors may not approve
- Inefficient people for tasks, but having someone 'read' aloud to me would have helped

Do you think having an accessible, familiar emergency manual would have been helpful in managing this event? Please explain.

Contributing Factors (Optional):

Lessons Learned (Optional):

**Learning From Others:**  
**A Case Report from the Anesthesia Incident Reporting System**

Detailed review of unusual cases is a cornerstone of anesthesiology education. Each month, the AQR-AIRS Steering Committee will abstract a case and provide a detailed discussion based on a submission to the national Anesthesia Incident Reporting System. Feedback regarding this item can be sent by email to [r.dutton@ashug.org](mailto:r.dutton@ashug.org). Report incidents to [www.aqairs.org](http://www.aqairs.org).

**Case 2013.2: Too Hot to Handle**  
"Nicer was anything great achieved without danger."  
- Niccolò Machiavelli (1469-1527)

An ASA Physical Status 2, 38-year-old female presented for debulking of appendiceal cancer and hyperthermic intraperitoneal chemotherapy. Her past history included malignant melanoma, chemotherapy-associated pericarditis, and a pericardial window. General anesthesia was planned, and induction and endotracheal intubation were unremarkable. The surgical case involved extensive removal of the metastatic tumors. During diaphragmatic stripping of metastases, the old pericardial window was inadvertently opened. The tear in the pericardial window was closed with a nylon suture. The team elected to proceed with chemotherapy infusion. During the hyperthermic intraperitoneal chemotherapy, the patient developed ST elevation but was hemodynamically stable in the intensive care unit, a 12 lead ECG showed ST elevation in all leads, consistent with myocardial infarction. The patient was started on methylprednisolone, and the ST segment changes resolved within 24 hours without further sequelae.

**Introduction**  
This case is illustrative of the systemic toxicity that can occur with aggressive intraperitoneal treatment of metastatic...

with an expected survival of only months. In the mid-1990s, however, Dr. Sagarbaker at the Washington Cancer Institute reported that excision of as many tumors as feasible (cytoreduction) together with hyperthermic intraperitoneal chemotherapy significantly improved survival. The therapy has remained controversial, as only one small randomized controlled trial has been conducted. Other researchers have not demonstrated similar survival rates, and the perioperative morbidity and mortality are significant. However, given the utter lack of alternatives, an increasing number of surgeons in Europe, Australia and the U.S. are advocating this therapy. A recent systematic review of the literature concerning cytoreduction and HIPEC for ovarian cancer reported on 19 studies. The overall rate of major perioperative mortality ranged from 0-40 percent, and perioperative mortality varied from 0-10 percent. The overall median survival following HIPEC ranged from 22-64 months, if optimal cytoreduction was achieved, a five-year survival between 12-66 percent was achieved. A similar review of 10 studies of HIPEC in gastric cancer found one-year survival rates to range from 22-68 percent. Although these survival rates appear to be better than that seen without HIPEC, no conclusion can be drawn in the absence of randomized trials that control for patient selection bias. To date, the majority of patients selected for HIPEC have been otherwise healthy.

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**Benefits of Reporting**

- Advance the safety of perioperative care
- Discover system issues you can fix
- Gather quantitative data to influence organizations
- Avoid repeating mistakes!

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**AIRS – Anesthesia Incident Reporting System**

- Over 1000 cases
- 95% Confidential
- 70 Unique institutions
- 100 Unique providers
- 30 Newsletter Reports

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ANESTHESIA INCIDENT REPORTING SYSTEM

**Report Adverse Events & Near Misses**

[www.aqairs.org](http://www.aqairs.org)

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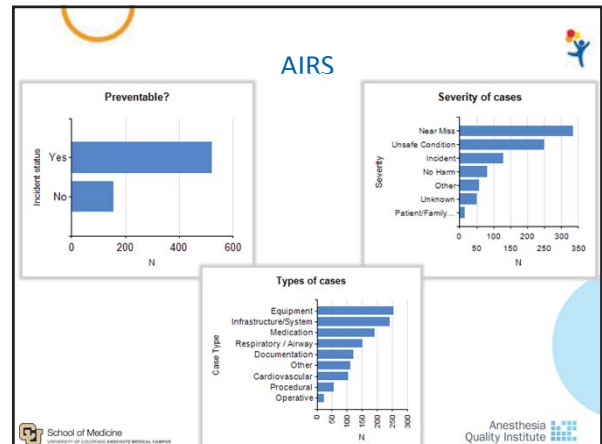
## AIRS – Anesthesia Incident Reporting System

Hazards of Electronic medical records and AIMS  
 Air embolus during ERCP  
 Drug errors due to shortages  
 Importance of teamwork  
 Place for cognitive aids

Learning From Others:

**A Case Report from the Anesthesia Incident Reporting System**

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## AQI Registries

- NACOR
- AIRS
- PPAI
- Closed Claims

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NATIONAL ANESTHESIA CLINICAL OUTCOMES REGISTRY

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ANESTHESIA INCIDENT REPORTING SYSTEM (AIRS)

Report Adverse Events & Near Misses

www.aqiairs.org

PPAI Practice Performance Assessment and Improvement

CLOSED CLAIMS PROJECT and Its Registries

www.closedclaims.org

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## Recommendations

- Form a QI group, appoint a QI officer
- Report patient harm and near misses locally and nationally
- Monthly M&M meetings and start a newsletter
- Join the AQI !
- Share your trends and data with your group
- Use your data to influence your hospitals and surgicenters

Ski safely



Don't CRASH

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QUESTIONS?

Life can only be understood backwards,  
but it must be lived forward

Soren Kierkegaard

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