



SOCIETY OF TRAUMA NURSES



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TRAUMA CON

LAS VEGAS

March 30 - April 1

2022

PLANET HOLLYWOOD

Trauma Practice Management Guidelines: *From Concept to Bedside*

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Disclosure Statement

The presenters disclose no conflict of interest relative to this educational activity.

The presenters would like to acknowledge Dr. Elliott Haut for sharing content that was used in some slides.



Objectives

- Describe the importance of using guidelines to standardize care
- Discuss how guidelines can change clinical care
- Provide an overview of the GRADE methodology
- Discuss barriers to standardization and implementation
- Discuss methods to evaluate success of PMG implementation



History of Guideline Development and the EAST Experience

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[@gkasot](https://twitter.com/gkasot)

Society of Trauma Nurses Meeting
March 31, 2022



What are Evidence-Based Guidelines?

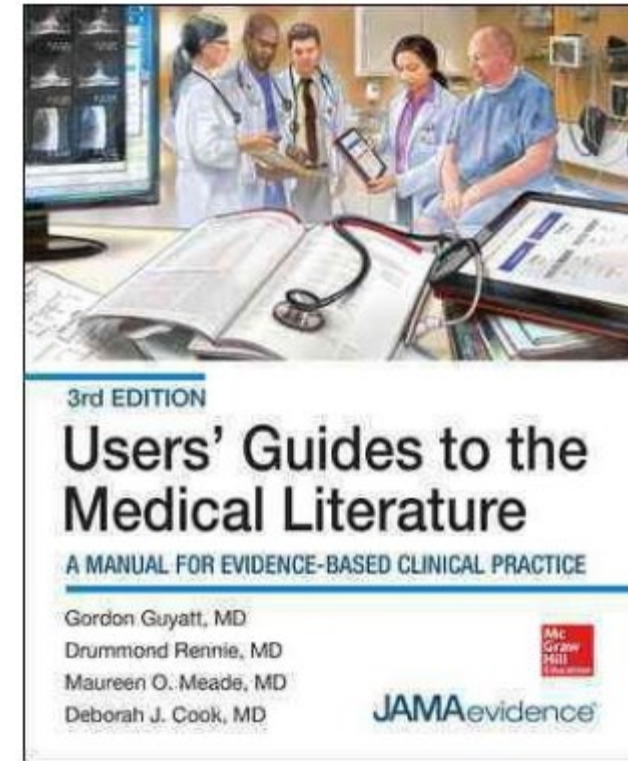
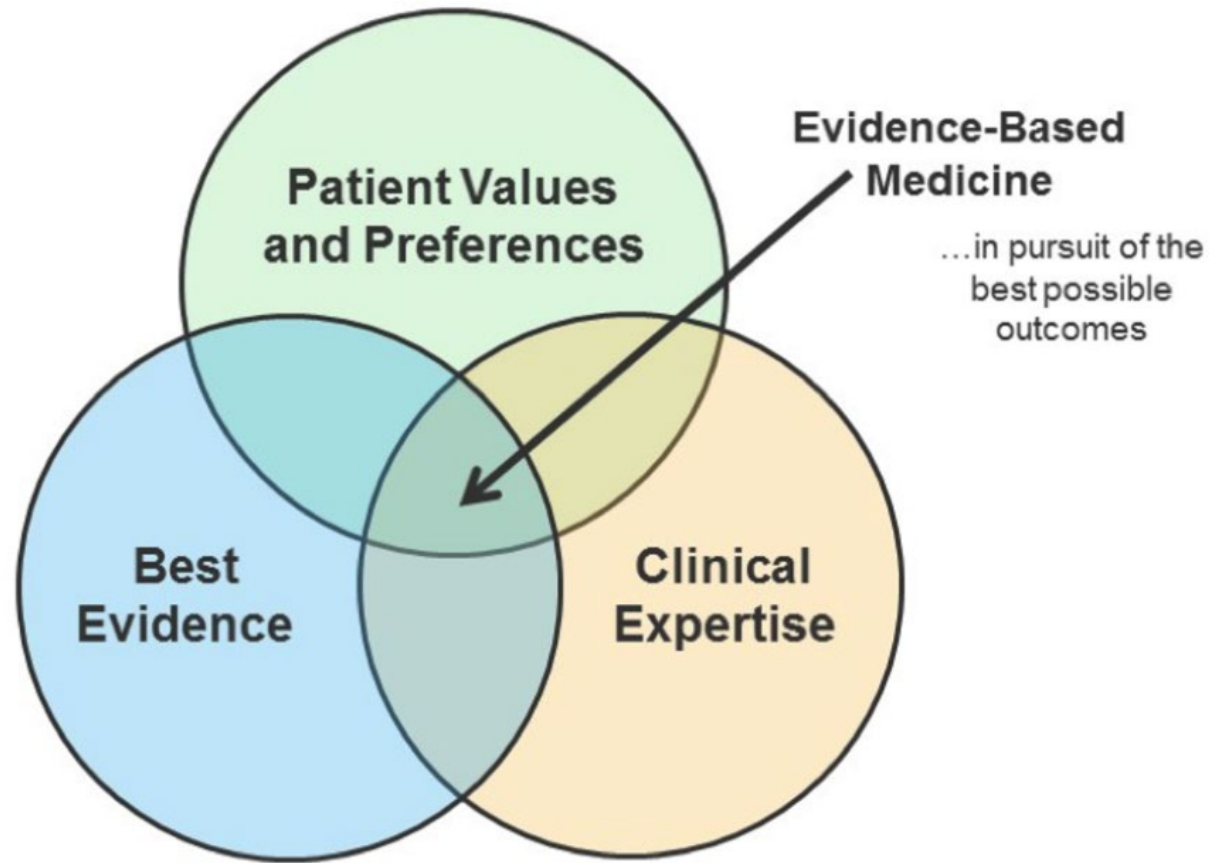
Why are they Important?



Think About It



Evidence-Based Medicine

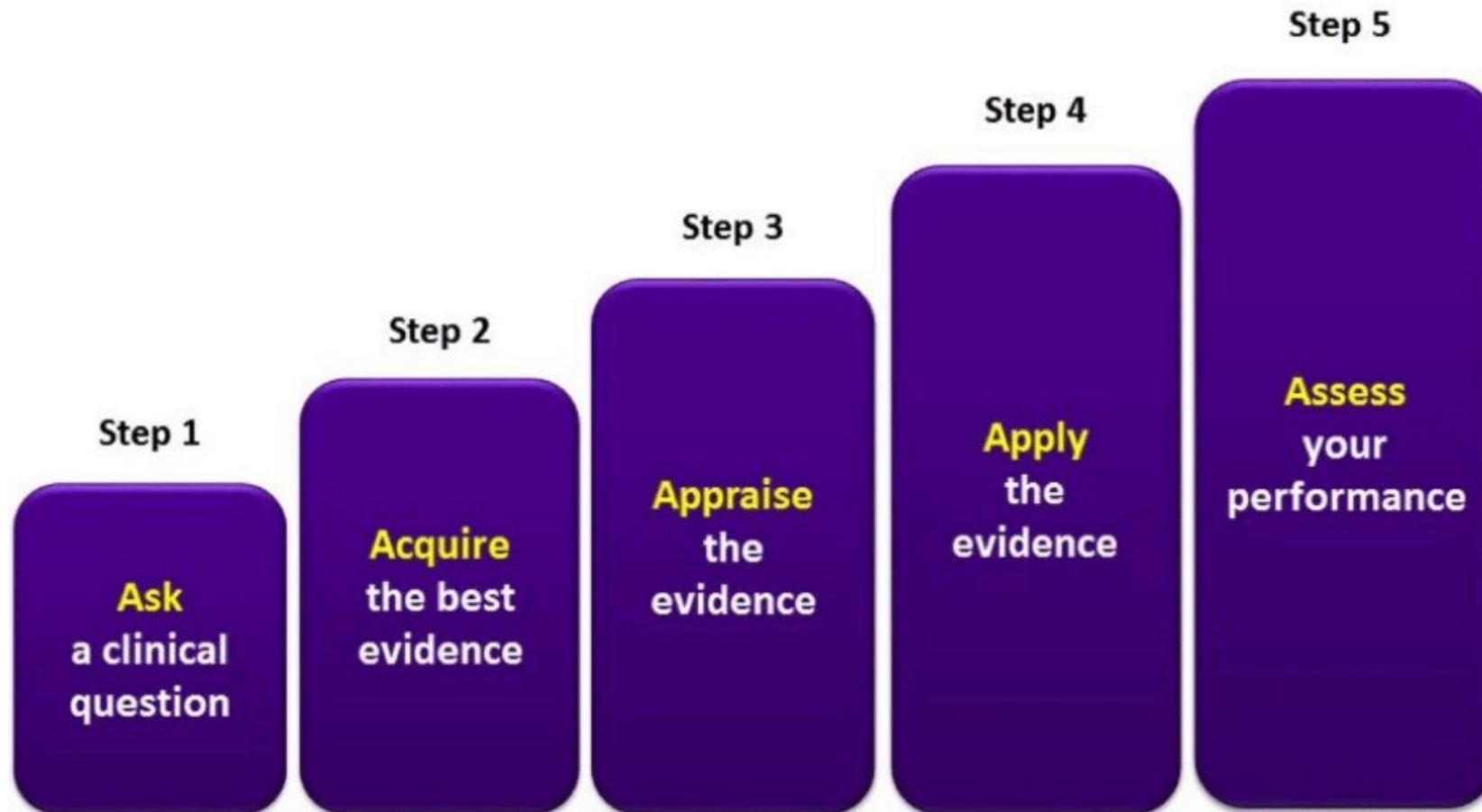


Ways Evidence-Based Medicine (EBM) Adds Value to HealthCare Systems

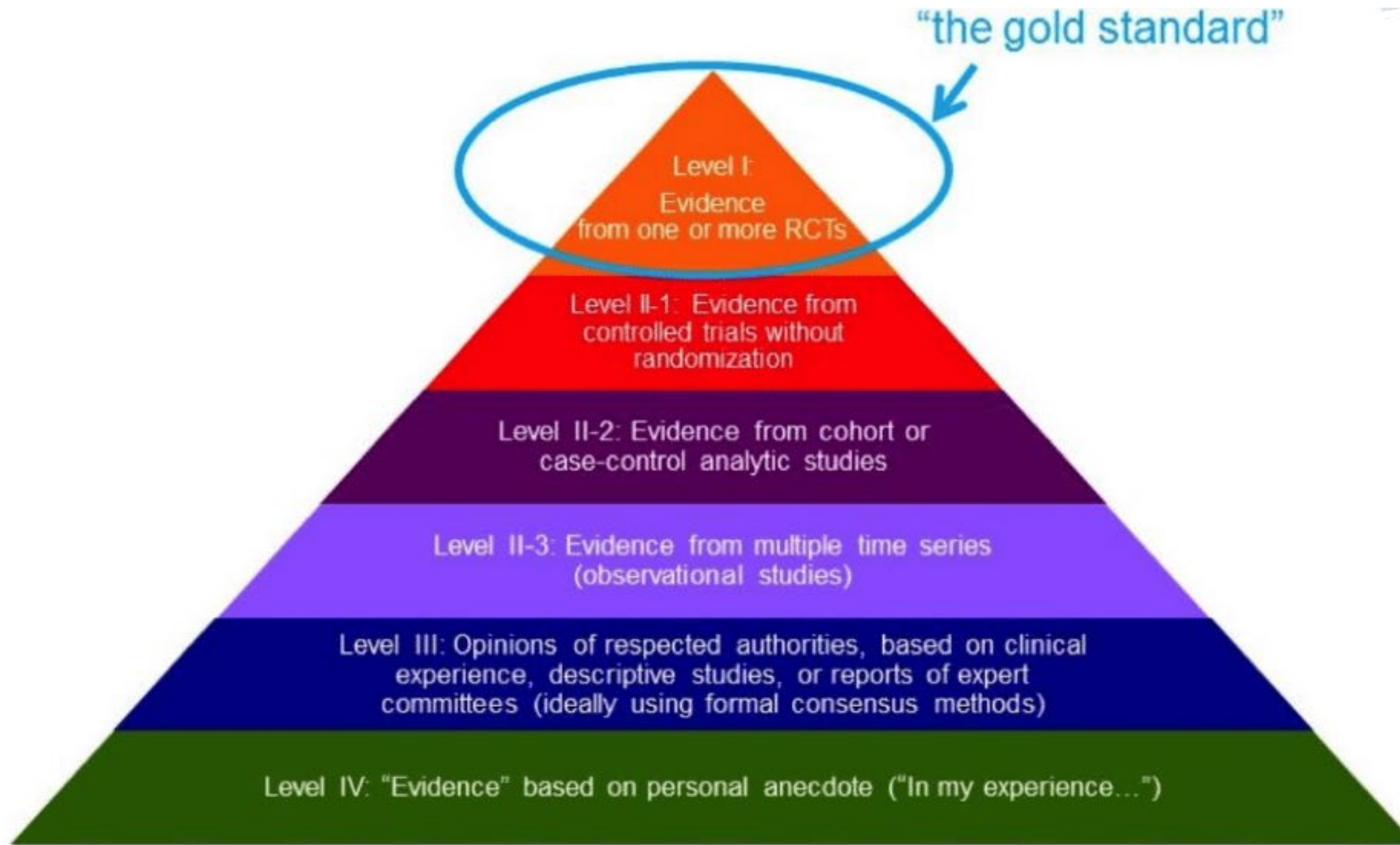
1. Helps clinicians stay current on standardized, evidence-based protocols.
2. Uses near real-time data to make care decisions.
3. Improves transparency, accountability, and value.
4. Improves quality of care.
5. Improves outcomes.



The 5 Steps of Evidenced-Based Medicine



Levels of Evidence



Institute of Medicine Standards for Trustworthiness

- Transparent process
- Conflicts of interest
- Guideline development group composition
- Systematic reviews
- Evidence quality, strength of recommendations
- External review & feedback
- Frequent updating



Ranshoff, JAMA 2013



Practice Management Guidelines (PMGs)

Two parts: (Institute of Medicine, 2012)

- **A Systematic Review** of the research evidence surrounding a clinical question.
- **Actionable Recommendations** to address the clinical question, based on:
 - Quality of the evidence
 - Patient Preferences
 - Cost-effectiveness / resources
 - Safety profile



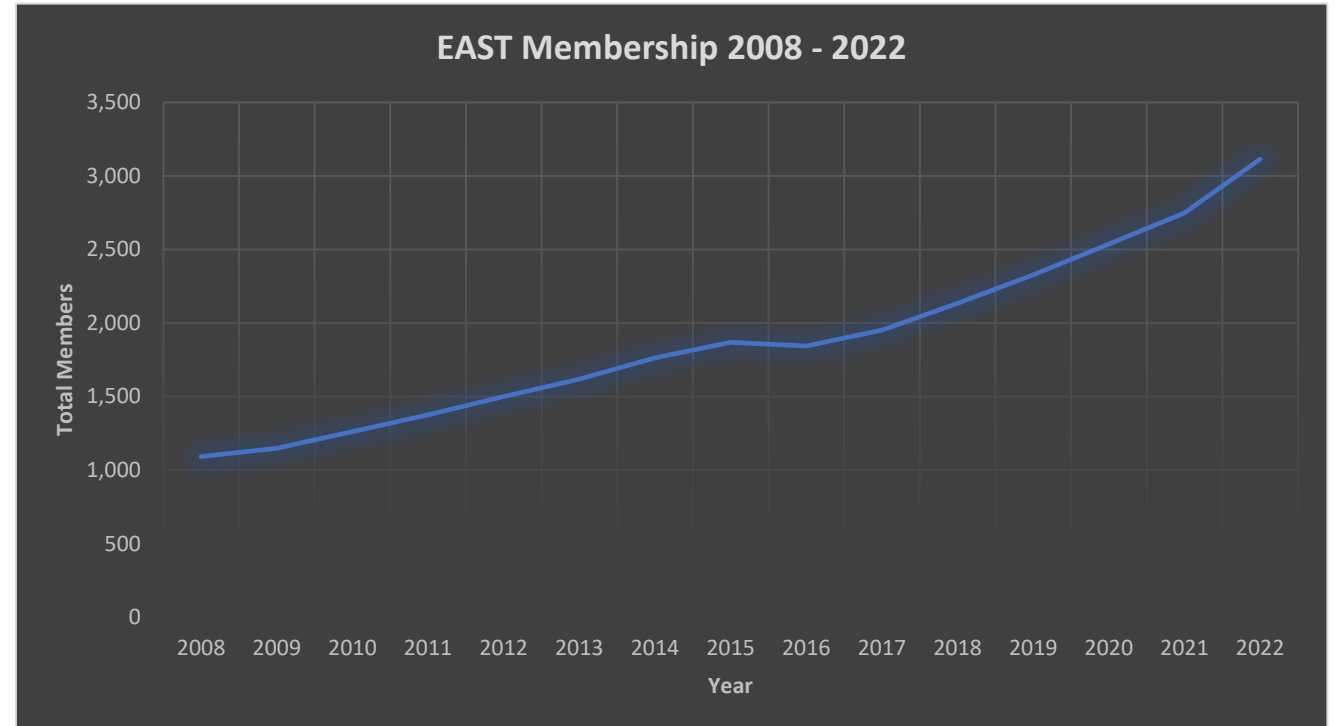
History of EAST

- Established in 1986
- Conceived as forum to help young surgeons meet their professional requirements
- Provide opportunities for:
 - Mentoring
 - Exchanging knowledge
 - Promoting research
 - Developing professional network
 - Developing careers
- Arrangement to publish EAST papers in *Journal of Trauma*



History of EAST

- First scientific assembly
 - 1988
99 members; 43 guests
- Current state
 - 2022
3115 members
- Largest trauma professional organization in the US



EAST PMGs

- Early leader in EBM for trauma
- EAST president Michael Rhodes at 1994 presidential address:
 - “Practice Management Guidelines for Trauma Care”
 - EAST Practice Management Guidelines Committee
- GRADE Introduced in 2012
 - Standard across all new PMGs since



The Eastern Association of the Surgery of Trauma approach to practice management guideline development using Grading of Recommendations, Assessment, Development, and Evaluation (GRADE) methodology

**Andrew J. Kerwin, MD, Elliott R. Haut, MD, J. Bracken Burns, DO, John J. Como, MD,
Adil Haider, MD, Nicole Stassen, MD, Philipp Dahm, MD,
*and Eastern Association for the Surgery of Trauma Practice Management
Guidelines Ad Hoc Committee***



Kerwin, J Trauma 2012



EAST PMGs

- EAST president Elliott Haut 2020 presidential address:
 - Entitled “EAST Practice Management Guidelines and the Perpetual Quest for Excellence”
 - The growth of EAST as an organization has been driven, partly by the EAST PMG popularity
 - EAST can accomplish its mission, show its vision, and illustrate adherence to its core values through EAST PMGs.
 - “EAST Guidelines **ARE** EAST”



EAST PMGs

Available on website: <https://www.east.org/>

Active


- Total – 98 (41 GRADE)
 - EGS – 7 (6 GRADE)
 - Injury Prevention – 15 (11 GRADE)
 - Trauma – 47 (18 GRADE)
 - Surgical Critical Care – 29 (6 GRADE)

Under Development (GRADE)

- Total – 51
 - EGS – 9
 - Injury Prevention – 5
 - Trauma – 26
 - Surgical Critical Care – 11



EAST Practice Management Guidelines

Search guidelines... 

Categories

[Emergency General Surgery](#) [Injury Prevention](#) [Surgical Critical Care](#) [Trauma](#)

To help assess the relevancy of all published EAST Practice Management Guidelines (PMGs) and to ensure that accurate information is available as a resource on the EAST website, the EAST Guidelines Committee reviews all PMGs for content and relevance every 5-years. An updated literature search is performed for each PMG by a member of the Guidelines Committee to determine how to classify the guideline. PMG's are classified as either: still relevant to practice today, still relevant but require updating or need to be archived. Archived guidelines are placed in the [Archived Guidelines](#) section of the EAST website.

Education & Career Development

[Annual Scientific Assembly](#)

Practice Management Guidelines

[EAST Guidelines Purpose](#)

[Guidelines Under Development](#)

[Archived Guidelines](#)

[EAST Endorsed Guidelines](#)

[EAST Guidelines & GRADE Resource Warehouse](#)

[EAST PMG/EBR - Volunteer Recruitment Form](#)

[Online Education](#)

[Traumacasts](#)



Collaborative Effort

- CWIS – Rib fracture management in the elderly
- OTA - NSAID use in bone fracture pain
- PTS/ACEP/SPR – Identification of non-accidental trauma in children, chest and abdominal imaging after pediatric trauma
- SCCM - Blood transfusion in severe trauma
- TAS – Standardizing intubation after trauma
- AFSP – Identification of suicidal ideation after trauma
- STN – Perioperative DVT prophylaxis for orthopedic surgery
- ...and more!!!



Summary

- EAST PMGs extremely important for EAST's mission
- EAST: Internationally recognized as leader in trauma EBM
- Older guidelines are updated; new ones produced
- Collaboration with numerous other organizations
- Broad dissemination and citations of work



The GRADE Experience and Guideline Development

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Society of Trauma Nurses Meeting

March 31, 2022



GRADE Methodology

- G – Grading of
- R – Recommendations
- A – Assessment
- D – Development
- E – Evaluation



www.gradeworkinggroup.org



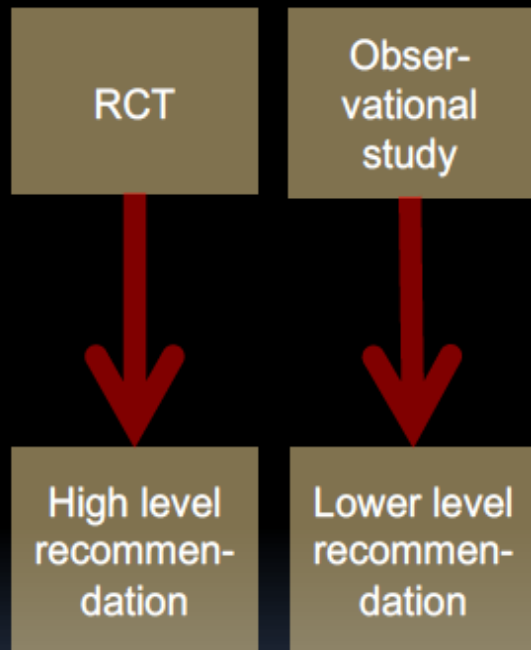
GRADE Methodology



- >100 Organizations currently use GRADE:
 - WHO
 - CDC
 - Cochrane
 - SCCM
 - UK National Institute for Health & Care Excellence
 - **EAST (2012)**
 - ASH



From evidence to recommendations



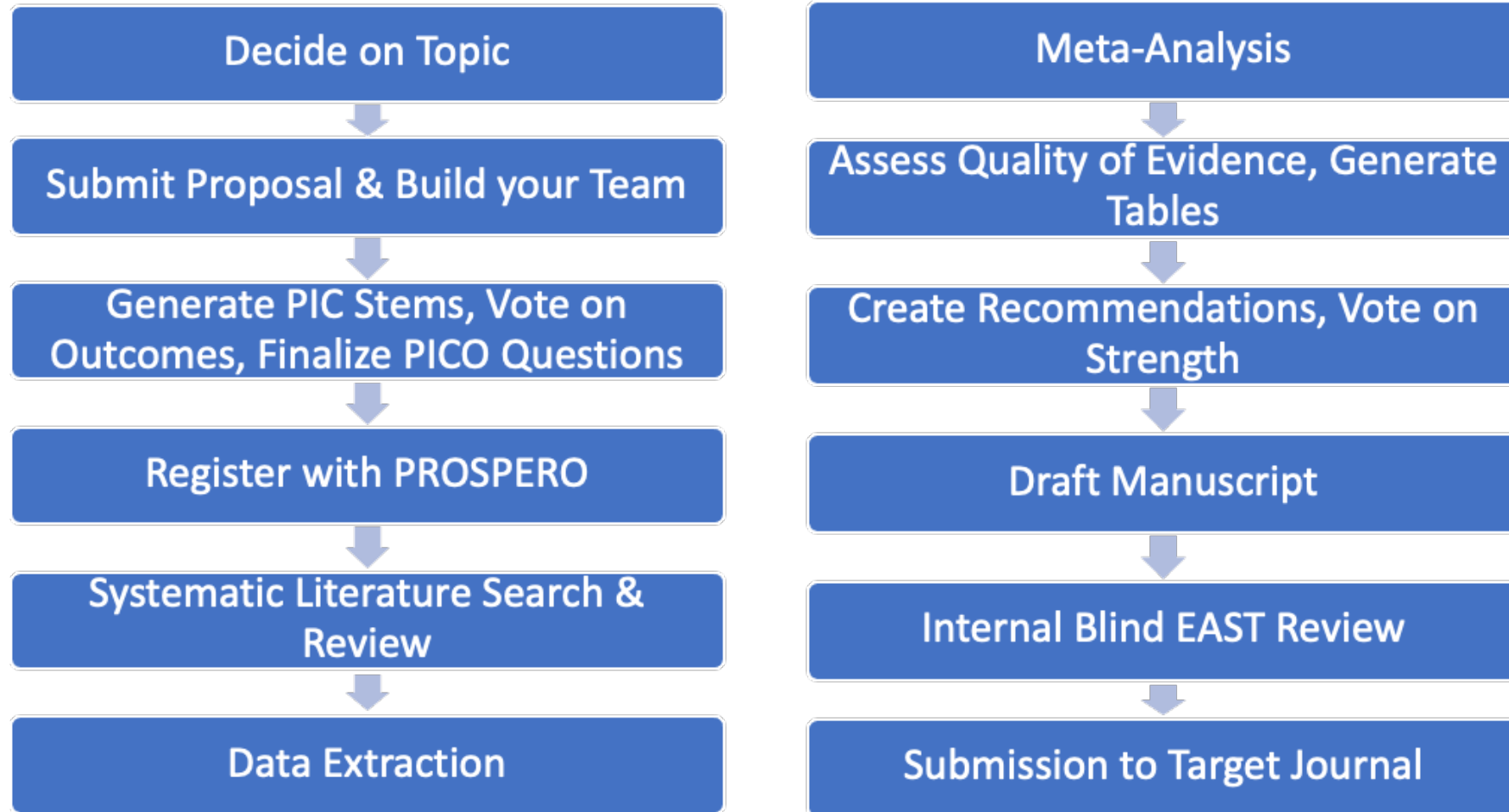
Old system



GRADE



PMG in 12 Steps



Identify Clinical Question

- Working team (team lead) identifies a clinical question with controversial / variable / no answer.
- Ensures no other societies/EAST have similar guidelines already.
- Ensures through a **brief literature search** that data are available to address the clinical question.



Eastern Association for the Surgery of Trauma
Advancing Science, Fostering Relationships, and Building Careers



Team Building

- Significant time investment – divide workload
- Involvement of other colleagues or professional groups/societies
- EAST PMG volunteer pool > 350 individuals, online portal
- Anyone can participate (GRADE training not mandatory)
- Avoid bias in working group – multidisciplinary team, include a librarian



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Formulation of PICO Questions

- **P:** Population **I:** Intervention **C:** Comparison **O:** Outcome
- Develop 2-4 PICO Questions
- Aim is to compare two treatment/intervention options, determine which one affords best outcomes
- Consider numerous outcomes and rate individually (scale 1-9)
- Critical (7-9), important (4-6), low importance for decision making (1-3)



PICO Question Example

- “In injured patients admitted to the hospital, should unfractionated heparin or low molecular weight heparin be used to decrease incidence of DVT, PE, length of stay, and mortality?”



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Systematic Literature Search and Review

- Work with a professional librarian to design a search strategy using several medical literature search engines
- Identify usually thousands of research articles that potentially answer the PICO questions
- Titles/Abstracts reviewed → Full manuscripts are reviewed
- Manuscripts specifically addressing the PICO(s) are included in analysis
- Data from pertinent manuscripts are extracted



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LOW-DOSE HEPARIN VS. LOW-MOLECULAR-WEIGHT HEPARIN TO PREVENT VENOUS THROMBOEMBOLISM

A COMPARISON OF LOW-DOSE HEPARIN WITH LOW-MOLECULAR-WEIGHT HEPARIN AS PROPHYLAXIS AGAINST VENOUS THROMBOEMBOLISM AFTER MAJOR TRAUMA

WILLIAM H. GEERTS, M.D., RICHARD M. JAY, M.D., KAREN I. CODE, R.N., ERLUO CHEN, M.B., M.P.H., JOHN PAUL SZALAI, PH.D., ERIC A. SAIBIL, M.D., AND PAUL A. HAMILTON, M.D.



The NEW ENGLAND JOURNAL of MEDICINE

Results Among 344 randomized patients, 136 who received low-dose heparin and 129 who received enoxaparin had venograms adequate for analysis. Sixty patients given heparin (44 percent) and 40 patients given enoxaparin (31 percent) had deep-vein thrombosis ($P=0.014$). The rates of proximal-vein thrombosis were 15 percent and 6 percent, respectively ($P=0.012$). The reductions in risk with enoxaparin as compared with heparin were 30 percent (95 percent confidence interval, 4 to 50 percent) for all deep-vein thrombosis and 58 percent (95 percent confidence interval, 12 to 87 percent) for proximal-vein thrombosis. Only six patients (1.7 percent) had major bleeding (one in the heparin group and five in the enoxaparin group, $P=0.12$).

	Heparin	Lovenox
DVT	60	40
No DVT	76	89



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Meta-Analysis

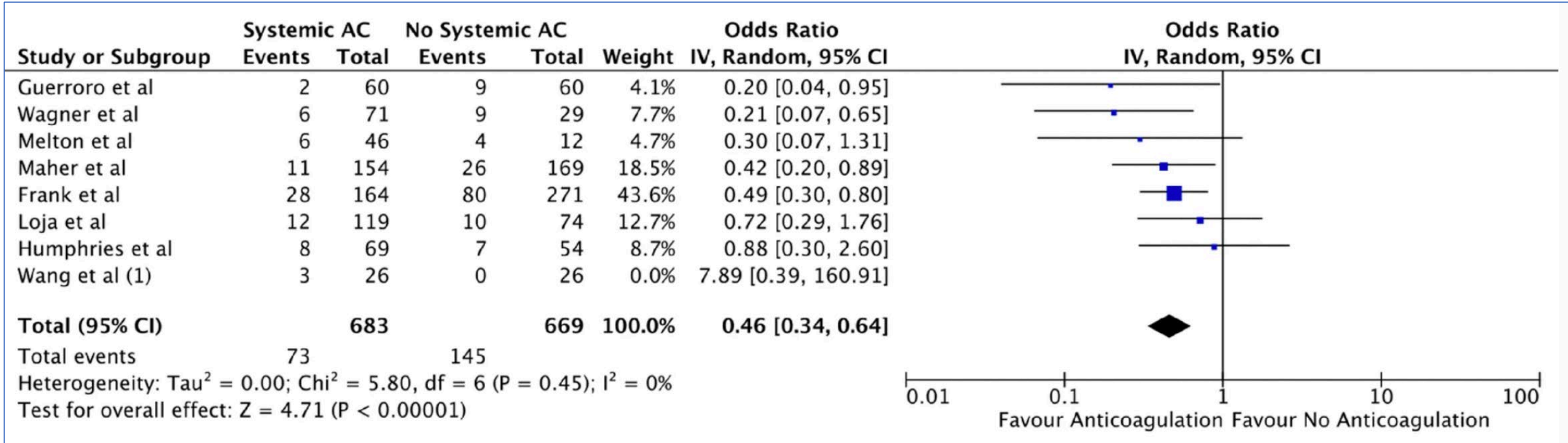
- The extracted data from the relevant manuscripts are analyzed in aggregate
- Forest Plots are created



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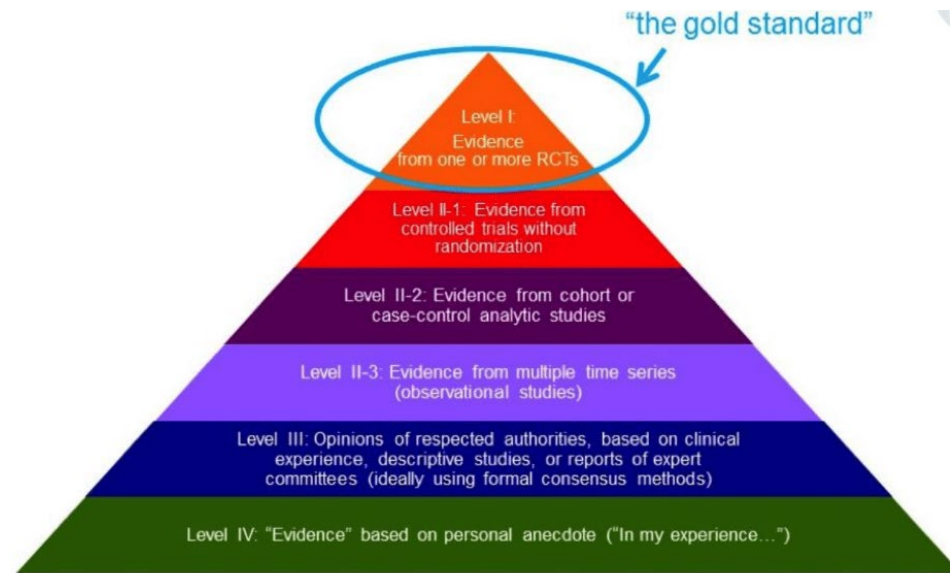


Forest Plot



Assess Quality of Evidence

- Special software is used
- Higher-quality data weigh more heavily in creation of recommendations



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Create Recommendations

- Based on Meta-Analysis results
- Emphasizes higher-quality data
- Considers:
 - Patient preferences
 - Resources available / cost effectiveness
 - Lack of harm
- Strength of recommendations:
 - **STRONG**: Intervention should be the new standard of care
 - **CONDITIONAL**: Intervention should be considered in the majority of cases
- Recommendations worded as answers to the PICO questions



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Example Recommendation

- “We recommend injured patients admitted to the hospital should receive low molecular weight heparin (over unfractionated heparin) to decrease incidence of DVT, PE, length of stay, and mortality”
- Or “we conditionally recommend...”



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Balance of benefits & harms



Benefits clearly outweighs the downsides



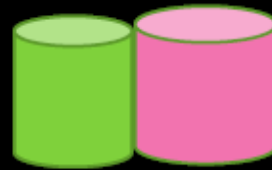
Strong recommendation for an action



Benefits probably still outweighs the downsides



Conditional/weak recommendation for an action



Harms probably outweighs the benefits



Conditional/weak recommendation against an action



Harms clearly outweighs the benefits



Strong recommendation against an action

Manuscript Drafting, Peer-Review

- Manuscript is drafted
- Undergoes peer-review:
 - a) Internally (EAST Guidelines Committee)
 - b) Journal
- Publication



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Promulgation

- New PMGs are presented annually at the EAST Scientific Assembly
- Visual abstracts / short videos on social media
- Twitter Journal Club
- EAST podcasts
- Local dissemination
- www.east.org



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Summary

- Literature search addresses clinical question(s)
- Comparisons are made between two interventions
- Pertinent manuscripts are identified and data extracted
- Data are analyzed in aggregate
- Recommendations are created based on:
 - Meta-Analysis results
 - Evidence quality
 - Patient preferences
 - Available resources & safety profile
- **PMGs freely available on www.east.org**



From Concept to Bedside

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Executive Director, Trauma Services
Banner Health

Society of Trauma Nurses Meeting
March 31, 2022



Importance of PMGs

- Non-believers are swayed by evidence-based guidelines
- “They” look for them
 - Regulatory bodies
 - Designating agencies
 - Verifying organizations
- Compare results before/after



The Real Benefits of PMGs

- Minimize variation in practice
- Speed translation of research into practice
- Improve care, safety, and quality
- Reduce costs

Kuehn, JAMA 2011



ACS “Orange Book” - Chapter 16

Clinical Practice Guidelines, Protocols, and Algorithms

Trauma programs should seek to reduce unnecessary variation in the care they provide. To achieve this goal, a trauma program must use clinical practice guidelines, protocols, and algorithms derived from evidenced-based validated resources (CD 16–4). In areas where there is an absence of such resources, consensus-based institutional guidelines should be established according to the most current available peer-reviewed literature and clinical experience and acumen. Once implemented, trauma programs should track compliance with their clinical practice guidelines, protocols, and/or algorithms and ultimately monitor them for effects on outcome. Examples of such activities include the following:



NEW ACS “Gray” Book or 2022 Edition

5.1 Clinical Practice Guidelines—TYPE II

Definition and Requirements

All trauma centers must have evidence-based clinical practice guidelines, protocols, or algorithms that are reviewed at least every three years.

Additional Information

Clinical practice guidelines, protocols, or algorithms may be developed or revised in response to new evidence or opportunities for improvement.

Clinical practice guidelines provide an opportunity to standardize practice, which facilitates training, allows for auditing of practices, and tends to improve the quality of care.

Measures of Compliance

Clinical practice guidelines, protocols, or algorithms with date of last revision

Resources

Guidelines and best practices are available through the following (this is not an exhaustive list):

Eastern Association for the Surgery of Trauma: <https://www.east.org/education-career-development/practice-management-guidelines>

American College of Surgeons: <https://www.facs.org/quality-programs/trauma/tqip/center-programs/tqip/best-practice>

American Association for the Surgery of Trauma: <https://www.aast.org/resources/guidelines>

Western Trauma Association: <https://www.westerntrauma.org/western-trauma-association-algorithms/>



Opportunities

- Lead locally
- Review the website for current, published guidelines
- Determine need/interest to adopt
- Customize for local facility/system
- Help champion the process



How?

- Pick problems that exist
- Keep it simple
- Keep it broad
- Be honest – get rid of your own prejudice
- Evaluate it transparently



How?

- No need to “re-invent the wheel”
- Evidenced based
- Modify to meet your program needs
- Include metrics to demonstrate compliance
- PIPS program



Implementation

- Seek high level support
- Provide clear leadership and communication
- Create a multidisciplinary forum
- Do a gap analysis
- Involve those affected by the guidelines in the creation
- “Roll out” with clearly defined objectives and tasks
- Include metrics to measure compliance
- Hold accountable for practice



Keys to Success

- Multidisciplinary group of stakeholders
- Clear communication
- Develop formalized process – how to operationalize
 - Approval process – Committee(s)
 - Education plan – “toolkit”
 - Expectations and deliverables
 - “Rollout”
 - Access of information
 - Responsibility to update and timeframe
 - Integrate with EMR for orders/data capture when feasible
 - Monitor
 - Report the data



Barriers to Standardization

- Lack of consistent clinical performance data for benchmarking
- Inefficient or disjointed clinical processes
- Concern for threat to individual judgment and creativity
- But “we are different” here
- All treatment recommendations are not created equal
 - Some based on rigorous science, others are not
- No defined champion to lead the process
- Poor communication



From Paper (Website) to Practice

- Develop locally
 - Needs assessment
 - Review the evidence
 - Create the guideline
- Integrate into the PI process
- Identify items that are measurable - develop metrics
- Site visit – “Must be actionable”
- Don’t just copy and place in a “guideline manual”
- Dissemination of information - accessible



Guideline Dissemination

- Morning report aka check out rounds
- Journal club
- Meetings – M&M, PIPS/Peer
- Grand Rounds
- Education/Presentations
- Bedside teaching
- Just in time learning
- Make accessible – website, app



Is Your Guideline Working?

- Harness the power of data
 - Clinical informatics
 - Performance analytics team
- Are outcomes impacted?
- What is your PIPS telling you?
- Monitor and report
 - Review cases
 - Pick a guideline a month to report compliance
 - Create a dashboard
- Review regularly and update as needed





“Without data you’re just another person with an opinion.”
– *W. Edwards Deming*

“In God we trust.
All others must bring data.”
- *Dr. W. Edwards Deming*



Prevention of fall-related injuries in the elderly

An Eastern Association for the Surgery of Trauma practice management guideline

Crandall, Marie MD, MPH; Duncan, Thomas DO; Mallat, Ali MD; Greene, Wendy MD; Violano, Pina MSPH, RN-BC, CCRN, PhD; Christmas, A. Britton MD; Barraco, Robert MD



PICO 1: Should bone mineral–enhancing agents be used to prevent fall-related injuries in the elderly?

PICO 2: Should hip protectors be used to prevent fall-related injuries in the elderly?

PICO 3: Should exercise programs be used to prevent fall-related injuries in the elderly?

PICO 4: Should physical environment modifications be used to prevent fall-related injuries in the elderly?

PICO 5: Should risk factor screening be used to prevent fall-related injuries in the elderly?

PICO 6: Should multiple interventions tailored to the population or individual be used to prevent fall-related injuries in the elderly?



CONCLUSION

Given the data constraints, we offer the following suggestions and recommendations:

PICO 1: We conditionally recommend vitamin D and calcium supplementation for frail elderly individuals.

PICO 2: We conditionally recommend hip protectors for frail elderly individuals, in the appropriate environment.

PICO 3: We conditionally recommend evidence-based exercise programs for frail elderly individuals.

PICO 4: We conditionally recommend physical environment modification for frail elderly people.

PICO 5: We conditionally recommend frailty screening for the elderly.

PICO 6: We strongly recommend risk stratification with targeted comprehensive risk-reduction strategies tailored to particular high-risk groups.



Penetrating trauma & spine immobilization

Spine Immobilization in Penetrating Trauma: More Harm Than Good?

*Elliott R. Haut, MD, Brian T. Kalish, BA, EMT-B, David T. Efron, MD, Adil H. Haider, MD, MPH,
Kent A. Stevens, MD, MPH, Alicia N. Kieninger, MD, Edward E. Cornwell, III, MD,
and David C. Chang, MBA, MPH, PhD*



Stabilizing Spine May Be Waste of Time in Gun, Knife Victims

Doubled chance of death in those not brought directly to trauma center, study finds.

Los Angeles Times | HEALTH

Emergency spine immobilization may do more harm
than good, study says

THE BALTIMORE SUN | ARTICLE COLLECTIONS

You are here: Sun Home → Collections → Patients

Ads by Google



Find the experts you need to create an environment you'll love.

Benefit of immobilizing trauma victims questioned

Studies indicate delay in transport raises risk of dying

January 12, 2010 | By Meredith Cohn | meredith.cohn@baltisun.com



Shooting and stabbing victims immobilized to protect their likely to die because of the delay in transporting them to the researchers conclude in a new study that could trigger a re used by Maryland paramedics.

Immobilization is standard procedure for paramedics in M communities across the country, and the study could have Baltimore, where 218 people were fatally shot or stabbed.



Prehospital Spine Immobilization for Penetrating Trauma—Review and Recommendations From the Prehospital Trauma Life Support Executive Committee

*Lance E. Stuke, MD, MPH, Peter T. Pons, MD, Jeffrey S. Guy, MD, MSc, MMHC,
Will P. Chapleau, RN, EMT-P, Frank K. Butler, MD, Capt MC USN (Ret), and Norman E. McSwain, MD*

- There are no data to support routine spine immobilization in patients with penetrating trauma to the neck or torso.
- There are no data to support routine spine immobilization in patients with isolated penetrating trauma to the cranium.
- Spine immobilization should never be done at the expense of accurate physical examination or identification and correction of life-threatening conditions in patients with penetrating trauma.
- Spinal immobilization may be performed after penetrating injury when a focal neurologic deficit is noted on physical examination although there is little evidence of benefit even in these cases.



Prehospital spine immobilization/spinal motion restriction in penetrating trauma: A practice management guideline from the Eastern Association for the Surgery of Trauma (EAST)

Catherine G. Velopulos, MD, MHS, Hasan M. Shihab, MPH, Lawrence Lottenberg, MD, Marcie Feinman, MD, Ali Raja, MD, MBA, MPH, Jeffrey Salomone, and Elliott R. Haut, MD, PhD, Aurora, Colorado

- “We recommend that spine immobilization not be used routinely for adult patients with penetrating trauma.”

Velopulos, J Trauma 2018



Summary

- PMGs are important to develop and help advance quality care
- Driving the process from concept to bedside is possible
- Recognize the commitment necessary to develop
- Information to understand GRADE is available
- Collaboration exists between EAST and other organizations, including STN



Thank You

