

YOUR TRAUMA REGISTRY AND THE INPUT OF QUALITY DATA: IT IS ESSENTIAL

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INTRODUCTION

- ▶ Personal
 - ▶ Registered Health Information Technician (RHIT)
 - ▶ Trauma Registrar Coding Specialist – 7 years
- ▶ Alliance of Ohio Trauma Registrars
 - ▶ Secretary
 - ▶ Member since 2007



INTRODUCTION CONTINUED

- ▶ **Mercy St. Vincent Medical Center, Toledo Ohio**
 - ▶ Verified Level I Trauma Center
 - ▶ Approximately 1900 Trauma Patients per year
 - ▶ Member of Trauma Quality improvement program (TQIP)
 - ▶ Member since 2008
- ▶ **Trauma Department**
 - ▶ Staff
 - ▶ Medical Director
 - ▶ 5 core Trauma surgeons
 - ▶ Program Manager
 - ▶ 3 Trauma Nurse Coordinator's
 - ▶ 3 Full time Trauma Registrar Coding Specialists
 - ▶ 1 Full time Injury Prevention Coordinator



EACH REGISTRAR IS RESPONSIBLE FOR QUALITY DATA IN YOUR REGISTRY



QUALITY DATA

- ▶ A perception or an assessment of data's fitness to serve its purpose in a given context
- ▶ Aspects of data quality include:
 - ▶ Accuracy
 - ▶ Completeness
 - ▶ Relevance
 - ▶ Consistency across data sources
 - ▶ Validity
 - ▶ Timeliness
 - ▶ Detailed
 - ▶ Reliability
 - ▶ Appropriate presentation
 - ▶ Accessibility



QUALITY DATA - WHAT DOES THAT MEAN FOR TRAUMA REGISTRIES?



- ▶ Accuracy
 - ▶ Data being correct
 - ▶ Free from error
 - ▶ Rate of 95%
- ▶ Completeness
 - ▶ Having all required fields completed and chart is complete
- ▶ Relevance
 - ▶ The fields that are being collected pertain to Trauma and improving care
- ▶ Consistency across data sources
 - ▶ Data collection is done the same and collected from the same location
 - ▶ Ex. Trauma Patient Arrival Time

ED ARRIVAL TIME

Trauma patient arrival time

- ▶ Used for Level one and Level two activation
- ▶ Trauma narrator is started before patient arrives to facility due to notification of patient arrival
- ▶ Nurse fills out specifically in Trauma Narrator in EHR when patient physically arrives
- ▶ Ex. 22:23

VS

Patient arrival time

- ▶ On all patients
- ▶ Time patient arrived
- ▶ Completed when chart opens
- ▶ Ex. 22:11



ED LOS time difference of 12 minutes

CONSISTENCY CONTINUED: DATA COLLECTION LOCATIONS AND INFORMATION CONSISTENT

- ▶ Paper and EHR
 - ▶ EMS Run sheets
 - ▶ Correct times
 - ▶ Specific data collected for higher level of trauma activations
 - ▶ Trauma Start Time/ Physician notified time
 - ▶ Inpatient Units
 - ▶ Time in Unit/ Time discharged from unit
 - ▶ Vitals
 - ▶ Specific time frames
 - ▶ Etc.



QUALITY DATA - WHAT DOES THAT MEAN FOR TRAUMA REGISTRIES? (CONTINUED)

- ▶ Validity
 - ▶ Data collection needs to follow definitions
 - ▶ Data needs to be correct
- ▶ Timeliness
 - ▶ Data needs to be collected and completed for submission
- ▶ Detailed
 - ▶ Finding all data needed/required to have a complete chart. Especially for Coding/AIS.
 - ▶ Example: Humerus Fracture
 - ▶ Digging for the data
 - ▶ Google



DATA DEFINITIONS – ENSURE CORRECT

- ▶ Need to review new changes that take place in each dictionary that you follow every year
 - ▶ Review NTDS/ TQIP – Chang Log
 - ▶ Review exact definition that change log referred to
 - ▶ Review every dictionary that you follow for changes that occurred

CO-MORBID CONDITIONS



Definition

Pre-existing co-morbid factors present before patient arrival at the ED/hospital.

Field Values

- | | |
|--|---|
| 1. Other | 16. History of angina within 30 days |
| 2. Alcoholism | 17. History of myocardial infarction |
| 3. Ascites within 30 days | 18. History of PVD |
| 4. Bleeding disorder | 19. Hypertension requiring medication |
| 5. Currently receiving chemotherapy for cancer | 20. RETIRED 2012 Impaired sensorium |
| 6. Congenital anomalies | 21. Prematurity |
| 7. Congestive heart failure | 22. Obesity |
| 8. Current smoker | 23. Respiratory disease |
| 9. Chronic renal failure | 24. Steroid use |
| 10. CVA/residual neurological deficit | 25. Cirrhosis |
| 11. Diabetes mellitus | 26. Dementia |
| 12. Disseminated cancer | 27. Major psychiatric illness |
| 13. Advanced directive limiting care | 28. Drug or dependence |
| 14. Esophageal varices | 29. Pre-hospital cardiac arrest with resuscitative efforts by healthcare provider |
| 15. Functionally dependent health status | |

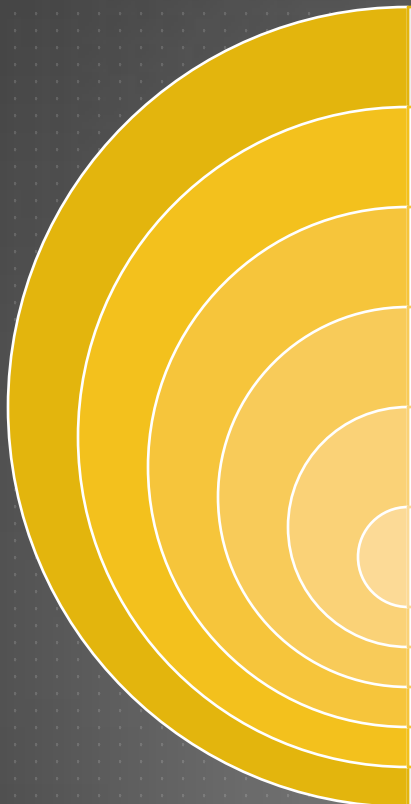
Additional Information

- The null value "Not Applicable" is used for patients with no known co-morbid conditions.
- Refer to Appendix 3: Glossary of Terms for definition of Co-Morbid Conditions.
- Check all that apply.

QUALITY DATA - WHAT DOES THAT MEAN FOR TRAUMA REGISTRIES? (CONTINUED)

- ▶ Reliability
 - ▶ Data entered in the registry is able to be trusted. We know that data is of high quality.
- ▶ Appropriate presentation
 - ▶ Able to be presented appropriately Ex. Graphs/ tables
 - ▶ Reports
 - ▶ Meeting purposes
- ▶ Accessibility
 - ▶ Data is able to be used/reported

HOW TO MAKE SURE YOU HAVE QUALITY DATA IN YOUR TRAUMA REGISTRY



Follow Data Dictionary Definitions and your facilities rules
Data collection locations and information consistent (Paper VS EHR)
Accurate
Detailed
Complete
Validation

RISKS OF HAVING POOR DATA IN YOUR TRAUMA REGISTRY

► Risks

- Data could be misleading – Misrepresentation
 - Both Internal and External
- Poor data could result in inappropriate decision making across the institution
- Data could be considered “not reliable”
 - Rebuild trust
- Inaccurate
 - Could lead to improper reporting
 - Could affect Quality Improvement
 - Could affect Performance Improvement



Reference: Data Quality and Data Quality Assurance Policy. (2011, March 3).. Retrieved May 13, 2014, from http://www.admin.ox.ac.uk/pras/aboutus/data_quality/

ANALYZING/ REVIEWING YOUR DATA

- ▶ Data analysis
 - ▶ The process of interpreting the meaning of the data we have collected, organized, and displayed in the form of a table, bar chart, line graph, or other representation.
 - ▶ Looking for patterns—similarities, disparities, trends, and other relationships—and thinking about what these patterns might mean
- ▶ Methods of data analysis
 - ▶ Charts/ Graphs
 - ▶ Reports
 - ▶ Spreadsheets



ANALYZING YOUR DATA CONTINUED

- ▶ Comparison
 - ▶ Look for patterns, trends, outliers
 - ▶ Look for areas of concern and address them
- ▶ Ongoing
 - ▶ Monthly reporting at monthly Trauma meeting
 - ▶ Can breakdown how you prefer
 - ▶ Select appropriate timeframe Quarterly/ Monthly/ Yearly

EXAMPLE OF WHAT CAN DISCOVER WHEN ANALYZE DATA

- ▶ LOS – ED/ ICU/ Total LOS - ? To long
- ▶ Complications - High number? How to improve? Low number? Collecting correctly? Share best practices
- ▶ ISS – Severity of patients treated - Enough staff for ICU?
- ▶ Volume – Enough staff for Trauma Department? Rest of hospital?
- ▶ Referring Facilities – Who is transferring to you?
- ▶ Mode of arrivals – Enough EMS and Air ambulance to service population if hospital houses a EMS/AIR agency
- ▶ Etc.....

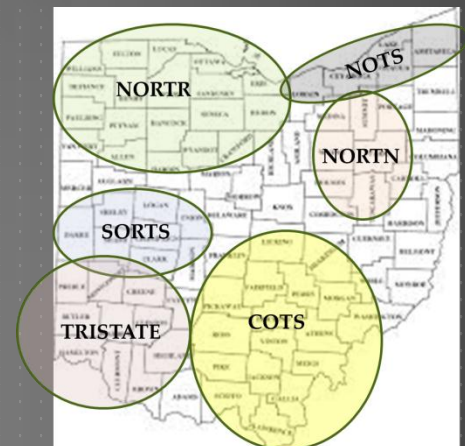
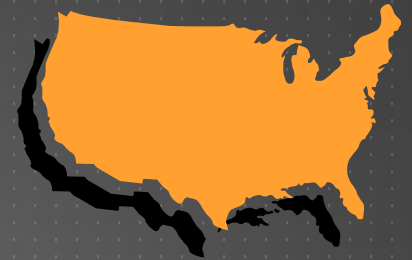
OVERALL IMPORTANCE OF UNDERSTANDING YOUR DATA

- ▶ Quality Improvement
 - ▶ Systematic and continuous actions that lead to improvement in Trauma care for the injured patients
 - ▶ Continuous process to perform better
- ▶ Performance Improvement
 - ▶ Monitor/measure, evaluate and improve the performance of a trauma program.
 - ▶ Identify opportunities for improvement
 - ▶ Continuous process for improving care for the injured patient

Reference: *Resources for Optimal Care of the Injured Patient 2006* (). (2006). Performance Improvement and Patient Safety. Chicago: American College of Surgeons

WHEN REPORTING TO NTDB,TQIP, STATE AND REGION

- ☐ Follow each Data Dictionary
- ☐ Submit data to each system
- ☐ Get updates from each system
- ☐ Receive reports from each system
 - Good benchmarking
- ☐ Research
- ☐ Each system can provide feedback regarding your data
 - External data validation



REGIONAL TRAUMA REGISTRY

NORTR Board of Directors

- Trauma Surgeons
- ER Physicians
- Trauma Program Managers
- Coroners office
- Pre- hospital
- Trauma Data Specialists

NORTR Staff

Trauma Data Manager

(Contract : on Avg. 50 hrs. month)

Program Assistant

(.5 FTE with .25 of FTE for Trauma)

Member Hospitals



REGIONAL STAFF

Trauma Data Manager

► Responsibilities

- Reviewing uploaded data
- Running edit checks
- Submitting data to State Registry
- Regional PI Reporting
- Research Projects
- Annual Report
- Working with vendor on Registry issues
- Providing Trauma Education
- Etc.....

Trauma Program Assistant

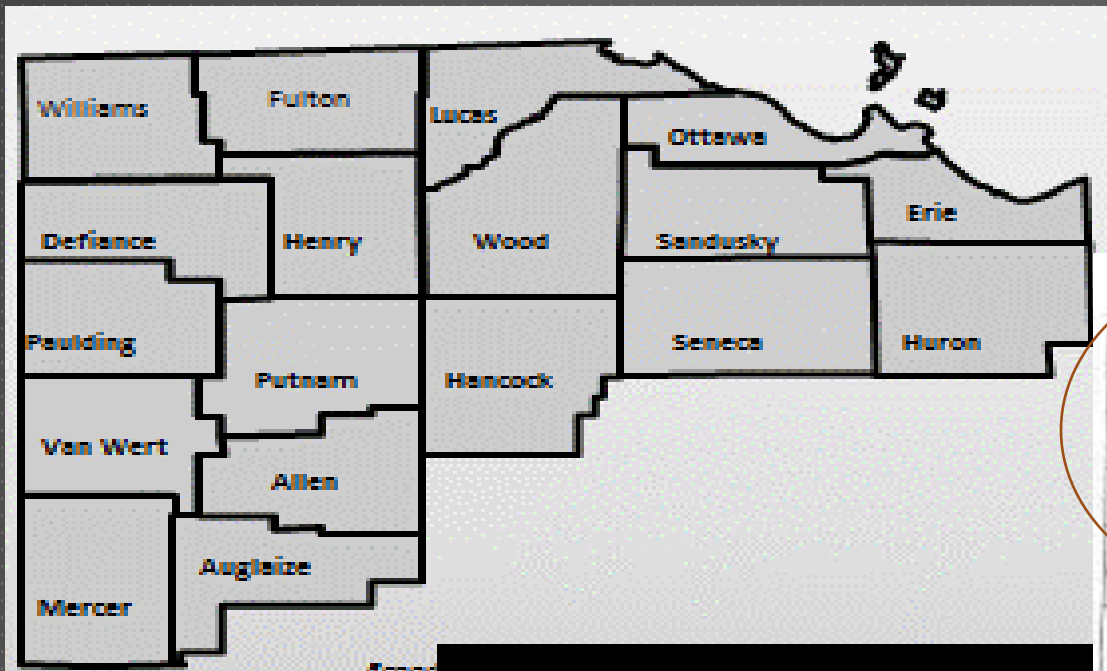
► Responsibilities

- Scheduling meetings
- Writing/distributing minutes
- Uploading trauma data from individual hospitals
- Coordinating annual conference

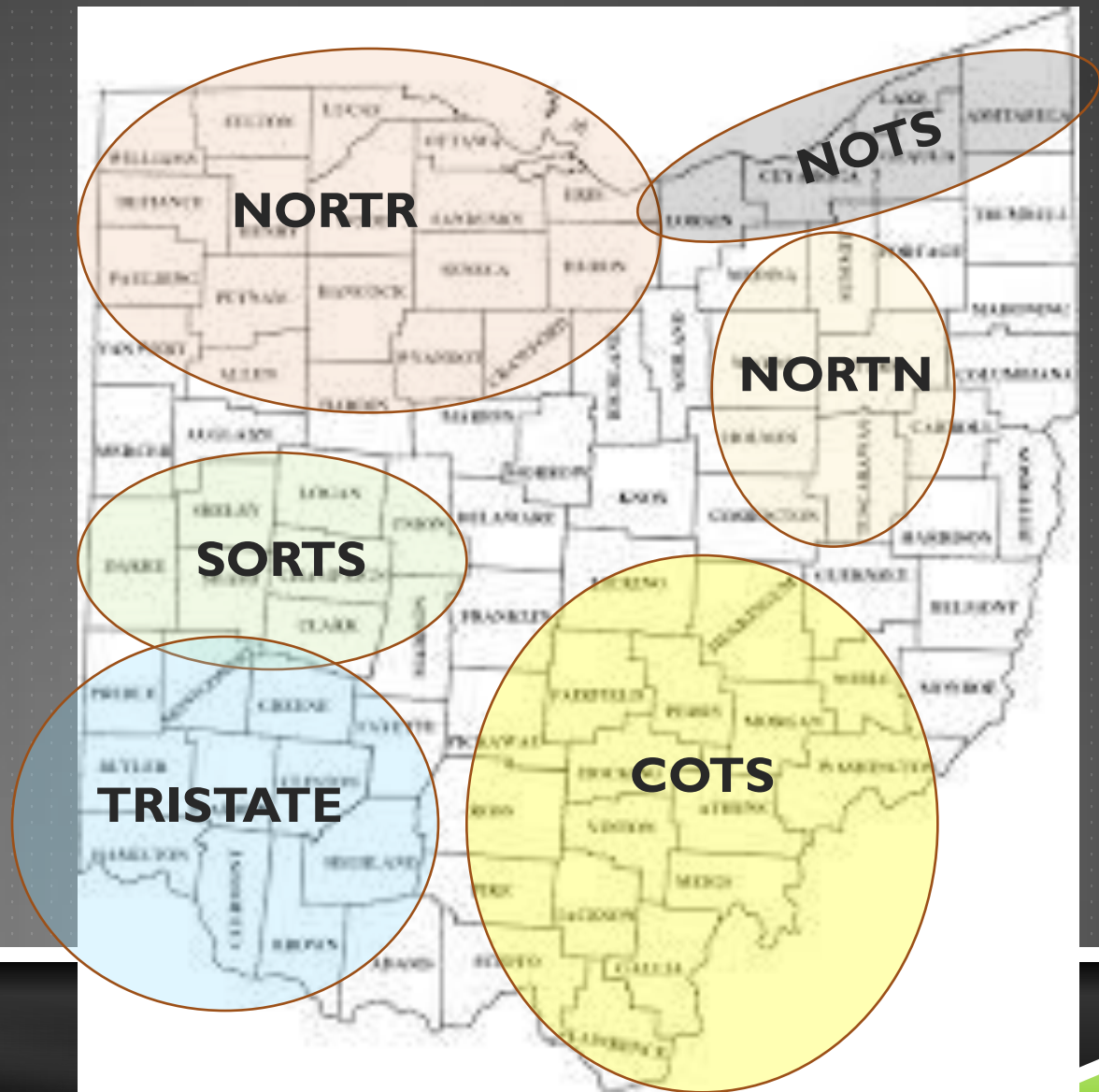
NORTR

Northwest Ohio Regional Trauma Registry

Houses 80,000
records dating as
far back as 1999

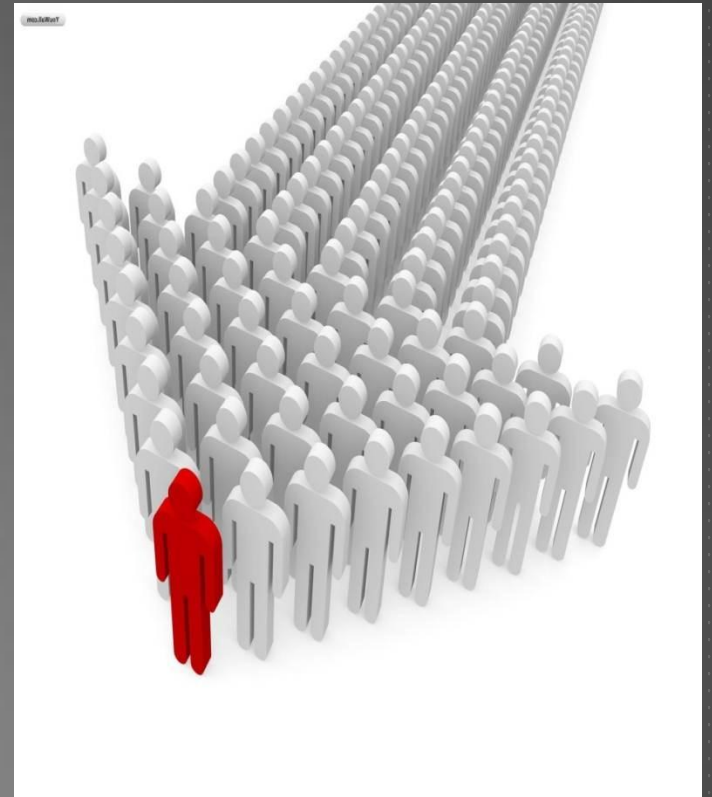


Organized Regions In Ohio

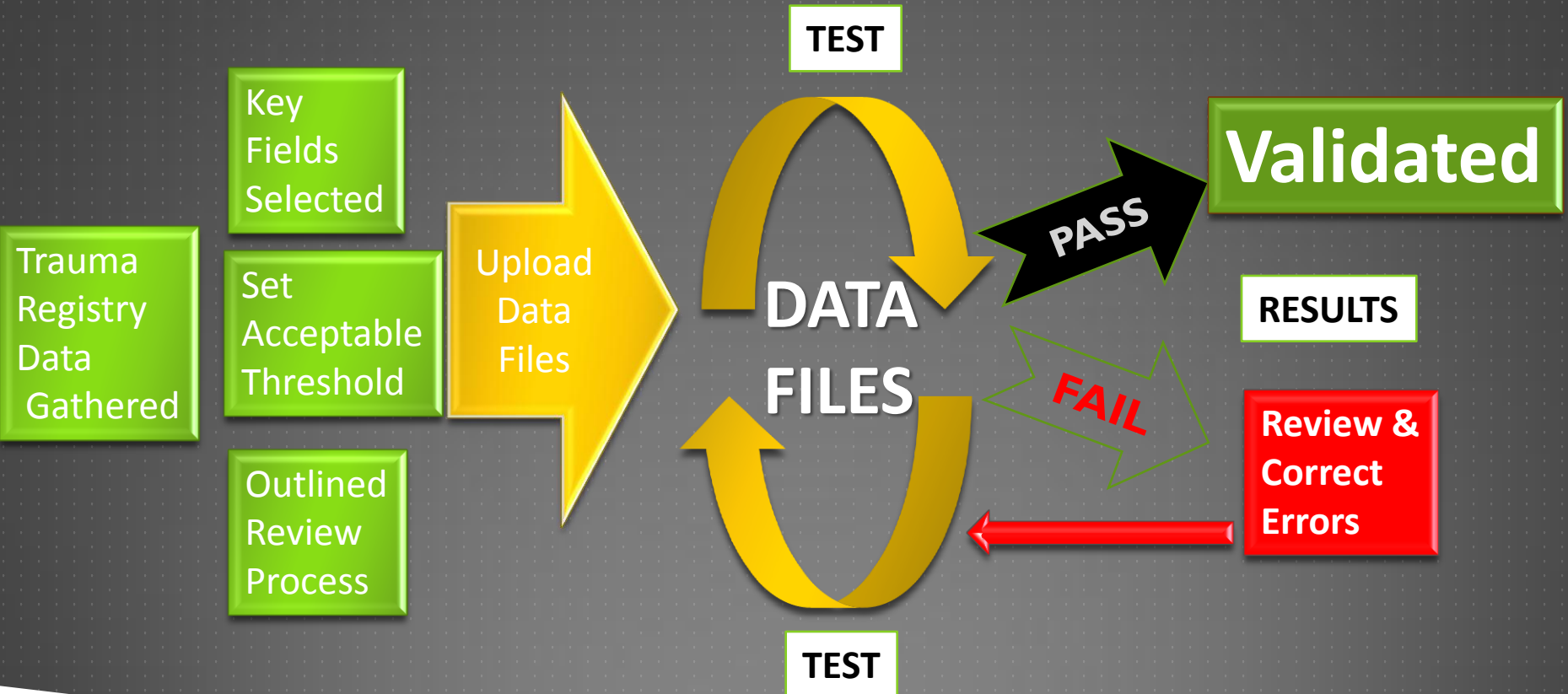


LEADERSHIP

- ▶ Motivation
- ▶ Teamwork
- ▶ Planning
- ▶ Vision
- ▶ Critical Thinking
- ▶ Communication
- ▶ Courage & Risk
- ▶ Innovation
- ▶ Persistence



TRAUMA DATA VALIDATION REGIONAL VIEW POINT



RESULTS IDENTIFIED OF REGIONAL VALIDATION

- Additional and ongoing education
- Identifying injuries and writing a descriptive injury listing needed improvement
- AIS coding was weak in some facilities
- Data variables that were consistently entered with a null value were generally not prompted within the hospital's forms Ex. GCS components
- Too often generic values are entered instead of looking at the pick list for a more definitive value (i.e. using OTHER)
- Trauma registry software glitches

EDUCATION PROVIDED FROM REGION

The Trauma Data Specialists involved with NORTR have continuing education opportunities including but not limited to:

- Regional Meetings
- Educational Offerings
- Newsletter
- Guest Speakers
- Practice Scenarios
- Data Review
- Webinars



OHIO TRAUMA REGISTRY

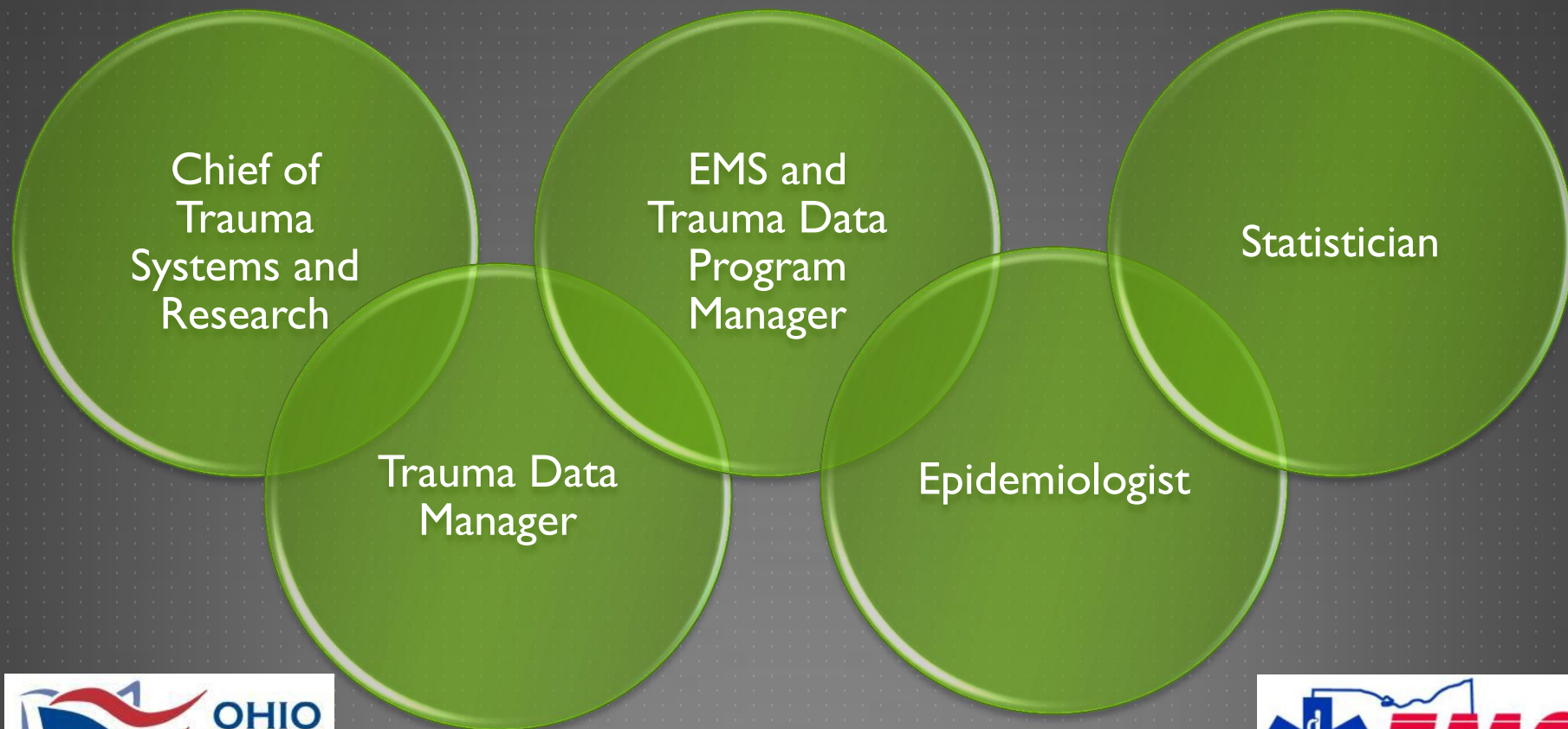


► Trauma Acute Care Registry

Ohio Trauma Registry was developed in 1997 and is housed within the Ohio Department of Public Safety, Division of EMS. Under the Ohio Revised Code 4765.06 (B) hospitals are required to report data on all trauma patients treated at their facility. Trauma patients are defined in the data dictionary's inclusion criteria. Data is received quarterly and reported on an annual basis. Upon request you can obtain data which can be used for a multitude of purposes including patient care initiatives and grant proposals.

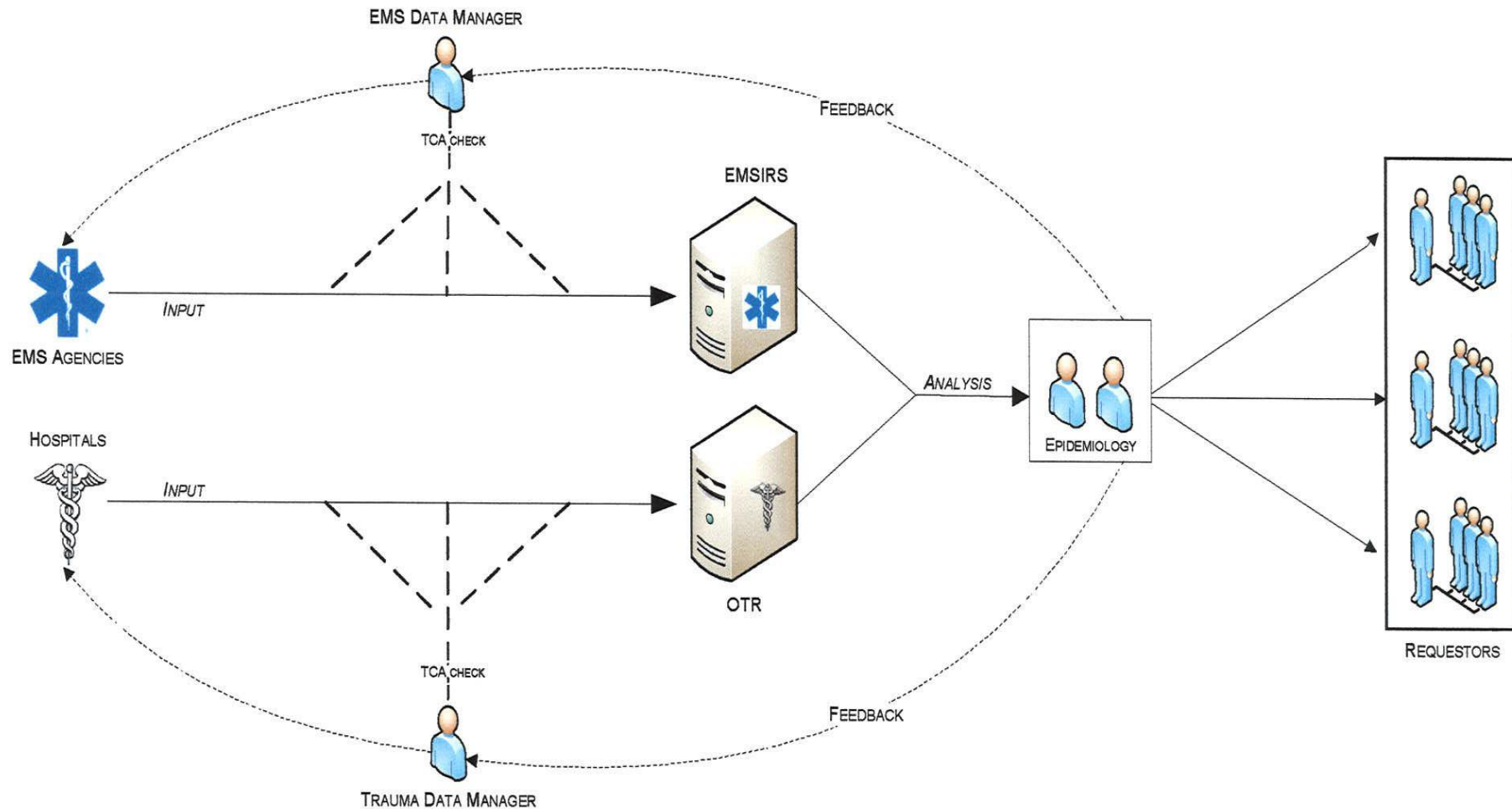


STAFF FOR STATE REGISTRY



EMS OFFICE OF RESEARCH & ANALYSIS

DATA FLOW SCHEMA



OHIO TRAUMA REGISTRY ARTICLES

Using Data Linkage to Assess the Impact of Motorized Recreational Vehicle-Related Injuries in Ohio

KA Conner, H Xiang, JI Groner, GA Smith

Journal of Safety Research 39 (2008) 469–475

Level I Versus Level II Trauma Centers: An Outcomes-Based Assessment

MT Cudnik, CD Newgard, MR Sayre, SM Steinberg

Journal of Trauma. 2009;66:1321–1326.

The Impact of a Standard Enforcement Safety Belt Law on Fatalities and Hospital Charges in Ohio

KA Conner, H Xiang, GA Smith

Journal of Safety Research 41 (2010) 17-23

Development of Statewide Geriatric Patients Trauma Triage Criteria

HA Werman, T Erskine, J Caterino, JF Riebe, T Valasek, Members of the Trauma Committee of the State of Ohio EMS Board
Prehospital & Disaster Medicine, 2011;26(3):1–10.

Modification of Glasgow Coma Scale Criteria for Injured Elders

JM Caterino, A Raubenolt, MT Cudnik

Academic Emergency Medicine 2011; 18:1014–1021

Substance Use and Type and Severity of Injury, Ohio, 2004-2007

E Socie, RE Duffy, T Erskine

Journal of Studies of Studies on Alcohol and Drugs, 73, 260-267, 2012

DATA DICTIONARIES STATE AND REGIONS

NOTE:

- ▶ Initially did not follow NTDS
 - ▶ Made it complicated/cumbersome at certain points when collecting data fields
 - ▶ Ex. Would have same risk data with different definitions
- ▶ Currently do follow NTDS as of 2013
 - ▶ Made it much easier for facilities
 - ▶ Data more consistent

ALLIANCE OF OHIO TRAUMA REGISTRARS (AOTR)



- ▶ Founded in 1992
- ▶ By Kathy Cookman, BS, CSTR, CAISS
- ▶ Purpose
 1. *To promote research and education in the trauma registry field.*
 2. *To provide assistance to registrars in their professional development.*
 3. *To actively participate in the continued development and preservation of the statewide trauma registry in Ohio.*
 4. *To encourage standardization among Ohio trauma registries.*

AOTR CONTINUED

- ▶ Meet every other month
 - ▶ Discuss
 - ▶ Old Business
 - ▶ New Business
 - ▶ Provide an Educational Offering
 - ▶ Committees Report out
 - ▶ Open Forum/ Round Table



NTDB HISTORY

- ▶ 1989 - Established
- ▶ 1995 - Original National Trauma Data Bank® Elements Defined
- ▶ 1997 - First call for data
- ▶ 1999 – Database analysis
- ▶ 2001 - First National Trauma Data Bank® Annual Report Released



Reference: History of the New Data Standard. (2008, December 4).. Retrieved May 16, 2014, from <http://www.ntdsdictionary.org/theNTDS/additionalInfo.html>

WHAT NTDB OFFERS

- ▶ Provide assistance to state trauma managers and local hospitals
- ▶ Provide assistance to vendors
- ▶ Annual assessments of all hospital's capabilities
- ▶ Creation of reference documents
- ▶ Maintenance of the dataset
- ▶ Create compliance policies

NTDB FOR TRAUMA REGISTRARS

- ▶ Annual adult and pediatric reports
- ▶ Google group
- ▶ Offer revision site
- ▶ Provide updated data dictionaries yearly
- ▶ The data we collect can be used for:
 - ▶ Developing Nationwide Trauma Benchmarks
 - ▶ Evaluating EMS, Hospital and Trauma Systems Patient Outcomes
 - ▶ Facilitating Research Efforts
 - ▶ Determining National Trends in Trauma Care
 - ▶ Addressing Resources for Disaster and Domestic Preparedness
 - ▶ Providing Valuable Information on Other Issues or Areas of Need Related to Trauma Care



TRAUMA QUALITY IMPROVEMENT PROGRAM (TQIP)

- ▶ Offer for registrars specifically
 - ▶ Online quizzes – Monthly
 - ▶ TQIP Google Group
 - ▶ Conference calls
 - ▶ Online Training Course
 - ▶ Annual meeting
 - ▶ Reports



Reference: ACS TQIP Participation Guide: 2014 Program Year

THE SUPPORT IS THERE

Education

Benchmarking

Networking



REGISTRY BEST PRACTICES

- ▶ Staying in the know of the latest news and information coming from your region, state and national systems
- ▶ Maintain a change log
- ▶ Import data into Trauma Registry
- ▶ Using defaults in your system where appropriate
- ▶ Participating in educational opportunities
- ▶ Requesting missing data
- ▶ Communication



BEST PRACTICES CONTINUED

- ▶ Completing updates provided by vendor
- ▶ Completing AIS Coding course
- ▶ Follow current version of data dictionaries
- ▶ Utilizing AIS code book not vendor provided codes
- ▶ Using 3M or Codebook for ICD-9 – not coders provided codes only
- ▶ Knowing your role(s)
- ▶ Data validation



STAYING IN THE KNOW

- ▶ Google groups
- ▶ News letters
- ▶ Conferences/symposiums
- ▶ Meetings
- ▶ Emails
- ▶ Colleagues in the field



CHANGE LOG EXAMPLE

VITALS

September 2010- When documenting vitals and the first set of vitals does not have everything documented you may take the next vital documented if within 10 minutes.

6/28/2010 – O2 saturations- If no time documented when supplemental oxygen given put supplemental oxygen as = ND

If only one oxygen saturation is taken with no time then can use the documented saturation given as when vitals taken. DM (chart review)

4/5/2011- 30 minute window < or > 1 hour to capture 2nd set of hospital vitals.

10/31/12 – respiratory assistance includes everything but nasal cannula.
Discussed in chart review.

4/23/12- 1st qtr 2013- per state/national/region. ½ hour time window for first set of vitals. Changed our ½ hr rule from 30 min pre and post hour to 15 minutes.

COMPLICATIONS

5/27/2010- Updated complication list in TB to match complications that NP's collecting. Discussed w/ Jason. DM

CRITIQUES

6/1/12- Started collecting burn weights.

Jan 1, 2013 – Stopped collecting burn weights.

4/1/2014- MEDICAL DEATH CRITIQUE ADDED

PROVIDERS

02/28/2012- Changed OMF surgeons (Shall, Zeigler, Holdship, and Mayer) from DENT due to physicians request. Per Dave at CDM will pull previous charts without a problem.

10/31/12 - Observation= Finance = os, Adm svc. = other, adm. Physician = the admitting observation physician with trauma as a consult.

IMPORTING DATA INTO REGISTRY

- ▶ Reduces data entry time
- ▶ Reduces opportunity for errors
- ▶ Always double check data that is imported



- ▶ Examples of fields:
 - ▶ MRN/PT #
 - ▶ First name/last name/ MI
 - ▶ Demographics
 - ▶ Date/ Time of injury
 - ▶ Chief complaint
 - ▶ Cause of injury
 - ▶ Admit date/arrival time
 - ▶ Vitals- initial
 - ▶ Initial Height/ Weight
 - ▶ Charges – MDC/ DRG/ Insurance/ total charges

DEFAULTS

- ▶ Country – USA
 - ▶ Alternate home – NA
 - ▶ Work Related – N
 - ▶ Abuse reported – N
 - ▶ Airbag – NA
 - ▶ Child restraint – NA
 - ▶ EMS Triage - NOT
 - ▶ Height Units collected – IN/CM
 - ▶ Weight units collected – P/K
 - ▶ TQIP information
- 

ND

REQUESTING MISSING DATA

ND

- ▶ Runsheets
 - ▶ Scene or Transfers
 - ▶ Maintain a list of fax numbers for local EMS agencies that would transfer your patients
- ▶ Referring hospital documents
 - ▶ Maintain a list of fax numbers for area hospitals that transfer patients to you

UNK

UNK

ND

REQUEST IT , REQUEST IT, REQUEST IT

ND

UNK

SOFTWARE VS BOOK FOR AIS CODING

- ▶ Diagnoses: Left orbital roof fracture, closed

Note: Without CSF leak

- ▶ Software provided description/code:

Orbital fracture, closed or NFS – 251200.2

- ▶ AIS book description/code:

Rule: Code orbital roof under skull base

Base (basilar fracture) without CSF leak – I50202.3

SOFTWARE VS BOOK FOR AIS CODING

- ▶ Diagnoses: L3 Transverse process fracture and 30% anterior wedge compression fracture

- ▶ Software provided description/code:

Multiple fractures of the same vertebrae: 650617.2

- ▶ AIS book description/code:

Exception: Major Compression Fractures which is coded additionally

Transverse Process fracture: 650620.2

30% anterior wedge compression fracture: 650634.3

DATA VALIDITY

- ▶ Data validity – The data entered into the Trauma registry is a true representation of what the trauma registrar has abstracted and is claiming to measure
- ▶ “Collecting accurate and useful data is the most important aspect of Data validity”
- ▶ Purpose
 - ▶ Data is precise
 - ▶ Meets Criteria
 - ▶ Follow Definitions
 - ▶ Complete
 - ▶ Correct



Reference: *Alliance of Ohio Trauma Registrars Resource Manual* (). (2013). Data Integrity and Validation. :Alliance of Ohio Trauma Registrars.

VALIDATION OF YOUR DATA

- ▶ Referencing Green Book
 - ▶ The information provided by a trauma registry is only as valid as the data entered
- ▶ Validation – 5% - 10%
 - ▶ Essential
 - ▶ Ongoing
 - ▶ Different approaches
 - ▶ Can not rely on only software tools
 - ▶ Can be done by different staff if needed
 - ▶ Need to have a process in place



Reference: *Resources for Optimal Care of the Injured Patient 2006*. (2006). Trauma Registry. Chicago: American College of Surgeons

CHOOSE/CREATE YOUR FACILITIES VALIDATION PLAN/PROCESS



- ▶ Review previously completed month
- ▶ Select charts randomly or can choose specifically (ex. Deaths, transfers etc.)
- ▶ Select fields to review
 - ▶ Can choose primary fields, variety, groups of fields or all fields
- ▶ Review individually then as a group
 - ▶ If single registrar can have manager review
- ▶ Can create field in registry for monitoring – Easy for report running
 - ▶ Chart validated? Yes
 - ▶ Date validated
 - ▶ Validated by
- ▶ Create spreadsheet for validation
- ▶ Validation tracking sheet

****** Don't forget to also
review your
validator reports******

VALIDATION TRACKING SHEET

MVSMC TRAUMA REGISTRY DATA VALIDATION - 2014			
MONTH VALIDATED	PARTICIPATED IN REVIEWS	NUMBER OF CHARTS REVIEWED	DATE CHARTS REVIEWED AS GROUP
JANUARY			
FEBRUARY			
MARCH			
APRIL			
MAY			
JUNE			
JULY			
AUGUST			
SEPTEMBER			
OCTOBER			
NOVEMBER			
DECEMBER			

CHART VALIDATION EXAMPLE

REGISTRAR:			2014 CHART REVIEW			
PATIENT NAME:		AUDITOR:				
MRN:		MONTH PATIENT DISCHARGED:				
PT #:						
TRAUMA #:						
DATA ELEMENT	CHECK IF INCORRECT	WHAT ABTRACTOR HAD	WHY AUDITOR DISAGREES	CHANGES TO	CHANGES COMPLETED	ABTRACTOR INITIALS/DATE
PROVIDERS						
ADMITTING DOCTOR						
ADMITTING DOCTOR SERVICE						
TRAUMA SURGEON						
ED ATTENDING						
TIME SURGEON NOTIFIED						
DATE SURGEON NOTIFIED						
TIME SURGEON ARRIVED AT ER						
DATE SURGEON ARRIVED AT ER						
PHYSICIAN #						
SERVICE OF PROVIDER						
PHYSICIAN #						
SERVICE OF PROVIDER						
VITALS						
SCENE						
PULSE						
RESPIRATION RATE						
SYSTOLIC BLOOD PRESSURE						
GCS EYE						
GCS VERBAL						
GCS MOTOR						
GCS TOTAL						

WHY WE LOVE BEING TRAUMA REGISTRARS!



- ▶ Contributing to the Improvement of care provided to Trauma patients
- ▶ Being a detective
- ▶ Always a new story. You never know what the next chart will be about



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- ▶ Additional Information. (2008, December 4).. Retrieved May 16, 2014, from <http://www.ntdsdictionary.org/theNTDS/additionalInfo.html>
- ▶ *Alliance of Ohio Trauma Registrars Resource Manual* (). (2013). Data Integrity and Validation. : Alliance of Ohio Trauma Registrars.
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- ▶ Gennarelli, T., & Wodzin, E. (). *Abbreviated Injury Scale 2005, Update 2008*
- ▶ History of the New Data Standard. (2008, December 4).. Retrieved May 16, 2014, from <http://www.ntdsdictionary.org/theNTDS/additionalInfo.html>

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