ALBERTA MEDICAL ASSOCIATION

CanMEDS – Department of Surgery
And Then Everything Changed:
Adverse Events at the Onset of Practice

Welcome! Thank you for joining early

Start Time: 12:30 promptly

- Your mic and camera are disabled by default.

And Then Everything Changed: Adverse Events at the Onset of Practice

CanMEDS - Calgary Department of Surgery
8 October 2020

We will be starting the session promptly at 12:30 PM

Live Recording

ALBERTA MEDICAL ASSOCIATION

- Privacy Statement: Please note that the webinar you are participating in is NOT being recorded.
- Your name will appear in the ZOOM Participant area throughout the webinar.
- After Dr. Cherniwchan's presentation you will be able to submit questions through the Q&A function (instructions will be provided).
- Your questions may be submitted anonymously.

Land Acknowledgment

ALBERTA MEDICAL ASSOCIATION

We would like to recognize that we are webcasting from, and to, many different parts of Alberta today. The province of Alberta is located on Treaty 6, Treaty 7, and Treaty 8 territory and is a traditional meeting ground and home for many Indigenous Peoples.

Disclosure of Financial Support

This program has received in-kind support from

- AMA through contributions made by the PFSP and the Information Systems Group

Welcome:

Janet Edwards MD MPH

Thoracic Surgeon, Foothills Hospital

Presenter:

Marc Cherniwchan MD FRCPC

Case Coordination Physician, Physician and Family Support Program, AMA

Webinar Team:

Lacey Hoang

AMA - Session Moderator

Joel McGovern

AMA - Back up Moderator

Bruce Petch

AMA - Technical Support

Audrey Harlow

PFSP - Education Lead

pfsp

ALBERTA MEDICAL ASSOCIATION

Disclosures

ALBERTA MEDICAL ASSOCIATION

Presenter

Dr. Marc Cherniwchan: Case Coordination Physician, Physician and Family Support Program, AMA; honoraria for sessions on physician wellness

Panelist

Dr. Janet Edwards: Thoracic Surgeon, Foothills Hospital

Webinar Team

Lacey Hoang: Employee, AMA

Joel McGovern: Employee, AMA

Bruce Petch: Employee, AMA

Audrey Harlow: Employee, AMA

Objectives

At the end of this session participants will be able to:

1. understand the incidence, causes and prevention of adverse events (AE's)
2. understand the impact on you as a physician
3. understand what to do when one occurs and how best to recover

ALBERTA MEDICAL ASSOCIATION

Janet Edwards MD MPH

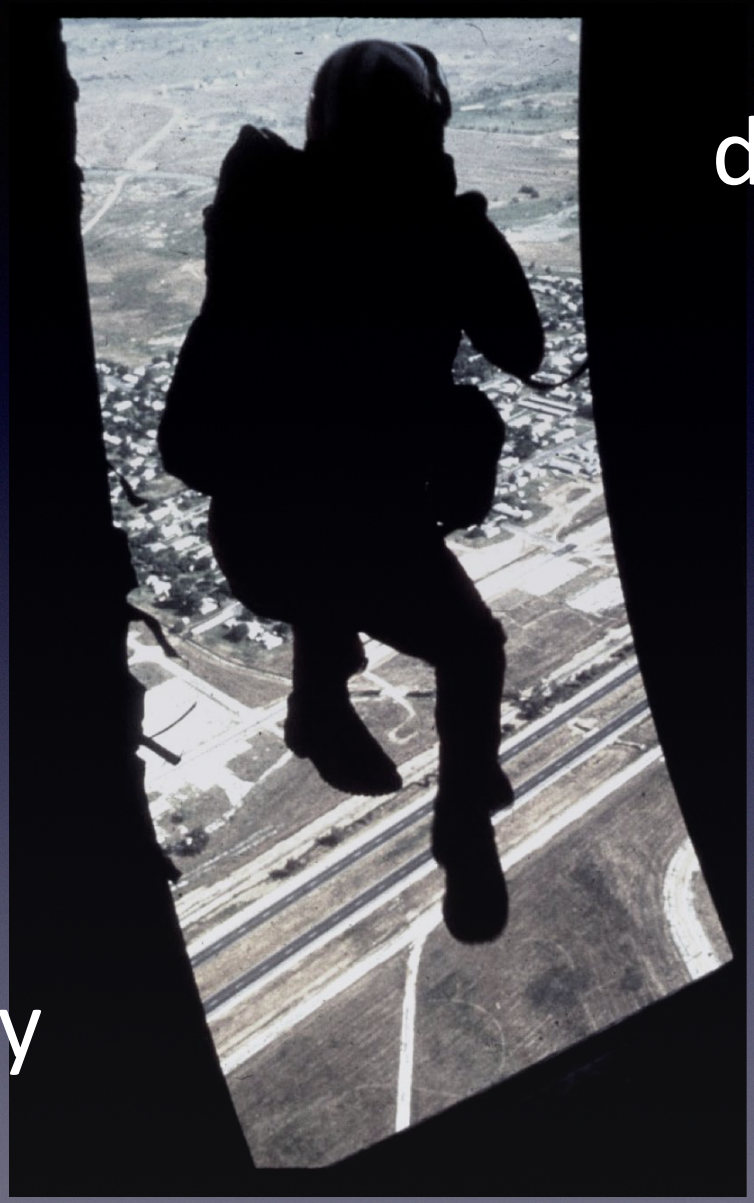
Thoracic Surgeon, Foothills Hospital

Session Overview

Coming up!

- Dr. Marc Cherniwchan shares his story and lessons learned
- Audience participation through
  ZOOM functions- Polling, brief use of the Chat function and a Q & A session

disclosure

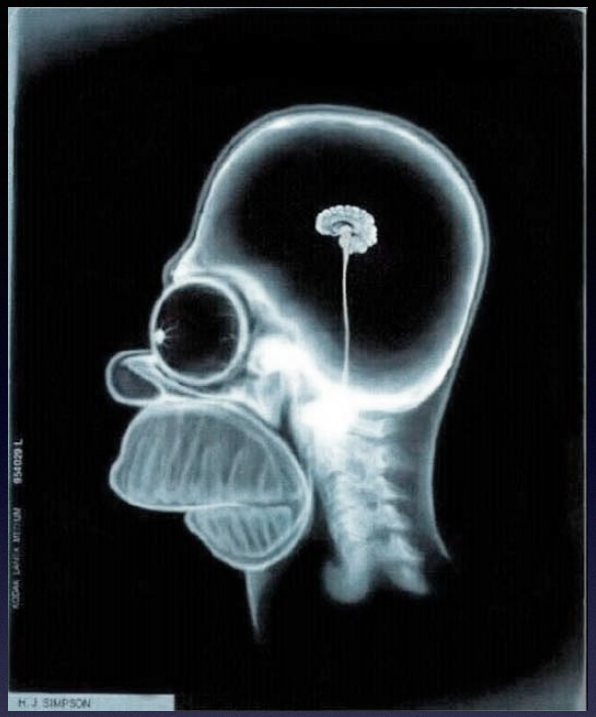


safety

Part One:
The First Victim

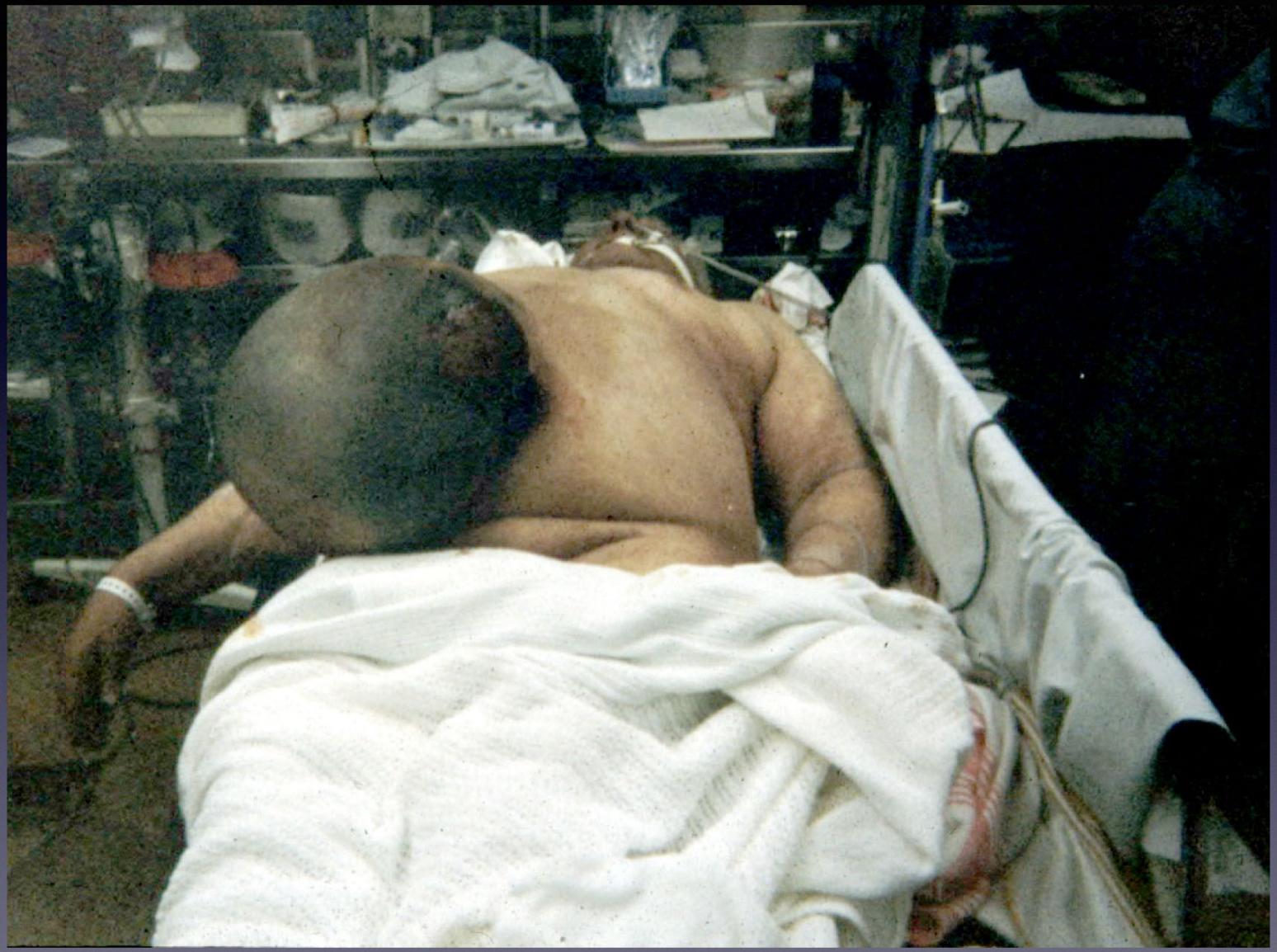

SUPERHERO MALE DOCTOR & NURSE
Vecteezy.com

1984


H. J. SIMPSON


Call 253-588-2743
for details about our
Medical Malpractice Lawyer

How are adverse events (AE’s) different from surgical complications and acceptable ‘misses’?



A4

01/15/2000 09:30:12
Born 1922 Female

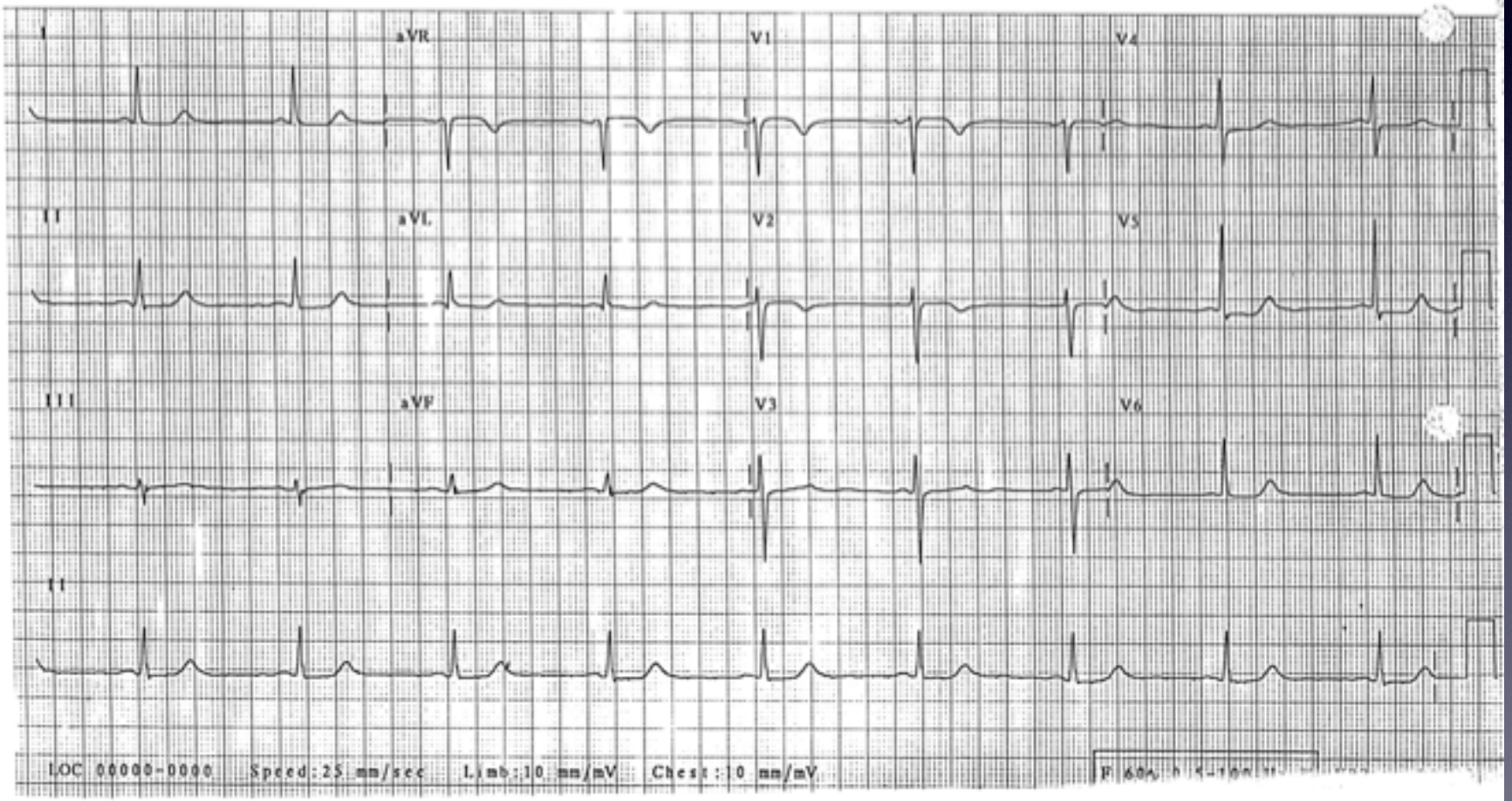
GREY NUNS ECG 1

Room: ER
Oper: JT

Rate 55
PR 153
QRSD 82
QT 420
QTc 402

--AXIS--
P 48
QRS 23
T 46

ECG 0930



01/15/2000 16:22:47
Born 1922 Female

GREY NUNS ECG 1

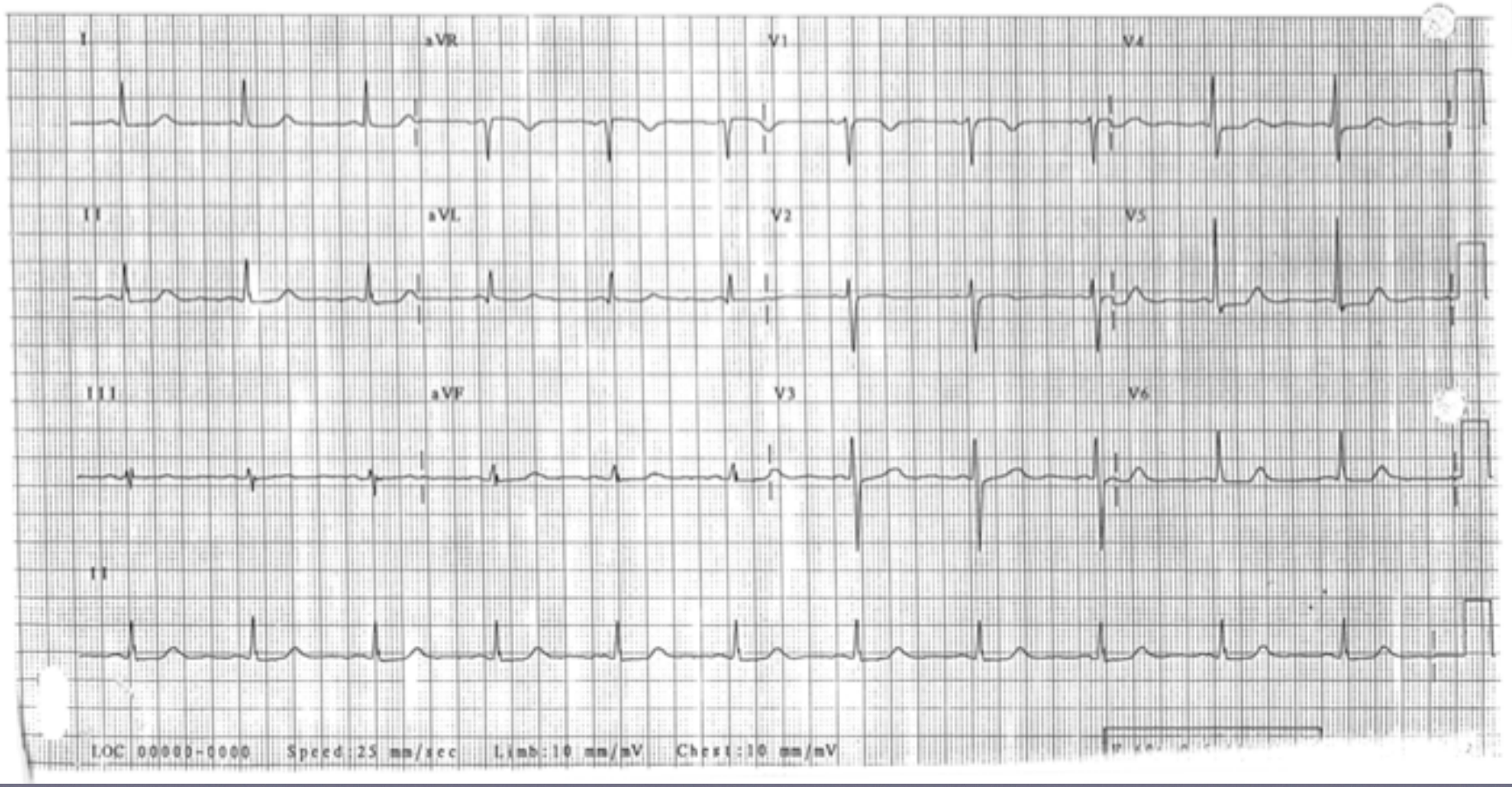
Room: ER
Oper: JT

Rate	68
PR	148
QRSD	85
QT	394
QTc	419

--AXIS--

P	26
QRS	23
T	42

ECG 1622



What are acceptable ‘miss rates’?

MI	2%	NEJM, 2000, 342(16),1169
Trauma	8%	J. Trauma, 2000,49:605
AAD	28% - 38%	JAMA, 2000, 283(7):897

Adverse Event (AE)

An event which results in unintended harm to the patient, and is related to the care and/or services provided to the patient, rather than to the patient's underlying medical condition.

Canadian Disclosure Guidelines
Canadian Disclosure Working Group
Canadian Patient Safety Institute
Edmonton, Alberta 2008

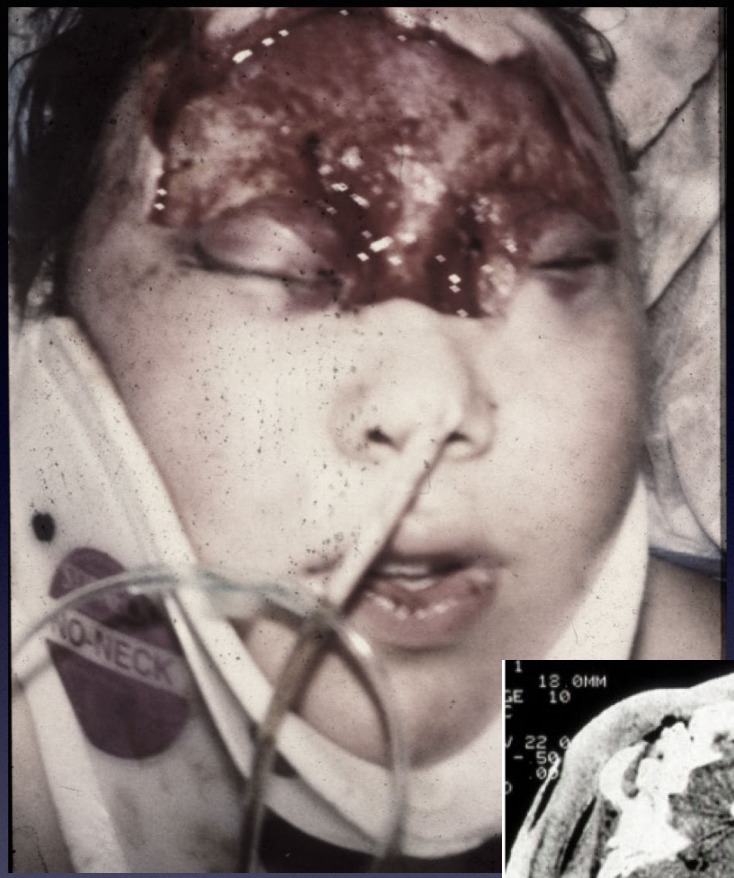
Examples of AE's

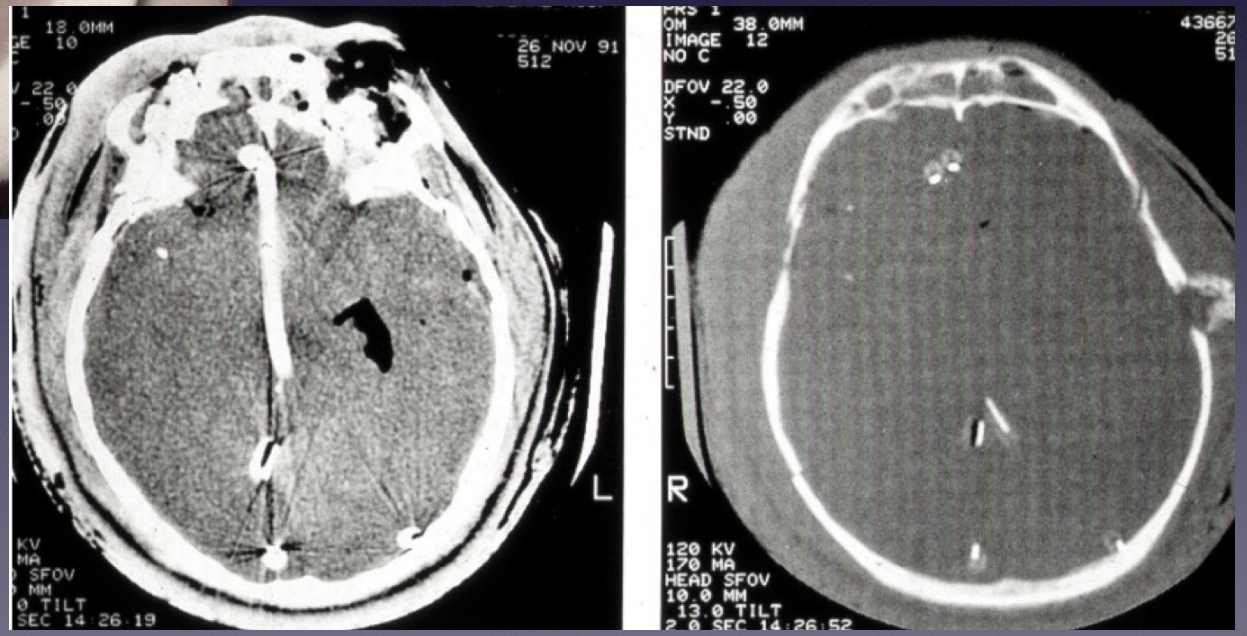
- Medication error
- Fluid overload
- Paralysis with inability to intubate
- 'Never events'

Medical Error

An act of omission or commission, planning, or execution that contributes to, or could contribute to, an unintended result.

Grober and Bohnen
Can. Jour. Surg. 2005

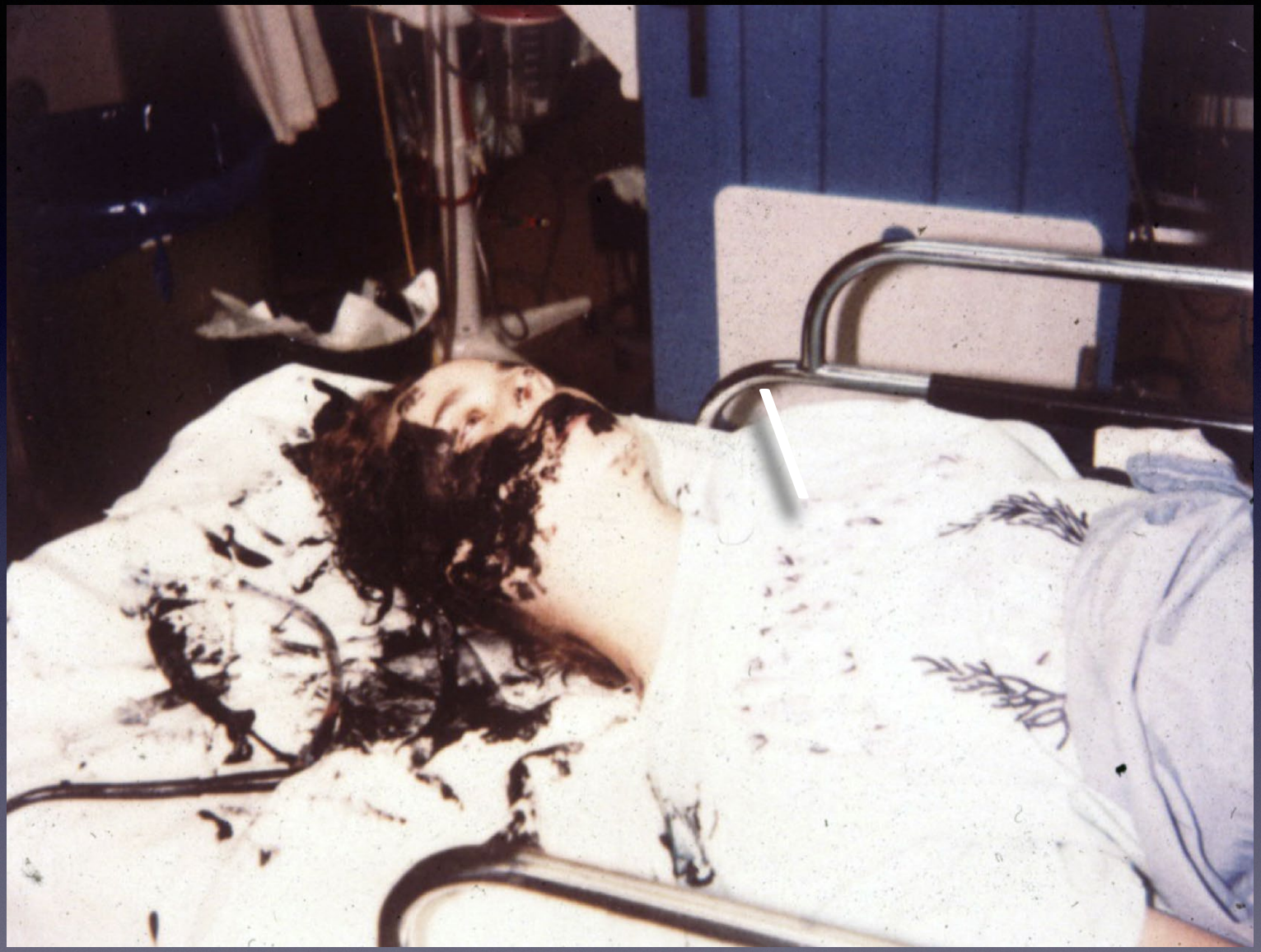



18.0MM
26 NOV 91
512
L
KV
MA
SFOV
MM
TILT
SEC 14:26:19
38.0MM
IMAGE 12
DFOV 22.0
X -.50
Y .00
STND
R
120 KV
170 MA
HEAD SFOV
10.0 MM
13.0 TILT
SEC 14:26:52

Panagioti, M. et al 2019

- Systematic review/meta-analysis
- 7313 citations / 66 studies (70 ind. samples)
- Pooled sample of 337, 205 pts
- 28,150 pts harmed / 47, 128 incidents
- AE rate 12% (9% - 14%, 95 CI)
- PAE rate 6% (5% - 7%, 95% CI)

45% US, 39% Europe, 14% elsewhere



Dancing with Lawyers

1. Subpoena as expert witness for the Crown
2. Request as expert witness for Defense
3. Request for review of a case by CMPA
4. Fatality Inquiry
5. Collection of Evidence
6. Mandatory Reporting
7. Complaint to the College
8. Complaint to the Hospital
9. Lawsuit

From: College of Physicians and Surgeons

To: Your name here
Your real address

PERSONAL /CONFIDENTIAL

Medical Malpractice (Necessary Components)

- Fiduciary contract/responsibility
- Care below standard
- Care resulted in Adverse Event
- Adverse Event had bad outcome

How likely is an adverse event to occur to a patient in hospital?

a) < 5%

b) 5 - 10%

c) 10 - 20%

d) 20%

The Literature on AE's

- Published series
- National Patient Safety Foundation (AMA, 1998)
- American Assoc. for Adv. of Science
- Presidential Adv. Com. on Consumer Protection; Quality in Health Care 1998
- (National Academy of Sciences) Institute of Medicine (IOM), 1999
- Systematic reviews, meta-analyses

The Disturbing Statistic (IOM, 1999)

44,000 - 98,000 die from AE's/year

7th leading cause of death (>MVA)

3-4% admission will have an adverse event

The Canadian Adverse Events Study

n = 1512 / 4164 admissions analyzed

20 sites, 5 provinces

Incidence of AE's 7.5% (5.7 - 9.3, 95% CI)

AE's related death 15.9%, disability 5.2%

AE preventable (PAE) 36.9% (32.0 - 41.8, 95% CI)*

* K 0.69,
(0.55 -0.83, 95%CI)

Baker et al.
CMAJ, 2004, 170 (11), 1678 - 1686

CMPA/HIROC SCSS
Phase of Care*

- Pre-op 261(20.1%) / 038 (04.6%)
- Intra-op 821(63.2%) / 600 (72.3%)
- Posts-op 218 (16.8%) / 192 (23.1%)

n = 1300
n = 830

2004 -2013

* phase of care could not be determined in all cases

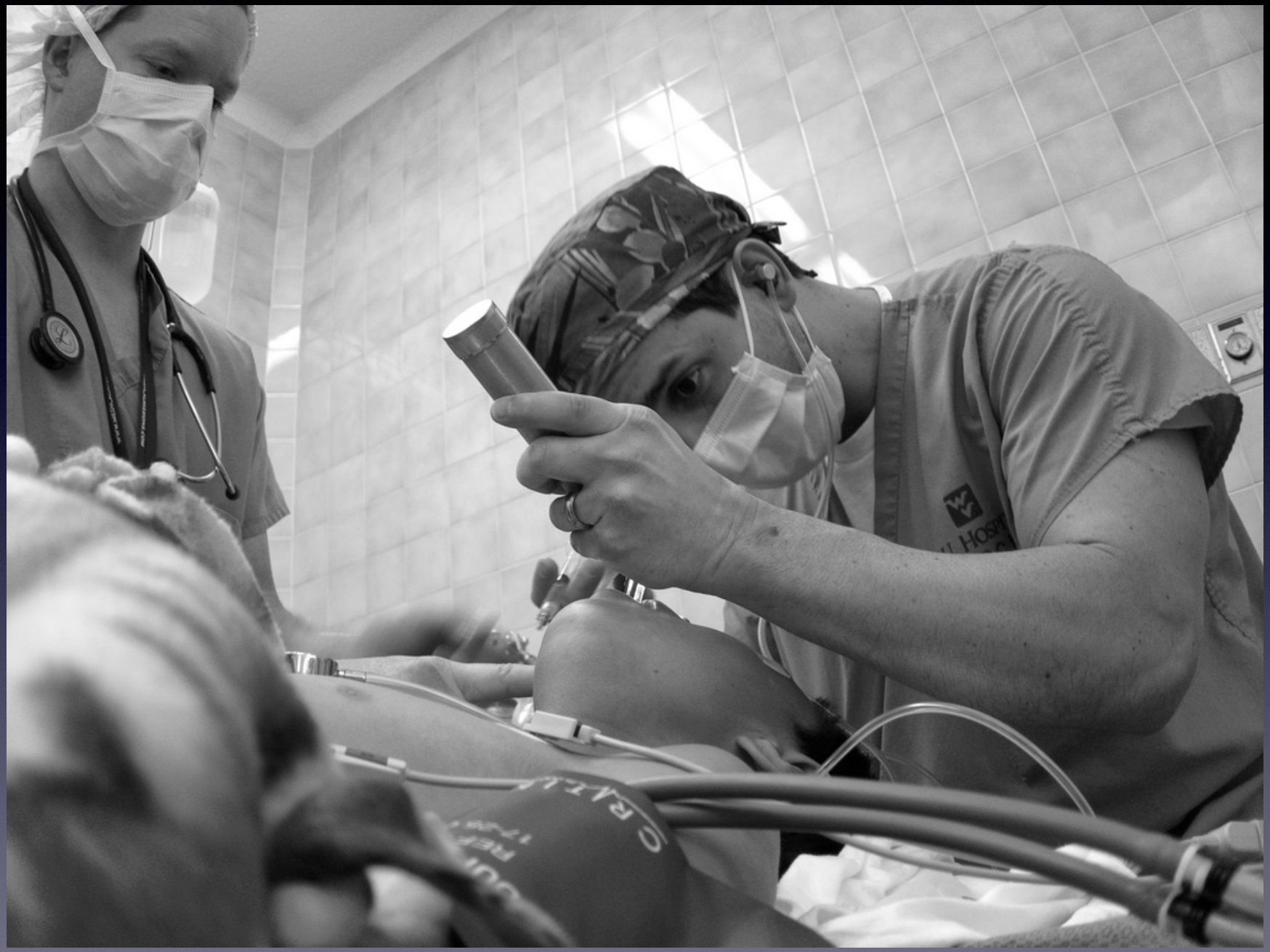
How likely is an adverse event to occur to a surgical patient in hospital?

a) < 5%

b) 5 - 10%

c) 10 - 20%

d) 20%



The Canadian Adverse Events Study

- Surgical service 51.4%, medicine 45.0%
- On Sx service, most common cause related to procedures (~10x other causes like fluids/drugs, diagnostics, anaesthetic)
- On Sx, errors of omission/commission ~ equal

Baker et al.
CMAJ, 2004, 170 (11), 1678 - 1686

Systematic Review (Sx only)

- n = 16,424 patients
- AE 14.4% (IQR 12.5 - 20.1%)
- ‘Preventable AE’s 5.2% (IQR 4.2 - 7.0%)
- 10.4% of AE’s severe (IQR 8.5 - 12.3%)
- 3.6% of AE’s fatal (IQR 3.1 - 4.4%)

non-op management > surgical technique

Anderson, O. et al
Am. J. Surg. 2013

U of C 2018

- Meta-analysis 31/2001 articles
- 1980 - 2016 (71% after 2000)
- 17 (55%) reported on surgical events
- NA (45%), Europe (39%), Australia/NZ (13%)
- Academic (65%), combination (32%), and community alone (3%)

Austen, J. M.Sc. thesis

U of C 2018

- AE of 24.6%
- PAE of 10.5%
- PDR of 0.5% (20% of surgical deaths)*
- < 25% surgeons track their own rate

*4 deaths / 100 surgical patients

Austen, J. M.Sc. thesis

CMPA/HIROC SCC

- Canadian Patient Safety Institute 2014 formed National Patient Safety Consortium
- March 2014 Surgical Care Summit
- CMPA/HIROC (Healthcare Insurance Reciprocal of Canada)
- 1583 CMPA, 1391 medico-legal cases involving in-hospital surgical incident(s)(resolved or settled, 2004 - 2013, 10 yr review)

  all ages, average age = 49,
  70% of CMPA cases > 40 yrs.
  (ObGyn excluded)

2004 -2013

CMPA/HIROC SCC

89% / 70% occurred in OR or DaySx

64% / 93% involved physician factors

45% / 43% involved systemic factors

12% / 31% involved non-physicians

53% / 49% peer-reviewed criticism of care

n = 1583
n = 1391

2004 -2013

CMPA/HIROC SCC
Phase of Care

- Pre-op 261/038
- Intra-op 821/600
- Posts-op 218/192

n = 1583
n = 1391

2004 -2013

CMPA/HIROC SCC
Type of Event

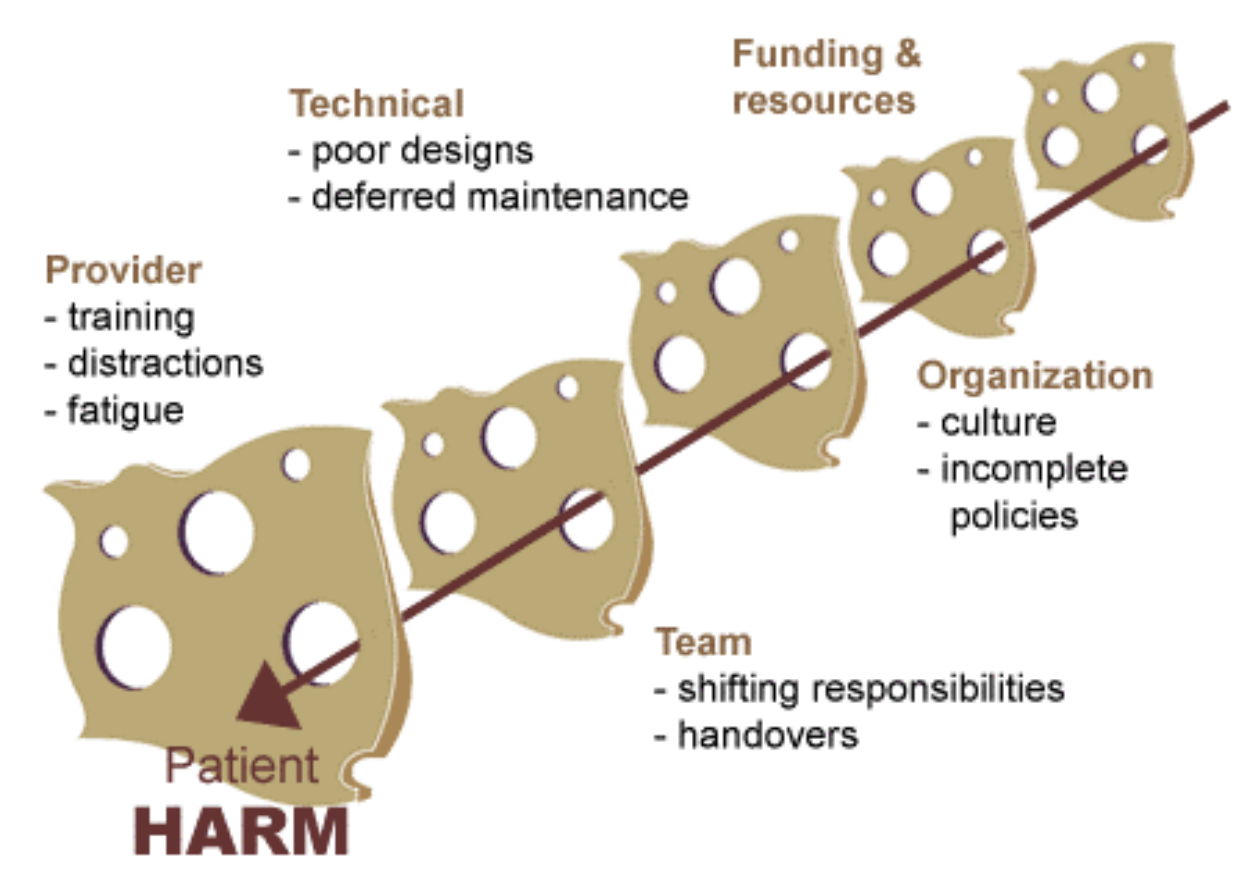
- Others (including laceration, puncture, hemmorhage, burns) — 66%/44%
- Infection — 16%/11%
- 'Never' events — 12%/18%

n = 1583
n = 1391

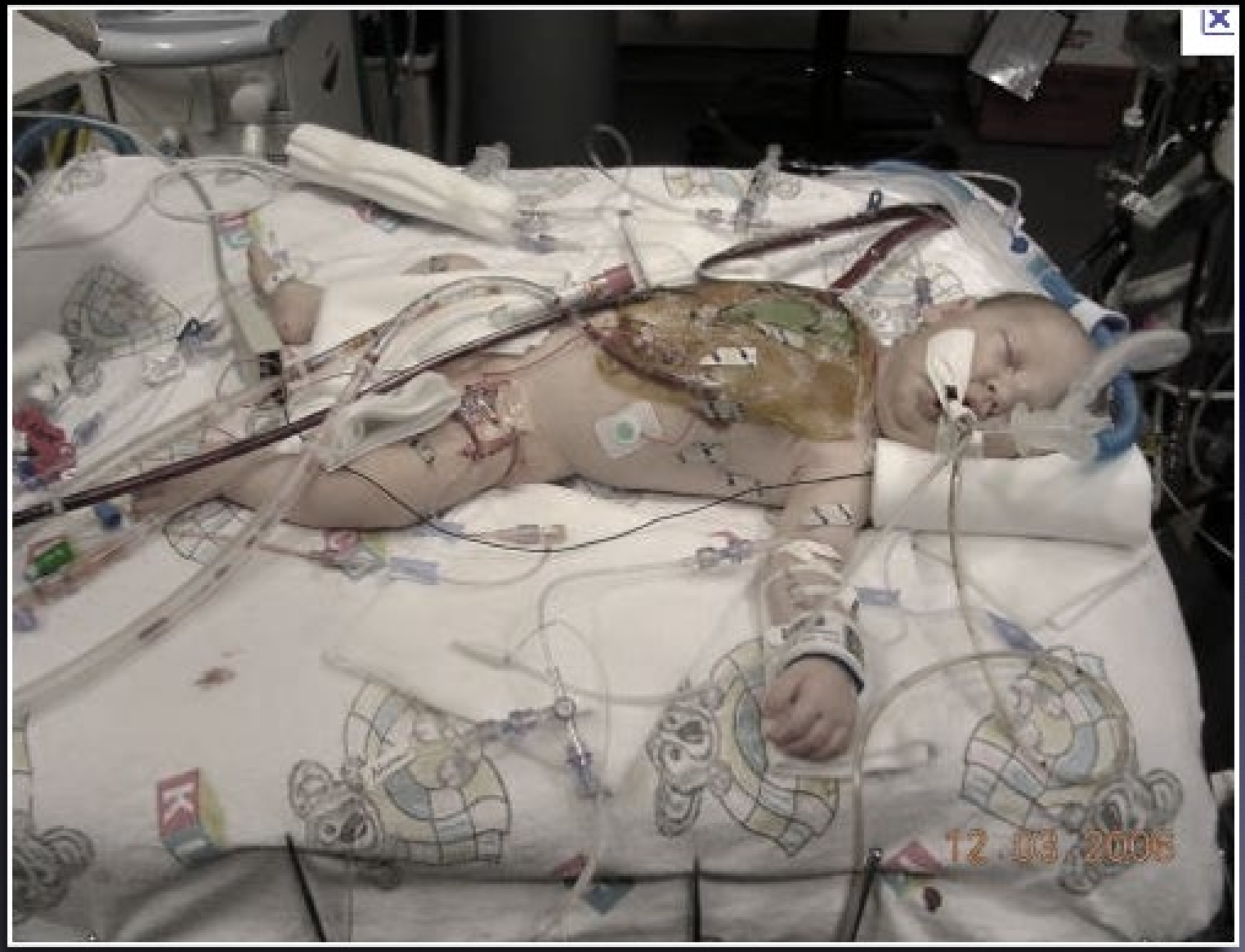
2004 -2013

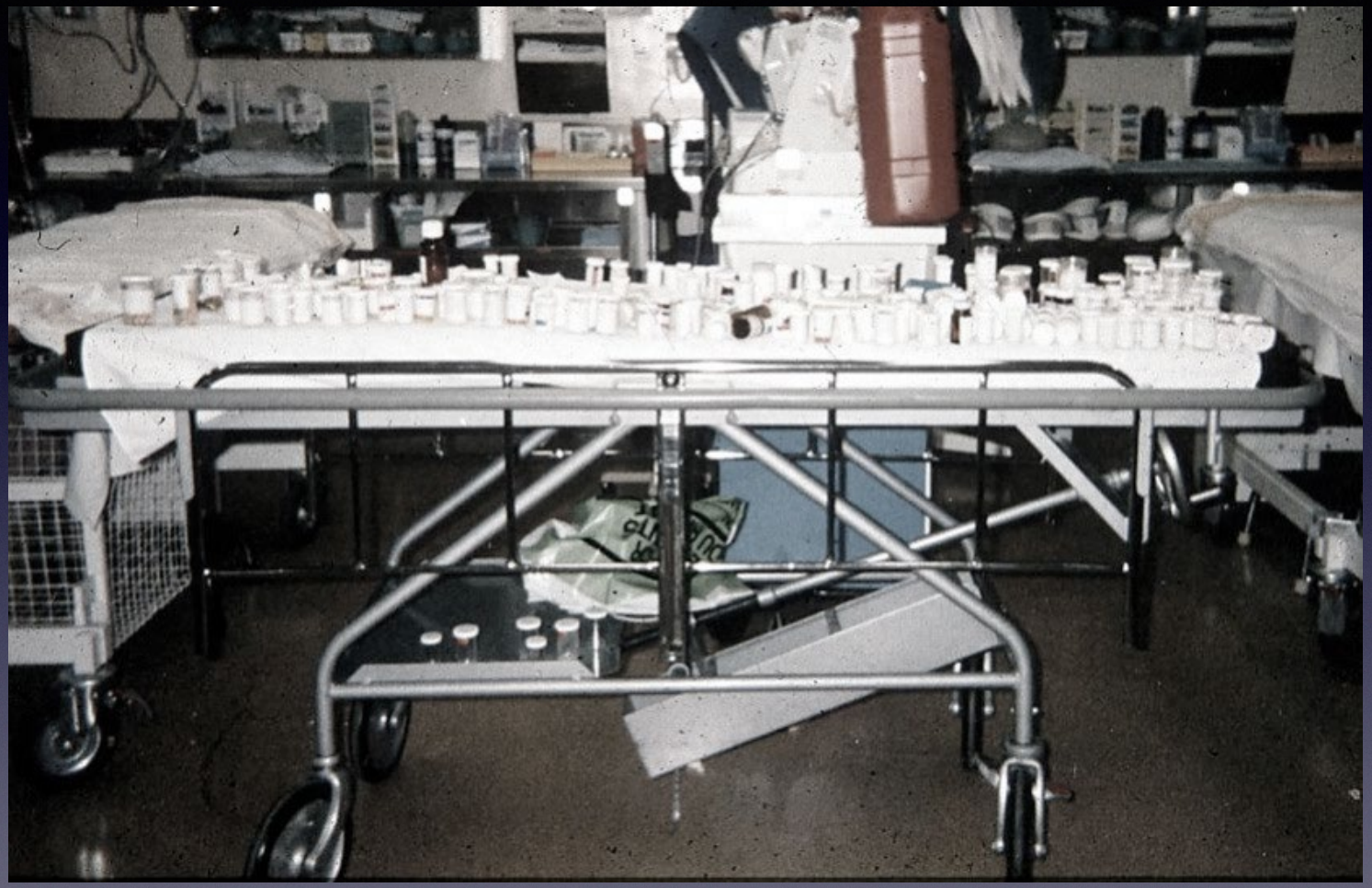
Why do you think these adverse events occur?

Sources of Error (Systemic)



James Reason
Manchester





Stollery Children's Hospital
Cytogenetics Laboratory
8-25 Medical Sciences Building
University of Alberta
Edmonton, AB T6G 2H7
Tel: (780) 407-1542 Fax: (780) 407-3059

Patient Name:	[redacted]	Loc/Room:	GEMR
PHN. #:	[redacted]	Phys:	[redacted] *RAH
DOB:	[redacted] Sex: M		DEPT OF PATHOLOGY,RAH
Chart #:			10240 KINGSWAY AVE
Pt. Home Phone #:	(780) 490-5902		EDMONTON AB T5H3V9
Health Record No.:	012011305950	Copy To:	CHERNIWCHAN,DR.MARC A *GNH
Prov. /Postal Code:	AB T6L4X3		

Cytogenetics Studies Report

Accession #: **CG12-264**
Collected: 27/01/2012
Received: 27/01/2012
Reported: 18/09/2012

Type of Specimen:
1: Bone Marrow - Cytogenetics

Indication:

Results:

46,XY,del(5)(q13q33)[1]/44-52,sl,-Y,add(4)(q31),-13,add(15)(p11.2),del(16)(q11.2),-19,add(19)(p13),-21,+2-9mar,1dmin[cp9]/46,XY,t(5;7)(q31;q11.2)[2]/46,XY[7]

representing the stemline, and there is a clonal evolution with numerous numerical and structural chromosome anomalies, including losses of one chromosome Y, 13, 19 and 21, deletion of the long arm of one chromosome 16, at breakpoint 16q11.2, addition of unknown genetic material to the long arm of one chromosome 4, addition of unknown genetic material to the short arm of one chromosome 15 and 19, two to nine marker chromosomes, and one double minutes. 5q deletion with a clonal evolution having complex karyotype is associated with a poor prognosis in patients with acute myeloid leukemia.

Clone 2: 2 metaphases demonstrated a male karyotype with a reciprocal translocation between chromosomes 5 and 7, breakpoints at 5q31 and 7q11.2.

Clone 3: 7 metaphases demonstrated a normal male karyotype.

Furthermore, there was one metaphase might have a reciprocal translocation between chromosomes 18 and 21, breakpoints at 18q21 and 21p11.2.

In conclusion, this case has two to three stemlines with clonal chromosome anomalies, which is consistent with a diagnosis of acute myeloid leukemia with multilineage dysplasia.

“Doctor, there’s a C.O. call
on line 1, the ICU
wants to talk to you about a hold-
over from nights, and they need you
in the OR STAT."

“Interrupt-driven or “Multi-tasking Surgeons”

Sx team 64 tasks/hour

communication 45.7% of time

48.2% time multi-tasking

3 interruptions/hr

26.7% related to equipment

Goras, C. et al.

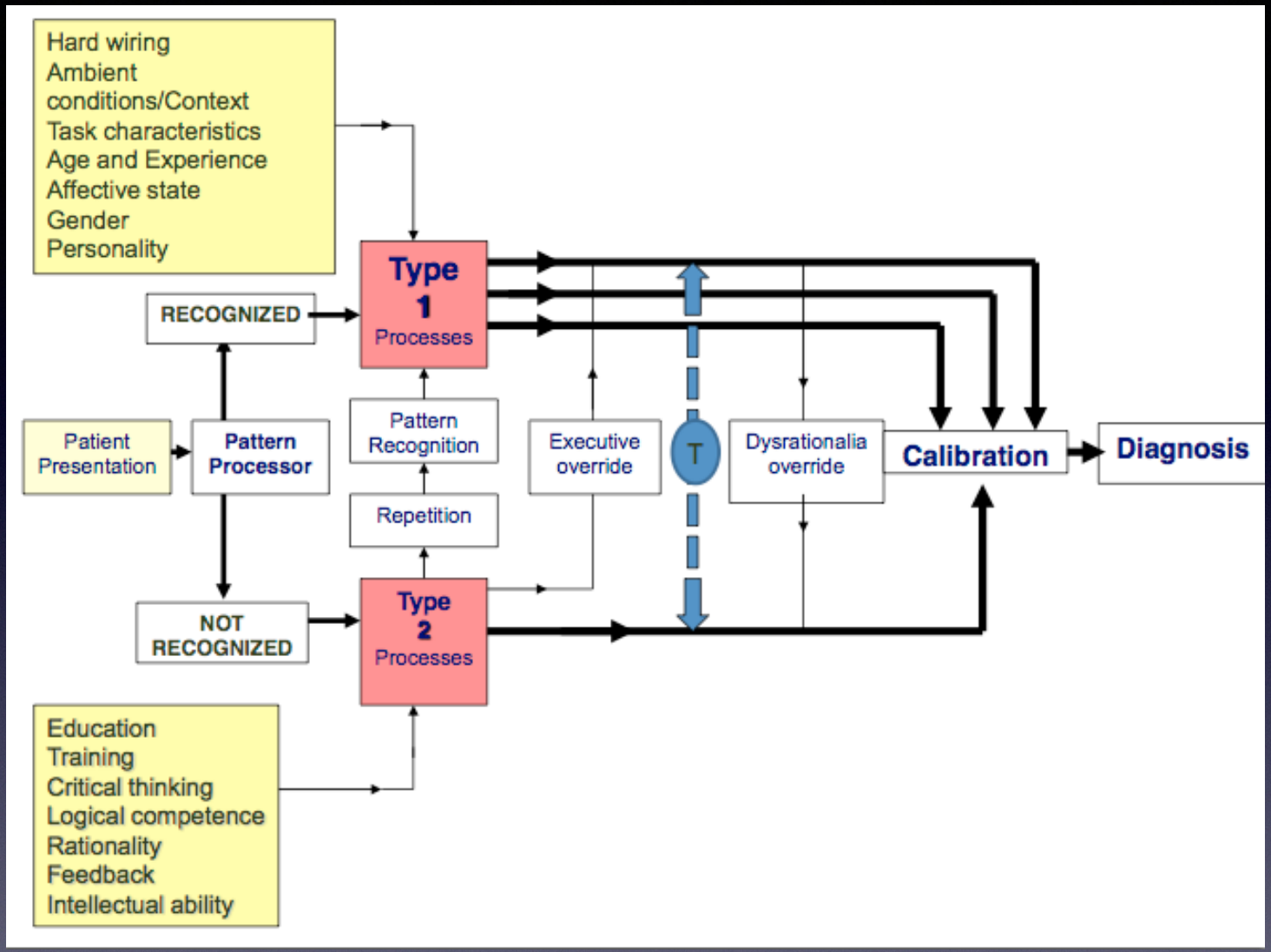
BMJ Open 2019

Human Performance Deficiencies (HPD)

- 188 AE's / 5365 patients (6 non-op)
- 106 (56.4%) HPD's
- 103 HPD's (54.8%) intraoperative
- 99 (51.6%) cognitive errors
- 20 (10.4%) technical execution errors

AE's in 182 operative patients (3.4%)

Suliburk J. et al
JAMA New Open.
2019, Jul 2(7): e198067



Meta-Cognition

P. Croskerry Acad. Emerg. Med., 2009, 84: 1022-28.

Effects of Cognitive loading

- Cognitive loading depletes working memory and reduces mental processing ability
- Right lateral prefrontal cortex inhibits biases
- RLPC becomes less active under cognitive loading
- Integration of cognitive and affective processing is disrupted by cognitive loading

Cognitive dispositions to respond

- Anchoring
- Confirmation Bias
- Premature Closure
- Search satisficing
- Unpacking principle
- Triage cueing
- Diagnosis Momentum
- Framing effect
- Ascertainment effect
- Hindsight bias
- Posterior probability error
- Order effects
- Fundamental attribution error
- Outcome bias
- Visceral bias
- Belief bias
- Ego bias
- Sunk costs
- Zebra retreat

Academic Emergency Medicine 2007;14:743-9

Sources of Error (Individual)

- Intellectual conceit
- Application of literature to wrong population
- Fatigue, conflict, extraneous stress
- Sickness
- Lack of experience

1/3 of all MD's will experience a condition that impairs their ability to practice medicine safely.

Leape, LL. Fromson, JA
Problem doctors: Is there a system-based solution?
Ann. Int. Med., 2006, 144, 107 - 115.

When is a surgeon most dangerous?

- In training
- First day on service
- July 1 (the ‘July phenomenon')
- Last case of the day
- Last day of call
- Start of career
- End of career

Factors Affecting Residents

- Fatigue
- Insufficient staff and heavy workload
- Inadequate supervision
- Mental health
- Level of skill/knowledge
- Complexity of patient's conditions
- Communication problems within team
- Language barriers
- Inherent 'system' failures

Carayon and Gurses 2008
Dean et al 2002
Fahrenkopf et al 2008
West et al 2006
Wu et al 2003

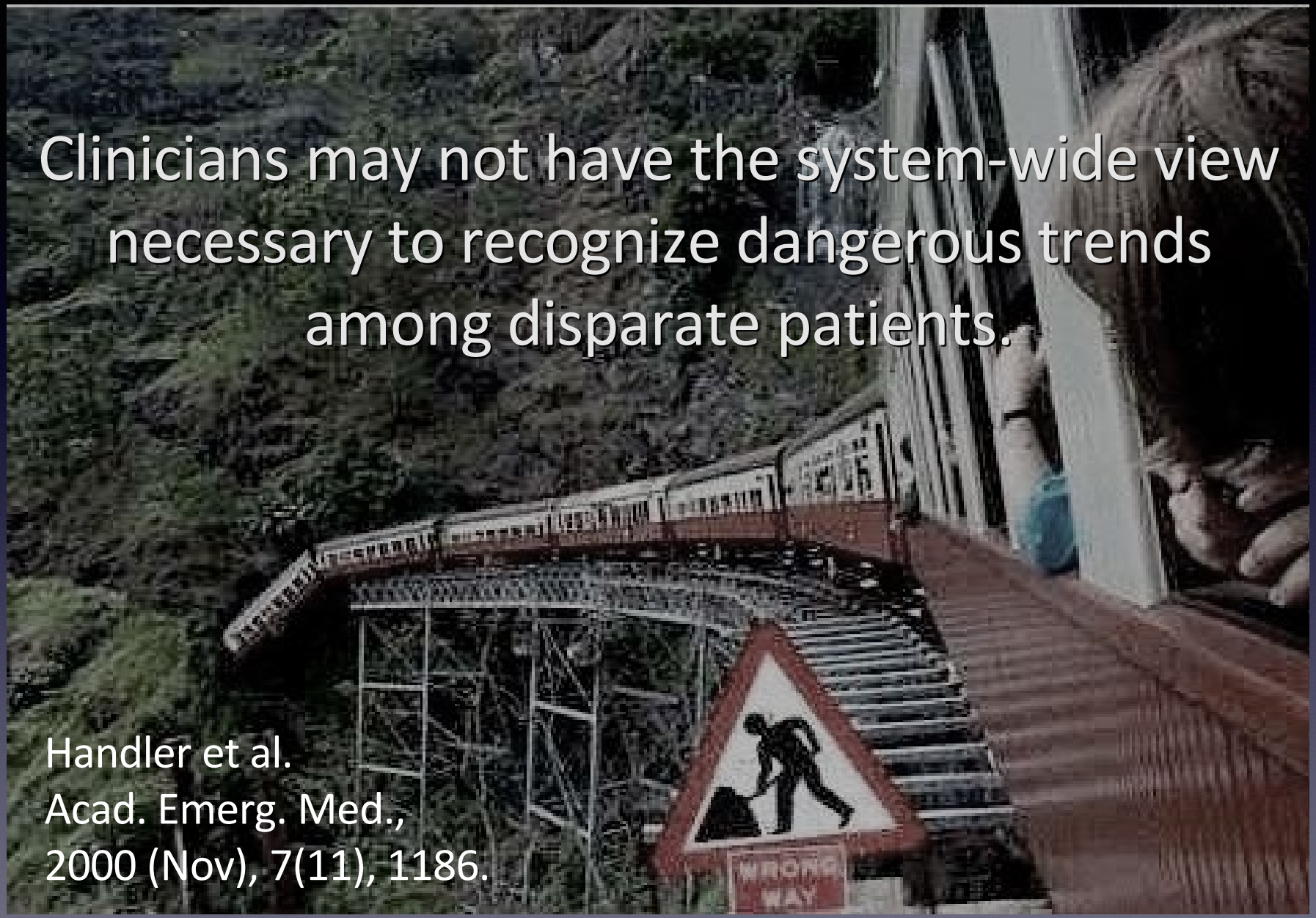
(Dawson et al. Nature Vol 388, 17, 1997 (July), page 235).

The Fluid Scale of the Kaufman Adolescent and Adult Intelligence Test

Howard et al 2002

What do patients need after a mistake?

- They need to know what happened.
- They need an apology.
- Some will need medical-financial assistance.
- They need to know something preventative is being done.


Clinicians may not have the system-wide view necessary to recognize dangerous trends among disparate patients.
Handler et al.
Acad. Emerg. Med.,
2000 (Nov), 7(11), 1186.
WRONG WAY

Historical Systemic Solutions

1. Morbidity / Mortality Rounds
2. Morbidity / Mortality Rounds
3. Focused Chart Reviews
4. Inter-departmental Reviews
5. Risk Management (RM)
6. Medical Quality Improvement (MQI)
7. Continuous Quality Improvement (CQI)

The CQI Process

Clinical Indicators

DIE
Bounce-back
Complaint Letter
Missed X-ray

Target Outcomes

Adverse outcomes
(graded 1-4)

feedback loop - in-camera proceedings

Wimmera Clinical Risk Management Program

- n = 20,050 patients (1997 - 1999)
- 3.26% (84) - 0.48% (12) events p, .001
- ARR = 2.78% (95% CI 2.04% - 3.52%)

Med. Jour. Australia
2001, 174(12), 621 -5.

Legal Alternatives (Sweden)

- Health care workers alert patients to possible medical injuries
- Health care workers assist them in their claims (actively involved in 60 -80% of claims)
- A no-fault system

Studdert et al. JAMA, 2001

Technology is the final pitfall to be avoided … because it is much easier to buy a new computer than change organizational culture or human behavior.

Wears et al. Ann. Emerg. Med., 2000 (Jul), 36:60.

10 Minute Break


OH SHIT NOT
YOU AGAIN

Part Two
The Second Victim

How likely is an AE likely to happen to you as a surgeon?

a) < 20%

b) 20-50%

c) 50-80%

d) >80%


92% (n > 3000), U.S. and Canada
42% sleep disturbance
Waterman 2007

What happens to physicians after an adverse event?

"Most doctors are too dedicated to their patients, their practice and their profession to consider a suit anything less than a direct and personal assault upon their integrity, commitment and efforts."

James and Davis
Physicians Survival Guide to Litigation Stress 2006

Initially after AE

- Initially shock, confusion, turmoil, verification
- Then denial, disconnection, obsessive re-enactment
- Loss of self-confidence
- Self-isolation

PAR MOCOMP AHS Audit

Progression after AE

- Individualized
- Some ‘stuck’
- Involves coping with loss (self-esteem, reputation, personal and professional stability)
- Drop-out, survive, thrive

Prevalent Symptoms

- Systematic review and meta-analysis to 2017
- 18/7210 studies (11,649 HCP with AE's)
- Troubling memories (81%), anxiety/concern (76%), self-directed anger (75%), regret/remorse (72%), distress (70%), fear of future errors (56%), embarrassment (52%), guilt (51%), sleep difficulties (35%)

Busch, I. et al
Journal of Patient Safety 16(2), 2020 (June)


‘ ... strolling through
the graveyard, ... ’

The Denominator as Context

1/1	12/100,000
start of career	end of career

The Vicious Cycle

- Medical error
- Increased burnout and depression
- Decreased empathy
- Increased likelihood of error

in: White and Gallagher. AMA Journal of Ethics. Sept. 2011.

West et al JAMA. 2006; 296(9): 1071 -1078.

West et al JAMA. 2009;302(12): 1294 -1300.

Fahrenkopf et al BMJ. 2008;336 (7642): 488 - 491.

Pangioti et al. JAMA Int Med., Sept. 2018.


+1 point emotional exhaustion (54 point scale)
+1 point depersonalization (30 point scale)*
3 - 10% likelihood medical error in preceding 3 months
translates forward into the next 3 months
independent of fatigue
* residents/practicing physicians
in: JAMA Int. Med. , 2017, Sept. 25

I will work harder.

I will make myself unavailable.

I will blame someone.

I will have another drink.

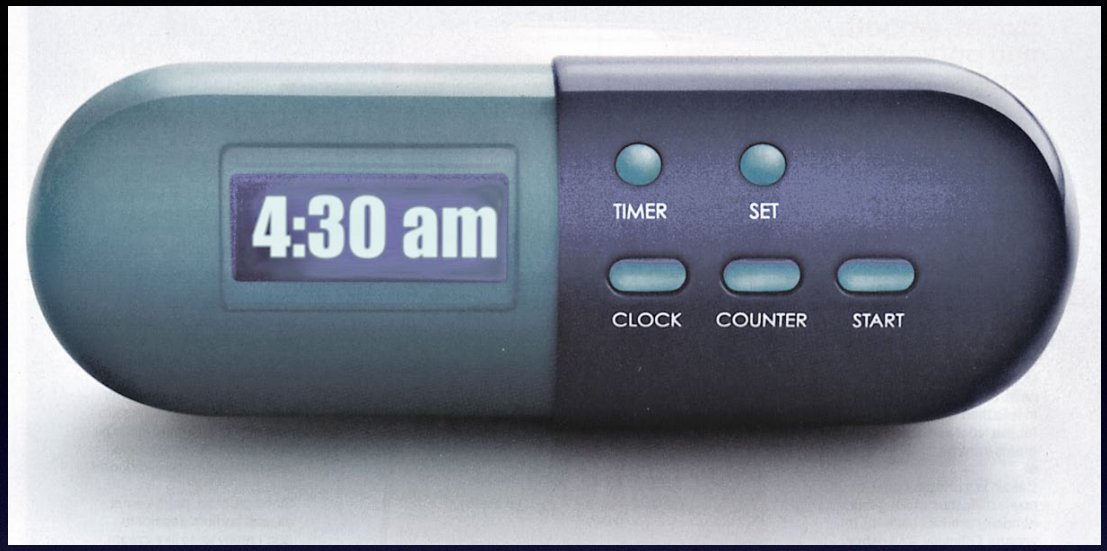
3 - 5 % ‘disruptive’ behavior

300% increase

43% family problems
50% burnout
71% anxiety

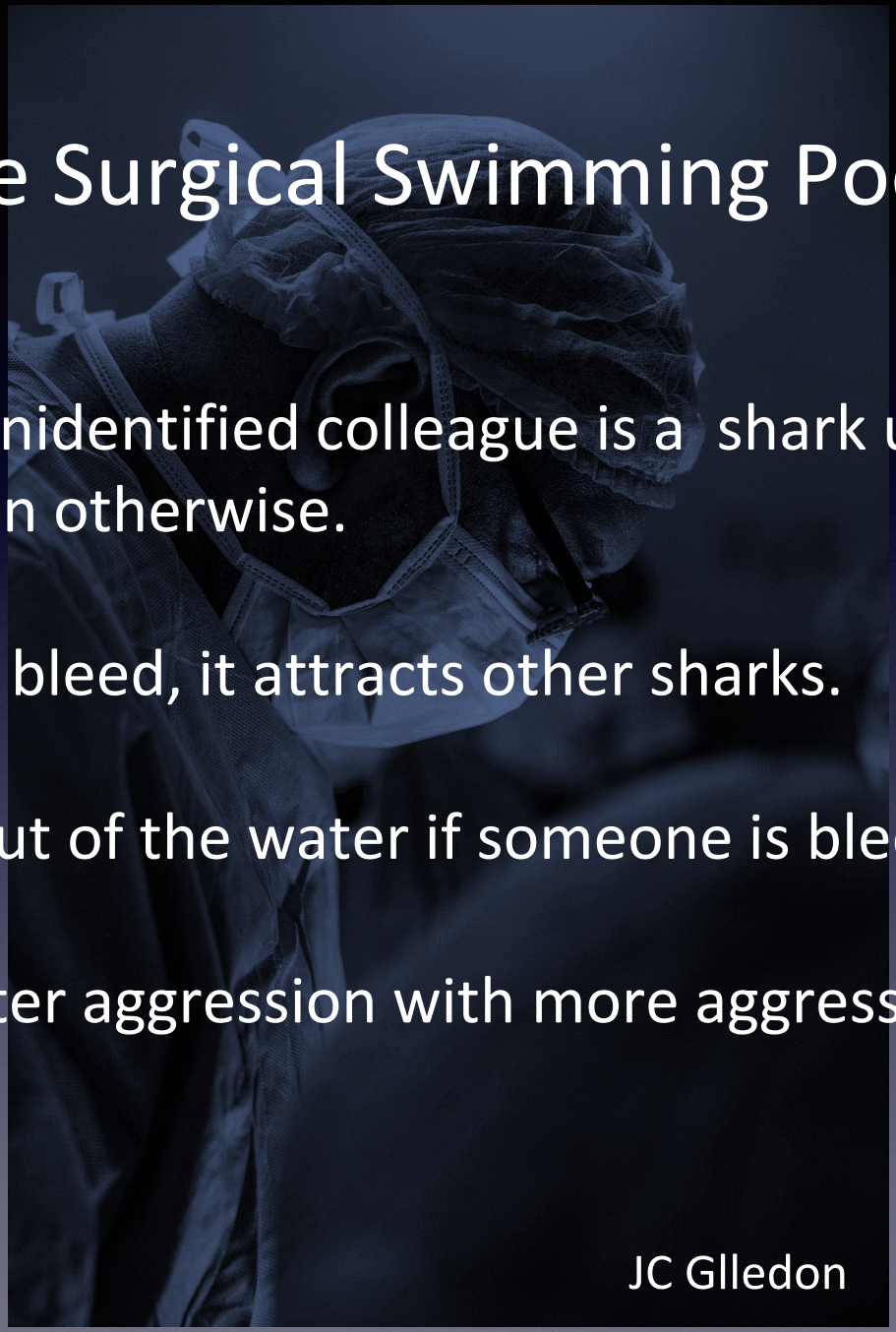
0% substance abuse
0% sociopathy
14% Axis II

M. Snyder
St. Luke’s Hospital
2010



For those long, busy days, reach for ...

The Surgical Swimming Pool*



Any unidentified colleague is a shark until proven otherwise.

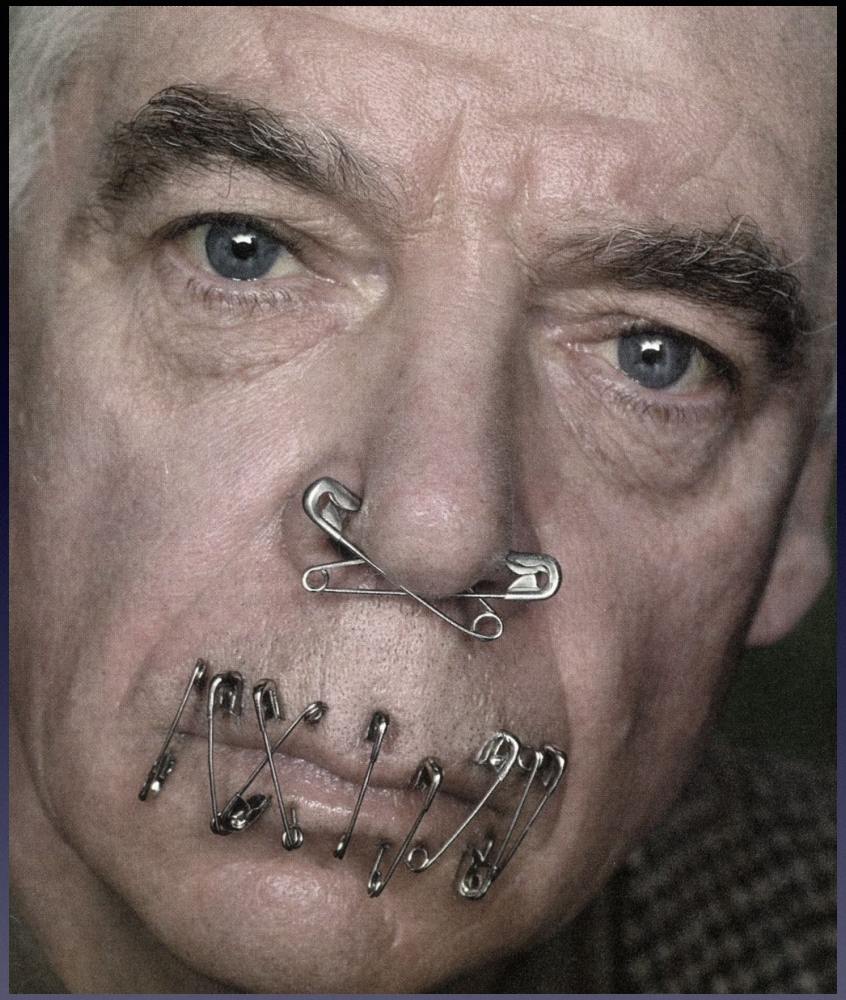
Don’t bleed, it attracts other sharks.

Get out of the water if someone is bleeding.

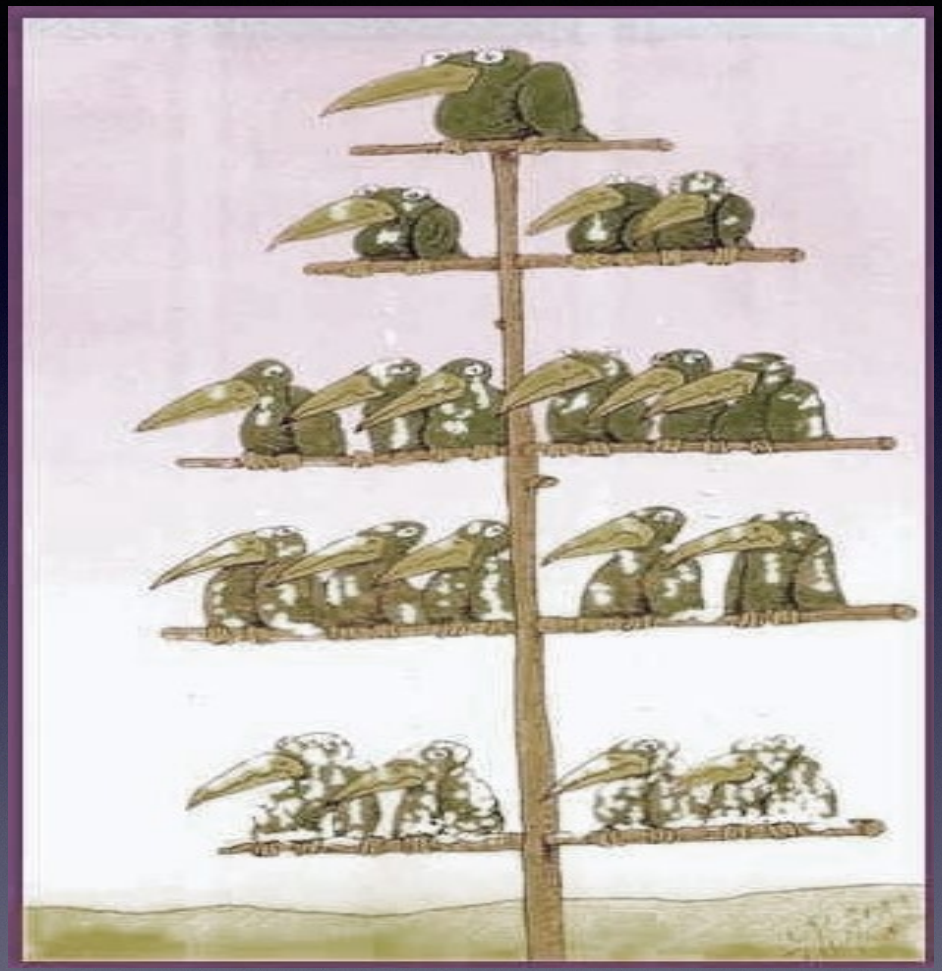
Counter aggression with more aggression.

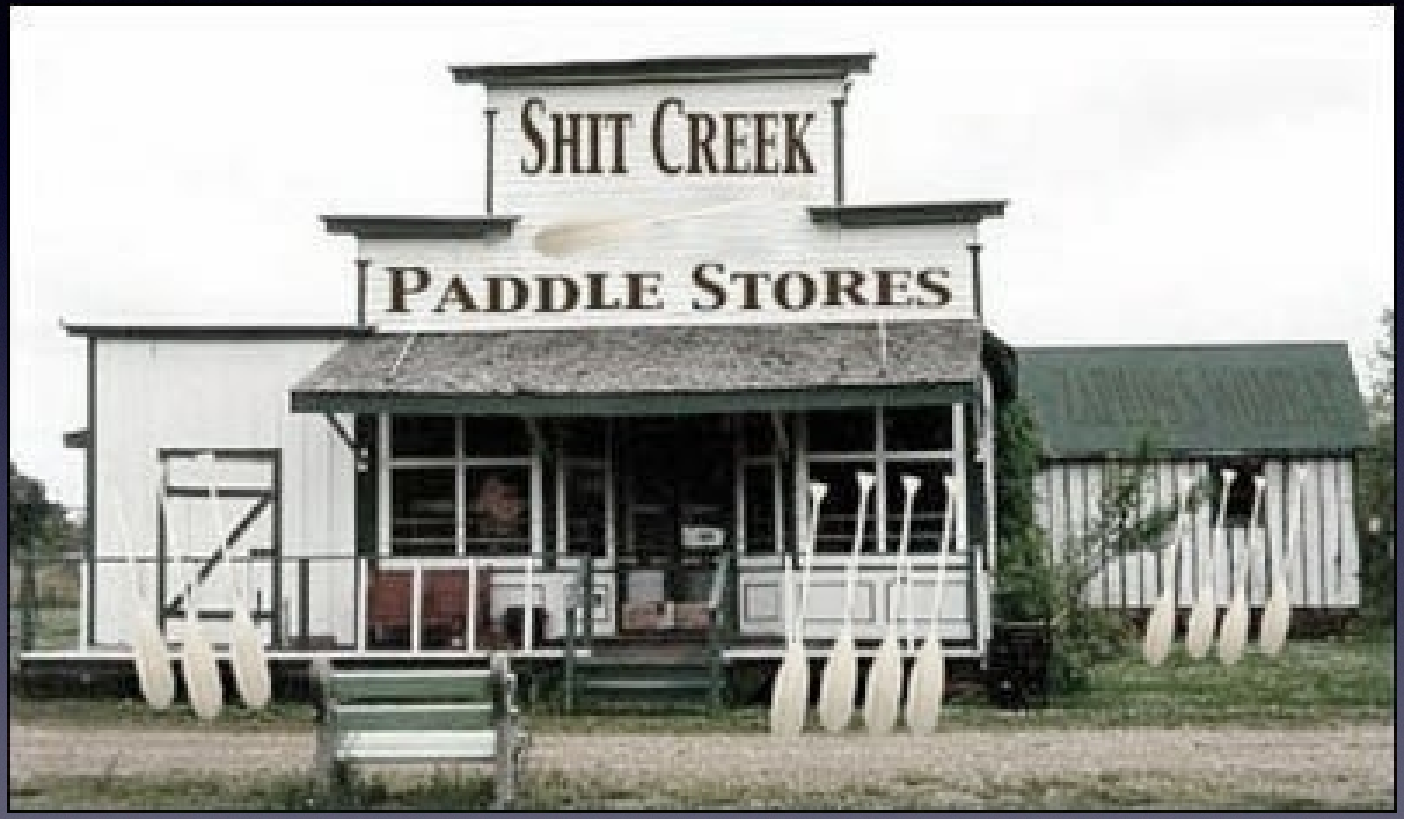
JC Glledon

*Thomas Krizek



Lemaire, BMC Health Serv Research 2010 10:208




SHIT CREEK
PADDLE STORES

Working in the hospital together, alone.

Brian Goldman, MD

“We must have walked for four or five miles out by his house and he told me about his greatest screwups ….my mentor, my father figure, the neatest guy on the face of the earth“

John Yakovich MD
in: Richards, E. The Knife and Gun Club.
Scenes from an Emergency Room. 1989.

But Can I Talk About It???

- Increased penumbra of medical legal risk
- Details in protected ‘QI’ setting
- Can discuss emotional impact elsewhere
- ‘Normalizing’ the experience
- Critical to overcoming and learning

Vicarious Traumatization

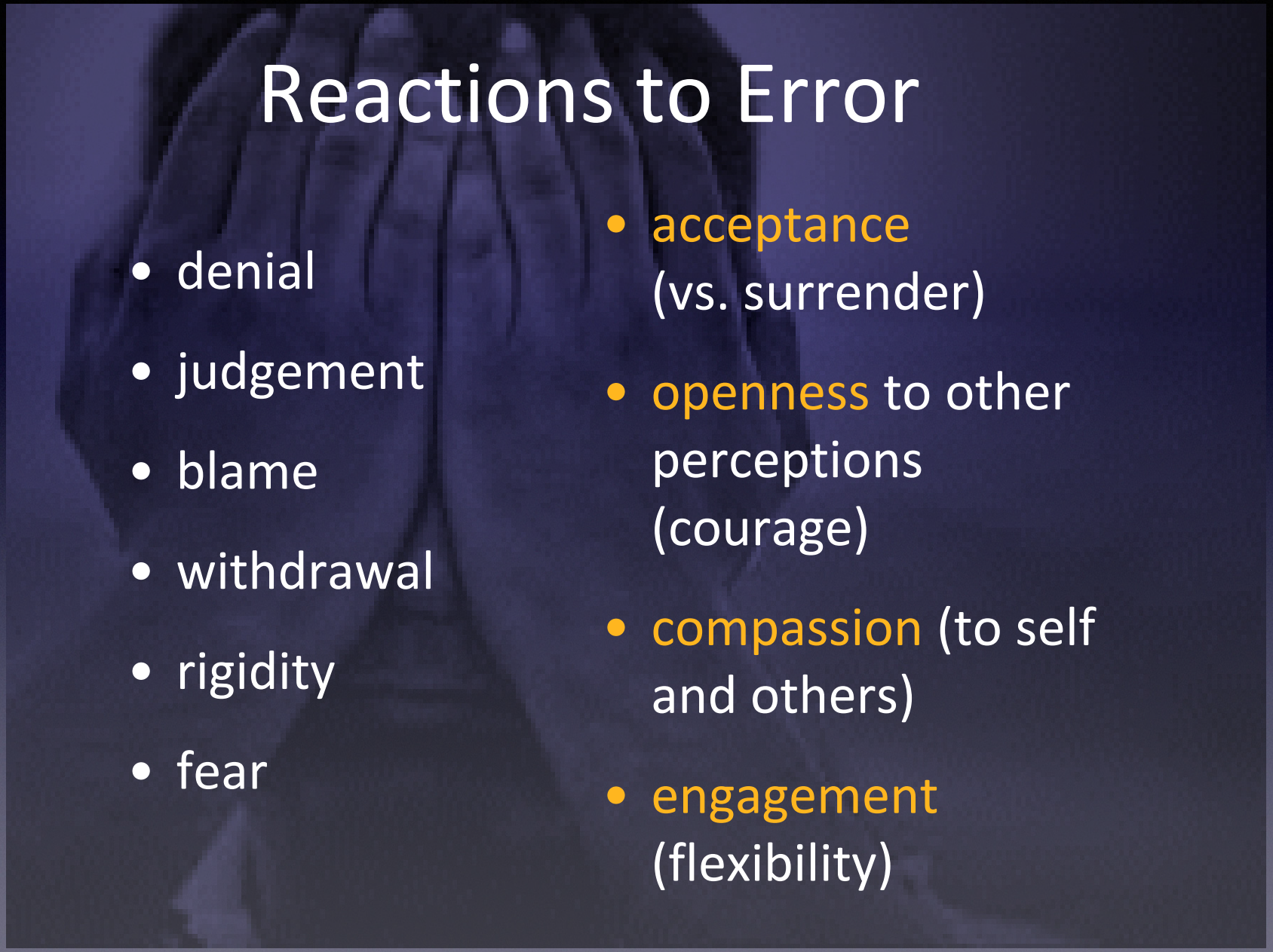
- Could I make a similar error?
- What do I say to the individual?
- The ‘ripples of distress’

What to Say

- Express empathy
- Offer to listen (if they wish to talk about feelings)
- Ask if they have a support system
- Say nothing that can be perceived as rejection

What can you do
to decrease your risk
of an adverse event?

Reactions to Error



- denial
- judgement
- blame
- withdrawal
- rigidity
- fear

- acceptance (vs. surrender)
- openness to other perceptions (courage)
- compassion (to self and others)
- engagement (flexibility)

Pam

Sue

Jane

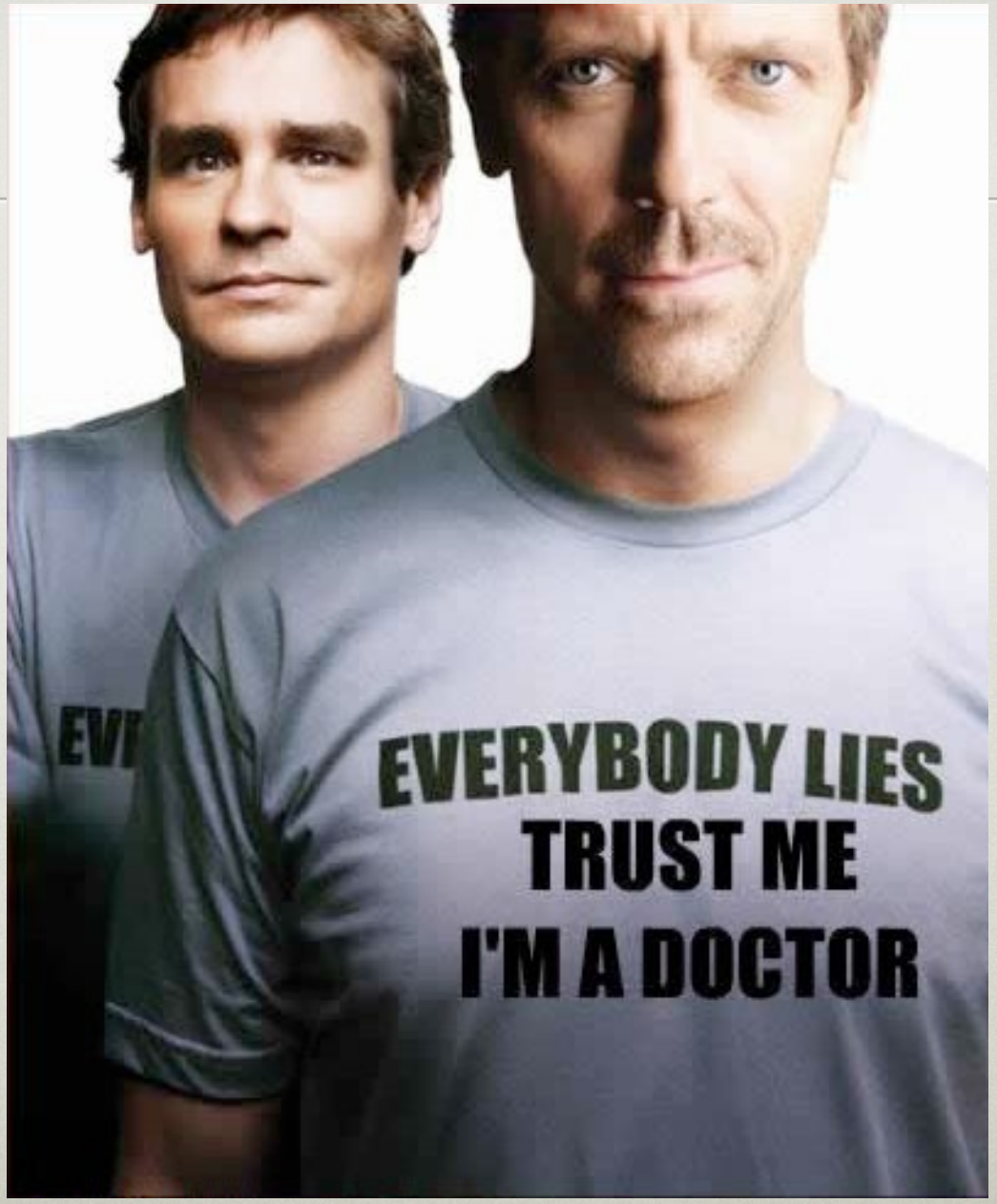
- A. M. - hot chocolate with WC
- R. L. - latte
- D. B. - latte, vente, extra hot
- J. B. - caramel macchiato with WC
- P. D. - DS Americano
- D. A. - hot chocolate (soy), no WC
- S. P. - medium roast, 2 cream, 2 sugar

Knowing you're OK (a summary)

1. Your patients and staff seek you out.
2. You care for your collegues and staff.
3. You remember your staff's names.
4. You communicate your needs.
5. You have fun.
6. You have lunch.
7. You remember family events.
8. You have a dream, and pursue it.

The Emperor's New Clothes

- Assumption that errors will occur
- Emphasis on system (vs. person)
- Non-punitive approach
- Emphasis on multi-factorial nature of error
- Emphasis on care-giver interactions
- 'Blunt-end' analysis


EVERYBODY LIES
TRUST ME
I'M A DOCTOR


What is trust?

London

- Population 7.8m
- 5 medical schools
- 39 hospital trusts
- 3 Academic Health Science Centres
- 14 Royal Colleges

London Deanery

- Organisation led by a postgraduate dean
- Funded by the NHS
- Hosted by University of London
- Manages the training of 10,000 postgraduate doctors (ie interns and residents)
- Budget of £400m

Elizabeth Paice
FRCP FAcadMed

10,000 physicians

400,000,000 pounds

48 hr. wk legislation

Hospital-based change

Patient mortality down

Reduced deaths within 48 hours or admission and surgery, reduction in hospital standardized mortality ratio, reduction in cardiac arrests*

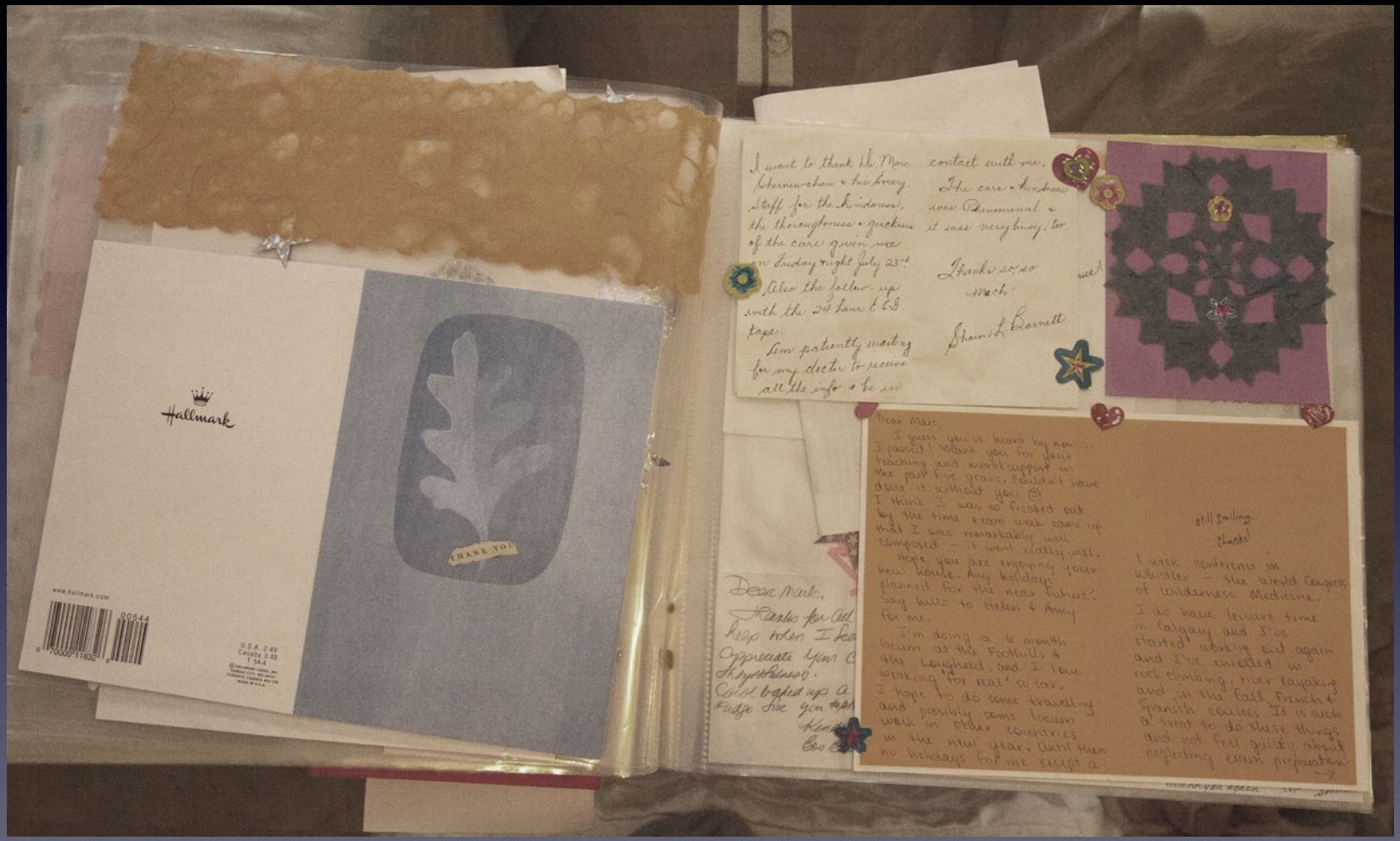
*22 hospital evaluation,
compared to national averages

Comparable trend for length of stay and re-admission

Recurrent savings of 4.100,000 pounds **

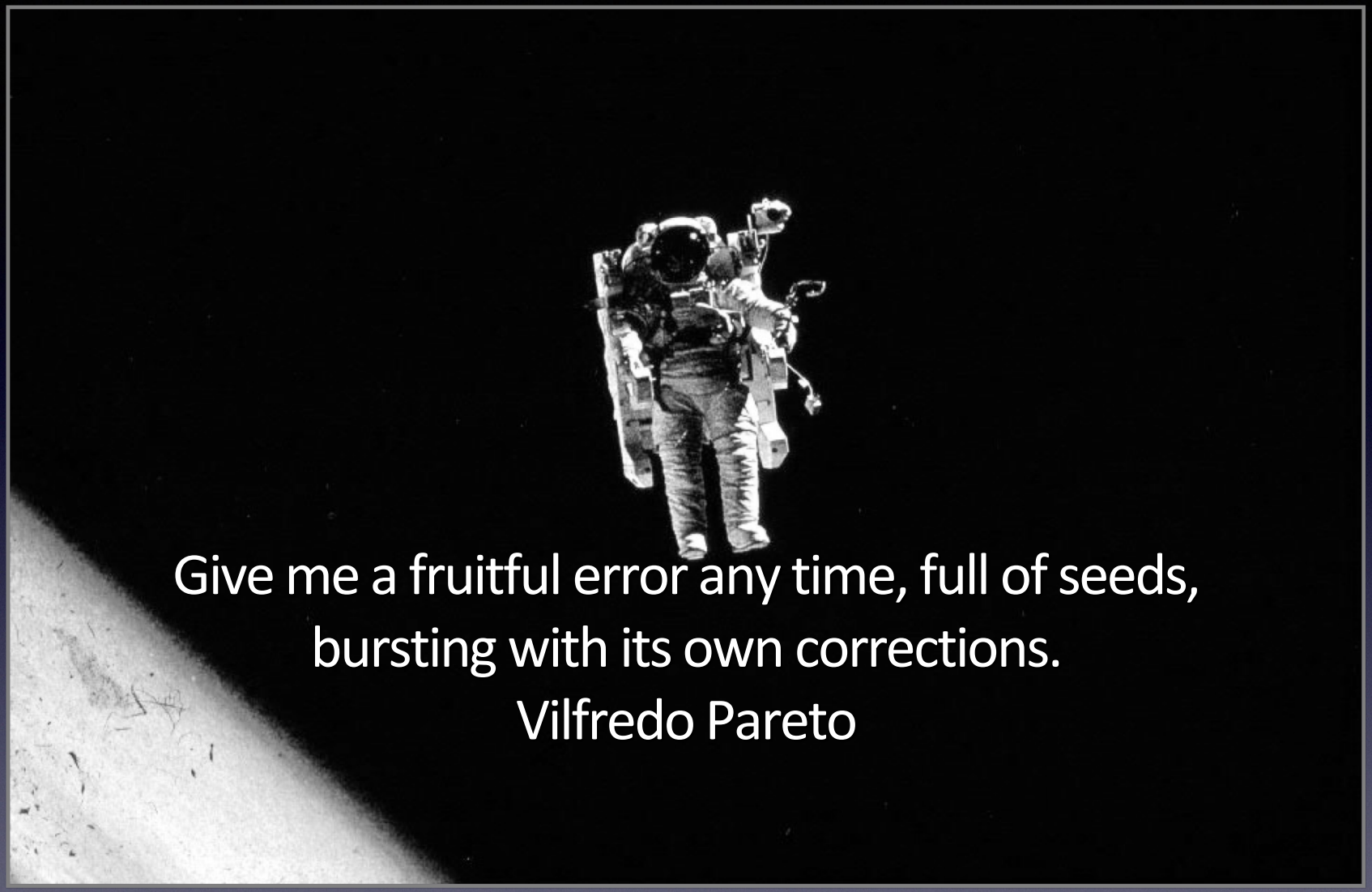
** Guy's and St. Thomas's Hospitals

- Mobilize resources (PFSP, CMPA)
- First thing in the morning
- Recognizing ‘triggers’
- Mindfulness


Hallmark
THANK YOU
I want to thank Dr. Moore, Chernushan & the Emerg. staff for the kindness, the thoroughness & quickness of the care given me on Friday night July 23rd. I also the follow up with the 24 hour E.C.G. tape.
I am patiently waiting for my doctor to receive all the info & be in contact with me.
The care & kindness were phenomenal & it was very busy, too.
Thanks so so much!
Sharon L Barnett
Dear Mark,
I guess you've heard by now... I passed! Thank you for your teaching and moral support in the past five years. Couldn't have done it without you!
I think I was so freaked out by the time exam week came up that I was remarkably well composed – it went really well.
Hope you are enjoying your new house. Any holidays planned for the near future?
Say hello to Helen & Anny for me.
I'm doing a 6 month locum at the Foothills & the benefits and I love working "for real" so far.
I hope to do some travelling and possibly some locum work in other countries in the new year. Until then no holidays for me except a
still smiling.
thanks!
1 week conference in Whistler – the World Congress of Wilderness Medicine.
I do have leisure time in Calgary and I've started skiing out again and I've enrolled in rock climbing, river kayaking and in the fall French & Spanish courses. It is such a treat to do these things and not feel guilty about neglecting exam preparation.

How You Move On

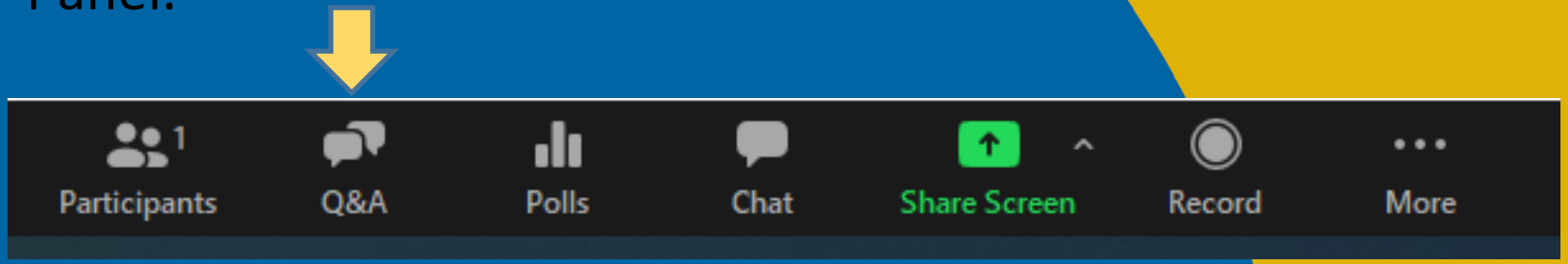
- Learn about what happened.
- Teach about what happened.
- Practise apologizing with small stuff.
- Talk about how it feels.
- Remember, you are always at your most dangerous.

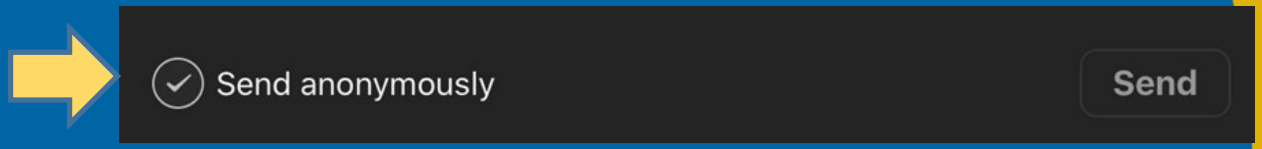


Wears et al. Ann. Emerg. Med.,. 2001 (Apr), 37(4), 420.

Q&A

To submit a question use the Q&A function in your Zoom Control Panel.

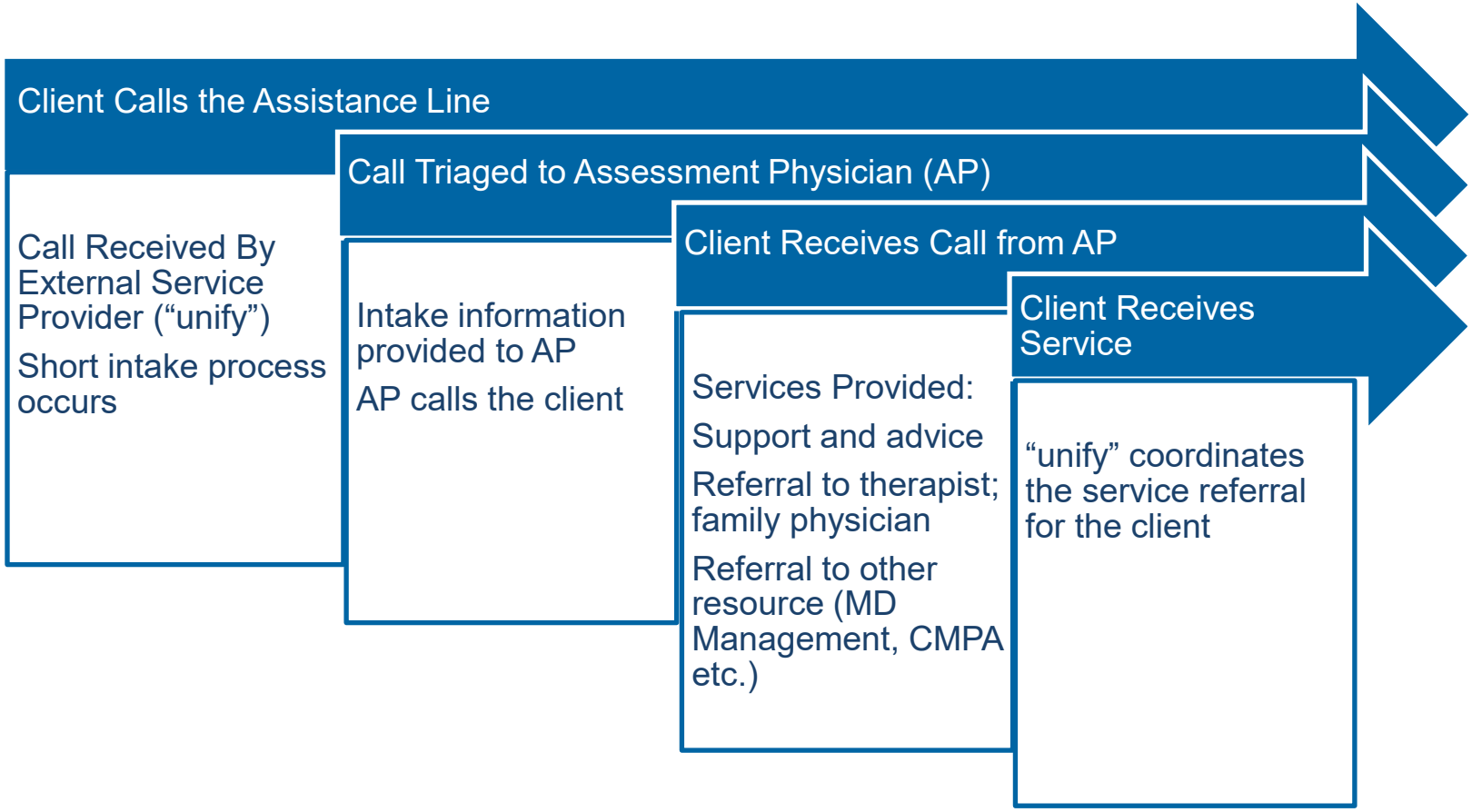




You will be able to submit your question anonymously by selecting the “send anonymously”.

Calling the Assistance Line

ALBERTA MEDICAL ASSOCIATION



Call AMA's
Physician and
Family Support
Program

1.877.767.4637

24 hours a day

pfsp

Evaluation

ALBERTA MEDICAL ASSOCIATION

Thank you and please complete the post-session evaluation

https://www.surveymonkey.com/r/DepSurgery2020Oct08

or

Use this QR Code

pfsp