Rural Trauma
Patient Care Resources

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Mayo Clinic Trauma Centers
American College of Surgeons Level 1 Trauma Center
American College of Surgeons Level 1 Pediatric Trauma Center
Member State Trauma Advisory Council – Minnesota Statewide Trauma System
Acknowledgements

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Deb Syverson – Rural SIG Co-Chair
Objectives

- Discuss the challenges faced by rural trauma hospitals
- Explore resources currently available for rural trauma centers
- Discuss successes and challenges implementing algorithms, guidelines, and care standards in rural trauma centers
- Discuss ways to encourage leadership at rural facilities to follow current standards of care
American College of Surgeons Verified Trauma Centers
State of Minnesota

ACS Facilities

4  Level 1
3  Level 1 Pediatric
5  Level 2
2  Level 2 Pediatric
1  Level 3

State Designated

32 Level 3
94 Level 4
Rural Trauma Centers – Challenges

- Trauma Coordinators multiple responsibilities
  - Trauma Coordinator turn-over
- Physician leadership with little trauma experience
  - Physicians with little trauma experience
- Challenges to best practice
- Trauma is low volume/high risk in hospitals with overall lower patient volumes
- Disconnect between rural and regional hospitals
ED Manager
Disaster Preparedness
Trauma Registrar
HazMat Officer
Stroke Coordinator
STEMI Coordinator
Forensics Coordinator
EMS Liaison
Code Blue Lead
Staff nurse
Unit Secretary
OB Coordinator/Lead
Education
Competencies
JCAHO readiness
And so on..................
Good afternoon,

This question is similar to another one posted this month regarding TPMs for level 3 centers. I would like to know if any TPMs at level 3 centers have a dual role, or any divisions of labor to fill this role? Our facility is just beginning the process of establishing as a level 3 center, and we are unable to hire additional staff to fill this role. So, we are looking for a creative solution with current staff.

Any feedback would be greatly appreciated.

From STN List serve 10/2013
Trauma Coordinator

Job Requirements

• Work Experience
  Required – Three years progressive nursing experience in attending patients in emergency, critical care or neuroscience, of which one year must include taking care of trauma patients

• License/Registration/Certification
  • Current RN License to practice in the State of __
  • CPR, ACLS, , & TNCC or ATCN required
  • CEN or CCRN preferred
  • PALS/ENPC preferred

• Education and Training
  Bachelor degree in Nursing required. Masters degree in Nursing preferred.
✓ Coordinates trauma care management including planning and implementing of clinical protocols/practice management guidelines monitoring care of in-hospital patients and serving as a resource for clinical practice.
✓ Assists staff in problem-solving relating to the care of trauma patient.
✓ Responds to Emergency Department for all trauma activations when in-house and as requested by Emergency Department.
✓ Participates in clinical rounds and patient care follow up.
✓ Attends, participates and coordinates Trauma Program Meetings (including multidisciplinary meetings, case review and M&M). Assists in compilation and presenting of routine mortality and morbidity review of trauma patients for trauma committee. Compiles reviews and audits all trauma death summaries and autopsies with the Trauma Medical Director and the Trauma Committee.
✓ Coordinates patient care with attending physicians, consulting physicians, rehab staff, dietary staff, nursing staff, etc.
✓ Coordinates and facilitates quality assurance activities relating to trauma care from pre-hospital through discharge. Responsible for identification, documentation, and resolution of all progress improvement issues.
✓ Responsible for document preparation and other requirements, including maintenance, of ACS verification. Supervises initial injury registry data collection for the trauma registry.
✓ Develops collaborative relationships with staff in all departments to facilitate cooperation and support for the trauma program. Fosters good public relations for the hospital trauma program. Acts as a liaison for the hospital with community and regional EMS providers.
Years of Experience

I have been in my present position for:

- Less than 2 years: 22.2% (114)
- 2 to 5 years: 28.1% (144)
- 6 to 10 years: 23.6% (121)
- 11 to 15 years: 11.9% (61)
- 16 to 20 years: 6.8% (35)
- > 20 years: 7.4% (38)

N = 513
Trauma Medical Director
Trauma Providers

- Education/Training
  - Emergency Medicine
  - Family Practice
  - ATLS/CALS (every four years)

- Locums Physicians
  - Varied backgrounds
  - Oversight
  - Inclusion in PI process

- Staffing
  - Limited
  - Coverage for multiple hospitals
Challenges to Best Practice

- Training Education
- Aversion to change
  - Have always done it like this
  - “Cookbook” medicine
- Pressures from administration
  - Evaluate then transfer – avoid direct to tertiary care
  - Use the scanner
- Low volume/high risk
- Pressures from receiving facilities
  - Scan then send
Disconnect – Rural/Tertiary

- Rural
  - Send to tertiary care – “Black Hole”
  - Tertiary care facilities do not respect us
  - Tertiary care facilities do not understand what it is like where we work
  - Difficult to transfer to tertiary care (referral process)
  - Only feedback is when something goes wrong (or no information at all)
  - Lack of understanding of limited resources
  - Surgeons choice for rural hospital practice
Disconnect – Rural/Tertiary

- Tertiary
  - Time to definitive care (why so long?)
  - Expectations of Level I care at Level IV centers with limited resources
  - Reoccurrence of same issues – PI process
  - The trauma team – a system of care
Bridging the Gap - Resources

- Education
- Practice Management Guidelines
  - Charts – Algorithms – Manuals
- Orientation materials
- Performance Improvement
- Trauma systems
  - Hospital systems
  - Regional
  - State
Rural Trauma Team Development Course (RTTDC)

- Developed by the American College of Surgeons
- Classes given at rural hospital
- Case driven
- Emphasizes the trauma team – whatever that may look like
RTTDC

Course Objectives

- Organize a rural trauma team with defined roles and responsibilities for the members
- Prepare a rural facility for the appropriate care of the injured patient
- Identify local resources and limitations
- Assess and resuscitate a trauma patient
- Initiate the transfer process early
- Establish a performance improvement process
- Encourage effective communication
- Define the relationship between the rural trauma facility and the regional trauma system
Other Educational Options

- Comprehensive Advanced Life Support (CALS) *
- Advanced Trauma Life Support (ATLS)
- Advanced Trauma Nursing Course (ATCN)
- Trauma Nursing Core Course (TNCC)
- Emergency Nursing Core Course (ENPC)
- Prehospital Trauma Life Support (PHTLS)
- Pediatric Advanced Life Support (PALS)

* Uses Team Approach
Other Educational Resources

EAST Education Center - is a partnership between EAST and UK Healthcare/CECentral to offer online education specific to Trauma and Acute Care Surgery. These activities provide AMA PRA Category 1 Credit™ and self-assessment credits toward Part 2 of the American Board of Surgery MOC Program (as determined by the American Board of Surgery) when it’s convenient for you!

Through EAST’s online education partner, CECentral, all EAST developed online CME activities are available to EAST members at no charge. Follow the instructions below to access EAST developed continuing education activities.

1. Access the online portal at www.CECentral.com/EAST.
2. Follow the instructions for viewing and completing Webcasts or Traumacasts.*
3. Use your unique EAST coupon code sent to you in a separate email to bypass payment and complete your credit request.
4. Email support@cecentral.com if you have any issues requesting credit.
"Clinical practice guidelines are systematically developed statements to assist practitioner and patient decisions about appropriate health care for specific clinical circumstances" (Institute of Medicine, 1990).

- Help clinicians make appropriate decisions about health care
- Contain recommendations that are based on evidence from a rigorous systematic review and synthesis of the published medical literature.
Trauma
Section chair: EAST Guidelines Committee

Blunt Abdominal Trauma, Evaluation of 2002
Blunt Aortic Injury 2000
Blunt Cardiac Injury, Screening for 2012
Blunt Cerebrovascular Injury 2010
Blunt Hepatic Injury, Selective Nonoperative Management of 2012
Blunt Splenic Injury, Selective Nonoperative Management of 2012
Emergency Tracheal Intubation Immediately Following Traumatic Injury 2012
Genitourinary Trauma, Diagnostic Evaluation of 2003
Genitourinary Trauma, Management of 2004
Geriatric Trauma, Evaluation and Management of 2012
Guideline

Evaluation and management of geriatric trauma: An Eastern Association for the Surgery of Trauma practice management guideline

James Forrest Calland, MD, Angela M. Ingraham, MD, Niels Martin, MD, Gary T. Marshall, MD, Carl I. Schulman, MD, PhD, MSPH, Tristan Stapleton, and Robert D. Barraco, MD, MPH

Guideline

Screening for thoracolumbar spinal injuries in blunt trauma: An Eastern Association for the Surgery of Trauma practice management guideline

Sherry Sixta, MD, Forrest O. Moore, MD, Michael F. Ditillo, DO, Adam D. Fox, DO, Alejandro J. Garcia, MD, Daniel Holena, MD, Bellal Joseph, MD, Leslie Tyrie, MD, and Bryan Cotton, MD, MPH

BACKGROUND: Thoracolumbar spine (TLS) injuries have an incidence rate of 5% in blunt trauma patients. The Eastern Association for the Surgery of Trauma published Practice Management Guidelines for the Screening of Thoracolumbar Spine Fracture in 2007. The Practice Management Guidelines Committee was assembled to reevaluate the literature.

ALGORITHMS AVAILABLE ONLINE

Adult Blunt Splenic Trauma

Management of Pelvic Fracture with Hemodynamic Instability

Nonoperative Management of Adult Blunt Hepatic Trauma

Blunt Cerebrovascular Injury


Operative Management of Adult Blunt Hepatic Trauma

Management of the Mangled Extremity

Resuscitative Thoracotomy

Management of Complicated Diverticulitis
Management of Pelvic Fracture with Hemodynamic Instability
Why Don’t Physicians Follow Clinical Practice Guidelines?
A Framework for Improvement

Michael D. Cabana, MD, MPH
Cynthia S. Rand, PhD
Neil R. Powe, MD, MPH, MBA
Albert W. Wu, MD, MPH
Modena H. Wilson, MD, MPH
Paul-André C. Abboud, MD
Haya R. Rubin, MD, PhD

Context Despite wide promulgation, clinical practice guidelines have had limited effect on changing physician behavior. Little is known about the process and factors involved in changing physician practices in response to guidelines.

Objective To review barriers to physician adherence to clinical practice guidelines.

Data Sources We searched the MEDLINE, Educational Resources Information Center (ERIC), and HealthSTAR databases (January 1966 to January 1998); bibliographies; textbooks on health behavior or public health; and references supplied by experts to find English-language article titles that describe barriers to guideline adherence.

Study Selection Of 5658 articles initially identified, we selected 76 published studies describing at least 1 barrier to adherence to clinical practice guidelines, practice parameters, clinical policies, or national consensus statements. One investigator screened titles to identify candidate articles, then 2 investigators independently reviewed the texts to exclude articles that did not match the criteria. Differences were resolved by consensus with a third investigator.
A Framework for Training Health Professionals in Implementation and Dissemination Science

Ralph Gonzales, MD, MSPH, Margaret A. Handley, PhD, MPH, Sara Ackerman, PhD, MPH, and Patricia S. O’Sullivan, EdD

Academic Medicine, Vol. 87, No. 3 / March 2012 271

“Proposed Domains and Competencies for Implementation and Dissemination Science (IDS) Training Programs With Examples of Relevant Activities and IDS Courses Offered by the Training in Clinical Research Program (TICR) at the University of California, San Francisco, 2011–2012”
Cookbook Medicine

by Martha Nolan McKenzie

Although every patient is different, Emory Healthcare is finding that following standardized recipes saves lives.
Regional Practice Management Guidelines (PMG)

- List of PMGs from a regional (rural) trauma system
  - EMS Spinal Immobilization
  - Initial Management Level IV
  - Pediatric Transfer PMG
  - Pediatric Head Injury
  - Reversal of Anti-coagulation in Head Injured Patients
  - Spine Immobilization
Southern Minnesota Regional Trauma Advisory Committee (SMRTAC)

Practice Management Guideline

Initial Management of Major Trauma Patient
Level IV Trauma Center

<table>
<thead>
<tr>
<th>Adult Practice Management Guideline</th>
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<tr>
<td>Contact: SMRTAC Coordinator</td>
<td>Last Reviewed:</td>
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**Purpose**

State the appropriate assessment and care of the major trauma patient in a Minnesota designated Level IV Trauma Center. This guideline assumes no consistent surgeon availability to respond to the Emergency Department for patients meeting trauma activation criteria.

**Resources/Links**

- Rural Trauma Team Development Course (RTTDC) © 3rd Edition
- Advanced Trauma Life Support for Doctors (ATLS) © Eighth Edition
- Trauma Nursing Core Course (TNCC) ©Sixth Edition
- Comprehensive Advanced Life Support Course (CALS) ©
- Minnesota Statewide Trauma System Hospital Resources, Level IV Designation Criteria
Use in Rural Trauma Centers

- Include the leadership from the rural trauma centers in creating the Practice Guidelines
- Offer ways to have guidelines readily available in the ED
- Encourage smaller centers to engage with larger hospitals in their system
- Offer tools to monitor the use of the guidelines

Physician Involvement!
PMGs – Readily Available

- Posters
- Flip Charts
- Algorithms
- Treatment Books
Initial Management of Major Trauma Patient
Level IV Trauma Center

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Southern Minnesota Regional Trauma Advisory Committee (SMRTAC)

Regional Practice Management Guideline

Reverse Anticoagulation Guideline for the Known or Suspected Adult Head Injured Patient

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<tr>
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<td>Last Reviewed: 03/2013</td>
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**Purpose**

To outline a process for the urgent reversal of anti-coagulation in the adult patient with a known or suspected head injury who is taking Warfarin or low-molecular weight heparin.
Guideline for Reversal of Anticoagulation Therapy in the Known or Suspected Head-Injured Adult

Perform Primary and Secondary Surveys

Known mechanism of injury
(fall even from standing or sitting height, struck head on an object)
or alteration in level of consciousness reported by caregiver
Is GCS less than 13?

YES

Obtain STAT INR on patients taking Warfarin or LMW heparin (Lovenox)

INR equals/greater than 1.5?

YES

DO NOT delay transport to a Neurosurgery facility for CT or plasma
Prepare for immediate transfer

1. Transport Fresh Frozen Plasma (if available)
2. Administer Vitamin K 10 mg IV infusion over 30 minutes (MD decision)
3. Notify Receiving facility of lab values and actions

Patients with high INR and negative head CT for bleed may need to be observed with repeat head CT in 12 hours on a case by case basis.

NO

Patients with GCS greater than or equal to 13
STAT CBC, INR, and PT
STAT head CT

INR equals/greater than 1.5?

YES

Administer reversal agents as available
Fresh frozen plasma 2-4 units
Vitamin K 10 mg IV infusion over 30 minutes or no faster than 1 mg
minute
Do not delay transport for plasma

Head CT positive for bleed?

YES

Arrange for immediate transfer
Transmit CT via web or PACS system to receiving facility

For patients on LMW heparin, the treating physician may consider Fondaparinux Sulfate (50 mg maximum dose)

Disclaimer: This is a general guideline and is not intended as a substitute for clinical judgment or as a protocol for the management of all trauma patients
North Dakota State
Trauma Treatment Manual

Guidelines for the Treatment of Trauma
in Level IV and V Trauma Centers.
MASSIVE TRANSFUSION STRATEGY FOR LEVEL IV AND V TRAUMA CENTERS

There is limited application for massive transfusion in critical access hospitals!
BLEEDING NEEDS TO BE EVALUATED BY A SURGEON:
IN NO CASE SHOULD TRANSFUSION DELAY TRANSPORT TO DEFINITIVE CARE!

Making the Decision to Transfuse:
1) Contact has been made with accepting hospital and transfer arrangements are being made.  □ Y □ N
2) A source of bleeding has been identified or a specific source is considered highly likely.  □ Y □ N
3) The patient is hypotensive with a systolic blood pressure <90 mmHg.  □ Y □ N
4) The patient was not responsive or transiently responsive to the first fluid bolus given per trauma treatment guideline posterior algorithm.  □ Y □ N

If you answered “YES” to all of the above, it is appropriate to initiate the massive transfusion protocol.

Current literature and limited FFP resources best support a transfusion ratio of 3 UNITS PRBC'S TO 1 UNIT FFP (3:1 RATIO).
Physician Engagement

- What is the orientation process for physicians/providers at the Rural Trauma Centers you serve?
  - Physician to physician
  - Nurse to physician
  - ANY?

- What information is covered during orientation of physicians providers
  - Locums
Guidelines and Performance Improvement (PI)

- Use guidelines to engage the trauma medical director
- Use guidelines to PI care
  - Create the standards by which care can be measure/evaluated
- Make it simple!
  - Only need to measure one or two elements from PMG
Initial Management of Major Trauma Patient
Level IV Trauma Center

1. All trauma patients should be evaluated using the principles of trauma assessment as stated in the Advanced Trauma Life Support (ATLS)© course and Comprehensive Advanced Life Support (CALS) © courses. This includes a thorough assessment and appropriate management including all of the steps in a primary and secondary survey.

   a. Once ABC’s are stabilized to the best ability of the referring hospital transfer should not be delayed for any reason. This includes delays that may be caused by obtaining additional imaging outside of the trauma bay.

   ii. Conduct a thorough head to toe assessment. This includes turning the patient and evaluating the back.