

M·TQIP

Please start answering scenario questions

**Ann Arbor, MI
June 5, 2018**

Welcome Announcements Scenarios

**Jill Jakubus
10:00**



Disclosures

Salary support for MTQIP from BCBSM/BCN

- Mark Hemmila
- Judy Mikhail
- Jill Jakubus
- Anne Cain-Nielsen

New Members

- Beaumont Hospital - Troy
- Henry Ford Allegiance
- Mercy Health Muskegon
- University of Minnesota

New Attendees

- Level III Trauma Centers

Announcements – State of Michigan

- Region report completed
- Center report summer 2018
- Data submission

Announcements – Content

- Wide attendee experience
- Variety attendee scope
- Objective value for all

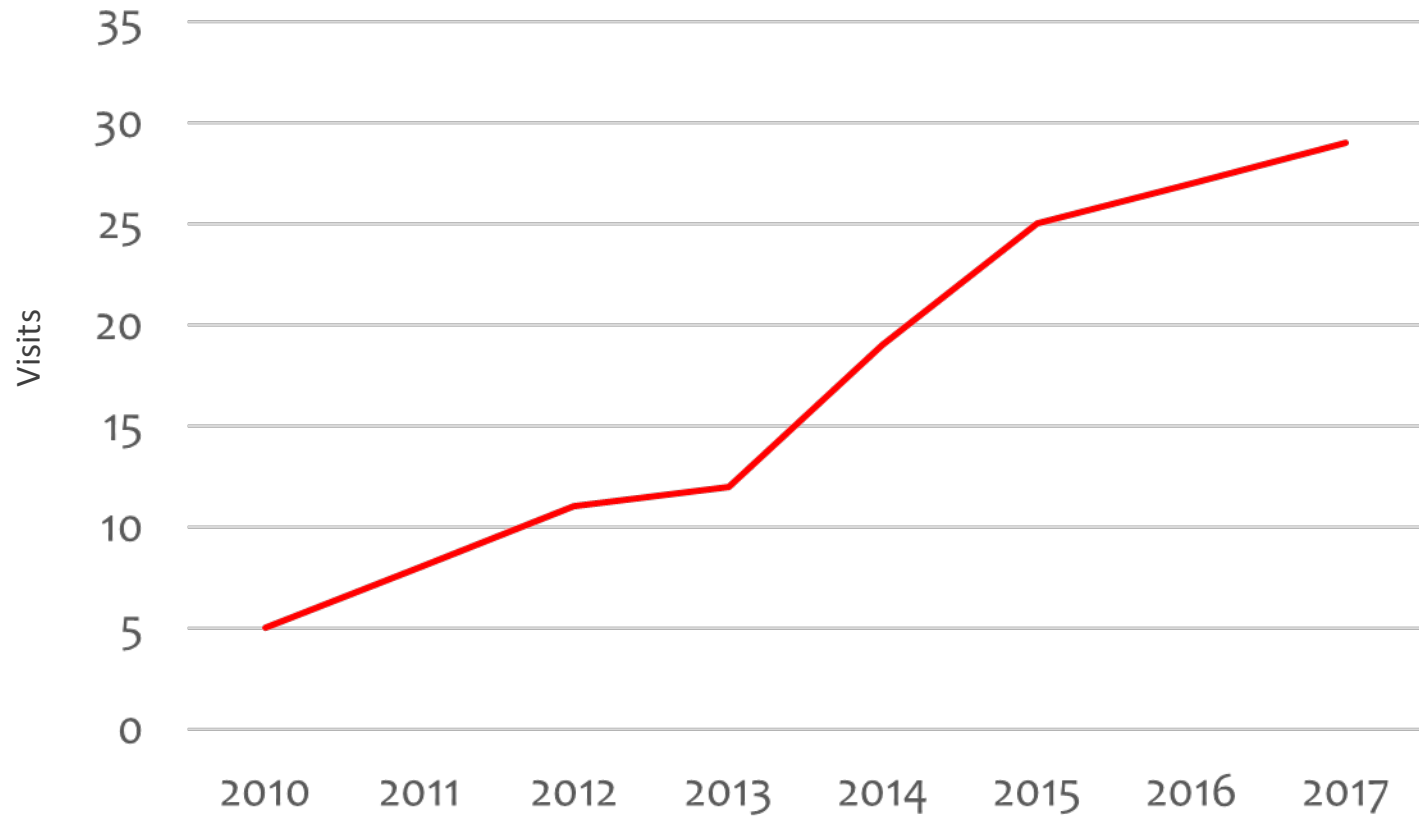
Announcements – Evaluations

- Thank you
- Feedback based changes implemented
- Provide OFI for all values < 5
- Solutions

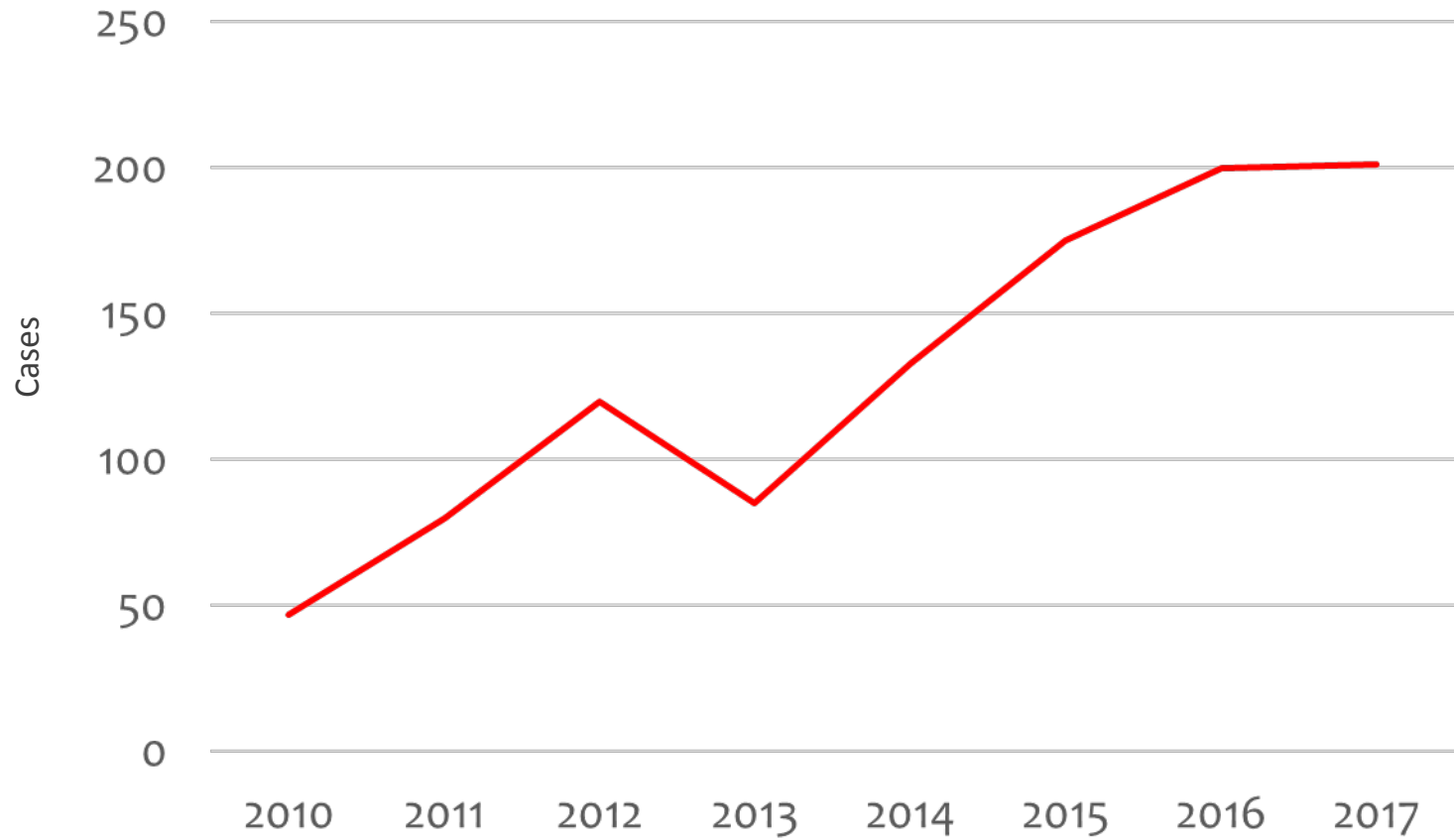
Announcements – Validation Scheduling

- Changes coming 2019
- Member progress

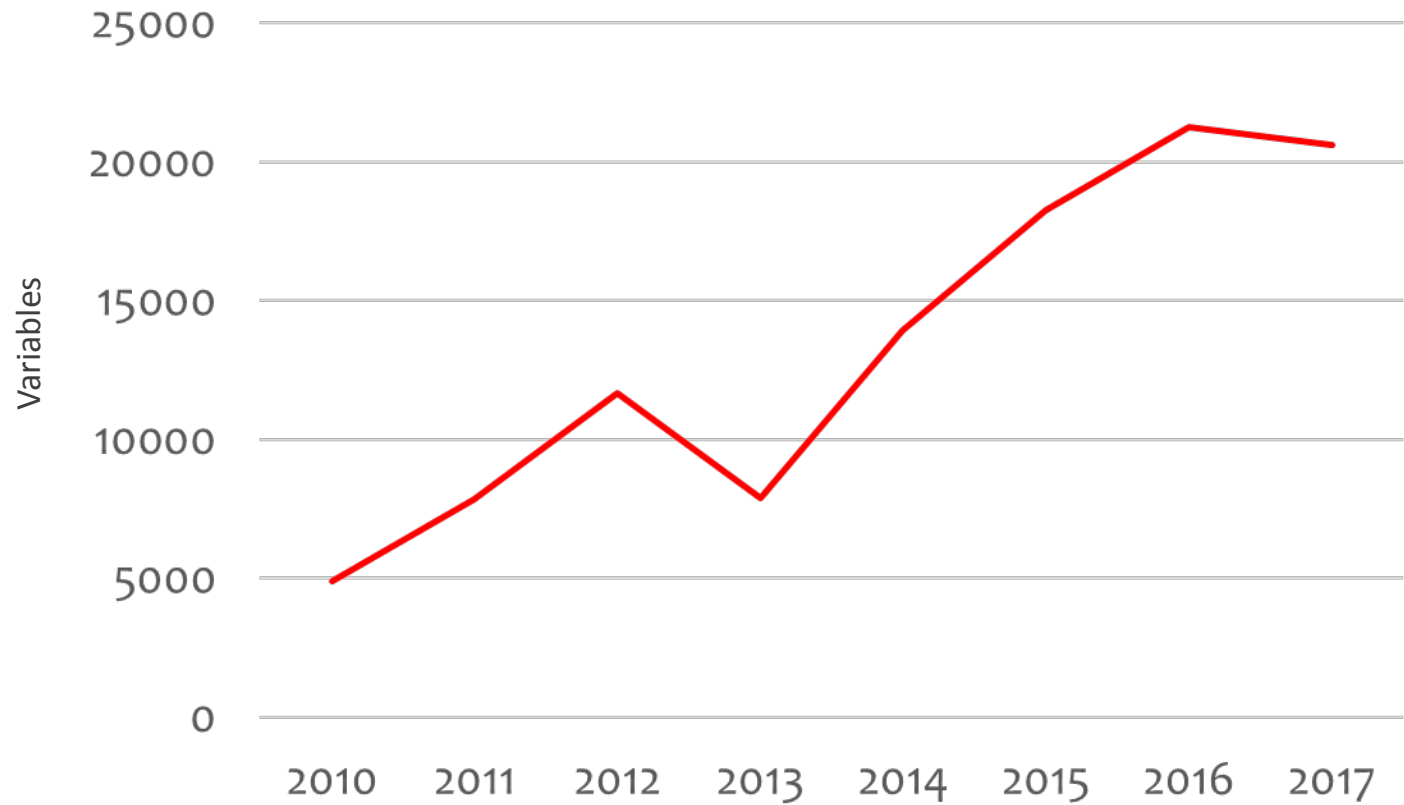
Center Visits



Cases

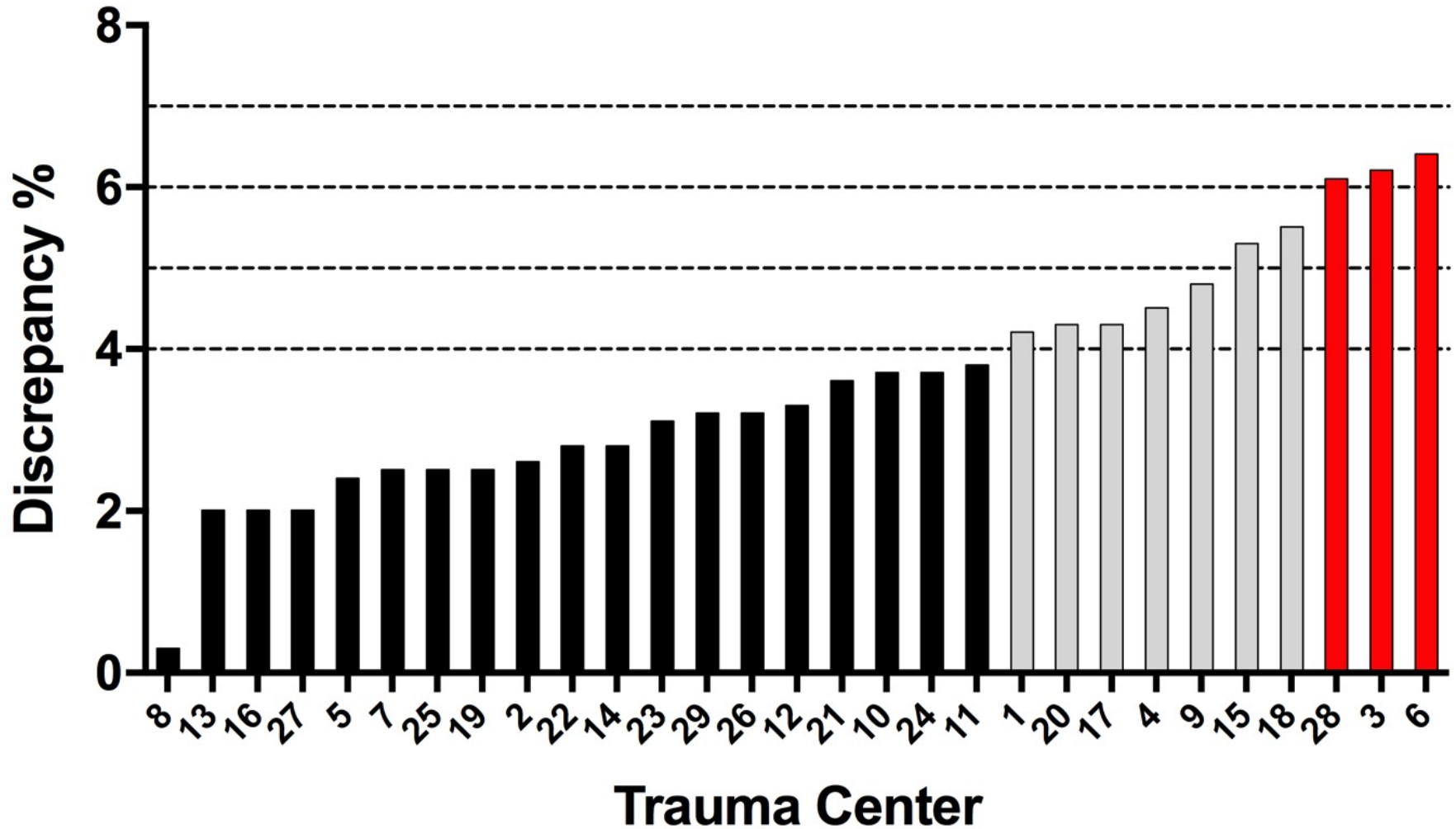


Variables



Data Validation

Last Processed Report



Announcements – Validation Scheduling

- Member progress
- Collaborative growth
- Maximize resources and value

Announcements – Validation Scheduling



Announcements – Validation Scheduling



0

+



8

+



17

Announcements – Validation Scheduling

- Present Oct 2018 MTQIP meeting
- Center selection/notification in Dec
- Implementation Jan 2019
- New protocol will be posted on site
- Centers not chosen have validation excluded from their performance index

Feedback

Scenarios - Objective

- Introduction to cases for Cookman lead in

Scenarios – Question 1

Autopsy Performed: When entering data of Jane's death information, "Not Applicable" is the correct response for *was an Autopsy Performed*. (Scenarios Page 49)

❖ True

❖ False

Scenarios –Question 2

Hospital Procedure: Jimmy suffered a SDH and skull fracture requiring surgery, due to this he had multiple CT heads w/o contrast completed during his stay. How many CT heads do you report? (NTDS 2018 Page 80, 5th bullet)

- A. None**
- B. All CT Head Scans**
- C. First CT Head**
- D. Only post OP CT Head**

Scenarios –Question 3

Time of Death: The Folsom County Coroner departed the ED with Jane at 17:39. Resuscitative efforts concluded and pronounced at 16:32. What is Jane's *Time of Death*? (NTDS 2018 Page 78, 4th bullet)

- A. Not Documented
- B. 17:39
- C. Not Applicable
- D. **16:32**

Scenarios –Question 4

Hospital Procedure Start Time: Jimmy went to the OR for a Craniotomy and ICP placement, the anesthesia start time was 17:22 and the operation began at 17:40. What time do you report for his *Hospital Procedure Start Time*? (NTDS 2018 Page 83, 2nd bullet)

- A. Not Documented
- B. **17:40**
- C. Not Applicable
- D. 17:22

Scenarios –Question 5

Other Transport Mode: Ramona Krash was transported from the scene by ambulance to Man in Black Medical Center. After a quick evaluation she was transferred to Rowboat Children's Hospital via Helicopter. What is her *Other Transport Mode*? (NTDS 2018 Page 42, "All other modes of transport (prior to arrival at your hospital), except the mode delivering the patient to the hospital)

- A. **Ground Ambulance**
- B. Helicopter
- C. Fixed-Wing Ambulance
- D. Private or Public Vehicle/ Walk In

Scenarios –Question 6

Injury Incident Date/Time: A passing motorist makes a call to 911 at 15:33 on 11/17/17 to report a crash that occurred several minutes earlier. What *Injury Incident Date/Time* should be documented for each of the Krash family members in the trauma registry? (NTDS 2018 Page 16, 2nd bullet)

- A. 15:30 on 11/17/17
- B. 15:34 on 11/17/17
- C. **Not Documented Injury Incident Time on 11/17/17**
- D. Not Documented Injury Incident Time on Not Documented Injury Incident Date

Scenarios – Thank you



Orthopedic Injury Coding

Bryant Oliphant
10:20



Orthopaedic Trauma in MTQIP

Bryant Oliphant, MD, MBA, MSc

Research Investigator

bryantol@med.umich.edu

 @BonezNQuality

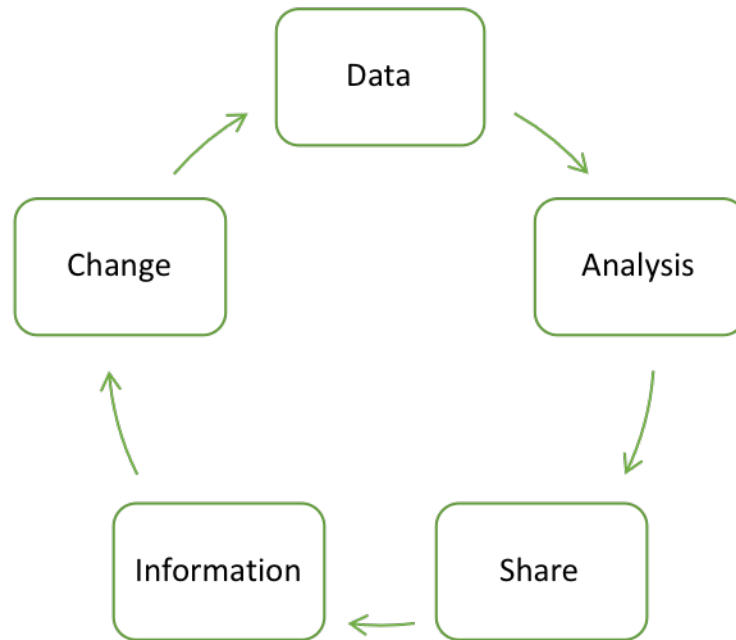
Disclosures

- None

Goal of collaboratives



Collaborative



But it's easy, right?

- Data mining
- Simple papers

ORIGINAL ARTICLE

In-hospital mortality from femoral shaft fracture depends on the initial delay to fracture fixation and Injury Severity Score: A retrospective cohort study from the NTDB 2002–2006

Robert Victor Cantu, MD, MS, Sara Catherine Graves, MD, MS,
and Kevin F. Spratt, PhD, Lebanon, New Hampshire

Delayed Internal Fixation of Femoral Shaft Fracture Reduces Mortality Among Patients with Multisystem Trauma

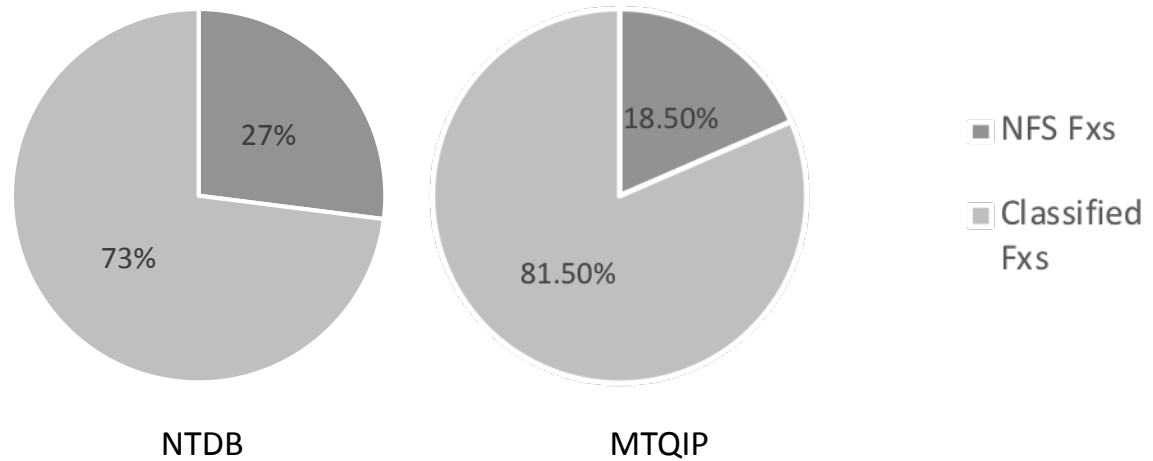
By Saam Morshed, MD, MPH, Theodore Miclau III, MD, Oliver Bembom, PhD, Mitchell Cohen, MD, M. Margaret Knudson, MD, and John M. Colford Jr., MD, PhD

	MTQIP		NTDB	
Fracture	% Specified	% Not Further Specified	% Specified	% Not Further Specified
Pelvic Ring	76.58	23.42	65.53	35.47
Acetabulum	61.07	38.93	46.32	53.68
All Femur	88.14	11.86	87.14	12.86
Proximal Femur	96.50	3.50	94.03	5.97
Femoral Shaft	65.72	34.28	97.18	2.82
Distal Femur	65.17	34.83	96.26	3.74
All Tibia	63.17	36.83	54.49	45.51
Proximal Tibia	78.92	21.08	72.40	27.60
Tibial Shaft	73.05	26.95	66.06	33.94
Distal Tibia	51.72	48.28	47.89	52.11
Talus	42.68	57.32	42.74	57.26
Calcaneus	42.42	57.58	42.40	57.60
Navicular	32.14	67.86	31.60	68.40
Clavicle	75.13	24.87	56.31	43.69
Scapula	54.01	45.99	49.04	50.96
Proximal Humerus	72.74	27.26	64.09	35.91
Humerus	93.12	6.88	89.46	10.54
Radius	97.58	2.42	93.96	6.04
Ulna	96.25	3.75	91.65	8.35

MTQIP vs. NTDB

	MTQIP	NTDB
All Fractures	70,918	1,269,278
All NFS Fractures	13,116	342,472
Overall percentage NFS	18.5%	27%

NTDB vs. MTQIP



MTQIP

Level 1		Level 2	
Total Fractures	NFS Fractures	Total Fractures	NFS Fractures
29,122	6,187	41,796	6,929
21.2% NFS		16.6% NFS	

***p < 0.001**

MTQIP

Simple		Complex	
Total Fractures	NFS Fractures	Total Fractures	NFS Fractures
45,529	4,350	25,389	8,766
9.6% NFS		34.5% NFS	

***p < 0.001**

NTDB

Simple		Complex	
Total Fractures	NFS Fractures	Total Fractures	NFS Fractures
722,212	113,526	547,066	228,946
15.7% NFS		41.8% NFS	

***p < 0.001**

Ranking of Sources of Injury Information

- Medical Examiner/Autopsy Reports
- Hospital/Medical Records
 - Autopsy Reports
 - Operative Reports → *Gobbledygook*
 - Radiology Reports
 - Nursing or ICU Notes
 - Physician Progress Notes
 - ED Record
 - Discharge Summary
 - Face Sheet
- “Field Records”
 - Ambulance Run Sheets
 - Police Reports
- Bystander
- Patient (esp. LOC)



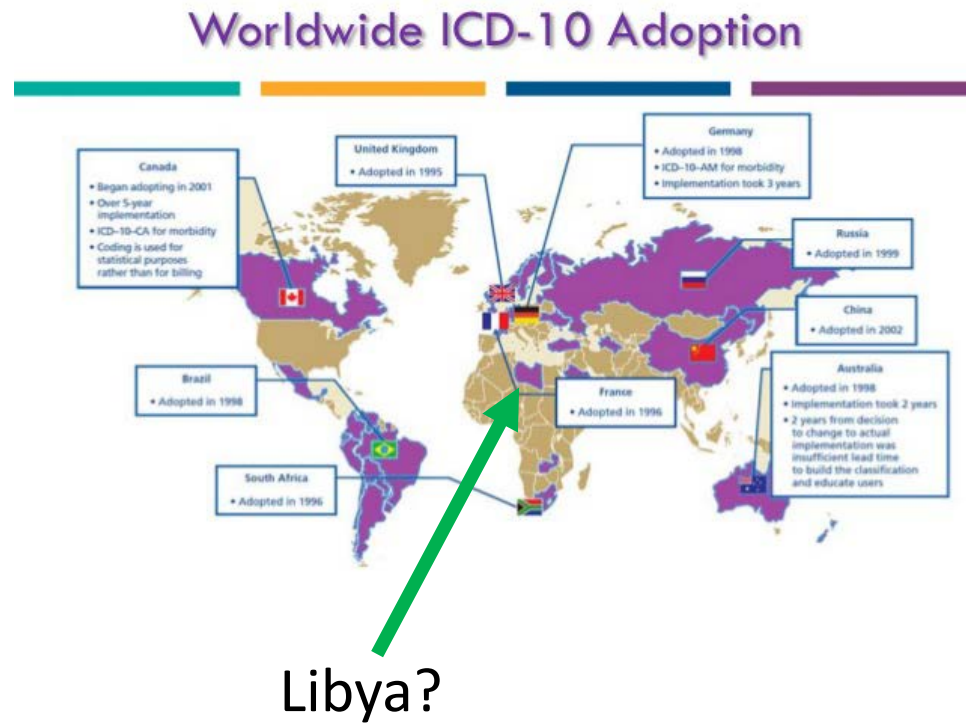
Highest

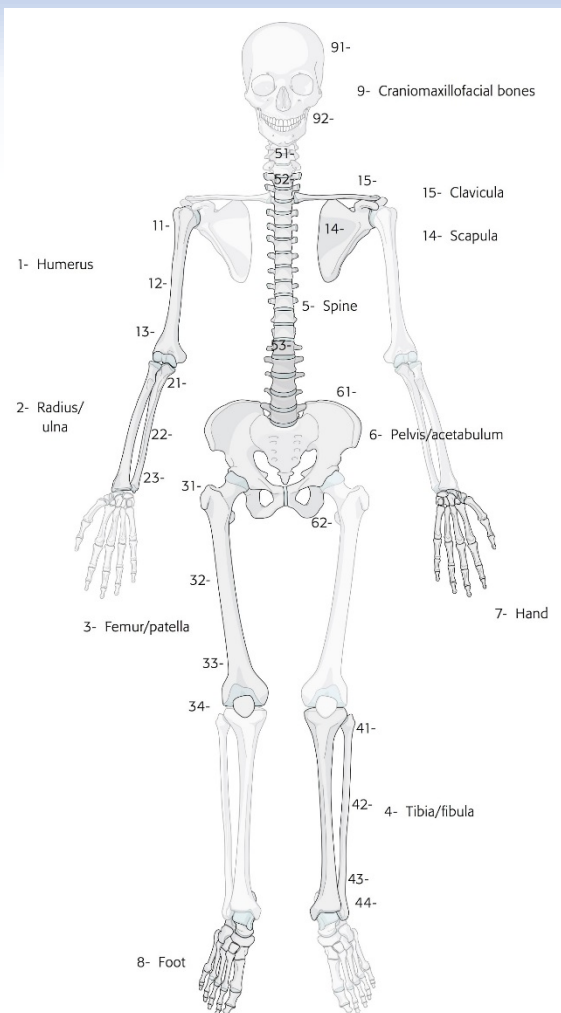
Level of General Reliability
Completeness of Detail










Lowest

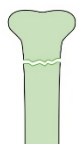
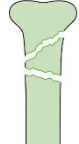

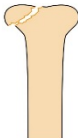
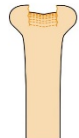
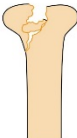
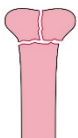
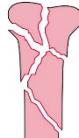

Orthopaedic Classification Systems

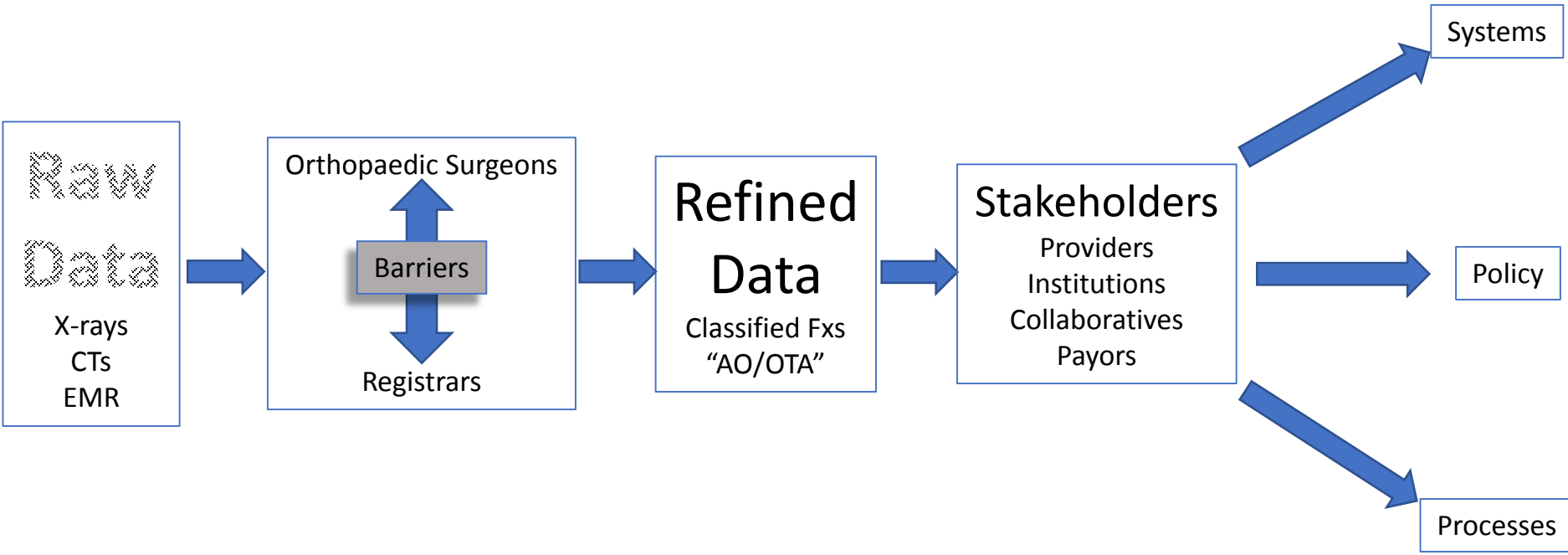
- ICD 9 → 10
- AIS2005
- Not AO/OTA
- Unspecified?
- Not Further Specified?





Type	Group		
	1	2	3
A Simple			
	Spiral	Oblique	Transverse
B Wedge			
	Spiral	Bending	Multifragmentary
C Complex			
	Spiral	Segmental	Irregular

Type	Group		
	1	2	3
A Extraarticular			
	Simple	Wedge	Complex
B Partial articular			
	Split	Depression	Split-depression
C Articular			
	Simple articular, simple metaphyseal	Simple articular, complex metaphyseal	Complex articular, complex metaphyseal



ICD9 – Pelvis

- 808 Fracture of Pelvis
 - 808.4 Closed fracture of other specified part of pelvis
 - 808.43 Multiple closed pelvic fractures with disruption of pelvic circle
 - 808.44 Multiple closed pelvic fractures without disruption of pelvic circle
 - 808.49 Closed fracture of other specified part of pelvis
 - 808.8 Closed unspecified fracture of pelvis

ICD9 – Pelvis

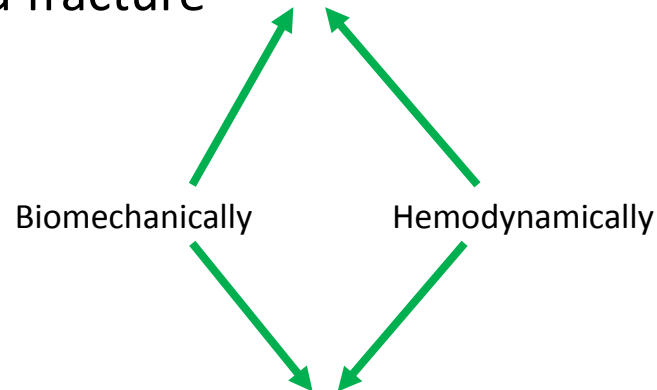
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ICD10 – Pelvis

- [S32.810A](#) Multiple fractures of pelvis with stable disruption of pelvic ring, initial encounter for closed fracture
- [S32.811A](#) Multiple fractures of pelvis with unstable disruption of pelvic ring, initial encounter for closed fracture

ICD10 – Pelvis

- [S32.810A](#) Multiple fractures of pelvis with **stable** disruption of pelvic ring, initial encounter for closed fracture

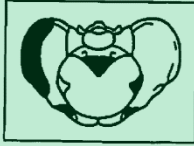

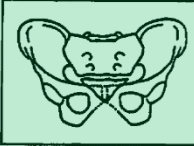
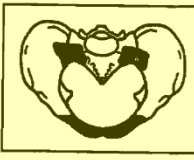
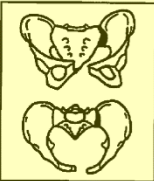
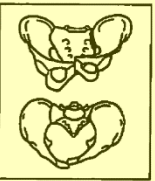
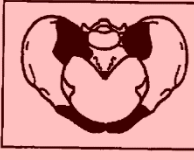

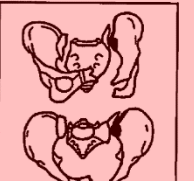


- [S32.811A](#) Multiple fractures of pelvis with **unstable** disruption of pelvic ring, initial encounter for closed fracture

AIS2005 – Pelvis

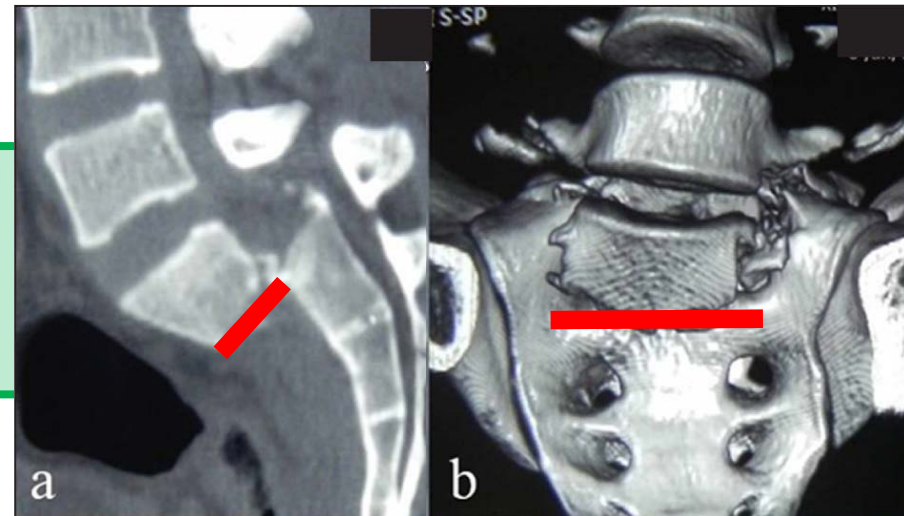
*To the extent possible, **the coder** (**registrar**) should seek information about the stability or instability of the fracture, described as follows, in assigning an AIS code.*

AIS2005

Stable	<p>Types: Fracture, posterior Arch intact</p> 	<p>Examples: Innominate bone Avulsion fracture</p> 	<p>Transverse fracture Sacrum and coccyx</p> 
Partially Stable	<p>Fracture, incomplete Disruption of Posterior arch</p> 	<p>Unilateral, "open Book" fracture</p> 	<p>Unilateral, lateral Compression fracture</p> 
Unstable	<p>Fracture, complete Disruption of Posterior arch</p> 	<p>Vertical Instability</p> 	<p>Bilateral, complete Pelvic floor disruption</p> 

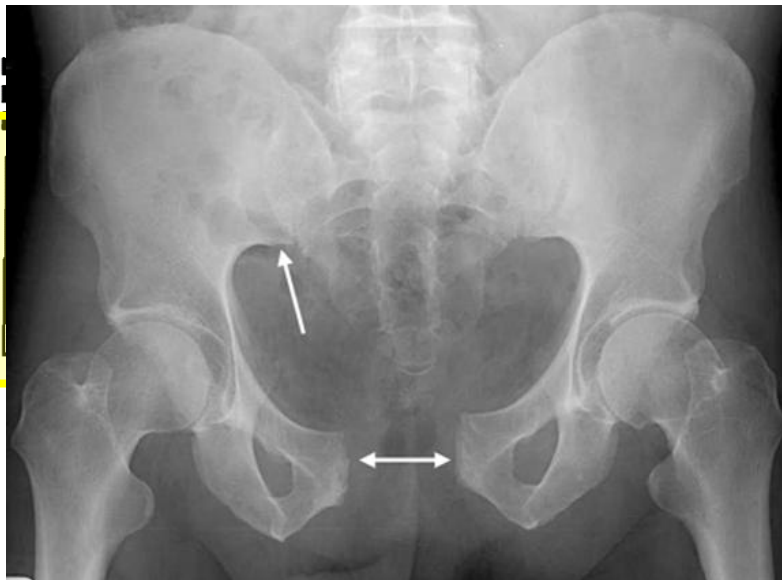
Stable – Tile A Type

- Fracture not involving the posterior arch; pelvic floor intact and able to withstand normal physiological stresses without displacement.

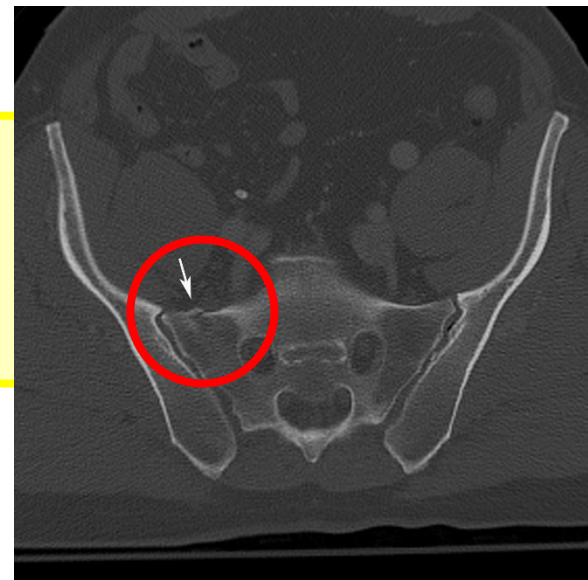


Partially Stable – Tile B Type

- Posterior osteoligamentous integrity partially maintained and pelvic floor intact.



Operative



Non-operative

APC2 (Operative)

LC1 (Non-operative)

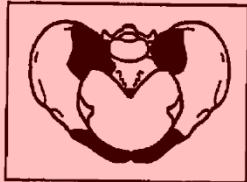


Pelvic ring fracture (AIS2005):
Incomplete disruption of posterior arch

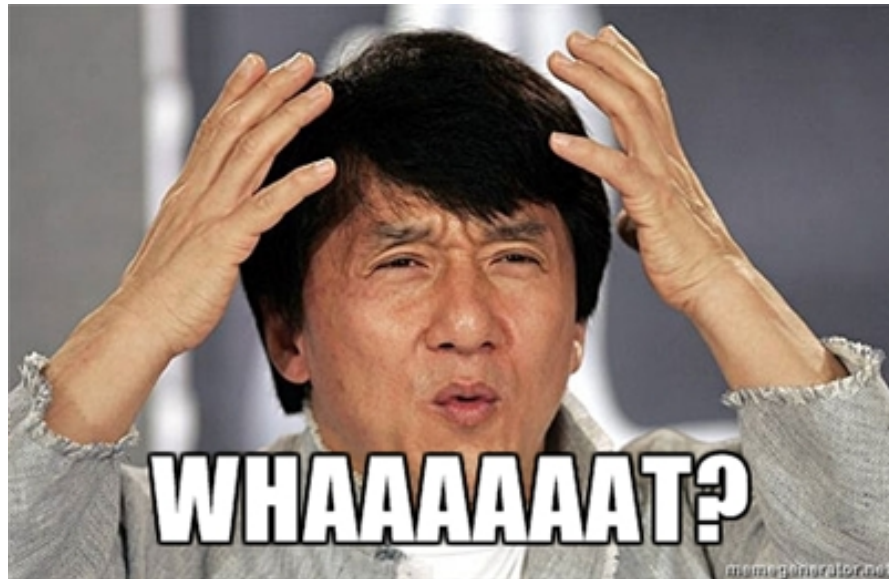
Unstable – Tile C Type

- Complete loss of posterior osteoligamentous integrity; pelvic floor disrupted.

Fracture, complete
Disruption of
Posterior arch



Confused?



All Pelvic Ring Injuries

Type of Injury	Number	Percent
Unspecified	1,072	15.87
Stable (Tile A)	3,915	57.96
Partially Stable (Tile B)	1,426	21.11
Unstable (Tile C)	342	5.06
Total	6,755	100

Type of Injury and Treatment

	Non-operative	Ex-Fix	ORIF	Ex-Fix & ORIF	Total
NFS	931	10	118	13	1,072
Stable	3,443	32	407	33	3,915
Partially Stable	765	43	506	112	1,426
Unstable	97	14	161	70	342

Ex-Fix = External Fixator

ORIF = Open Reduction Internal Fixation

Type of Injury and Treatment

	Non-operative	Ex-Fix	ORIF	Ex-Fix & ORIF	Total
NFS	931	10	118	13	1,072
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Ex-Fix = External Fixator

ORIF = Open Reduction Internal Fixation

How Accurate are we in Classifying?

- 235 patients – Traumatologist vs. NTDB registry
- All pelvic ring injuries
- Disagreement
 - 76% intact posterior ring
 - 57% incomplete posterior ring injury
- Underclassified in registry
 - 76% intact posterior ring
 - 48% incomplete posterior ring injury

Haws et al. J Orthop Trauma, 2015 vol. 29 (10) pp. 460-462

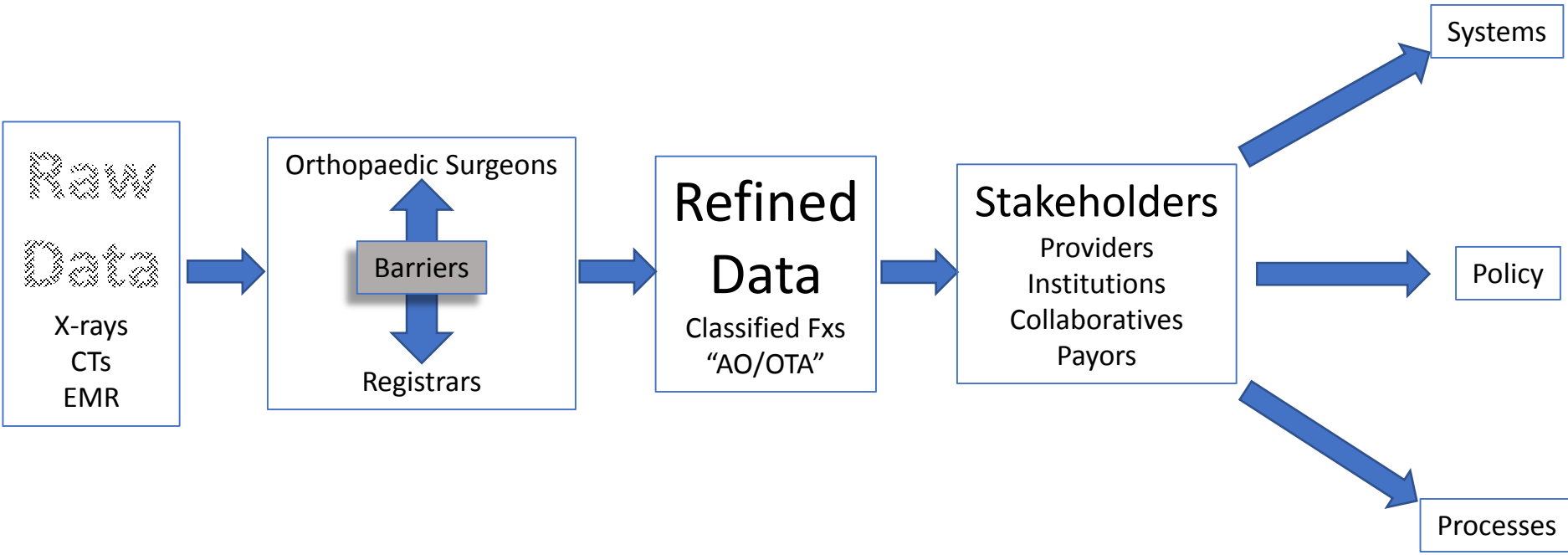
Data in Trauma Surgery Registries

- 50 registrars across level 1 and 2 centers
- 64% accuracy of coding a fictitious case
- “...cast doubt on the validity of registry data”

Arabian et al. J Trauma Acute Care Surg, 2015 vol. 79 (3) pp. 359-363

- Systematic Review of quality of data
- Trauma registry quality = completeness of data
 - Not accuracy, precision, consistency, correctness

Porgo et al J Trauma Acute Care Surg, 2016 vol. 80 (4) pp. 648-658



Where can we go from here

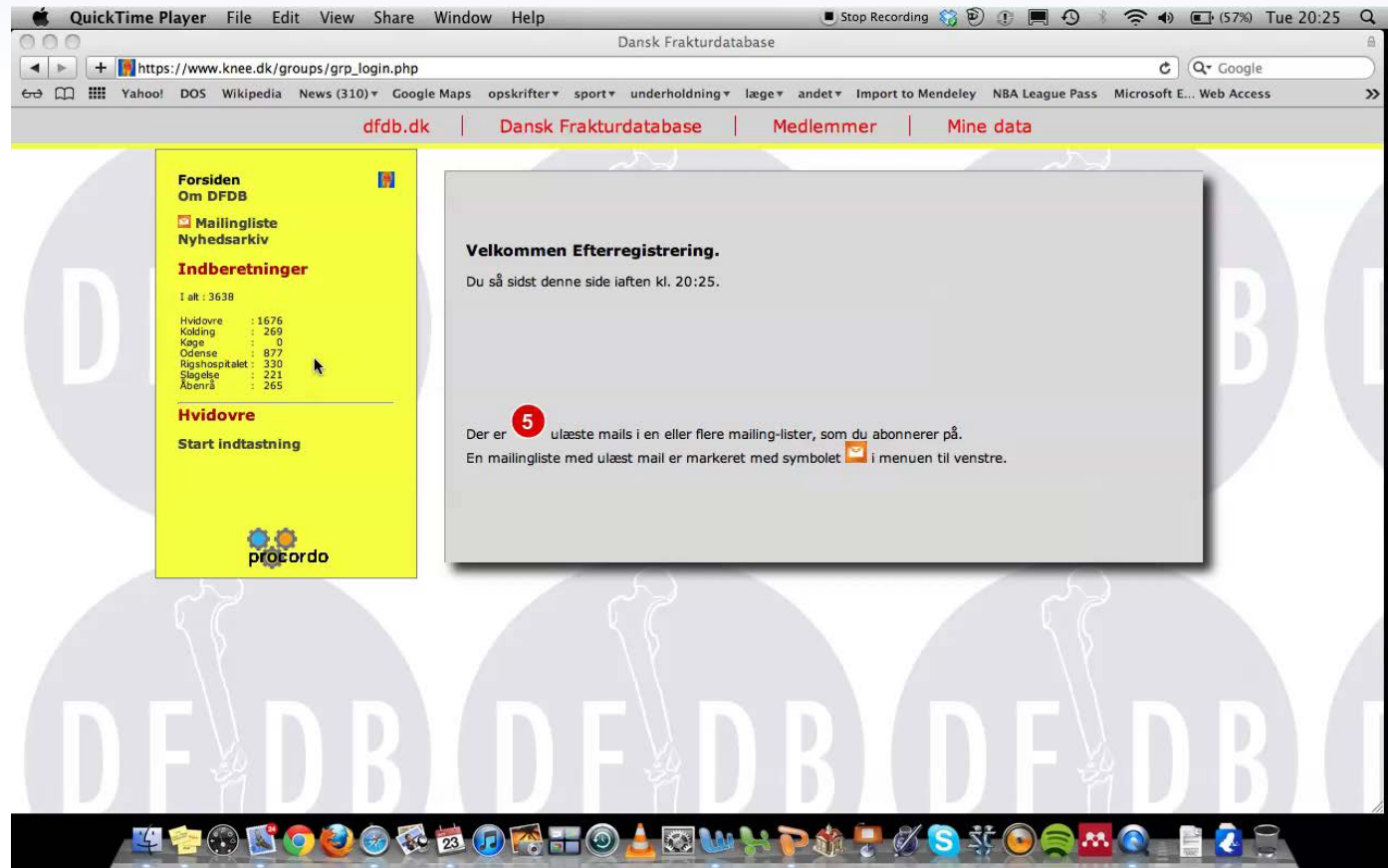
Registries (Arthroplasty)

- Scandanavia – Started in the 1970s
- Kaiser – 90% participation, ~99% accurate
- MARCQI

Can we make a registry?

- Where are the details we need/want?
- Improve the data we collect
- Coordinate MI Centers







Danish Fracture DataBase



- 2 min per registration
- To be completed by the surgeon immediately after surgery
- Patient, trauma and surgery related factors are recorded
 - AO/OTA Fracture classification
 - Procedure(s) performed
 - Implant(s) used
- Reoperations are linked to primary interventions

Kirill Gromov, MD, PhD, (e-mail: kirgromov@yahoo.dk)



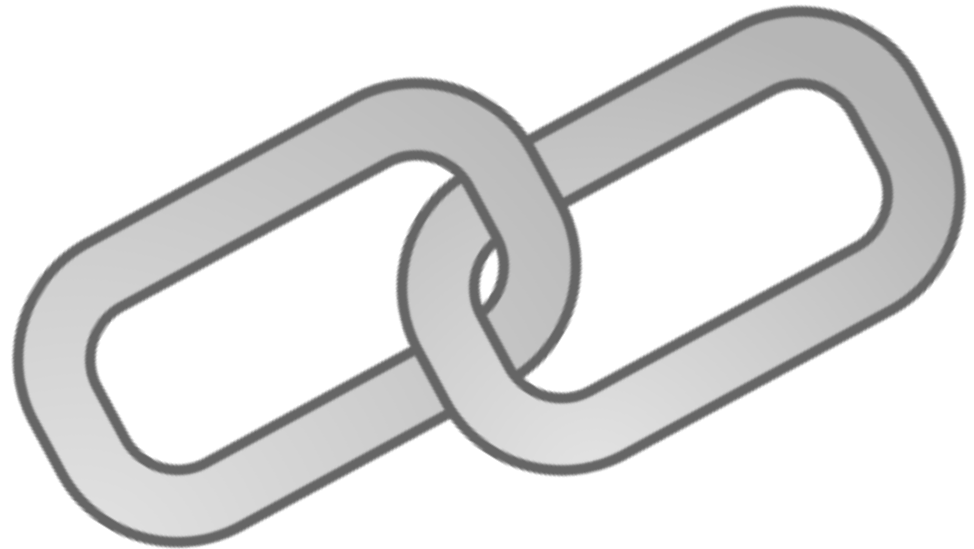
Danish Fracture DataBase



- Total 387 fracture-related operations in the validation period
- Total completeness of 83%
- 89% of primary operations and 78% of reoperations were recorded

Can we link long-term outcomes?

- Between hospital course and recovery
- MTQIP + MHA = Better Picture
- More complete record



Move Away From The Big Brother Mindset



Conclusions

- MTQIP has improved trauma care in the state!!!
- If we want to have a great system, we (ortho) need to put in the effort
- We have the opportunity to make something spectacular

Thank you

Bryant Oliphant, MD, MBA, MSc

bryantol@med.umich.edu

 @BonezNQuality

What Drives your Coding? Diagnoses

Kathy Cookman
11:00





What Drives Your Coding?

DIAGNOSES

Kathy J. Cookman, BS, CSTR, CAISS, EMT-P, FMN

CEO – KJ Trauma Consulting, LLC

International Technical Coordinator/AIS Course director - AAAM

Objectives

- ▶ Identify injuries and correct ICD-10-CM and AIS coding
- ▶ Incorporate education of diagnosis coding
- ▶ Incorporate Anatomy and Physiology
- ▶ Rules for coding, specific to diagnoses identified within scenarios

Abstracting: Best Practice

- ▶ Consistency in process
- ▶ Read the details
- ▶ Work concurrently
- ▶ Ask questions/seek clarification
- ▶ Work with CDI team (*clinical documentation improvement team*)
- ▶ Determine core dataset



Assigning ICD-10-CM

- ▶ Use a CURRENT ICD-10-CM coding book
- ▶ Start with the INDEX
- ▶ Find the beginning components of the code
- ▶ Turn to the TABULAR section
- ▶ Complete the code
- ▶ Enter the appropriate code into the trauma registry

ICD-10-CM Placeholder

"X"

Assigning AIS

- ▶ Use the most current AIS Dictionary supported by your trauma registry
- ▶ Find the most appropriate AIS code
- ▶ Enter the code into the trauma registry

JJ Krash

- ▶ Transfer – 17 year old boy. Unrestrained passenger seated in the 3rd row. From scene to Level 3 Trauma Center. Transferred to burn center with 8% TBSA burns via ALS ambulance.
- ▶ **Diagnoses:**
 - ▶ 8% TBSA – 3rd degree RLW – circumferential
 - ▶ 1st degree RUE – right forearm
 - ▶ Hypothermia – 34.9



JJ Krash

- ▶ Develop a method for abstracting data and be consistent in searching cases the same way each time
 - ▶ ED Trauma Flow Sheet
 - ▶ Drawings “Area of Injury” can be helpful for external skin injury identification, however, be aware that it may be difficult to determine exactly what is noted, where and how complex – always look for more definitive information
 - ▶ TBSA Percentage?
 - ▶ Extremity Comments = “12% TBSA”
 - ▶ Nursing Note Narrative = “12% TBSA”
 - ▶ History & Physical = “8% TBSA”

What do you do with a discrepancy?

JJ Krash



- ▶ Unrestrained passenger seated in the 3rd row of van which lost control, went down a ditch, rolled over and vehicle caught fire.
- ▶ Mechanism of Injury
- ▶ V58.6XXA = Occupant of pickup truck or van in non-collision transport accident in traffic accident
- ▶ X01.0XXA = Exposure to flames in uncontrolled fire not in building or structure
 - ▶ The patient was a passenger in a van
 - ▶ The documentation states lost control of van, down an embankment, rolled = non-collision
 - ▶ Because the loss of control was on the street/highway, it is considered "traffic" accident
 - ▶ There was a subsequent car fire which is also captured

JJ Krash

ISS = 1

ICD-10-CM	Description	Body Region	AIS Code
T31.0	Burns involving <10% of body surface with 0% to 9% 3 rd degree burns		
T24.301A	Burn of 3 rd degree right lower extremity, circumferential	EXTERNAL	912008.1
T22.111A	Burn of 1 st degree right forearm	EXTERNAL	912002.1
T68.XXXA	Hypothermia (34.9)	EXTERNAL	010002.1

Ramona Krash

- ▶ Pediatric 7-year-old girl. Passenger in middle row on the driver's side van. Patient was restrained with lap belt only. From scene to Level 3 Trauma Center then transferred to a pediatric trauma center (focus on receiving facility) via helicopter.
- ▶ **Diagnoses:**
 - ▶ Moderate, 4.5cm anterior margin splenic laceration – GR3, closed
 - ▶ Lt. Bimalleolar fracture, closed, displaced
 - ▶ Multiple abrasions, Lt. ankle, Rt. cheek
 - ▶ Multiple contusions, Rt. Dorsal hand, LUQ, Rt. Forehead
 - ▶ Rt. Distal radius complete dislocation, open
 - ▶ Rt. Forearm laceration, 3 cm



Lacerated Spleen Descriptors/Severity/ Codes

OIS

Grade I = Laceration - Capsular tear, <1cm parenchymal depth

Grade II = Capsular tear, 1-3cm parenchymal depth that does not involve a trabecular vessel

Grade III = > 3cm parenchymal depth or involving trabecular vessels

Grade IV = Involving segmental or hilar vessels producing major devascularization (>25% of spleen)

Grade V = Completely shattered spleen

AIS

544299.2 = Spleen laceration, NFS

544222.2 = Spleen laceration, simple capsular tear <3cm parenchymal depth and no trabecular vessel involvement; minor; superficial [OIS I, II]

544224.3 = Spleen laceration no hilar or segmental parenchymal disruption or destruction; >3cm parenchymal depth or involving trabecular vessels; moderate [OIS III]

544228.5 = Spleen laceration hilar disruption producing total devascularization; tissue loss; avulsion; massive [OIS V]

ICD-10-CM

S36.039A = Unspecified laceration of spleen

S36.030A = Superficial (capsular) laceration of spleen

Laceration < 1cm; minor

S36.031A = Moderate laceration of spleen

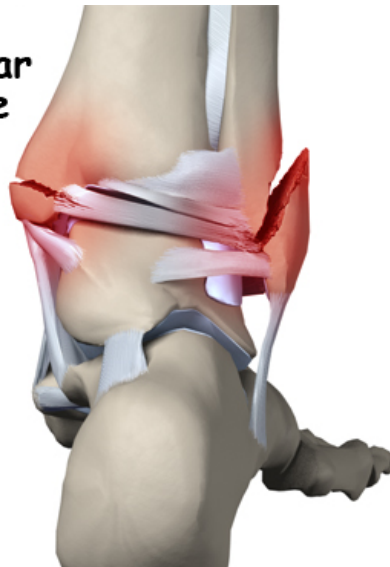
Laceration 1-3cm

S36.032A = Major laceration of spleen

Laceration >3cm; Avulsion; Massive; Multiple moderate lacerations; Stellate laceration

Bimalleolar Fracture

**Bimalleolar
fracture**



- ▶ Involves the lateral malleolus and medial malleolus
 - ▶ Lateral Malleolus = End of Fibula
 - ▶ Medial Malleolus = Inside Part Tibia

Unstable Fracture = Surgical Repair

Syndesmosis Joint = Joint between the tibia & fibula which is held together by ligaments

Ramona Krash

ISS = 14

ICD-10-CM	Description	Body Region	AIS Code
S36.031A	Grade 3 Splenic Laceration, 4.5cm, moderate	ABDOMEN	544224.3
S82.842A	Left Bimalleolar Fracture, displaced	EXTREMITY	854455.2
S51.811A	Right Forearm Laceration, 3cm	EXTERNAL	710602.1
S00.83XA	Right Forehead Contusion	EXTERNAL	210402.1
S30.1XXA	Left Upper Quadrant Contusion	EXTERNAL	510402.1
S60.221A	Right Dorsal Hand Contusion	EXTERNAL	710402.1
S00.81XA	Right Cheek Abrasion	EXTERNAL	210202.1
S90.512A	Left Ankle Abrasion	EXTERNAL	810202.1

Jimmy Krash

- ▶ Admission 43-year-old male, restrained 3-point seatbelt, driver who lost control of van down a 4 ft. embankment, rolled. Air lifted to Level 1 Trauma Center.
- ▶ **Diagnoses:**
 - ▶ Lt. temporal subdural hematoma with LOC, 1.3cm with 4mm midline shift
 - ▶ Cerebral edema
 - ▶ Lt. temporal skull fracture traversing to parietal skull, non-displaced
 - ▶ T3/4 dislocation with Brown-Sequard syndrome
 - ▶ Grade 2 kidney contusion
 - ▶ Lt. orbital floor blowout fracture, comminuted
 - ▶ Nasal septum fracture
 - ▶ Nasal bone fracture
 - ▶ Lt. zygomatic arch fracture
 - ▶ Lt. clavicle shaft fracture, with butterfly fragment
 - ▶ Lt. A/C separation



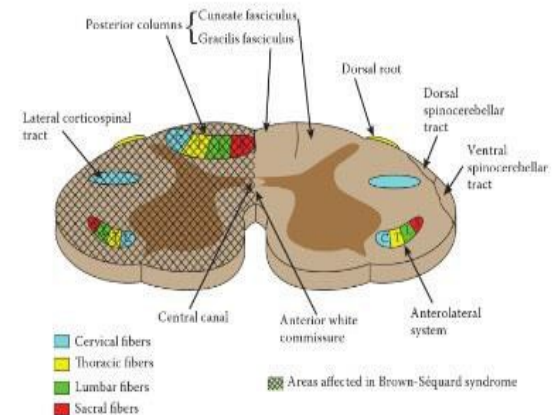
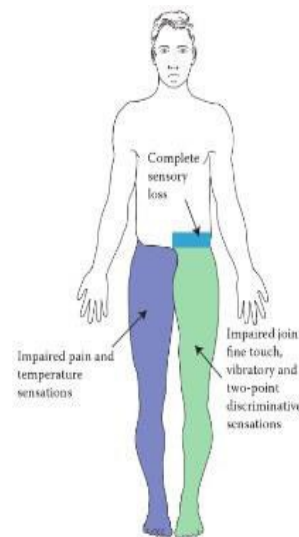
Jimmy Krash

ISS = 45

ICD-10-CM	Description	Body Region	AIS Code
S06.5X1A	Lt. Temporal SDH, 1.3cm with 4mm midline shift, +LOC	HEAD	140656.5
S23.123A	T3/4 Dislocation with Brown-Sequard Syndrome	T-SPINE	640416.4
S24.142A	T3/4 Level Brown-Sequard Syndrome		
S06.1X1A	Cerebral Edema	HEAD	140670.3
S02.0XXA	Lt. Temple to Parietal Skull Fracture, non-displaced	HEAD	150402.2
S02.32XA	Lt. Orbital Floor Blowout Fracture, comminuted	FACE	251223.2
S02.2XXA	Nasal Septum Fracture	FACE	251006.2
S42.022A	Lt. Clavicle Shaft Fracture, butterfly fragment	EXTREMITY	750661.2
S43.102A	Lt. A/C Separation	EXTREMITY	770730.2
S37.011A	Kidney Contusion, Grade 2	ABDOMEN	541612.2
S02.40FA	Lt. Zygomatic Arch Fracture, non-displaced	FACE	251802.1
S02.2XXA	Nasal Bone Fracture	FACE	251000.1

Brown-Sequard Syndrome

- ▶ Brown-Sequard first identified in 1849
- ▶ Rare form of incomplete spinal cord injury which results after damage to one side of the spinal cord only (hemi-section) typically in the neck but may be anywhere along the length of the spinal cord. It accounts for up to 4% of all traumatic spinal cord injuries.
- ▶ Loss of sense of vibration, deep touch or pressure, position sense, and muscle strength below the level of the spinal cord injury on the same side of the body as the injury. Accompanied by a loss of the sense of light touch, pain and temperature on the opposite side of the body to which the spinal cord damage occurred.
- ▶ Diagnosis is made on the basis of neurological history, physical examination and may include laboratory investigations and/or MRI or X-Ray.



Jane Krash

- ▶ Death, 38-year-old female. Unrestrained front seat passenger. Traumatic arrest on scene. Transported to community hospital. No vitals on arrival. Open thoracotomy. Patient pronounced dead 48 minutes later in the ED.

- ▶ **Diagnoses:**

- ▶ Liver laceration, bilateral lobes with 50% parenchymal disruption
- ▶ Bilateral hemothoraces, Lt. 650cc, Rt. 1200cc
- ▶ Partial thickness laceration, inferior vena cava near its attachment to the right atrium
- ▶ Rt. frontotemporal scalp abrasion 3 x 2 inch
- ▶ Rt. lateral hip contusions x 4 (1 x 5 inch)
- ▶ Lt. middle finger contusion (.5 x .5 inch)
- ▶ Rt. Forearm contusions x 2 (.5 x .5 inch)

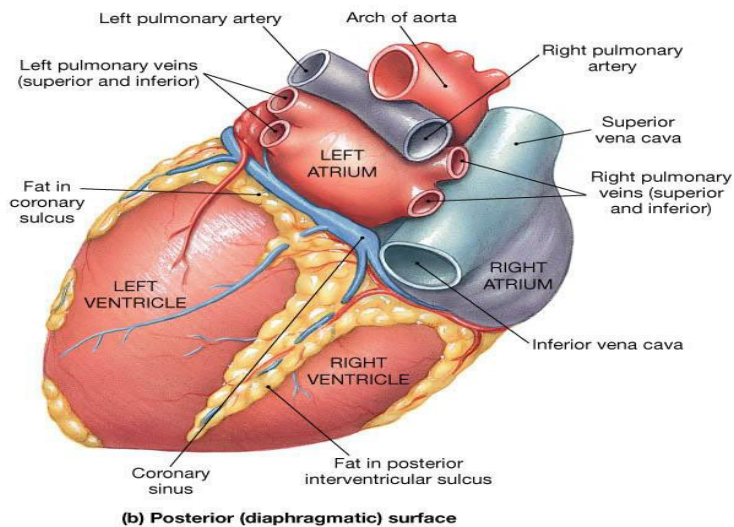


Jane Krash

ISS = 26

ICD-10-CM	Description	Body Region	AIS Code
S36.115A	Liver laceration, bilateral lobes with 50% parenchymal disruption	ABDOMEN	541826.4
S27.1XXA	Lt. hemothorax (500 mL)	CHEST	442200.3
S27.1XXA	Rt. hemothorax (300 mL)	CHEST	442200.3
S35.11XA	Inferior vena cava, partial thickness laceration at atrium	CHEST	421804.3
S00.01XA	Rt. frontotemporal scalp abrasion	EXTERNAL	110202.1
S50.11XA	Rt. forearm contusion, multiple	EXTERNAL	810402.1
S60.032A	Lt. middle finger contusion	EXTERNAL	710402.1
S70.01XA	Rt. lateral hip contusion, multiple	EXTERNAL	810402.1

Inferior Vena Cava at Atrium



- ▶ Large vein carrying deoxygenated blood from the lower and middle body into the right atrium of the heart. Walls are rigid and has valves so the blood does not flow down via gravity
- ▶ Formed by the joining of the right and left common iliac veins
- ▶ Short intra-thoracic course before draining into the right atrium from the lower backside of the heart

Lunch

Please work on scenario questions upon return

12:00



What Drives your Coding? Procedures

Kathy Cookman
12:45





What Drives Your Coding?

PROCEDURES

Kathy J. Cookman, BS, CSTR, CAISS, EMT-P, FMN

CEO – KJ Trauma Consulting, LLC

International Technical Coordinator/AIS Course director - AAAM

Objectives

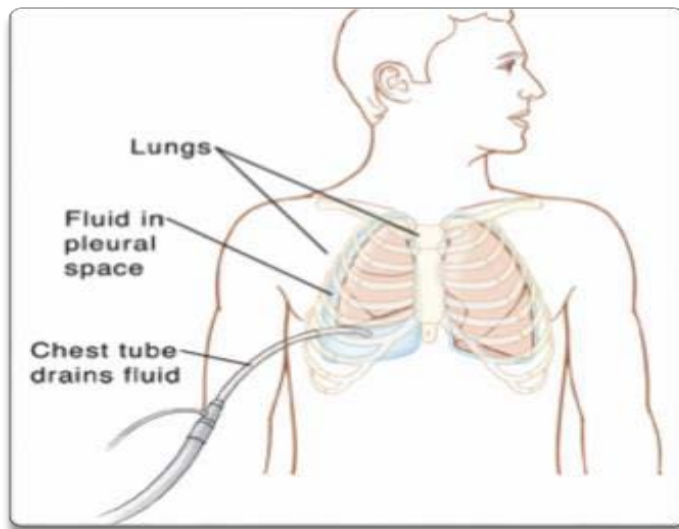
- ▶ Identify procedures and correct ICD-10-PCS coding
- ▶ Incorporate education of procedure coding
- ▶ Incorporate anatomy and physiology
- ▶ Rules for coding, specific to procedures identified in the scenarios

Procedure ICD-10-PCS Coding



- ▶ Purpose of Procedure
- ▶ Root Operations
- ▶ Approach
- ▶ Device
- ▶ Qualifiers
- ▶ Place Holder

Procedure Purpose



► Chest Tube

- We often say or see documented "Chest Tube placed on the right"
- "Chest tube inserted on the right"

What is the purpose of a chest tube?

To "DRAIN"

Root Operations Common in Trauma

- ▶ Bypass
- ▶ Change
- ▶ Detachment
- ▶ Drainage
- ▶ Excision
- ▶ Extirpation
- ▶ Fusion
- ▶ Insertion
- ▶ Inspection
- ▶ Occlusion

- ▶ Reattachment
- ▶ Removal
- ▶ Repair
- ▶ Replacement
- ▶ Reposition
- ▶ Resection
- ▶ Restriction
- ▶ Revision
- ▶ Supplement
- ▶ Transfer

Which one is "Cutting out or off, without replacement, all of a body part"

Root Operations Common in Trauma

- ▶ Bypass
- ▶ Change
- ▶ Detachment
- ▶ Drainage
- ▶ **Excision**
- ▶ Extirpation
- ▶ Fusion
- ▶ Insertion
- ▶ Inspection
- ▶ Occlusion
- ▶ Reattachment
- ▶ Removal
- ▶ Repair
- ▶ Replacement
- ▶ Reposition
- ▶ **Resection**
- ▶ Restriction
- ▶ Revision
- ▶ Supplement
- ▶ Transfer

Which one is "Cutting out or off, without replacement, all of a body part"

Approach

▶ OPEN

- ▶ Cutting through the skin or mucous membrane and any other body layers necessary to expose the site of the procedure

▶ PERCUTANEOUS

- ▶ Entry by puncture or minor incision of instrumentation through the skin or mucous membrane and/or any other body layers necessary to expose the site of the procedure

▶ PERCUTANEOUS ENDOSCOPIC

- ▶ Entry by puncture or minor incision of instrumentation through the skin or mucous membrane and/or any other body layers necessary to reach and visualize the site of the procedure

▶ EXTERNAL

- ▶ Performed directly on the skin or mucous membrane and procedures performed indirectly by the application of external force through the skin or mucous membrane

▶ VIA NATURAL or ARTIFICIAL OPENING

- ▶ Entry of instrumentation through a nature or artificial external opening to reach the site of the procedure

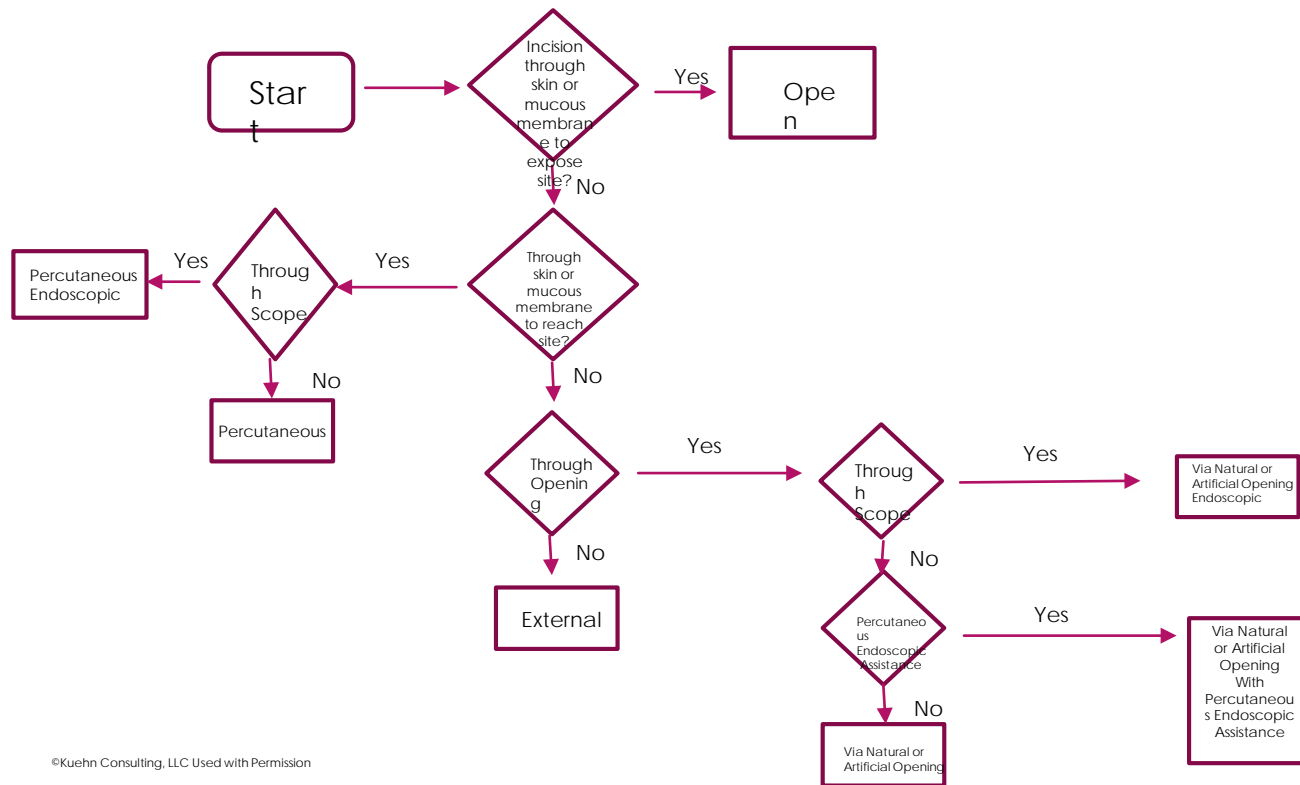
▶ VIA NATURAL or ARTIFICIAL OPENING ENDOSCOPIC

- ▶ Entry of instrumentation through a natural or artificial external opening to reach and visualize the site of the procedure

▶ VIA NATURAL or ARTIFICIAL OPENING with PERCUTANEOUS ENDOSCOPIC ASSISTANCE

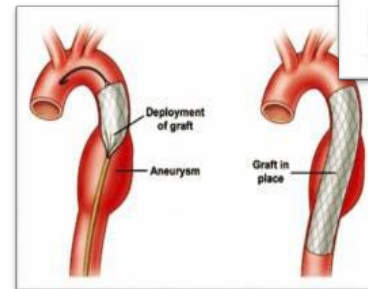
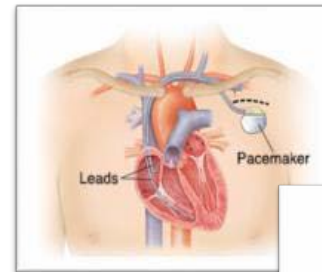
- ▶ Entry of instrumentation through a natural or artificial external opening and entry, by puncture or minor incision of instrumentation through the skin or mucous membrane and any other body layers necessary to aid in the performance of the procedure

Approach Decision Tree



Device

- ▶ Left in place
 - ▶ Grafts
 - ▶ Prostheses
 - ▶ Implants
 - ▶ Simple or Mechanical Appliances
 - ▶ Electronic Appliances



Qualifier

- ▶ Additional Information
- ▶ Narrow Application
- ▶ No Specific Guidelines

EXAMPLES OF QUALIFIERS

Type of
transplant

Second
site bypass

Diagnostic
excision
(Biopsy)

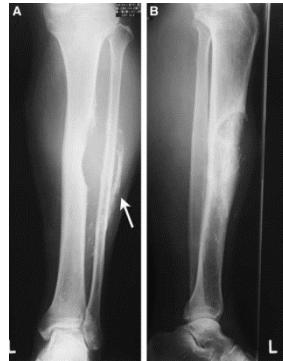
ICD-10-PCS Placeholder

"Z"

Plain Radiography

- ▶ BW0 – Anatomical Regions
- ▶ BN0 – Skull & Facial Bones
- ▶ BP0 – Non-Axial Upper Bones
- ▶ BQ0 – Non-Axial Lower Bones

The spectrum of trauma, especially in the early resuscitative phase, is to look at the broad picture to determine injuries and most often “anatomical regions” would be the correct code options.



Example: Initial x-ray would be looking at the lower leg and not specifically the tibia.

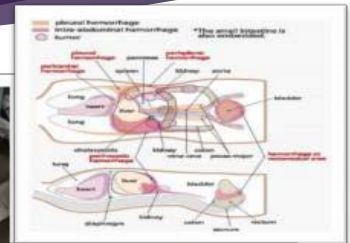
JJ Krash

ICD-10-PCS	Description
6A3Z0ZZ	Bair Hugger
2W2QX4Z	Right lower extremity wound dressing
2W2CX4Z	Right forearm wound dressing
0YHH33Z	Intraosseous, right lower leg (percutaneous infusion device)
3E0A3GC	Intraosseous, right lower leg (percutaneous therapeutic substance)



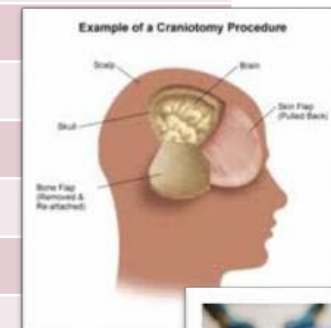
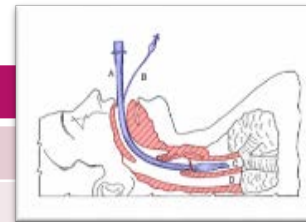
Ramona Krash

ICD-10-PCS	Description
0QSHXZZ	Closed reduction bimalleolar fracture, left tibia
0QSKXZZ	Closed reduction bimalleolar fracture, left fibula
0QSH04Z	ORIF bimalleolar fracture, left tibia
0QSK04Z	ORIF bimalleolar fracture, left fibula
0HQBXZZ	Suture laceration, right forearm
BW40ZZZ	FAST (Abdominal portion)
BH4BZZZ	FAST (Chest portion)
BQ2SZZZ	CT left lower leg
BP0LZZZ	Plain radiography right distal radius



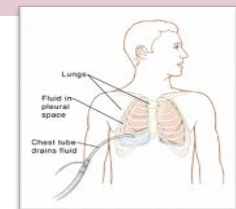
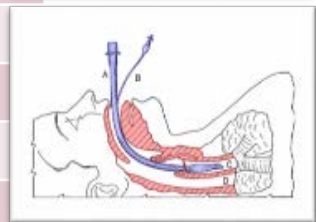
Jimmy Krash

ICD-10-PCS	Description
0BH17EZ	Intubation, oral
BW28ZZZ	CT head, without contrast
BN25ZZZ	CT face, without contrast
BR20ZZZ	CT cervical spine, without contrast
BR27ZZZ	CT thoracic spine, without contrast
BR29ZZZ	CT lumbar spine, without contrast
BW21YZZ	CT abdomen/pelvis, with contrast, not specified
00C40ZZ	Craniotomy with evacuation of SDH
4A107BD	Camino bolt (ICP monitoring)
5A12012	CPR (External chest compressions)

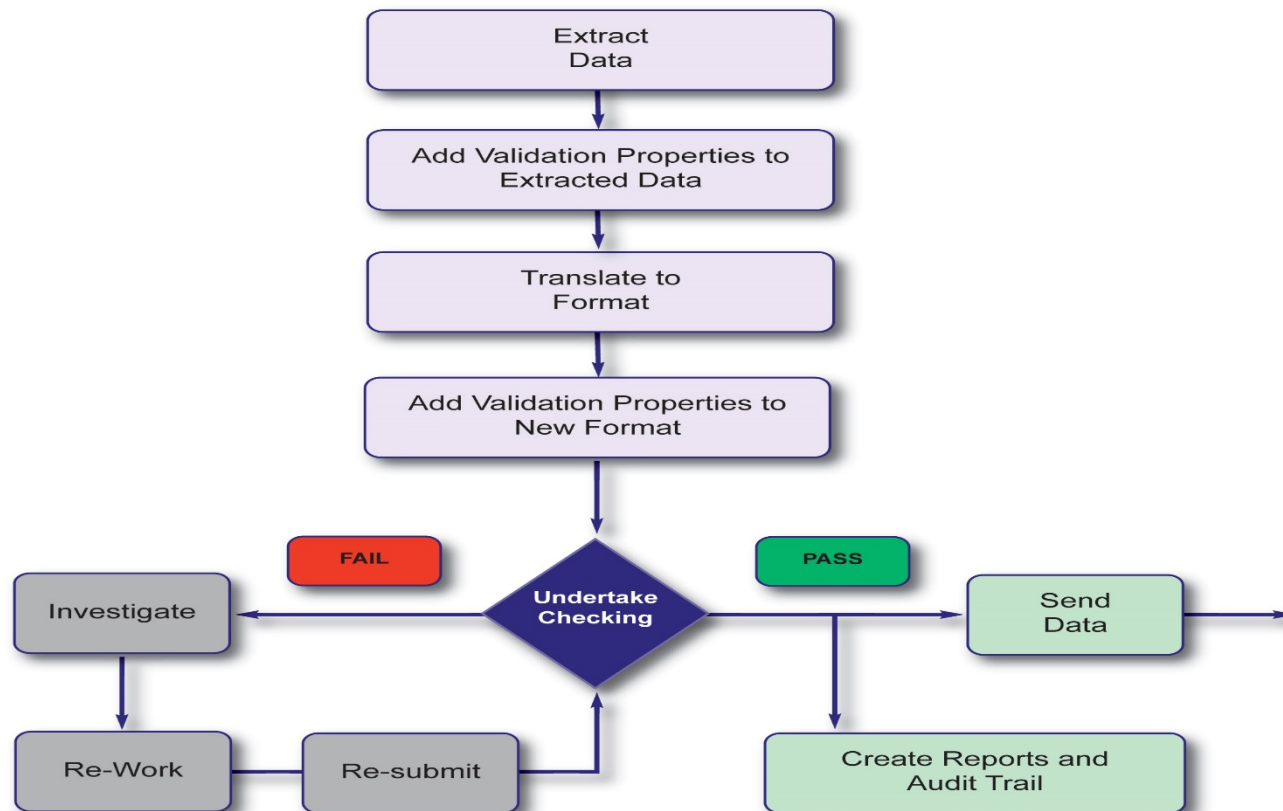


Jane Krash

ICD-10-PCS	Description
0BH17EZ	Intubation, oral
0YHH33Z	Intraosseous, right lower leg (percutaneous infusion device)
3E0A3GC	Intraosseous, right lower leg (percutaneous therapeutic substance)
5A12012	CPR (External chest compressions)
05HP33Z	External jugular access
0WJG0ZZ	Left thoracotomy
0W9B3ZZ	Left chest tube



Validation Process



AIS Training Announcements

- ▶ **AIS2005/2008 Course** still available online & in-person
- ▶ **AIS2015 Course** available in-person (online available this fall)
- ▶ **AIS2015 Update Course** available online this fall
 - ▶ Must have had AIS2005/2008 course sometime between 2012 and 2018 to be eligible to take this course
- ▶ **AIS2015 Refresher Course** available early 2019
 - ▶ Must have had AIS2015 course sometime between 01/01/16 and 12/31/18 to be eligible to take this course
- ▶ **AIS Academy** available fourth quarter 2018
 - ▶ Body-region focus with online, self-learning modules
- ▶ **AIS Coding Questions** : KCookman@AAAM.org

Summary

- ▶ ICD-10-CM/PCS revisions due to be published in June
- ▶ Budget for at least 1 set of new code books annually
- ▶ New books available for order now at reduced rates with delivery in September – purchase from a credible source
- ▶ Read the within the medical record in order to assign the most appropriate injury with best code for ICD-10-CM, ICD-10-PCS or AIS
- ▶ Determine best practice for abstracting information, remain consistent
- ▶ Validate, validate, validate!



Thank You!

Kathy J. Cookman, BS, CSTR, CAISS, EMT-P, FMN
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AIS Questions: KCookman@AAAM.org
 ICD/General Trauma Questions: Kathy.Cookman@KJConsulting.us

Alcohol and Trauma

Judy Mikhail
1:45



Alcohol and Trauma: It's A Conundrum June 5, 2018

Judy Mikhail
MTQIP Program Manager



Alcohol and Trauma

What is the relationship?

MTQIP and Alcohol Data Collection

- Alcohol Screen: Blood alcohol level
- Alcohol Use Disorder (AUD)
- Alcohol Withdrawal Syndrome (AWS)

MTQIP Data Dictionary Alcohol Screen

Which of the following is correct?

Answers:

- a. First recorded, within 18 hrs of injury, at final hospital
- b. Highest recorded, within ED, after first hospital encounter
- c. First recorded, within 24 hrs of injury, after first hospital encounter
- d. First recorded, within 24 hrs of injury, at final hospital

MTQIP Data Dictionary Alcohol Screen

Which of the following is correct?

Answers:

- a. First recorded, within 18 hrs of injury, at final hospital
- b. Highest recorded, within ED, after first hospital encounter
- c. First recorded, within 24 hrs of injury, after first hospital encounter**
- d. First recorded, within 24 hrs of injury, at final hospital

MTQIP Definitions

Are these comorbidities or complications?

Alcohol Use Disorder

- Evidence of chronic use such as withdrawal episodes **or**
- In the 2 wks prior to admission:
 - >2 oz hard liquor/daily
 - >2 (12 oz) beers/daily
 - >2 (6 oz) wine/daily
- Binge Drinker
 - Total Drinks during binge/7 days
 - Then apply definition

Amounts

Alcohol Withdrawal Syndrome

- Occurs 6-48 hrs after ETOH cessation
- Characterized by:
 - Tremor
 - Sweating
 - Anxiety
 - Agitation
 - Depression
 - Nausea
 - Malaise
 - Seizures
 - Delirium

Symptoms

Alcohol Spectrum in General Population

Alcohol
Use
Disorder (AUD)

Comorbidity

Alcohol
Withdrawal
Syndrome
(AWS)

Complication

Delirium
Tremens
(DT)

Failure to Rescue??

AUD
10-20%

AWS

DT

½ Of these

5% Of these

Occurrence

co·nun·drum

/kəˈnəndrəm/ 

noun

a confusing and difficult problem or question.

"one of the most difficult conundrums for the experts"

synonyms: problem, difficult question, difficulty, quandary, dilemma; *informal* poser

"the conundrums facing policy-makers"

- a question asked for amusement, typically one with a pun in its answer; a riddle.

synonyms: riddle, puzzle, word game; *informal* brainteaser

"Rod enjoyed conundrums and crosswords"

Unraveling Alcohol and Trauma

- Injury occurrence, severity, type?
- Mortality?
- Resource use?
- ICU LOS? Hospital LOS?
- Readmission?



Alcohol and Trauma

- Trauma leading cause of death in alcoholics
- 40% to 50% of admitted trauma have +BAC
- ½ of all trauma beds occupied by intoxicated pts

Data Collection Concerns (Delirium)



Excerpta Medica

The American Journal of Surgery 187 (2004) 332–337
Scientific paper

The American
Journal of Surgery^{*}

Admission characteristics of trauma patients in whom delirium develops

Richard D. Blondell, M.D.^{a,d,*}, Glen E. Powell, M.S.P.H.^a, Heather N. Dodds^a,
Stephen W. Looney, Ph.D.^b, James K. Lukan, M.D.^c

^aDepartment of Family and Community Medicine, University of Louisville, Louisville, KY, USA

^bLouisiana State University Health Sciences Center, School of Public Health, New Orleans, LA, USA

^cDepartment of Surgery, University of Louisville, Louisville, KY, USA

^dUniversity at Buffalo, 462 Grider St., CC-175, Buffalo, NY 14215-3021, USA

Manuscript received February 10, 2003; revised manuscript August 11, 2003

- Blondell et al 2004
- Level I Trauma Center
- 2 yr Trauma Registry review
- n=11,140
- Case Control Study
 - 120 delirium cases
 - 145 non-delirium controls

Chart review/trained reviewers:

- Non-Delirium Controls
 - 38 cases missed with delirium
- Delirium cases
 - 9 not confirmed
- Per reviewers: “confusion usually not coded as having delirium”

MTQIP Alcohol Related Data Collection

Opportunities for Improvement

MTQIP Data

Center ID	Alcohol use disorder			Total
	0	1	3	
35	0	0	0	35
36	1	0	0	37
41	3	1	1	45
26	0	2	2	28
37	0	1	1	38
53	0	2	2	55
53	1	1	1	55
32	0	0	0	21
0	0	0	0	48
0	0	0	0	39
1	1	1	1	7
2	2	2	2	28
3	3	3	3	46
1	1	1	1	21
2	2	2	2	21
0	0	0	0	28
1	1	1	1	45
1	1	1	1	28
32	0	2	2	34
40	1	0	0	41
51	2	2	2	55
34	2	0	0	36
48	0	0	0	48
20	0	1	1	21
21	0	0	0	21
42	2	0	0	44
56	0	2	2	58
5	0	2	2	7
48	1	2	2	51
Total	988	24	29	1,041

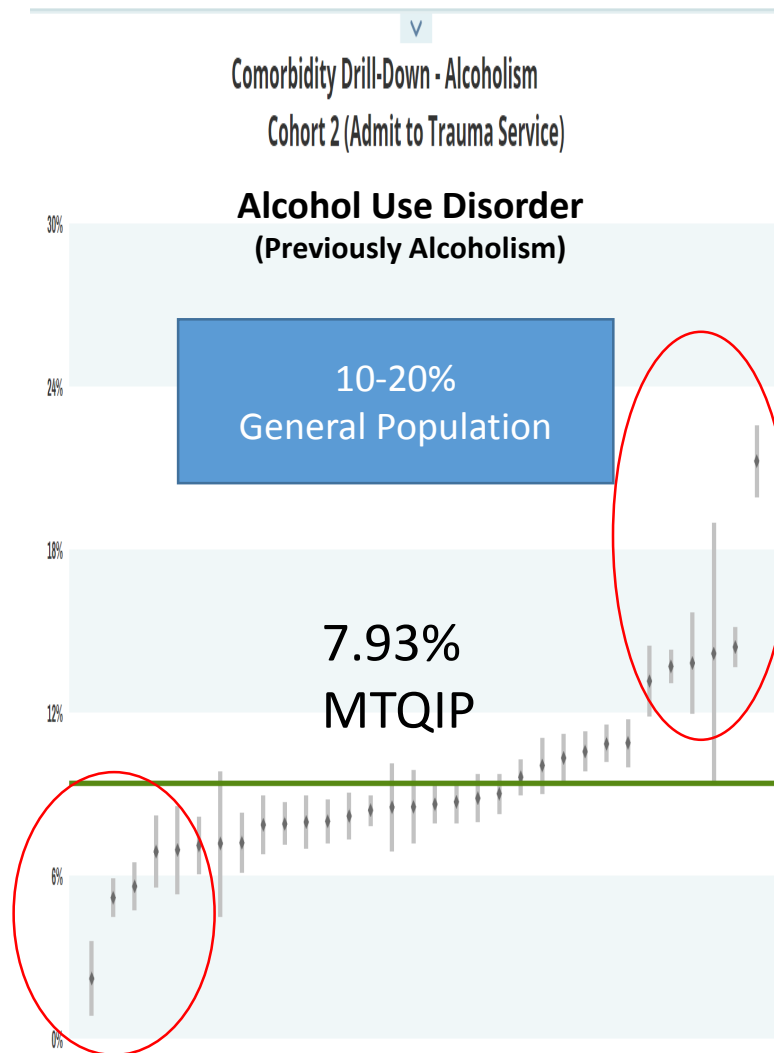
Data Validation

Under Over

Alcohol Use Disorder

- Evidence of chronic use such as withdrawal episodes **or**
- In the 2 wks prior to admission:
 - >2 oz hard liquor/daily
 - >2 (12 oz) beers/daily
 - >2 (6 oz) wine/daily
- Binge Drinker
 - Total Drinks during binge/7dys
 - Then apply definition

← Variable Capture →



MTQIP Data

Center ID	Alcohol use disorder		
	0	1	3
35	0	0	0
36	1	0	0
41	3	1	1
26	0	0	2
37	0	0	1
53	0	0	2
53	1	1	1
20	1	0	0
47	1	0	0
38	1	0	0
6	0	0	1
25	1	2	2
42	1	3	3
20	0	1	1
19	0	2	2
27	1	0	0
39	5	1	1
27	0	1	1
32	0	2	2
40	1	0	0
51	2	2	2
34	2	0	0
48	0	0	0
20	0	1	1
21	0	0	0
42	2	0	0
56	0	2	2
5	0	2	2
48	1	2	2
Total	988	24	29

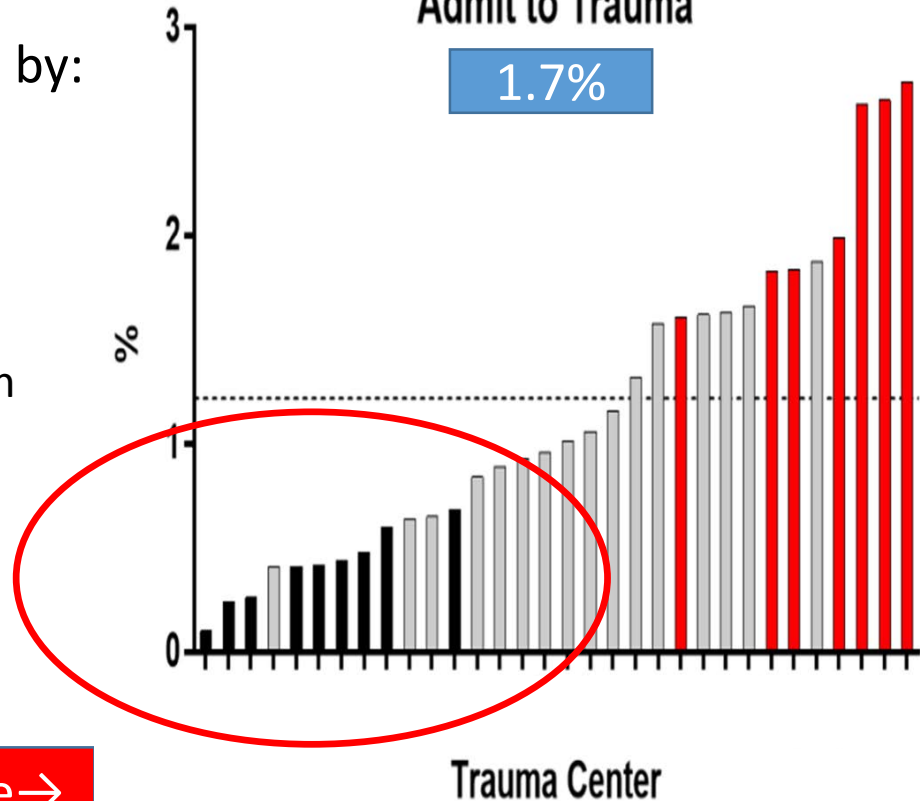
Alcohol Withdrawal Syndrome

- Characterized by:

1. Tremor
2. Sweating
3. Anxiety
4. Agitation
5. Depression
6. Nausea
7. Malaise
8. Seizures
9. Delirium

← Under capture →

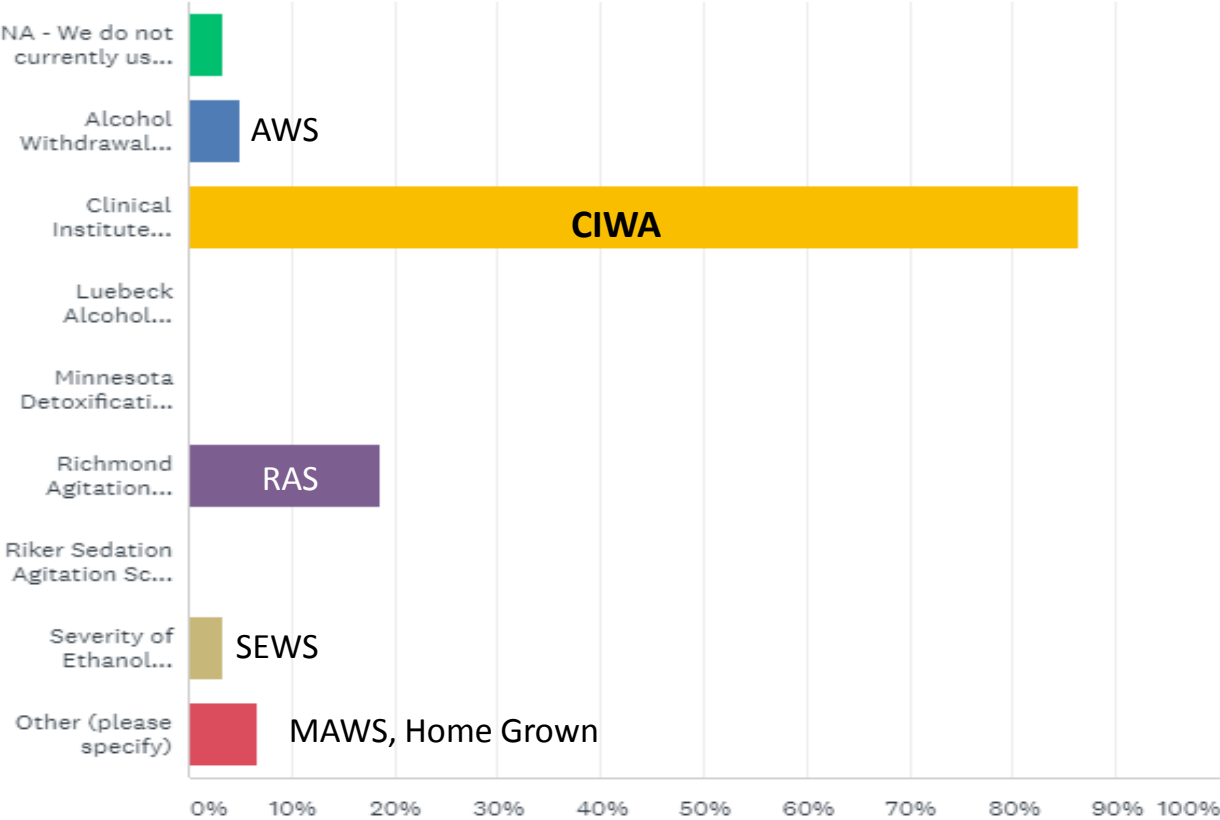
Drug or Alcohol Withdrawal - Cohort 2 Admit to Trauma



Which of the following ICU scoring tools are used to assess and manage alcohol withdrawal?

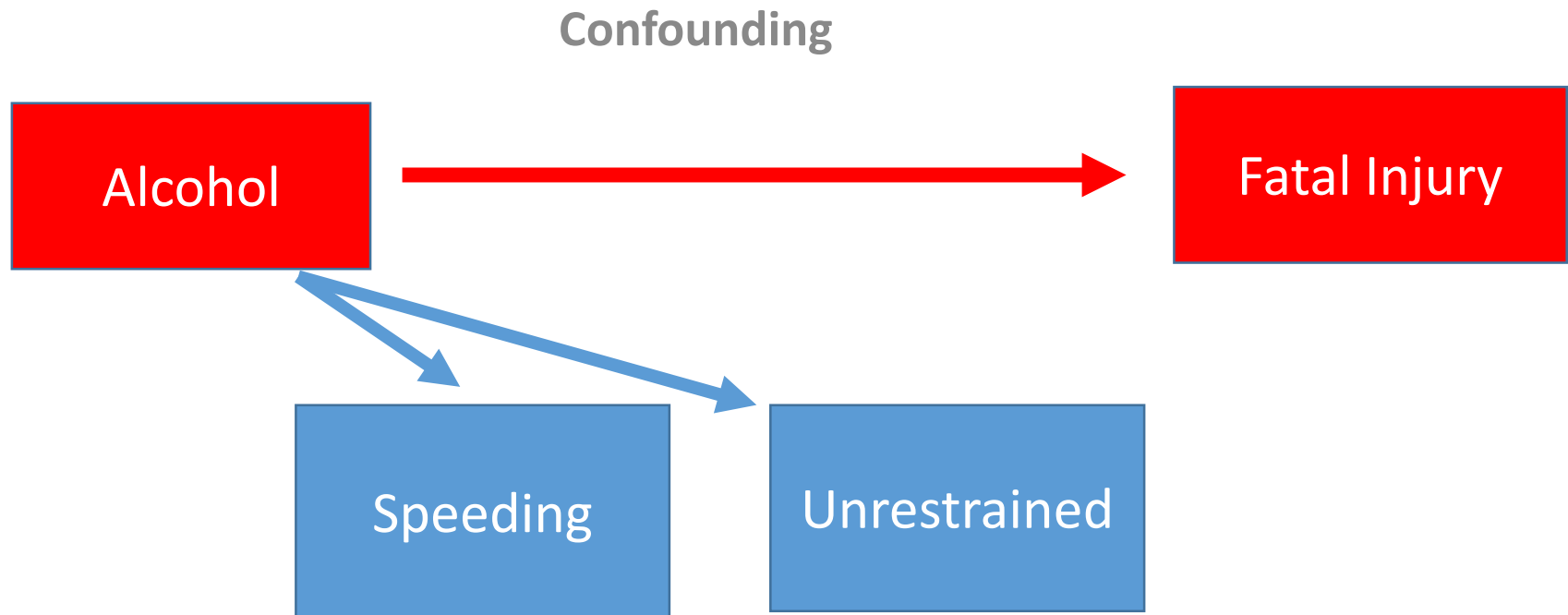
Answered: 59 Skipped: 0

Best Practice
Data Collection
Tip:
Look for
Scoring Tool

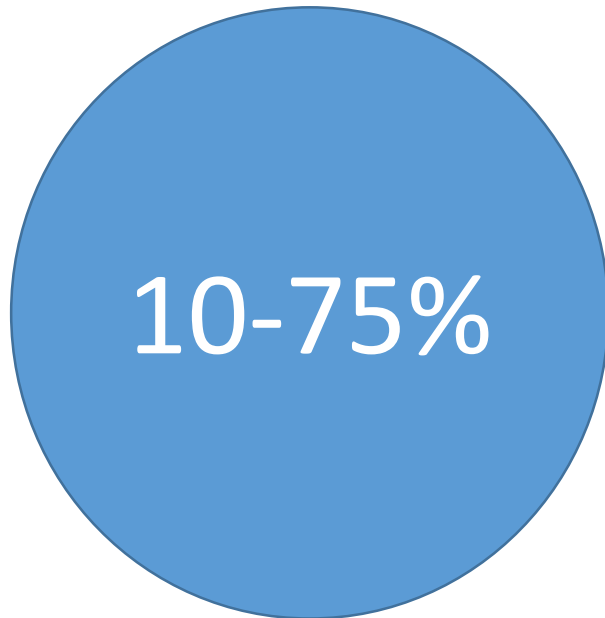


Alcohol and Injury Occurrence

Police data: Alcohol significantly associated with increased risk of fatal injuries



% Admitted Trauma With Positive BAC



Article
Rivara, 1993
Cherpitel, 1993
Borges, 2005
Chirpitel, 2007
Greiffenstein, 2008
MacLeod, 2011
Miller, 2012

What is the prevalence of alcohol related injury?

1966-2007
15 studies

Aggregate Prevalence
32.5%



Alcohol-related injury visits: Do we know the true prevalence in U.S. trauma centres?

2011

Jana B.A. MacLeod^{a,*}, Daniel W. Hungerford^b

^a Dept of Surgery, Emory University School of Medicine, 69 Jesse Hill Jr Ave., Suite #315, Atlanta, GA 30303, United States

^b Division of Injury Response, National Center for Injury Control & Prevention, Centers for Disease Control and Prevention, Atlanta, GA, United States

ARTICLE INFO

Article history:
Accepted 11 January 2010

Keywords:
Alcohol
Injuries
Prevalence
Trauma centres
Hazardous drinking

ABSTRACT

Introduction: Alcohol consumption is a significant risk factor for injuries. Further, level I trauma centres are mandated to screen and provide a brief intervention for identified problem drinkers. However, a valid population-based estimate of the magnitude of the problem is unknown. Therefore, the goal of this study is to evaluate the extent to which the present literature provides a valid estimate of the prevalence of alcohol-related visits to U.S. trauma centres.

Methods: A Medline search for all articles from 1966 to 2007 that might provide prevalence estimates of alcohol-related visits to U.S. trauma centres yielded 836 articles in English language journals. This review included only papers whose main or secondary goal was to estimate the prevalence of positive blood alcohol concentration (BAC) or acute intoxication. Both a crude aggregate estimate and sample size adjusted estimate were calculated from the included papers and the coverage and comparability of methods were evaluated.

Results: Of the 15 studies that met inclusion criteria, incidence estimates of alcohol-related visits ranged from 26.2% to 62.5% and yielded an aggregate, weighted estimate of 32.5%. Target population, capture rate, and threshold for a positive screening result varied considerably across studies. No study provided a comprehensive estimate, i.e., of all trauma patients hospitalised, treated and released, or who died.

Conclusions: Although the incidence of alcohol-related visits to U.S. trauma centres appears very high perhaps higher than any other medical setting, the validity of our aggregate estimate is threatened by crucial methodological considerations. The lack of a methodologically valid prevalence estimate hinders efforts to devise appropriate policies for trauma centres and across medical settings.

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Does Blood Alcohol Level (BAC) Predict Injury Severity in MVC?

Hindawi Publishing Corporation
Emergency Medicine International
Volume 2011, Article ID 616323, 6 pages
doi:10.1155/2011/616323
2011

Clinical Study

Is Blood Alcohol Level a Good Predictor for Injury Severity Outcomes in Motor Vehicle Crash Victims?

Bikaramjit Mann,¹ Ediriweera Desapriya,^{2,3} Takeo Fujiwara,^{2,4} and Ian Pike^{2,3}

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Correspondence should be addressed to Bikaramjit Mann, bikaramjit@hotmail.com

- Retrospective cross-sectional study
- British Columbia Trauma Registry
- 2003-2005 (n=2,323)
- Classified into
 - No alcohol
 - Low alcohol (<0.08 g/dL)
 - High alcohol (>0.08 g/dL)
- Results:
 - Higher BAC related to less severe injuries
 - TBI
 - Thoracic
 - Extremity

Alcohol & Injury Severity (ISS)

Association of Alcohol & Major Trauma (ISS>15)

↓ or No impact on ISS

- Tien, 2006
- Plurad, 2006
- Salim, 2009
- Talving, 2010
- Zeckey, 2011
- Mann, 2011
- Berry, 2011
- Berry, 2019

↑ ISS

- Hsieh, 2013
- Plurad, 2010

Multiple Trauma & Alcohol



2011

Alcohol 45 (2011) 245–251

ALCOHOL

Alcohol and multiple trauma—is there an influence on the outcome?

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Christian Probst^a, Christian Krettek^a, Michael Frink^a

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Received 26 May 2010; received in revised form 27 July 2010; accepted 7 August 2010

Abstract

A relevant number of trauma patients are intoxicated with alcohol at admission in trauma centers. Meanwhile, some studies provide data suggesting a profound influence of ethanol on the posttraumatic clinical course; others could not confirm these findings. Knowledge of the influence of ethanol in a multiple trauma cohort is lacking. Therefore, we performed a retrospective outcome study of initially intoxicated multiple trauma patients in a German level-I trauma center. Patients with an Injury Severity Score greater than or equal to 16 and aged 16–65 years were included in our study. Ventilation time, duration of intensive care unit treatment, the course of cytokines, and the incidence of systemic inflammatory response syndrome (SIRS), sepsis, and multiple organ dysfunction syndrome (MODS) were analyzed. Total in-patient time, mortality, and the requirement for blood products were evaluated. Logistic regression analyses were performed. Injury severity was comparable in both groups but there were more severe abdominal injuries in alcohol-intoxicated patients. The clinical course was comparable in both groups. Alcohol consumption was not an independent risk factor to sustain SIRS (odds ratio [OR], 1.00; 95% confidence interval [CI], 0.59–1.70), sepsis (OR, 0.84; 95% CI, 0.54–1.31), or for mortality (OR, 1.08; 95% CI, 0.53–2.13). There was a trend toward an increased incidence of MODS in alcohol-intoxicated patients (OR, 2.74; 95% CI, 0.90–8.35).

Blood alcohol level at the time of admission is not a valuable marker for worse or improved outcome in multiple trauma patients. There were no ethanol-related differences concerning overall injury severity; however, more severe abdominal injuries were found in alcohol-intoxicated patients. There was no increased risk for posttraumatic complications in primarily alcohol-intoxicated multiple trauma

- German Trauma Registry
- BAC unrelated to injury outcomes
- BAC unrelated to ISS
- BAC unrelated to complications
- ↑BAC = ↑severe abdominal injuries

Multiple Trauma & Alcohol

Does Alcohol Intoxication Protect Patients from Severe Injury and Reduce Hospital Mortality? The Association of Alcohol Consumption with the Severity of Injury and Survival in Trauma Patients

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Alcohol-related motor vehicle collisions are a major cause of mortality in trauma patients. This prospective observational study investigated the influence of antecedent alcohol use on outcomes in trauma patients who survived to reach the hospital. From 2005 to 2011, all patients who were older than 18 years and were admitted as a result of motor vehicle crashes were included. Blood alcohol concentration (BAC) was routinely measured for each patient on admission. Patients were divided into four groups based on their BAC level, which included nondrinking, BAC less than 100, BAC 100 to 200, and BAC 200 mg/dL or greater. Patient demographics, physical status and injury severity on admission, length of hospital stay, and outcome were compared between the groups. Odds ratios of having a severe injury, prolonged hospital stay, and mortality were estimated. Patients with a positive BAC had an increased risk of sustaining craniofacial and thoracoabdominal injuries. Odds ratios of having severe injuries (Injury Severity Score [ISS] 16 or greater) and a prolonged hospital stay were also increased. However, for those patients whose ISS was 16 or greater and who also had a brain injury, risk of fatality was significantly reduced if they were intoxicated (BAC 200 mg/dL or greater) before injury. Alcohol consumption does not protect patients from sustaining severe injuries nor does it shorten the length of hospital stay. However, there were potential survival benefits related to alcohol consumption for patients with brain injuries but not for those without brain injuries. Additional research is required to investigate the mechanism of this association further.

ALCOHOL INGESTION is associated with a significantly increased risk of traffic-related hazards and continues to be the major cause of motor vehicle collisions.¹⁻³ Because alcohol intoxication impairs one's motor skills, reaction time, and judgment, acute alcohol consumption has been shown to be associated with more severe injuries in drivers.⁴⁻⁶ In fact, alcohol-intoxicated driving (blood alcohol level above a certain value) is prohibited by law in most countries.

Studies have demonstrated that alcohol intoxication could adversely affect cardiovascular and metabolic

responses after injury,⁷⁻¹⁰ increase the risk of severe injuries, and magnify the cost of trauma care.^{11, 12} However, several studies have also shown that serum ethanol was independently associated with decreased mortality in patients with traumatic brain injuries (TBIs).^{13, 14} Recognizing this controversy, the objective of this study was to examine the effects of antecedent alcohol use on the severity of injury and hospitalization outcome in patients involved in motor vehicle crashes (MVCs).

Materials and Methods

This report describes a prospective observational study of all adult trauma patients admitted to China Medical University Hospital whose primary trauma mechanism was MVCs. Patients who were older than 18 years and were injured between 2005 and 2011 were included in this study. Blood alcohol concentration

- China Trauma Center
- 2005-2011
- Classified by Alcohol Level
- None, Low, High
- +BAC ↑ craniofacial injury risk
- +BAC ↑ thoracoabdominal injury
- ↑↑↑ BAC in ISS>15 with TBI=protective

Address correspondence and reprint requests to Chi-Hsun Hsieh, M.D., Department of Trauma and Emergency Surgery, China Medical University Hospital, School of Medicine, China Medical University, 2 Yuh-Der Road, Taichung, 404, Taiwan, Republic of China. E-mail: hsiehchihsun@yahoo.com.tw.

This work is supported by a China Medical University Hospital research grant, DMR-101-056.

Multiple Trauma & Alcohol

2016

Injury, Int. J. Care Injured 47 (2016) 83–88



Injured patients with very high blood alcohol concentrations

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Gordon S. Smith^{d,g}



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^e Heartland Health Outreach, Chicago, IL, United States

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Injury prevention
Blood alcohol level
Ethanol
Trauma: toxicology

ABSTRACT

Objective: Most data regarding high blood alcohol concentrations (BAC) ≥ 400 mg/dL have been from alcohol poisoning deaths. Few studies have described this group and reported their alcohol consumption patterns or outcomes compared to other trauma patients. We hypothesized trauma patients with very high BACs arrived to the trauma centre with less severe injuries than their sober counterparts.

Method: Historical cohort of 46,222 patients admitted to a major trauma centre between January 1, 2002 and October 31, 2011. BAC was categorised into ordinal groups by 100 mg/dL intervals. Alcohol questionnaire data on frequency and quantity was captured in the BAC ≥ 400 mg/dL group. The primary analysis was for BAC ≥ 400 mg/dL.

- Baltimore Trauma Center
- 2002–2011
- Categorized BAC (None, Low, High)
- Highest BAC = \downarrow ISS
- Lower to None BAC = \uparrow ISS

Alcohol and Readmissions



Contents lists available at ScienceDirect

Injury

journal homepage: www.elsevier.com/locate/injury



Review

The prevalence of alcohol-related trauma recidivism: A systematic review



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ARTICLE INFO

Article history:
Accepted 9 January 2016

Keywords:
Trauma
Injury
Alcohol
Recidivism
Systematic review

ABSTRACT

Objective: Recur

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Conclusion: Evid

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underestimate

Systematic Review
1989 to 2014
Range 27% -77%
Weighted avg: 41%

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was examined; all
traumatic injury.
divism, definitions

Alcohol & Resource Use

Extreme Blood Alcohol Level Is Associated with Increased Resource Use in Trauma Patients

ALISSA SWEARINGEN, M.D.,* VAFA GHAEMMAGHAMI, M.D.,* TERRENCE LOFTUS, M.D.,* CHRISTOPHER J. SWEARINGEN,† HELEN SALISBURY, Ph.D.,* RICHARD D. GERKIN, M.D.,‡ JOHN FERRARA, M.D.*

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2010

- Level I Trauma Center
- 5 yrs Trauma Registry
- Categorized BAC: None, Low, High
- Low BAC = ↑ISS, ↑ICU LOS, ↑LOS
- High BAC = ↓ISS, ↑ICU admit, ↑LOS

This study aims to examine resource utilization and outcomes of trauma patients with extremely high blood alcohol concentrations. We hypothesized that higher blood alcohol concentration (BAC) predicts greater resource utilization and poorer outcomes. A retrospective analysis was performed on trauma patients admitted to an urban Level I trauma center over a 5-year period. Admission BAC categories were constructed using standard laboratory norms and legal definitions. Demographic data, premorbid conditions, injury severity scores (ISS), resource utilization (intensive care unit (ICU) admission rates/length of stay, total hospital days, use of consultants), and mortality were analyzed. Positive BAC on admission was associated with increased ISS ($P < 0.001$), length of stay ($P < 0.003$), and total ICU days ($P < 0.001$). Increased BAC admission level of patients was associated with a decreased ISS score ($P = 0.0073$), a higher probability of ICU admission ($P = 0.0013$), and an increased percentage of ICU days ($P = 0.001$). A positive BAC at admission was a significant predictor of both ICU admission and mortality (odds ratios 1.72 and 1.27, respectively). This study demonstrates that a positive BAC is associated with increased ISS, increased resource utilization, and worsened outcomes. Extreme levels of BAC are associated with increased resource utilization despite lower injury severity scores.



Contents lists available at ScienceDirect

Injury

Journal homepage: www.elsevier.com/locate/injury



Alcohol intoxication/dependence, ethnicity and utilisation of health care resources in a level I trauma center[☆]

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2011

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ARTICLE INFO

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Trauma

Alcohol intoxication

Alcohol dependence

Resource utilisation

Health care

Resources

Minorities

ABSTRACT

Objective: To evaluate the potential influence of acute intoxication and dependence to alcohol on extra-utilisation of health care resources by ethnic minority trauma patients in a level I trauma center.

Methods: We analysed the data of 1493 patients enrolled in a study that evaluated the effectiveness of brief alcohol intervention among ethnic minority trauma patients. The database included detailed demographic, injury-related and drinking-related characteristics (including acute intoxication and alcohol dependency status). Patients were categorised into the following groups: non-intoxicated/non-dependent (NI/ND), non-intoxicated/dependent (NI/D), intoxicated/non-dependent (I/ND) and intoxicated/dependent (I/D). We compared utilisation of several diagnostic and therapeutic procedures among these four categories. We placed special emphasis on ethnicity as a potential effect modifier.

Results: Relative to NI/ND trauma patients, I/ND patients (relative risk (RR): 1.8, 95% CI: 1.2–2.8) and I/D patients (RR: 2.4, 95% CI: 1.6–3.6) had significantly higher chance of being evaluated by abdominal ultrasound during the first 24 h of hospital arrival. Similar pattern was observed for head CT scan (with the corresponding RRs of 2.1 and 2.6, respectively). Chance of admission to the intensive care unit (ICU) was not associated with intoxication/dependence status. Length of hospital stay was negatively

- ED
 - High BAC
 - ↑ Abd US
 - ↑ Head CT
- ICU
 - No difference ICU admit or LOS
- Hospital
 - No difference in hospital LOS
- Ethnicity
 - No difference

2013

Clinical Science

Alcohol use increases diagnostic testing, procedures, charges, and the risk of hospital admission: a population-based study of injured patients in the emergency department

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Shahid Shafi, M.D., M.P.H.^b, Randall S. Friese, M.D.^a, Larry M. Gentilello, M.D.

^aDivision of Trauma, Critical Care, Burns and Emergency Surgery, University of Arizona, 1501 North Campbell Avenue, Room 5411D, Tucson, AZ, USA; ^bBaylor Health Medical System, Dallas, TX, USA

- Emergency Department
- Population Level Database
- Alcohol related injuries compared to non alcohol related injuries
- Alcohol Related:
 - More come by ambulance
 - More diagnostic testing
 - Longer ED LOS
 - Twice as likely to be admitted
 - ↑↑↑Costly

Is Alcohol Protective or Negative for TBI?

Multiple studies show alcohol
is protective for TBI!



Explanations

- Protective role of alcohol is its ability to blunt the sympathetic response
- TBI:
 - 5 Fold increase in catecholamines
 - massive increase in systemic metabolism
 - depleting available oxygen and glucose stores
 - narrowing of the peripheral blood vessels

Leads To:

- decreased cerebral cortical blood flow and decreased
- availability of oxygen and glucose required for cellular metabolism
- resulting in anaerobic metabolism, ischemia, neuronal death

Scenarios

Jill Jakubus
2:25



Scenarios –Question 7

Protective Devices: JJ is the third row passenger that needed to be extricated from the burning van. What Protective Devices were in use or worn by JJ at the time of injury? (NTDS 2018 Page 28)

- A. Lap Belt and Shoulder Belt**
- B. Lap Belt, Shoulder Belt, and Airbag**
- C. Airbag**
- D. None Used**

Scenarios –Question 8

**ED/Hospital Arrival Date/Time: What is Ramona's
ED/Hospital Arrival Date/Time to Rowboat Children's
Hospital? (Scenario Page 24)**

- A. Not Documented**
- B. 17:32 on 11/17/2017**
- C. 16:55 on 11/17/2017**
- D. 19:00 on 11/18/2017**

Scenarios –Question 9

ED/Initial ED Vital Signs: Ramona is being evaluated at Rowboat Children's Hospital as a trauma activation. What is:

Respiratory Rate? (Scenario Page 26)

- A. 16**
- B. Not Documented**
- C. 20**
- D. 25**

Scenarios –Question 9

ED/Initial ED Vital Signs: Ramona is being evaluated at Rowboat Children's Hospital as a trauma activation. What is:

Systolic Blood Pressure? (Scenario Page 26)

- A. 95**
- B. 96**
- C. Not Documented**
- D. 98**

Scenarios –Question 9

ED/Initial ED Vital Signs: Ramona is being evaluated at Rowboat Children's Hospital as a trauma activation. What is:

GCS Total Score? (Scenario Page 25)

- A. Not Documented**
- B. 6**
- C. 5**
- D. 15**

Scenarios –Question 10

ALCOHOL RESULTS: Jimmy was tested in the ED for BAL. His test results came back <10. What would his alcohol screen results be reported as? **(NTDS 2018 Page 74)**

- A. Not Document
- B. 0.00**
- C. Not Applicable (use for cases not tested)
- D. Blank

Scenarios –Question 11

DNR STATUS: Jane was a 38-year-old with no significant past medical history. The hospital had no copy of a DNR Status. How do you record this in the trauma registry?

- A. Not a DNR patient**
- B. DNR Status ordered prior to patient's arrival at your hospital**
- C. Not Documented**
- D. DNR status order after patient arrival to your hospital**

Challenging Questions

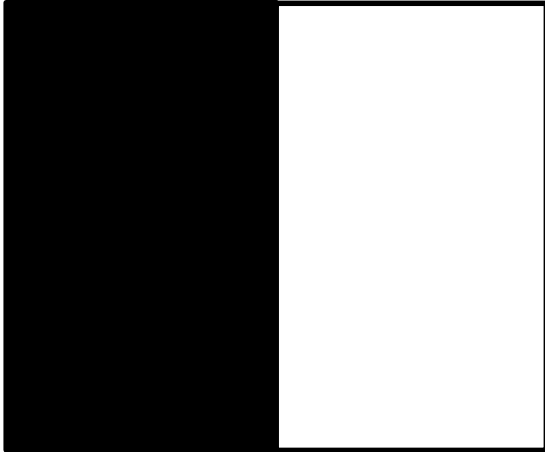
Jill Jakubus
2:30



Instructions

- Show questions you submitted to MTQIP
- Definition
- Your response
- MTQIP-provided response
- Commentary

Challenges



Question

Should patients with **NSTEMI** or a **type II MI** while inpatient have the **complication MI** captured?

Definition

MYOCARDIAL INFARCTION

An acute myocardial infarction must be noted with documentation of any of the following:

Documentation of ECG changes indicative of acute MI (one or more of the following three):

1. ST elevation >1 mm in two or more contiguous leads
2. New left bundle branch block
3. New q-wave in two or more contiguous leads

OR

New elevation in troponin greater than three times upper level of the reference range in the setting of suspected myocardial ischemia

OR

Physician diagnosis of myocardial infarction

MTQIP Response

Yes, please capture if the criteria is met.

I also found an **email from the ACS** that you may find helpful though. Let me forward that email to you in a separate message.

TQIP Response

To answer your question, if during their initial stay at your hospital, the documentation stated that patient experienced an NSTEMI Type II and met one of the criteria of the NTDS definition, then **you should report “MI”** as a Hospital Complication to TQIP.

Question

Recording the Antibiotic Use for Open Fracture type/date/time only applies to open fractures, correct?

I came across an **open dislocation** of an ankle joint, ligament damage, etc...but no associated fracture.

Definition

ANTIBIOTIC 1 TYPE

- Enter the first antibiotic class administered to patient at your hospital.
- Must be given, not just ordered.
- Antibiotic reference available at www.mtqip.org > Resources > Education > Antibiotic Reference

0. None
1. Penicillin
2. Monobactam
3. Carbapenem
4. Macrolide
5. Lincosamide
6. Aminoglycoside
7. Quinolone
8. Sulfonamide
9. Tetracycline
10. Cephalosporin
11. Other

Collection Criterion: Collect on all patients with open fractures.

MTQIP Response

As long as there are no injuries coded as an open fracture you're all set and don't need to enter the antibiotic.

Here's a link to the codes that are open fracture both AIS and ICD 10 that qualify. Scroll down to "Open Fracture Codes."

M·TQIP

[Home](#)

[Membership](#)

[Calendar](#)



[Resources](#)

[Leadership](#)

[Contact Us](#)



PERFORMANCE INDEX



[2018 Performance Index](#)

[2018 Open Fracture Codes](#)

[2017 Performance Index](#)

[2016 Performance Index](#)

[2015 Performance Index](#)

[2014 Performance Index](#)

[2013 Performance Index](#)

[2012 Performance Index](#)

[2011 Performance Index](#)

Question

We had a pt **transferred in** from another hospital where she was admitted for over a week. While there she had a Foley placed. We **cx her urine a day after** she arrived and it was +.

- 1) **Do we capture CAUTI** since Foley had been in for a week and was placed at the outside hospital?
- 2) The definition of CAUTI says bacteria $>100,000\text{CFU/ml}$. So **if a bacteria comes back 50,000-100,000 CFU/ml do we count** that since it is not technically over 100,000?

Definition

CATHETER-ASSOCIATED URINARY TRACT INFECTION

(Consistent with the January 2016 CDC defined CAUTI). A UTI where an indwelling urinary catheter was in place for > 2 calendar days on the date of event, with day of device placement being Day 1,

AND

An indwelling urinary catheter was in place on the date of event or the day before. If an indwelling urinary catheter was in place for > 2 calendar days and then removed, the date of event for the UTI must be the day of discontinuation or the next day for the UTI to be catheter-associated.

CAUTI Criterion SUTI 1a:

Patient must meet 1, 2, and 3 below:

1. Patient has an indwelling urinary catheter in place for the entire day on the date of event and such catheter had been in place for >2 calendar days, on that date (day of device placement = Day 1) AND was either:
 - Present for any portion of the calendar day on the date of event, OR
 - Removed the day before the date of event
2. Patient has at least one of the following signs or symptoms:
 - Fever (>38C)
 - Suprapubic tenderness with no other recognized cause
 - Costovertebral angle pain or tenderness with no other recognized cause
3. Patient has a urine culture with no more than two species of organisms, at least one of which is bacteria >10⁵ CFU/ml.

Def. Source: CDC, NTDS

MTQIP Response

I've attached an excerpt from the CDC definition on the **transfer rule**.

Please don't forget to check the OSH record to see if any criterion was present prior to transfer.

Lastly, the **CFU/mL** does need to be over **100,000**.



Date of Event (Event Date):

The Date of Event (DOE) is the date the first element used to meet an NHSN site-specific infection criterion occurs for the first time within the seven-day infection window period ([Table 3](#) and [Table 4](#)).



Location of Attribution (LOA):

The inpatient location where the patient was assigned on the date of event is the location of attribution (see [Date of Event definition](#)). Non-bedded patient locations, (for example Operating Room (OR) or Interventional Radiology (IR)) are not eligible for assignment of location of attribution for HAI events. Location of attribution must be assigned to a location where denominator data (for example, patient days, device days) can be collected.

Exception to Location of Attribution:

Transfer Rule: If the date of event is on the date of transfer or discharge, or the next day, the infection is attributed to the transferring/discharging location. This is called the Transfer Rule. If the patient was in multiple locations within the transfer rule time frame, attribute the infection to the **first** location in which the patient was housed the **day before** the infection's date of event. Receiving locations or facilities should share information about such HAIs with the transferring location or facility to enable accurate reporting. See examples below.

Question

Pt who was being treated for “superficial cellulitis of hip at incision” with Kefzol and presents with fevers, tenderness, erythema and swelling from left hip incision to thigh up to lumbar region but then ID consult notes “minimal yellow drainage” (no cultures done) would you consider this true cellulitis or a SSSI?

Would “minimal yellow drainage” count as purulent?

Definition

SUPERFICIAL INCISIONAL SURGICAL SITE INFECTION

Infection occurs within 30 days after any NHSN operative procedure (where day 1 = the procedure date)

AND

Involves only skin and subcutaneous tissue of the incision

AND

Patient has at least one of the following:

- a. Purulent drainage from the superficial incision.
- b. Organisms identified from an aseptically-obtained specimen from the superficial incision or subcutaneous tissue by a culture or non-culture based microbiologic testing method which is performed for purposes of clinical diagnosis or treatment (e.g., not Active Surveillance Culture/Testing (ASC/AST)).
- c. Superficial incision that is deliberately opened by a surgeon, attending physician** or other designee and culture or non-culture based testing is not performed.
AND patient has at least one of the following signs or symptoms: pain or tenderness; localized swelling; erythema; or heat. A culture or non-culture based test that has a negative finding does not meet this criterion.
- d. diagnosis of a superficial incisional SSI by the surgeon or attending physician** or other designee.

Reporting Instructions for Superficial SSI

The following do not qualify as criteria for meeting the NHSN definition of superficial SSI:

1. Diagnosis/treatment of cellulitis (redness/warmth/swelling), by itself, does not meet criterion d for superficial incisional SSI. An incision that is draining or that has organisms identified by culture or non-culture based testing is not considered a cellulitis.
2. A stitch abscess alone (minimal inflammation and discharge confined to the points of suture penetration)
3. A localized stab wound or pin site infection. While it would be considered either a skin (SKIN) or soft tissue (ST) infection, depending on its depth, it is not reportable under this module.

MTQIP Response

Short answer: **No**, the below alone does not meet criteria.

Long answer: Based on the below, there is not enough info to confirm purulence since **serous (thin, clear, yellow) drainage** can also be described in that manner. We'd suggest confirming that the RN did not describe the yellow drainage as creamy, opaque, thick or viscous in the wound flowsheets. We'd also suggest confirming the surgeon did not diagnosis this as an SSI which can also be used to meet criteria.

MTQIP Response

From the CDC SSI criterion: Does NHSN have a definition for purulence?

NHSN does not define purulent drainage as there is no standard, clinically agreed upon definition.

Generally, **thick/viscous, creamy/opaque fluid** discharge with or without blood seen at the site or document of pus/purulence by a medical professional would be accepted evidence of purulent drainage. At this time NHSN does not use any gram stain results such as WBCs or PMN's to define purulence for the SSI protocol.

Question

If patient does **not have a head injury** or they do have a head injury with **no anticoagulant** should we leave **boxes NA or blank** for the anticoagulant reversal variables such as First ED/Hospital INR?

Also, since I am asking this could you clarify **what is Anti-Xa Activity** is?

Definition

FIRST ED/HOSPITAL ANTI-XA ACTIVITY

Enter the first anti-Xa activity laboratory value obtained within 24 hours of admission to the index hospital, where the index hospital is the hospital abstracting the data.

Collection Criterion: Collect on all patients on anticoagulant therapy (NTDS 31) or aspirin with at least one injury in the AIS head region, excluding patients with isolated scalp abrasion(s), scalp contusion(s), scalp laceration(s) and/or scalp avulsion(s).

Def. Source: MTQIP

Data Base Column Name: MTQIP_TBI_ANTI_XA

Type of Field: Custom, Numeric

Format: X.XX

Default: Blank

Length:

MTQIP Response

You can simply leave the defaults in place if the patient does not meet criteria (read: **no additional clicks**). NA and blank have the same meaning in the analysis since we use logic to create the groupings.

Anti-Xa activity is a **lab test for monitoring the blood coagulation cascade function** or monitoring blood clotting. It is usually used to measure the impact of certain blood thinning drugs.

Closing Comments

Jill Jakubus
2:55



Announcements

- Next optional submission: August 3, 2018
- Next required submission: October 5, 2018
- Next meeting: June 4, 2019 10 AM – 3 PM
- Electronic evaluations

Thank you

3:00

