



Eastern Association for the Surgery of Trauma

27th Annual Scientific Assembly

Sunrise Session 09

**Using Practice Management Guidelines to Standardize Care
and Obtain Trauma Center Verification**

January 16, 2014

**Waldorf Astoria Naples
Naples, Florida**

EAST Guidelines to Standardize Care at My University Hospital

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Disclosures

- None



Objectives

- GW's History
- Road to Recovery
- Future Plans



GW's History

- Saved Ronald Reagan in 1981
 - No Guidelines
 - No VRC
 - No trauma centers
- Little to no progress until 2011....



GW's History

- 2004: trauma center status revoked by the ACS
- 2007: independent report by Penn
 - GW is not qualified to be a trauma center
- 2008: DC DOH extends Level I Status
- 2010: DC DOH informs GW that if they do not obtain Level I status from the ACS, they will cease to get trauma pts by 2013
- 2011: Trauma center revamp and relaunch
- 2013: Level I Obtained



Where to Start???

- Registry
 - Morning report
 - Organized Rounds
 - Multi-D Committee
- } Recurrent Lapses



Teach a Man to Fish....

- Non-believers are swayed by evidence based guidelines
- Regulators/Verifiers look for PMGs
- Compare before/after results



OK, How Do I Do This?

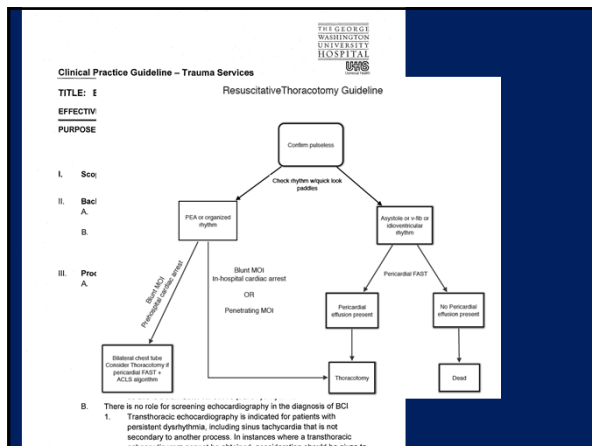
- Pick problems that actually exist
- Keep it simple
- Keep it broad
- Be Honest – Get Rid of Your Own Prejudice
- Audit It Transparently
- Physician Heal Thy Self



GW's PMGs and Reasons


- RSI in the Trauma Bay (2/2012) – This is not a restaurant
- C-spine clearance (3/2012) – Occipital decubiti, too many CT scans
- Penetrating Neck Trauma (4/2012) – Missed injury, fights with ENT
- Resuscitative Thoracotomy (10/2012) – Asystole = dead
- Blunt Cardiac Injury (1/2013) – Sarani's training is out of date
- IVC filter placement (1/2013) – 3 PEs despite Lovenox
- DVT prophylaxis (2/2013) – Variability in practice
- Resuscitation for complex pelvic fracture (7/2013) – Death
- Medical/Surgical management of TBI (5/2012, 1/2013) – Fights with NSGY
- Non-operative management of solid organ injury (1/2013) – ACS recommendation, too much variability in care
- Plating of Rib Fractures (2/2013) – New technology
- Treatment of spinous and transverse process vertebral fx (1/2013) – Decrease unnecessary consults
- Therapeutic hypothermia for TBI (6/2013) – Too many pts cooled, risk of DVT noted
- Reversal of oral anticoagulants (6/2013) – Needed a Guide





Spreading the Word

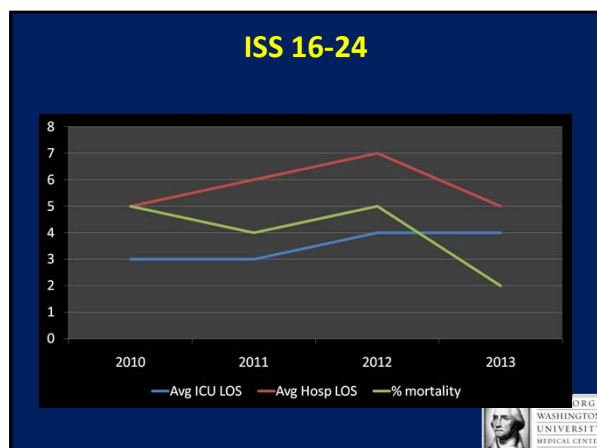
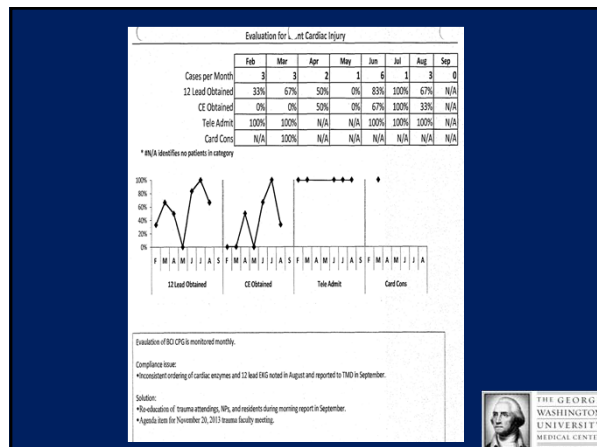
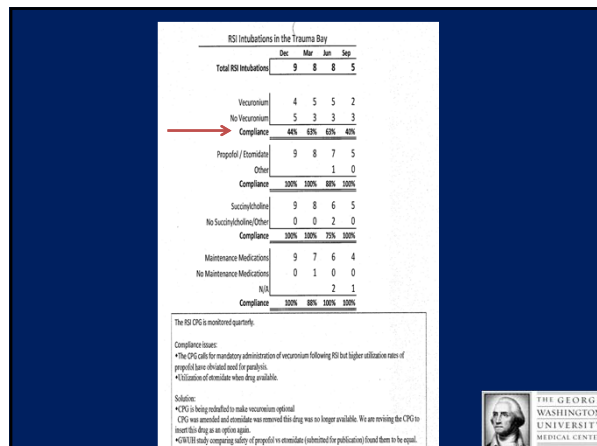
- Discuss it all the time
 - Morning Report and Rounds – cite evidence
 - Departmental M&M – We have PMGs. They are located in.....
 - Email pdfs, put them on the intranet
 - Advertise during ATLS
 - Tell the Paramedics



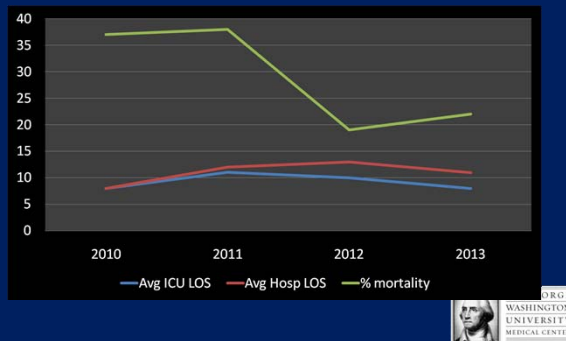
Audit Schedule

CPG MONITORING OCT 2012-SEP 2013

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep
Non-op Mgmt TBI	X			X				X			X	
DVT Prophylaxis					X			X			X	
C-spine Clearance						X			X			X
RSI in the Trauma Bay			X			X			X			X
Vena Cava Filters	X	X	X	X	X	X	X	X	X	X	X	X
Mgmt of SP and TP Spinal Frs	X	X	X	X	X	X	X	X	X	X	X	X
Blunt Cardiac Injury	X	X	X	X	X	X	X	X	X	X	X	X
Surf Mgmt TBI	X	X	X	X	X	X	X	X	X	X	X	X
Non-op Mgmt Solid Organ					X	X	X	X	X	X	X	X
Complex Pelvic Frx					X	X	X	X	X	X	X	X
Abx Pelvic					X	X	X	X	X	X	X	X
Penetrating Neck Injury					X	X	X	X	X	X	X	X
Resuscitative Thoracotomy					X	X	X	X	X	X	X	X
Reversal of Oral Anticoagulants									X	X	X	X
Hypothermia for Brain Injury									X	X	X	X



ISS \geq 25



Future Plans

- Expand to ICU
 - Analgesia/Sedation
 - Transfusion
- ACS
 - Buy-in from Colorectal
 - Buy-in from Gen Surgery/MIS



GROWING PAINS IN A LEVEL II TRAUMA CENTER-
THE CASE FOR INCORPORATION OF THE EAST
PRACTICE MANAGEMENT GUIDELINES

Bill Morgan, MD, FACS
Trauma Medical Director
Saint Alphonsus Regional Medical Center
Boise, Idaho

DISCLOSURES

- Nothing to disclose



SAINT ALPHONSUS REGIONAL MEDICAL CENTER HISTORY

- First Boise Hospital
- Founded in 1894 by the Sisters of the Holy Cross in downtown Boise
- Moved to its current location in 1954
- First verified in 1991 as a Level II Trauma Center
 - Staffed by 8 area General Surgeons

SAINT ALPHONSUS REGIONAL MEDICAL CENTER HISTORY

- Verification lost in 2004 due to
 - Lack of follow-up of pediatric patients transferred to non-trauma facility
 - Lack of discreet trauma service-community surgeons paid for trauma call
 - Lack of CME accomplishment
 - Lack of Trauma Surgeon oversight of ICU care
 - Poor to non-existent PI program

SAINT ALPHONSUS REGIONAL MEDICAL CENTER HISTORY

- After a "fair market value" appraisal of call reimbursement was done in 2006 all but 2 GS resigned from the Trauma panel
- 2006-First employed fellowship trained Trauma Surgeon recruited
- 2007-2 more Trauma Surgeons recruited

SAINT ALPHONSUS REGIONAL MEDICAL CENTER
CURRENT STATUS

- 386 bed, Level II Trauma Center in Southwestern Idaho-re-verified
 - 2010
 - 2013
- 1264 patients entered into the registry in 2013 (995 admitted to Trauma Surgeon)
- 541 transfers into the facility

SAINT ALPHONSUS REGIONAL MEDICAL CENTER
CURRENT STATUS

- 2013 Mechanism of Injury
 - 92% Blunt
 - 6% Penetrating
 - 1% Thermal
 - 1% Other

SAINT ALPHONSUS REGIONAL MEDICAL CENTER
CURRENT STATUS

- 2013 ISS Distribution
 - 1-8-----33%
 - 9-15-----43%
 - 16-24-----6%
 - >24-----8%

SAINT ALPHONSUS REGIONAL MEDICAL CENTER
CURRENT STATUS

- 6 Employed, Fellowship-trained Trauma Surgeons-last 2 began employment in August 2013
- 7 Pulmonary-Critical Care Intensivists
- 8 Neurosurgeons on the Trauma Call Panel
- 13 dedicated Orthopedic Surgeons on the Trauma Call Panel
 - 6 general Orthopedists
 - 7 Ortho-Hand Surgeons

SAINT ALPHONSUS REGIONAL MEDICAL CENTER
CURRENT STATUS

- 36 Bed Multi-purpose ICU
- 10 Bed CVICU-2 employed CV Surgeons
- 2 helicopter services in Idaho and Southeastern Oregon
- Catchment area 350 mile radius, 850,000 population:
 - Southwestern and South Central Idaho
 - Southeastern Oregon
 - Northeastern Nevada

PROBLEM

- As the Trauma Service grew with employed Trauma Surgeons from 2006 until re-verification in 2010, several care issues began to surface:
- Care for patients with cardiac contusions was very Trauma Surgeon dependent
 - No standard practice of identifying "at risk" patients
 - No standard practice for work up or follow up of patients at risk for this injury

PROBLEM

- Care for patients with splenic injuries was also often Trauma Surgeon dependent
 - Identified by ACS Consultants in 2009 during consultative visit
 - Specifically addressed issue of relative lack of splenic embolization/preservation
 - One Trauma Surgeon told the consultants-"the only splenic preservation I am interested in is preserving the spleen in formalin!"

2010 TO 2013 CHANGES

- August 2010-re-verified by the ACS
- September 2010-5th Trauma Surgeon employed
- Resulted in more variation in care among the Trauma Surgeons based on his training
- Case # 1 involving a cardiac contusion occurred in September 2010-1 month after the re-verification visit
- November 2010-Trauma PI/PS meeting-case discussed with unanimous decision to implement the EAST PMG for Screening of Blunt Cardiac Injury.

2010 TO 2013 CHANGES

- 2010 to 2012-multiple issues with variation in management of patients with blunt splenic injuries
- August 2012-Decision by all Trauma Surgeons to begin to adopt the EAST PMG for multiple types of injury
- June 2013-Panel dropped to 4 Trauma Surgeons
- August 2013-Panel now stable at 6 Employed Trauma Surgeons

CASE #1

- September 2010
- 30 yo M bucked from horse then "stomped in the chest" by the horse
- Level 2 Trauma Activation direct to ER from the field
- Admitted to Surgical Floor after TS work-up and evaluation
- Patient's anterior chest wall discomfort improved

CASE #1

- On HD #3-patient's wife noted him to be unresponsive and making "gurgling noises"
- Code Blue called and CPR initiated
- Cardiologist consulted
- Patient to cath lab for coronary angiogram-normal vessels
- Minimal anterior RV wall motion abnormality on Echo

CASE # 1

- TPIPS discussion by attending Trauma Surgeon revealed:
 - ICU stated to admitting Trauma Surgeon that they were "very busy"
 - ER physician did not order initial CT of Chest on this patient
 - No EKG or cardiac enzymes were ordered initially or serially
 - Patient's "arrest" was beyond the 24-48 hour period of observation of most blunt cardiac injury patients

CASE # 1

- Group decided that in the future
 - ER work up-include chest CT if abdomen/pelvis CT is ordered
 - All blunt chest trauma be monitored in the ICU
 - EKGs in the ER and at 12 hours on these patients
 - Serial CK, CK-MB, and Troponin I be accomplished on all these patients for the first 24 hours
 - Echo on all patients with questionable EKG or labs

CASE # 1

- Group finally decided to adopt the EAST "PMG for Screening of Blunt Cardiac Injury" to standardize the care of these injuries.

CASE # 2

- 1 patient not adequately evaluated using this guideline since that time
- 24 yo M MCC admitted to the floor overnight
 - No ER or serial EKG
 - No ER or serial enzymes
 - Negative chest CT
 - Discharged the next AM
 - Died 24 hours later from cardiac arrest
 - Autopsy revealed a right atrial perforation

SPLENIC CASES

- Case # 1
- 47 yo FM dirt bike accident-struck left side
- VS 80/50, SpO2 97% on 15 L NRB mask, RR 30, HR 88
- CT C/A/P-"grade 4-5 splenic laceration WITHOUT extravasation but ~ 1 liter of hemoperitoneum"
- To OR for "splenic salvage versus splenectomy"
- Splenectomy performed
- Home on PID #7

SPLENIC CASES

- Case # 2
- 50 yo FM transfer from Oregon
- Fell over cat 2 days prior to presenting to outlying ER
- Sudden onset of epigastric pain, BP 70/50
- Transferred to ICU and admitted to Pulmonary/CC intensivist service
- CT C/A/P-normal appearing spleen with 14X9 cm hematoma LUQ, fluid around liver and in pelvis

SPLENIC CASES

- Case # 2
- Trauma Surgeon consulted-patient to OR
- Spleen in two pieces-splenectomy performed
- Discharged home PHD #12

SPLenic CASES

- Case # 3
- 30 yo M bicycle motocross-struck another rider
- BP 80-110, RR 24-30, HR 110-responded to fluid bolus
- CT C/A/P-grade 3 splenic lac with active extravasation
- Embolized segmental splenic artery with no residual hemorrhage noted
- PID #4-increased HR and RR and decreased BP
- To OR for splenectomy
- Home on Day 14 post injury

SPLenic CASES

- Case # 4
- 19 yo M-BMX bike over jump-landed "hard with knees to chest"
- Outlying ER CT C/A/P-grade 4-5 splenic lac with active extravasation
- BP 110/80, HR 120 on transfer
- Selective embolization accomplished
- Home on PID # 5

SPLenic CASES

- Case # 5
- 48 yo M MCC T-boned auto at 30 mph
- VS BP 130/73, HR 91, RR 20, SpO2 99%
- CT C/A/P-grade 2-3 splenic lac, no extravasation, no subcapsular hematoma, no intra-abdominal hematoma
- Mandible fracture repaired
- D/C home on day 3 post injury with stable VS and H&H

SPLENIC CASES

- Case # 5
- PID # 9 presented to an outside ER c/o LUQ and left shoulder pain, early satiety and abdominal "fullness"
- CT C/A/P-"significant hematoma around the spleen"
- H&H 1.5 grams less than at discharge
- VS 105/73, HR 120, SpO2 100
- To ICU and then to angiography for embolization of main splenic artery and accessory splenic artery

SPLENIC CASES

- Case # 5
- Post embolization day #3-developed a fever and elevated WBC.
- Antibiotics initiated.
- Defervesced-home on Post embolization day 7
- No follow up issues

DISCUSSION OF THE USE OF EAST PMG WITHIN A PARTICULAR TRAUMA SERVICE

- With 6 fellowship trained Trauma Surgeons and a combined experience of over 85 years of caring for trauma patients, care guidelines frequently meet with some resistance based on the past experience of the surgeon.
- Discussions regarding these guidelines were initially broached by asking each surgeon on the Trauma Service to review and opine on 4 EAST PM guidelines and place them into a format currently used by the Trauma Service for its previously created guidelines.

DISCUSSION OF THE USE OF EAST PMG WITHIN A PARTICULAR TRAUMA SERVICE

- These "pre-screened" guidelines were then brought to the TPOPC and each was discussed at length between and among the Trauma Surgeons and any specialist that might have had input into a particular guideline (i.e. -neurosurgery and the C-spine Clearance guideline)
- The guideline was revised appropriately by the members of the committee and then adopted by majority approval
- These guidelines are then used as part of the Trauma Process Improvement and Patient Safety filters to assure the group is meeting or exceeding established quality parameters with respect to particular injury types
- Examples of this process are:

SPLenic CASES AND THE EAST PMG'S

- Level 1 Data: Patients with diffuse peritonitis or who are hemodynamically unstable after blunt abdominal trauma should be taken urgently for laparotomy. -Accepted without change by the group.
- Level 2 Data: "Without peritonitis" was removed from number 3 under these criteria to change the guideline to state: "In the hemodynamically normal blunt abdominal trauma patient (without peritonitis), an abdominal CT scan with intravenous contrast should be performed to identify and assess the severity of injury to the spleen."

SPLenic CASES AND THE EAST PMG'S

- Level 2 Data: Number 3-Angiography should be considered for patients with AAST grade of greater than III injuries, presence of a contrast blush, moderate hemoperitoneum, or evidence of ongoing bleeding.
- Should be changed to "could be considered for patients with a AAST grade III or greater with the presence of a contrast blush"

DISCUSSION


- The EAST PM Guidelines provide a very standardized way of promoting uniformity of care between and among members of the Trauma Service as they care for patients with injuries that have been included in the guidelines.
- Blind acceptance of the guidelines is not advisable as the facilities resources and/or the experiences of the Trauma Surgeons may require some changes to the guidelines in order to assure uniformity of acceptance of the procedures outlined

DISCUSSION


- Peitzman in 2005 showed that "a lack of protocols, large variability in physician practice, and questionable clinical decision making contributes to the failure of nonoperative management of splenic injuries."
- To minimize this variability, it is essential to include all members of the Trauma Service in the review, revision, and adoption of each guideline
- Closely monitor
 - Adherence to the guidelines
 - Patient outcomes if treated under these guidelines.

PEITZMAN, AB. J AM COLL SURG. 2005; 201:179-187.


QUESTIONS?




HISTORY OF THE EAST PMG COMMITTEE AND ONE SURGEON'S PERSONAL ODYSSEY




Frederick B. Rogers, MD, MS, FACS



No Disclosures



History of Guideline Development



B.G.

(Before Guidelines)

B.O.G.S.A.T. Methodology

History of Guideline Development



Michael Rhodes, MD
Christiana Care Health System
1994-1996

- 1994 EAST President
- Presidential Address:
“Practice Management
Guidelines for Trauma
Care”
- Formed EAST Guideline
Committee
- Inaugural Chair (ad hoc)

History of Guideline Development

Early EAST Classification System

- Class I (prospective, randomized)
 - Class II (prospective, non-randomized)
 - Class III (retrospective)
 - Class IV (case reports)
- ~ 80% of trauma studies were Class III or Class IV
- As such, PMG relied largely on the consensus process (*B.O.G.S.A.T – except we were young!*)

History of Guideline Development



Michael D. Pasquale, MD
Le High Valley Health Network
1996-2000

- 2nd EAST Guideline
Committee Chair
- Incorporated AHCP
methodology into guideline
development
- Published first 4 PMG into
JOT in 1998
 - Blunt Cardiac Injury
 - C-Spine Injury Clearance
 - Penetrating Colon Injuries
 - VTE Prophylaxis

History of Guideline Development

AHCPR Recommendations

TABLE 2. Classification of scientific evidence and formulation of recommendations

Class I	Prospective, randomized, controlled trials
Class II	Clinical studies with prospectively collected data and large retrospective analyses based on reliable data
Class III	Retrospectively collected data and expert opinion
Technology assessment	
Once the evidence has been classified, it can be used to make recommendations.	
Level I recommendation	Convincingly justifiable based on the available scientific information alone. It is usually based on class I data; however, strong class II evidence may form the basis for a level I recommendation, especially if the issue does not lend itself to testing in a randomized format. Conversely, weak or contradictory class I data may not be able to support a level I recommendation.
Level II recommendation	Reasonably justifiable by available scientific evidence and strongly supported by expert critical care opinion. It is usually supported by class II data or a preponderance of class III evidence.
Level III recommendation	Supported by available data but adequate scientific evidence is lacking. It is generally supported by class III data.

Pasquale M, Fabian T, EAST Ad Hoc Committee on PMGD. Practice Management Guidelines for Trauma from the Eastern Association for the Surgery of Trauma. *J Trauma*. 1998;44(6):941-957.

History of Guideline Development



Fred A. Luchette, MD
Loyola University, Chicago
2000-2003

- 3rd EAST Guideline Committee Chair
- Continued proliferation of guidelines
- Special plenary session at EAST dedicated to new guideline presentations
- Publication of guideline primer in 2000

History of Guideline Development

Steps in EAST EBOM Primer (2000)

1. Topic Selection
2. Selection of Panel
3. Clarification of Purpose and Scope of Guideline
4. Listing of Goals and Specification of Questions
5. Assessment (grading) of Scientific Recommendations
6. Establishing the Recommendations
7. Drafting and Validation of the Document
8. Presentation
9. Implementation

History of Guideline Development



Stan Kurek, DO
Fort Pierce, FL
2003-2006



William Bromberg, MD
Mercer University School of Medicine
2006-2009

- Continued growth and proliferation of EAST PMGs
- Guideline Committee moved from ad hoc to standing committee

History of Guideline Development



Andrew J. Kerwin, MD
College of Medicine, Jacksonville
2009-2012



Elliot R. Haut, MD
Johns Hopkins
2012-Present

- Modern era of PMG development
- GRADE Methodology introduced
- Topics related to critical care and acute care surgery added to PMGs

One Trauma Surgeon's Personal Odyssey



Fletcher Allen
HEALTH CARE

*In alliance with
The University of Vermont*

- ☐ Level I Trauma Center
- ☐ Catchment: 1 million





Lancaster General Hospital
Lancaster General Health

- ☐ Level II Trauma Center
- ☐ Catchment: 500,000
- ☐ Busy Community Hospital





Needs Assessment

1. Partners
2. Begin Advance Practice Program
3. Protocol Development
- ☐ Brain Trauma Guidelines
- ☐ EAST Guidelines

Reigning in the Anarchy!



Protocols Implemented at LGH

*Huge halo
effect on other
hospital-based
services*

1. 24hr Intensivist Model in the Trauma ICU
2. Revamped MTP
3. Brain Death Protocol
4. Introduced Damage Control Protocols to the OR
5. Goal-Directed Sepsis Bundle
6. Emergency Airway Protocols
7. Acute Care Surgery
8. Multiple ICU-based Protocols
 - Glucose Control
 - Anticoagulation Reversal w/ PCC
 - TEG & VTE Prophylaxis
 - Portable CT Scanner
 - Daily Awakening & SBT in Intubated Patients
 - Bedside PED/TRACH/IVC Filter Program
 - Daily Checklists

Protocols

*** “based on the principle that collective knowledge of a group is usually better than that of an individual”**

- *The Cochrane Collaboration 2012*

“Behind every fetish is a foul up”

Benefits

- reduce variation
- improve efficiency of practice (reduce influence of judgment subjectivity)
- increase objectivity
- improve outcome

The Journal of TRAUMA® Injury, Infection, and Critical Care

Management of Brain-Injured Patients by an Evidence-Based Medicine Protocol Improves Outcomes and Decreases Hospital Charges
Samir M. Fahmy, MD, Arthur L. Trank, MD, Maureen A. Waller, MSN, RN, and Dorraine D. Watts, PhD, RN for the IRTIC Neurotrauma Task Force

Improved Extubation Rates and Earlier Liberation from Mechanical Ventilation with Implementation of a Daily Spontaneous-Breathing Trial Protocol
T Elizabeth Robertson, MD, Carrie Sona, RN, CCNS, Lynn Schallom, RN, CCNS, Marcy Buckles, RRT, Lisa Cracchiolo, RRT, Douglas Schuerer, MD, FACS, Craig M Coopersmith, MD, FACS, Fine Song, BS, Timothy G Buchman, MD, FACS, PhD

ASSOCIATION FOR ACADEMIC SURGERY
A Disciplined Approach to Implementation of Evidence-Based Practices Decreases ICU and Hospital Length of Stay in Traumatically Injured Patients¹
Julie E. Johnson, B.A.,¹ Benjamin D. Mosher, M.D.,¹ Chet A. Morrison, M.D.,¹ Paul D. Schneider, M.D.,¹ Penny Stevens, M.A.N.,² and John P. Regier, M.D.^{1}*
¹Michigan State University, College of Human Medicine, Lansing, Michigan; ²Department of Surgery, Michigan State University, College of Human Medicine, Lansing, Michigan; and ³Trauma Services, Sparrow Health System, Lansing, Michigan
 Submitted for publication January 11, 2010

Community Hospital Limitations

1. Volume of work with reduced resources
2. Lack of Intellectual Curiosity
3. Lack of Physician Leadership

Community Hospital Strengths

1. Strong Nursing
2. Less Variability in Provider
3. Focus is on Patient
 - no distractions: research, education

Protocols Based on EBG Are Uniquely Suited to Community Hospital Trauma Centers

1. Can be implemented in nursing, resp. staff
2. Provides a window to standard of care
3. No concern about cookbook medicine
4. Improved outcomes and throughput
 - Mortality?; LOS – yes*

*J Surg Res (2010) 163,327-330

Today

1. EAST PMG widely recognized both nationally & internationally
2. PMG EAST website
(<http://www.east.org/resources/treatment-guidelines>)
 - Receives >2000 hits/month
3. JOT 73:5 supplement 4 in 2012
 - First supplement devoted entirely to EAST PMG (12 new guidelines)

The Future???

New Vernacular



2010 Patient Protection and Affordable Care Act (OBAMACARE)

- Seismic changes to US healthcare
- Huge emphasis on controlling healthcare costs
- Still strong emphasis on outcome but with stress on "affordability"

EBM → "value-based medicine"
