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

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Mercy St. Vincent Medical Center and Mercy Children’s Hospital
Toledo, Ohio
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 1 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

- Data Definitions
- Inclusion/Exclusion Criteria
- Coding: ICD-9 and AIS
- Data Submission
- Accuracy
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

Reference:  
http://searchdatamanagement.techtarget.com/definition/data-quality  
http://www.admin.ox.ac.uk/pras/aboutus/data_quality/
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
- 2. Alcoholism
- 3. Ascites within 30 days
- 4. Bleeding disorder
- 5. Currently receiving chemotherapy for cancer
- 6. Congenital anomalies
- 7. Congestive heart failure
- 8. Current smoker
- 9. Chronic renal failure
- 10. CVA/residual neurological deficit
- 11. Diabetes mellitus
- 12. Disseminated cancer
- 13. Advanced directive limiting care
- 14. Esophageal varices
- 15. Functionally dependent health status

16. History of angina within 30 days
17. History of myocardial infarction
18. History of PVD
19. Hypertension requiring medication
20. RETIRED-2012-Impaired-sensorium
21. Prematurity
22. Obesity
23. Respiratory disease
24. Steroid use
25. Cirrhosis
26. Dementia
27. Major psychiatric illness
28. Drug or dependence
29. Pre-hospital cardiac arrest with resuscitative efforts by healthcare provider

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-Mobid Conditions.
- Check all that apply.

Reference: ACS NTDB National Trauma Data Standard: Data Dictionary. 2014 Admission
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

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
- 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

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

Kathy Cookman, NORTR Trauma Data Manager, 2014, May
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

Kathy Cookman, NORTR Trauma Data Manager, 2014, May
LEADERSHIP

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

Kathy Cookman, NORTR Trauma Data Manager, 2014, May
TRAUMA DATA VALIDATION \textit{REGIONAL} VIEW POINT

Trauma Registry Data Gathered

Key Fields Selected

Set Acceptable Threshold

Outlined Review Process

Upload Data Files

\textbf{TEST}

\textbf{DATA FILES}

\textbf{TEST}

\textbf{Validated}

\textbf{RESULTS}

\textbf{Review \& Correct Errors}

\textbf{FAIL}

\textbf{PASS}

Kathy Cookman, NORTR Trauma Data Manager, 2014, May
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 (e.g., 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

Kathy Cookman, NORTR Trauma Data Manager, 2014, May
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

Kathy Cookman, NORTR Trauma Data Manager, 2014, May
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.

Timothy Erskine, Chief of Trauma Systems and Research, 2014, May
STAFF FOR STATE REGISTRY

- Chief of Trauma Systems and Research
- EMS and Trauma Data Program Manager
- Trauma Data Manager
- Epidemiologist
- Statistician

Timothy Erskine, Chief of Trauma Systems and Research, 2014, May
Using Data Linkage to Assess the Impact of Motorized Recreational Vehicle-Related Injuries in Ohio
KA Conner, H Xiang, JI Groner, GA Smith

Level I Versus Level II Trauma Centers: An Outcomes-Based Assessment
MT Cudnik, CD Newgard, MR Sayre, SM Steinberg

The Impact of a Standard Enforcement Safety Belt Law on Fatalities and Hospital Charges in Ohio
KA Conner, H Xiang, GA Smith

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

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
ES Socie, RE Duffy, T Erskine
Journal of Studies of Studies on Alcohol and Drugs, 73, 260-267, 2012

Timothy Erskine, Chief of Trauma Systems and Research, 2014, May
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

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

HELP
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
REQUESTING MISSING DATA

- 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

REQUEST IT , REQUEST IT, REQUEST IT
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 – 150202.3

Reference: Gennarelli, T., & Wodzin, E. (). *Abbreviated Injury Scale 2005, Update 2008*
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

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

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*****
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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
REFERENCES

- ACS NTDB National Trauma Data Standard: Data Dictionary. 2014 Admissions
- Gennarelli, T., & Wodzin, E. (). Abbreviated Injury Scale 2005, Update 2008
REFERENCES

- Kathy Cookman, NORTR Trauma Data Manager, 2014, May
- Timothy Erskine, Chief of Trauma Systems and Research, 2014, May