Physical Injuries and External Causes; Preparing for ICD-10-CM/PCS

• http://orthoinfo.aaos.org/main.cfm

• Keep going

Muscle, Fascia, Tendon
• Strains
  – Often caused by overuse
• Lacerations
• Other

Strain

• Stretching or tearing of muscle fibers
• Causes
  – sports, exercise, a sudden movement, or trying to lift something that is too heavy
• S & Symptoms
  – pain, tightness, swelling, tenderness, inability to move the muscle very well

Sprains vs. Strains

• Sprain
  – Acute partial tear of ligament/muscle
  – 1st, 2nd, 3rd degree
• Strain
  – Injured muscle, tendon, or other tissue
  – Caused by overuse, overstretching
• Etiology
  – Acute
  – Chronic overuse (cumulative trauma)
    • Sports/Occupation

S&S, Sprains/Strains

• Pain, weakness, numbness, edema
• Stiffness, tenderness, soreness
  – Typical of chronic overuse
• Difficulty using
• Sprains can include damage to
  – Blood vessels/nerves
  – Ecchymosis and edema
Hamstring Injuries

- Occur at thick muscle part OR where muscle fibers join tendon fibers
- Muscles at back of thigh
  - Semitendinosus
  - Semimembranosus
  - Biceps femoris
- Sprinting athletes
  - Track, soccer, basketball
- Pull, Partial tear, or Complete tear
  - Grade 1 to Grade 3
  - Avulsion of bone due to tendon tearing away

Hamstring Injury Patients

- Athletes in sports like football, soccer, basketball
- Runners or sprinters
- Dancers
- Older athletes who primarily walk
- Adolescent athletes

Burner/Stinger (Nerves)

- Injury to nerve supply of upper arm, neck or shoulder
  - Burning/electric shock feeling, numbness, warmth
  -Usu. Temporary, but can last days or longer
- Fall, football or wrestling

http://orthoinfo.aaos.org/topic.cfm?topic=A00027
Crush Injuries (Closed)

- Occur when force/pressure put on body part - most often happens when part of body squeezed between two heavy objects
- Closed Damage from crush injuries includes:
  - Bleeding
  - Bruising
  - Compartment syndrome
  - Fracture
  - Nerve injury
  - Smashed fingers

Compartment Syndrome

- Painful condition occurs when pressure within muscles builds to dangerous levels
  - can decrease blood flow, preventing nourishment/O2 from reaching nerve/muscle cells.
  - either acute or chronic
- Acute = medical emergency
  - usu. due to severe injury
  - can lead to permanent muscle damage if not treated
- Chronic compartment syndrome, AKA exertional compartment syndrome
  - usu. NOT medical emergency
  - most often due to athletic exertion

Compartment

- Grouping of muscles, nerves, and blood vessels in arms and legs, covered with fascia
- Four Compartments in calf
- Other compartments in
  - Leg
  - Arms
  - Hands
  - Feet
  - Buttocks

http://orthoinfo.aaos.org/topic.cfm?topic=a00204
Crush injuries

- Severe injury to soft tissues
- Usually extremities
- Trapped body part, extreme pressure/force
- Cause muscle injury and cell death
- 3 cell death mechanisms
  - Disruption and damage due to force
  - Ischemia due to continued direct pressure
  - Vascular compromise due to compression & loss of blood supply

Closed Liver Laceration (Fx) (S36.11-)

- Tear/ cut in liver, almost always requires hospital stay

**CAUSES**

- 1) Strong blow to liver area (blunt trauma)
  Blunt trauma can tear liver EVEN THOUGH no break in skin
- 2) Object goes through skin into liver (penetrating injury) = OPEN wound
  - NEED Add’l ICD-10-CM code

Spleen Trauma

- Blunt
  - MVAs, Falls from height
  - Contact sports
  - Bicycle accidents -falling into handlebars
  - Domestic violence
  - Beatings
- Penetrating
  - GSW, knife wound
  - (Rare due to protected location)
Traumatic amputation

- Loss of all/part of a body part
- Accident/Trauma
- Classified by site and extent
- Side of body

- Degloving injury
- Ring caught on
- Handrail screw

http://www.trauma.org/images/image_library/21273878705P3250131.jpg

Traumatic Amputations

- ~ 10,000 per year are due to work-related injuries
- Common household causes include
  – Snowblowers (~1000 amputations yearly)
  – Lawnmowers, and other power tools
- Most tip amputations (up to 86%) involve dominant hand


Traumatic Amputations

- Classified by
  – Site
  – Extent – partial or complete
  – Laterality

Brain Traumas

TBI (Traumatic Brain Injury)

- Disruption of normal brain function
  - Caused by bump, blow or jolt to head or penetrating head injury
- 1.7+ million every year in US
- 75% mild (concussion)
- ~18% of all TBI-related ED visits involved children aged 0 - 4 years
- ~22% of all TBI-related hospitalizations involved adults 75 years +
- Males more often diagnosed with TBI (59%).
Falls

- Leading cause of TBI in US
- 50% of TBIs among children 0 - 14 years
- 61% of all TBIs among adults 65 years +

MVAs & TBIs

- In all age groups, MVAs & traffic-related incidents 2nd leading cause of TBI (17.3%)
- Largest percentage of TBI-related deaths (31.8%)
- 2.3 million+ adult drivers/passengers treated in EDs due to MVAs in 2009
- Lifetime costs of crash-related deaths/injuries for drivers/passengers = $70 billion in 2005

Head Trauma

- Hematoma - collection of blood outside of blood vessel
  - Epidural
  - Subdural
  - Intracerebral
- Concussion
- Cerebral Contusion
- Basilar Skull Fx
**Epidural Hematoma (AKA Extra-)**

- Trauma, often to temple
  - Middle meningeal artery
  - Accumulation of blood epidural space
    - Outside (Above) Dura Mater
    - Due to Dura’s attachment to skull, small hematomas can cause significant pressure

- 1-3% of head injuries
- 15-20% are fatal

![Epidural_Hematoma.jpg](http://en.wikipedia.org/wiki/File:Epidural_Hematoma.jpg)

**Subdural hematoma**

- Collection of blood on brain’s surface
- Due to ruptured veins

- Acute Subdural = one of deadliest head traumas
  - Serious head injury
  - Bleeding rapidly puts pressure on brain tissue

- Chronic Subdural = common in elderly
  - Can be cause by minor injury (Fall)
  - Can be unnoticed for days/weeks
  - Shrinking brain = more space

![Subduralandherniation.PNG](http://en.wikipedia.org/wiki/File:Subduralandherniation.PNG)

**Intracerebral hematoma**

- Within brain tissue
  - Caused by bleeding from
    - Uncontrolled high blood pressure
    - Aneurysm leak or rupture
    - Trauma
    - Tumor
    - Stroke

![Intracerebral_hemorrhage.jpg](http://en.wikipedia.org/wiki/File:Intracerebral_hemorrhage.jpg)
Concussion

- L, concutere, to shake violently
- Trauma-induced loss of consciousness, transient or prolonged
  - Due to a blow to head;
  - May be transient amnesia, vertigo, nausea, weak pulse, and rapid/slow respiration

Contusion of Brain

- Bruise of Brain tissue
- 20–30% of severe head injuries
- Cerebral laceration is similar
  - BUT pia-arachnoid membranes are torn over injury site
- Contrecoup contusion
  - Blow on one side of head with damage on opposite side by transmitted force

Basilar Skull Fracture

-Fx involving base of cranium
  - S&S May be asymptomatic
  - Raccoon eyes
  - Battle sign
  - Hemotympanum
  - CSF Rhinorrhea
  - Imaging: Plain skull film may not reveal fx
    - CT or MRI more reliable
Cerebellar Injuries

• Trauma
• Disease

• Common symptom = Ataxia
  – Lack of muscle coordination
  – Speech pattern changes
  – Abnormal gait

Medulla Oblongata Injuries

• Trauma can be fatal when Reflex centers damaged
• Non-fatal injuries
  – Cranial nerve malfunction
  – Paralysis
  – Loss of sensation
  – Respiratory Irregularities

Post-Head Injury Dementia

• TBI in early/midlife = increased risk of dementia in late life
  – Moderate/severe TBIs = 2-4 X increased risk
• People < 50 y-o
  – Head injury is 3rd most common cause of dementia, after infection and alcoholism

• Most common causes of head injury
  – MVAs (50%)
  – Falls (21%)
  – Assault or GSW (12%)
  – Sports - boxing (dementia pugilistica), other recreational activity (10%)
  – Use of alcohol/substances factor in ~1/2
• Children
  • Bicycle accidents
• Infants
  • Shaken baby syndrome
• Elderly persons
  • Especially falls

http://www.fieldsobrietytests.net/horizontalgazenystagmusfieldsobrietytest.html
External Causes of Morbidity
- ICD-10-CM Chapter 20 (V01-Y99)
- Secondary codes in any HC setting
- Data for
  - Injury research
  - Evaluation of injury prevention strategies
- Environmental events and circumstances as cause of injury

Assignment of External Cause Codes
- CANNOT be assigned as
  - Principal code (Inpatient)
  - First-listed code (Outpatient)
  - Only code
- Separate Index

Mandated External Cause Codes
- NO National mandate
- 26 states, District of Columbia now mandate routine collection of external-cause-of-injury data
- 41 states routinely collect some level of Ecodes
- Payers can require
HOWEVER

• Since ICD-10-CM has so many codes that have external causation as PART of the code AND
• Many payers have already stated that they will not accept incomplete codes

• Codes will need external cause info in order to assign complete codes

Case

• An 18-year-old female patient is seen for an ankle sprain. What ICD-10-CM diagnosis code(s) are assigned?
  • S93.4—Sprain of ankle.
  • Need to know which ankle to continue
  • Also need to know 7th digit info
    – A—Initial
    – D—Subsequent
    – S—Late Effect (Sequela)
Reasons to Query

• Some payers have stated that will not reimburse claims w/ unspecified ICD-10-CM codes
• Government & 3rd-party payers will assign severity and risk scores based codes
  – These scores will help justify higher level codes and better reimbursement

Needed Info

• Which ankle, right or left?
• Initial, subsequent or sequel encounter?
• How did this injury happen?
• Where did this injury happen?
• Response:
  – Initial encounter for this problem
  – Patient sprained her right ankle
  – Slipped on ice on the driveway while going to the mailbox.
• S93.401A

External cause codes also indicate

• Intent of event
  – Accidental, intentional, etc.
• Place of occurrence
• Activity of patient at time of event
• Status of Patient
  – Civilian or military
External Causes Codes

- Most applicable to injuries
- Can be used for
  - Infections/Diseases due to external source
  - Other conditions
    - Heart Attack occurring during strenuous activity
    - Clearing Limbs after Hurricane Irene

External Cause Code Guidelines

- Assign external cause code with 7th character for EACH encounter for tx
- Use FULL range of external cause codes
  - Cause
  - Intent
  - Place of occurrence – only ONCE - initial
  - Activity of Patient – only ONCE – initial
    - NOT used with poisonings, adverse effects, misadventures, or sequelae
- Combination codes = injury sequence

Intent in ICD-10-CM

- Accidental
- Intentional Self-Harm
  - Suicide Attempt (T14.91)
    - Only used when nature and body region of injury and mechanism of injury unknown
    - MR only says “suicide attempt” with no other info
- Assault
- Undetermined
- Legal Intervention, War, Military, Terrorism
Length of treatment

- Some External Cause codes need a 7th character to indicate the stage of treatment
  - A = Initial encounter
    - Used for all encounters during initial treatment
  - D = Subsequent encounter
    - Used for all encounters during healing, etc.
  - S = Sequala
    - Original injury is healed, but there is a residual issue that is being evaluated/treated
    - Scars following burn, etc.

Sequala (Late Effect)

- ICD-9-CM - only eight E codes related to late effects (E929.0-5, .8, .9)
- ICD-10-CM - all external cause codes (V, W, X, or Y) have sequela codes

External cause code sometimes not needed

- When code from other chapter indicates all info
- Chapter 19 code T36.0X1-
  - Poisoning by penicillin, accidental
Priority of External Cause Codes

- Child/Adult Abuse
- Terrorism events (id by FBI)
- Cataclysmic events
  - hurricane, tornado, flood, etc.
- Transport accidents

- Activity/Status codes AFTER other External Cause codes

Accidental External Cause Codes

- If intent (Accident, Self-Harm, Assault) is UNKNOWN/UNSPECIFIED
  - Code accidental intent
- Transport Accident
  - Assume accidental intent

Abuse and ICD-10-CM

- Abuse, Child – see Maltreatment, child
- Abuse, Adult – see Maltreatment, adult
  - Abandonment
  - Neglect
  - Physical
  - Psychological
  - Sexual
  - Confirmed
  - Suspected
  - History of
Child/Adult Abuse

- Classified as Assault
- When MR documentation states
  - Abuse/neglect, case coded as confirmed (T74.xx)
    - Y07 = add’l code when KNOWN perpetrator
  - Suspected abuse or neglect, case coded as suspected (T76.xx)
    - External cause and perpetrator codes are NOT assigned

Terrorism Definition

- Y38 Note in ICD-10-CM TL
- Injuries resulting from the unlawful use of force or violence against person or property to intimidate or coerce a Government, the civilian population, or any segment thereof, in furtherance of political or social objective.

Pedestrian conveyance codes (V00.xxx)

- New in ICD-10-CM - designed to id sports-and recreation-related
  - Skateboarder, ice skater, snowboarder, scooter
- other conveyance-related
  - Motorized mobility scooter, baby stroller, wheelchair injuries
- DO NOT involve collisions w/ trad. transportation vehicles
- Codes include external cause of injury
Undetermined External Cause Codes
• Used ONLY when record documentation specifies that intent CANNOT be determined

MVA Injuries
• Brain and Head
• Neck
• Spinal Cord
• Back
• Facial
• Internal
• Psychological

MVA Injuries
• Impact injuries OR
  – Body hits interior of car
• Penetrating injuries
  – Shattering glass or loose objects
• Soft-Tissue injury
  – Whip-lash – head, neck, back
• Scratches/Cuts
  – Cell phones, mugs, eyeglasses, purses, books, dash-mounted GPS systems, airbag
External Causes Case Study

- An 18 year-old driver of car that collided with a pickup truck on interstate highway. The driver confessed to using his cell phone to send a text message to his girlfriend.
- Assign External cause codes only

Answer

- V43.53xA
- Accident, car – see Accident, transport, car occupant, Accident, transport, car occupant, driver, collision (with) pickup truck (traffic)
- Y92.411
- Place of occurrence, highway (interstate)
- Y93.c2
- Activity (involving) (of victim at time of event), cellular, telephone

Case Study

- 49-year-old male fell from a ladder inside a building construction site and suffered an open skull fracture with subarachnoid and subdural hemorrhage. He was unconscious for 32 hours and expired without regaining consciousness. He was an employed construction worker.

http://classroomclipart.com/clipart-search/all-phrase/ladder/
ICD-9-CM vs. ICD-10-CM

- 803.75 Open skull fracture with subarachnoid and subdural hemorrhage, prolonged LOC w/o return to consciousness
- E881.0 Fall from ladder
- E016.2 Activities involving construction
- E849.3 Occurring at building under construction
- E000.0 Civilian activity for pay
- S02.91xB Open skull fracture
- S06.6x7A Subarachnoid hemorrhage w/o return to consciousness
- S06.5x7A Subdural hemorrhage w/o return to consciousness
- W11.xxxA Fall from ladder
- Y93.H3 Activity, construction
- Y92.61 Occurring at building under construction
- Y99.0 Civilian activity for pay

Case

- Degloving injury; Ring caught on
- Handrail screw while leaving subway

- Body part
- Bone
- Joint
- Cause
- Activity & Status

Codes

- **S68.614A** Complete traumatic amputation of right ring finger, initial encounter

- Specific code for each finger (6th character)
- 5th character defines complete or partial amputation
- Codes are not differentiated by the presence or absence of complication
- 7th character identifies specific encounter
External Cause codes

• W23.1XXA Caught, crushed, jammed, or pinched between stationary objects, initial encounter
• Y92.522 Railway station as place of occurrence of the eternal cause
• Y99.8 Other external cause status

Documentation needed

• Complete vs partial amputation of finger
• Specific finger must be identified
• Encounter (initial, subsequent, sequelae)

Burn Case Study

• CC: Burn, R arm
• HPI: Workers Comp injury. Pt, 41 yo male, works at coffee shop where he is a cook. Hot oil splashed on arm, elbow to wrist on medial aspect.
• PE: 1\textsuperscript{st} and 2\textsuperscript{nd} degree burns on forearm
Fall Case Study

• ED Record - 63 y.o. female presents to ED c/o sharp neck pain, onset last night. Pt states that pain is worsened by movement, and has never experienced sx like this before. Pt states this morning she began to feel weakness and fatigue. Pt also c/o a non-productive intermittent cough onset 3 weeks.

• PE: Musculoskeletal: Normal range of motion. She exhibits tenderness (mild paraspinal tenderness at the neck).

• XR Cervical Spine: No significant malalignment.

• Diagnosis: Cervical strain, contusion of knee, obesity, HTN

Fall Case Study

• H& P
  • Patient is 63 y.o. female presents with complaints of neck pain. States fell at home and hit her head on wall and strained her neck. Neck pain continued to worsen so brought to ER. Does have known arthritis and has had knees replaced.

• PE
  • Neck: no adenopathy, no carotid bruit, no JVD, thyroid not enlarged, symmetric, no tenderness/mass/nodules and some R posterior muscle tenderness.

• Assessment: Acute neck sprain

Burn Case ANSWERS

• T22.211A 2nd degree burn, forearm
• X10.2xxA Contact w/fats and cooking oils
• Y92.511 Restaurant or café
• Y93.g3 Cooking or baking
• Y99.0 Civilian activity done for income or pay
Fall Case Study

• Inconsistent documentation – need to query

• POSSIBLE codes
  – S16.1xxA Strain of muscle, fascia and tendon at neck level, initial encounter
  – S13.4xxA Sprain of ligaments of cervical spine, initial encounter
  – S13.9xxA Sprain of joints and ligaments of unspecified parts of neck, initial encounter

Fall Case Study Query

• We need your assistance in determining correct diagnosis for this patient. Acute Neck Sprain is documented. However, cervical strain and right posterior neck muscle tenderness were also documented.
• Please clarify whether this diagnosis should be:
  – Acute Neck Sprain of joints/ligaments of neck
  – Acute Sprain of ligaments of cervical spine
  – Acute Strain of muscle, fascia and/or tendon of neck
  – Other (Please specify)
  – Unable to determine

Eye Injury Case Study

• Pt owns a motorized scooter. Unfortunately she fell from scooter making tight turn into her kitchen, hit her right eye on the handlebar and injured the right eye and orbit.

• What ICD-10 code(s) apply
Eye Case Study ANSWERS

- S05.9 Unspecified injury of eye and orbit
- S05.91 Unspecified injury of right eye and orbit
- S05.92 Unspecified injury of left eye and orbit
- S05.91xA Unspecified injury of right eye and orbit; initial encounter
- V00.83 Accident with motorized mobility scooter
- V00.831 Fall from motorized mobility scooter
- V00.832 Motorized mobility scooter colliding with stationary object
- W05.2 Fall from non-moving motorized mobility scooter

HOMEWORK

- Man delivering drywall to NJ construction site was killed Monday when a tape measure fell 50 stories, striking him on the head 11/3/14
- The 1-pound tape measure became dislodged from belt of worker on 50th floor and struck construction equipment about 10/15 ft from ground. It then ricocheted and struck Gary Anderson, 58, who had just stopped to speak with another worker who was in a pickup truck
- Not wearing hard hat, had one in his truck.

Homework

Select at least ONE of the following sites and review the brain traumas of your choice
Homework

- mild Traumatic Brain Injury. US DOD AfterDeployment.org
  - http://www.afterdeployment.org/topics-traumatic-brain-injury

Quizzes

- Brain Injury Awareness Quiz - HensonFuerst, Raleigh Brain Injury Lawyers. 8 questions
  - http://www.youtube.com/watch?v=7R0iRY-4kgg
- You've Probably Never Heard of It.
  - http://healthlibrary.rsfh.com/InteractiveTools/Quizzes/
- Brain Quiz. AARP.

Resources

- American Academy of Orthopedic Surgeons. Shoulder Trauma (Fractures and Dislocations)
- AAFP. Symptom checker flowcharts - track your symptoms and come to a possible diagnosis (indicate which conditions are emergencies or urgent). Family Doctor.org
- Duke Orthopaedics. Wheeless’ Textbook of Orthopaedics
  - http://www.wheelessonline.com/
Resources - TBI

- Division of Disability and Aging Services. Vermont. Traumatic Brain Injury. 3 tutorials with workbooks and quizzes.
- Injury Prevention & Control: Traumatic Brain Injury. CDC.
  - [http://www.medicinenet.com/hematoma/article.htm](http://www.medicinenet.com/hematoma/article.htm)
- Brain Injury Guide and Resources. Missouri DHSS and MU DH. CEUs.
  - [http://braininjuryeducation.org/](http://braininjuryeducation.org/)

Resources

- Emergency Medicine Residency Orthopedic Teaching Files. Northwestern University. Feinberg School of Medicine.
  - [http://ortho-teaching.feinberg.northwestern.edu/](http://ortho-teaching.feinberg.northwestern.edu/)
- Gray, H. Anatomy of the Human Body. 1918
  - [http://www.codeitrightonline.com/ciri/icd-10-cm-diagnosis-coding-for-pain-medicine.html](http://www.codeitrightonline.com/ciri/icd-10-cm-diagnosis-coding-for-pain-medicine.html)

Resources

ICD-10-CM Resources

• AAPC. ICD-10 Connect (e-Newsletter)

• AHIMA. ICD-10 Home.
  – http://www.ahima.org/icd10/

• Coming soon to an ED near you: ICD-10-CM codes. July 2011

• ICD-10 Overview. CMS.


ICD-10-CM Resources

• Endicott, M. ICD-10-CM/PCS codes for musculoskeletal system include greater level of specificity. 8/30/2011
  – http://justcoding.com/270313/redirect

• Schraffenberger, L. Basic ICD-10-CM/PCS Coding. AHIMA. 2013 ed.

• Schreck, B. Late Effects (Sequela) in ICD-10-CM August 10, 2011

ICD-10-CM Resources

• Simmons, C. R. The Musculoskeletal System and ICD-10-CM. ICD TEN, April 2011. AHIMA.

• Zeisset, A. Coding Injuries in ICD-10-CM.

• Zeisset, A. ICD-10-CM Enhancements: A Look at the Features That Will Improve Coding Accuracy
Skin Resources

  - http://dermatlas.med.jhmi.edu/derm/
- Dermatology A to Z. AAD.
  - http://www.aad.org/skin-conditions/dermatology-a-to-z
- Swanson, J. R. & Melton, J. L. Dermatology Atlas. Chicago: Loyola University Dermatology Medical Education Website

Resources

  - http://practicalplasticsurgery.org/docs/Practical_06.pdf
  - http://practicalplasticsurgery.org/docs/Practical_07.pdf
  - http://www.wheelessonline.com/ortho/gun_shot_wounds
- Hand Kinesiology.
  - http://classes.kumc.edu/sah/resources/handkines/kines2.html

Resources

- ICD-9-CM Coordination and Maintenance Committee Meeting December 6, 2002.
Questions ???

ILEMten@gmail.com

Thank You!