WELCOME

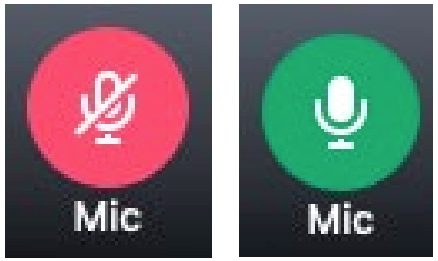
Please mute all microphones

M·TQIP

Meeting Logistics

- **Please sign the electronic confidentiality agreement to receive attendance points**

Meeting Logistics



- Join via computer and enter full name
- Mute all microphones
- Discussion opportunities at section ends
- Use chat to signal contribution
- You'll unmute your own microphone

GoToMeeting

Disclosures

Salary support for MTQIP from BCBSM/BCN and the State of Michigan

- **Anne Cain-Nielsen**
- **Mark Hemmila**
- **Jill Jakubus**
- **Judy Mikhail**
- **Sara Samborn**

No Photos Please

Welcome
Announcements
New Analytics
Research in Progress

Jill Jakubus, PA-C

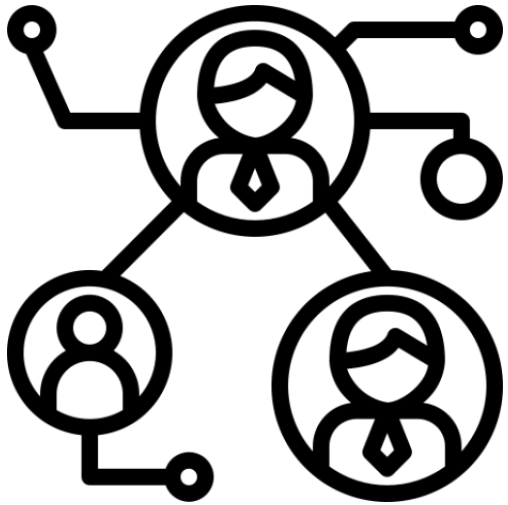
M·TQIP

Topics

- **Welcome**
  Announcements
  New analytics
  Research in Progress

New Members

- Lake Huron Medical Center
- McLaren Bay Region
- McLaren Greater Lansing
- MidMichigan Alpena
- Spectrum Health Blodgett
- War Memorial
- Jill Jean, State Trauma Registry Admin

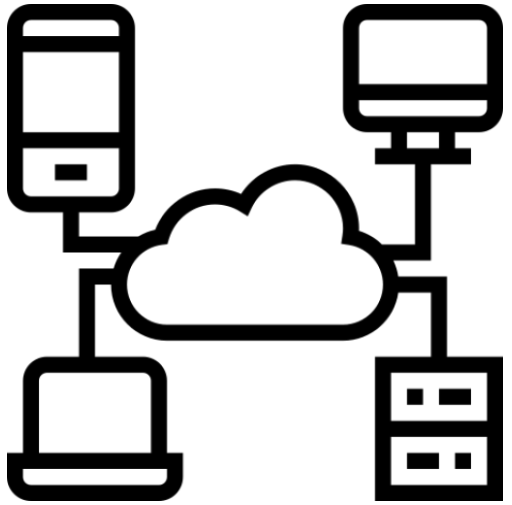


Topics

- ✓ Welcome
- • Announcements
  New analytics
  Research in Progress

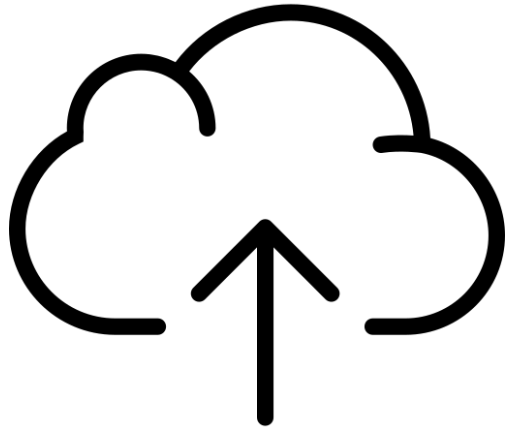
Data Submission

- **Due: June 5, 2020**
- **Minimum interval: 11/1/18 – 2/29/20**
- **First submission: 1/1/16**



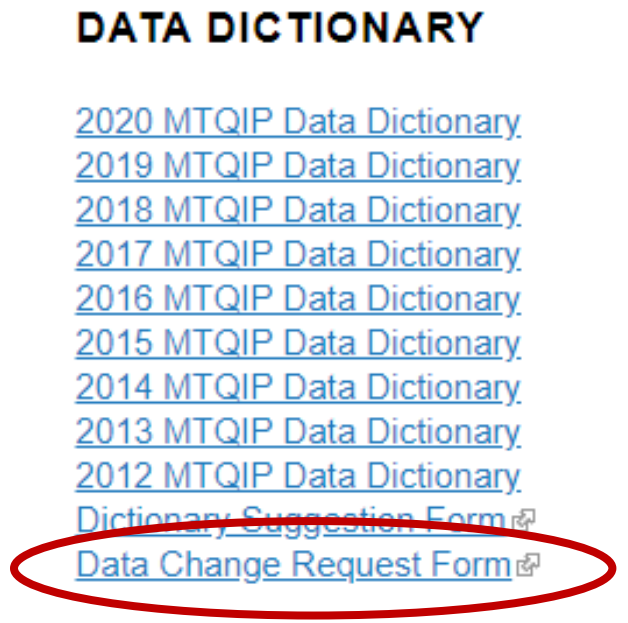
Performance Index Points

- **Review: online analytics, case lists, push reports**
- **Only able to provide credit for data received**
- **Final opportunity Dec submission**

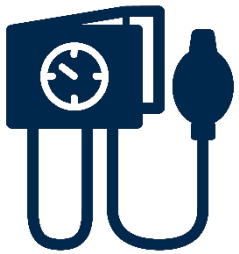
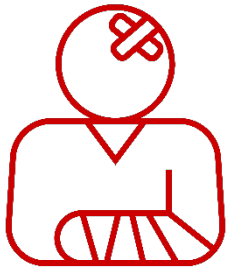
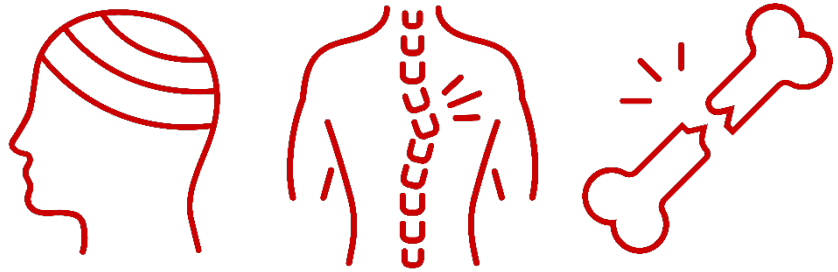


New Data Correction Tool

- **One-to-many variables only**
- **Resources > Dictionary > Data Change Form**
- **User feedback**

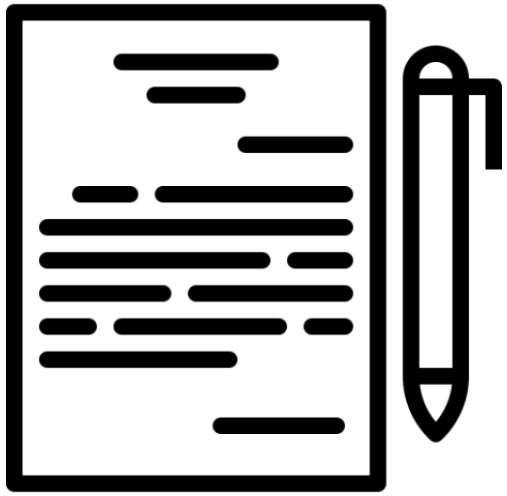


Data Correction

Data Type	Example	Action
One-to-One	 1 Patient  1 Initial ED/Hospital SBP	1. Correct registry data 2. Resubmit data
One-to-Many	 1 Patient  Many diagnoses	1. Correct registry data 2. Resubmit data 3. Fill out correction form

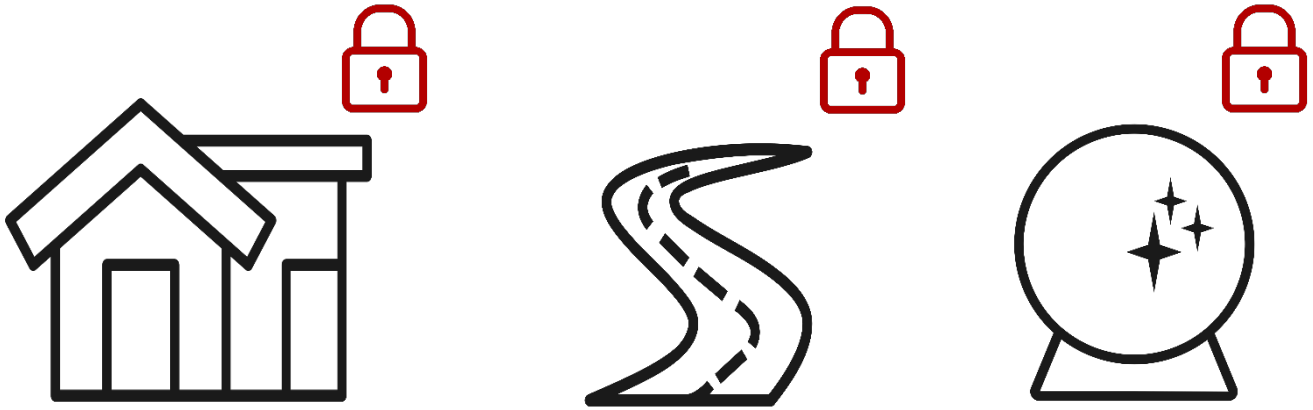
AIS 2015

- Vendors registry integration (projected Q4)
- Licensing fees (pending)
- Education (on-going)
- MTQIP requests uniform timing of adoption by the collaborative
- ACS-TQIP mapping to AIS 05/08



Remote Validation Migration

- **All centers transitioned to remote validation to earn 2020 points forward**
- **All centers sign same agreement (RAA)**



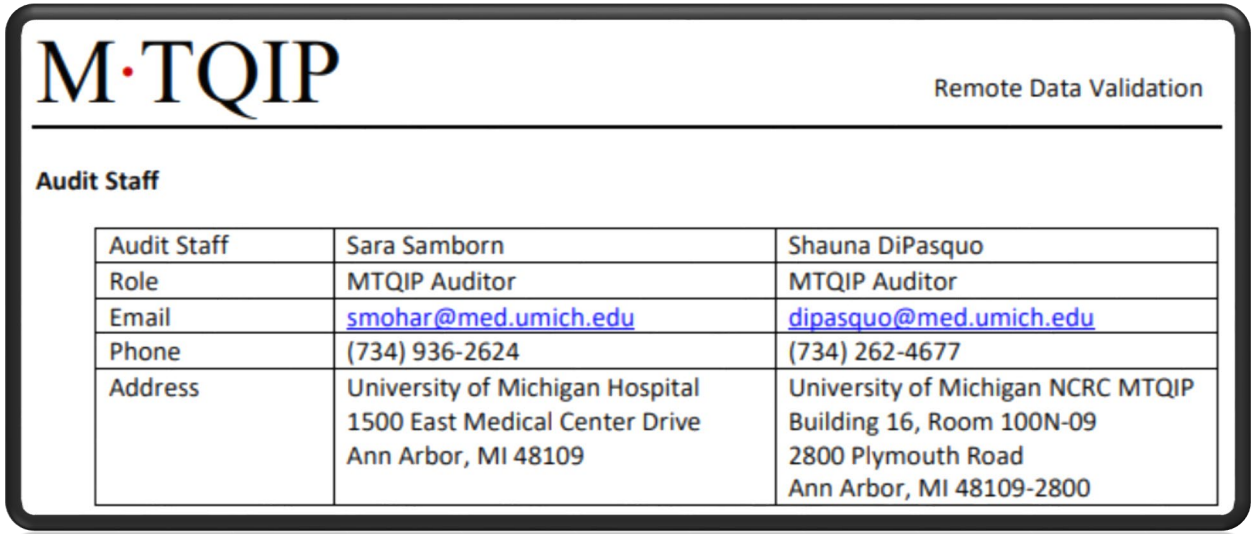
3/20/20 Stay at Home Order

Current Travel Limits

Future Uncertainty

Remote Validation Transition

- **Growth focus**
- **Sara Samborn, RN – MTQIP Auditor**
- **Confirmation email**



M·TQIP

Remote Data Validation

Audit Staff

Audit Staff	Sara Samborn	Shauna DiPasquo
Role	MTQIP Auditor	MTQIP Auditor
Email	smohar@med.umich.edu	dipasquo@med.umich.edu
Phone	(734) 936-2624	(734) 262-4677
Address	University of Michigan Hospital 1500 East Medical Center Drive Ann Arbor, MI 48109	University of Michigan NCRC MTQIP Building 16, Room 100N-09 2800 Plymouth Road Ann Arbor, MI 48109-2800

Remote Validation PHI Variables

- **Cases with PHI present**
- **No re-upload of case list needed**

State of Michigan Collaboration

- **All - Region report summer 2020**
- **Level 3 - Center report summer 2020**
- **Level 3 - Data validation (n=7)**

BCBSM Evaluation Feedback

BCBSM Evaluation Feedback

- Long report intervals
- MCR definition involvement
- Update training
- More education meetings
- Collection non-use elements

Solutions

Long report intervals	Statistical power, AMX
MCR definition involvement	Steering group, online
Update training	Updated videos coming
More education meetings	Poll later in meeting
Collection non-use elements	Let us know, growth period

Topics

- ✓ Welcome
- ✓ Announcements
- • New analytics
  Research in Progress

ArborMetrix IHF Time to Operation

- Currently in testing environment
- Projected July
- Non-operative cases are excluded
- Email reports

FILTERS

HOSPITALS

Select All

APPLY

COHORT

Cohort 1 (All)

DEAD

No Filter

NO SIGNS OF LIFE

Exclude DOAs

AIS / ISS

ALL

AGE

ALL

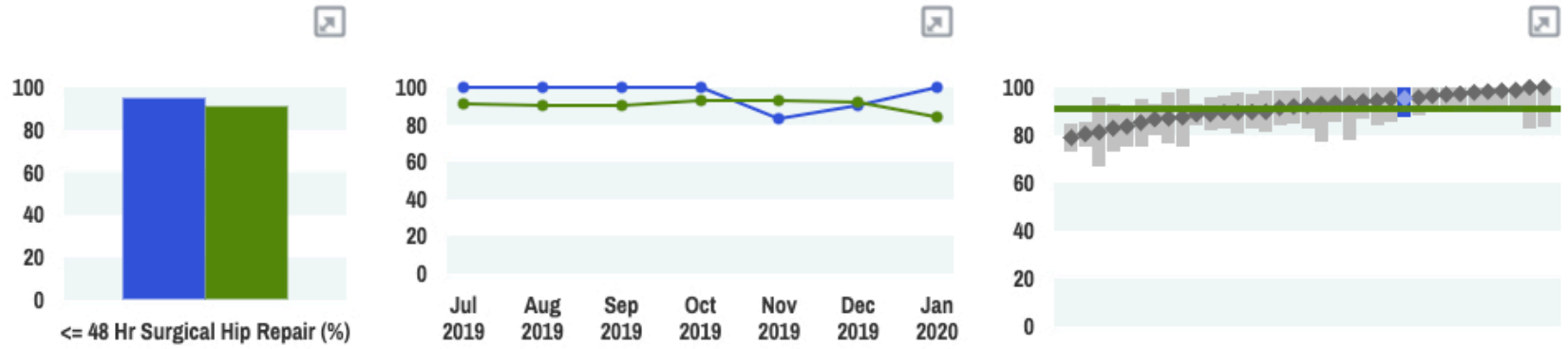
TRANSFERS IN

Exclude Transfers In

TRANSFERS OUT

Include Transfers Out

LEGEND MTQIP - All 95% Confidence Interval



Isolated Hip Fracture Surgical Repair Timing	Cases Numerator	Cases Denominator	University Of Michigan Health System - Unadj	MTQIP - All - Unadj	P Value (Unadj)
Negative/Missing Date or Time					
Mean Time to Surgical Hip Repair (Hrs)					
Median Time to Surgical Hip Repair (Hrs)					
<= 12 Hr Surgical Hip Repair (%)					
<= 24 Hr Surgical Hip Repair (%)					
<= 48 Hr Surgical Hip Repair (%)					
> 48 Hr Surgical Hip Repair (%)					

ArborMetrix New Variables

- **PHI variables**
- **Projected July/Aug**
- **Facilitate drilling in with your EMR**

Topics

- ✓ Welcome
- ✓ Announcements
- ✓ New analytics
- • Research in Progress

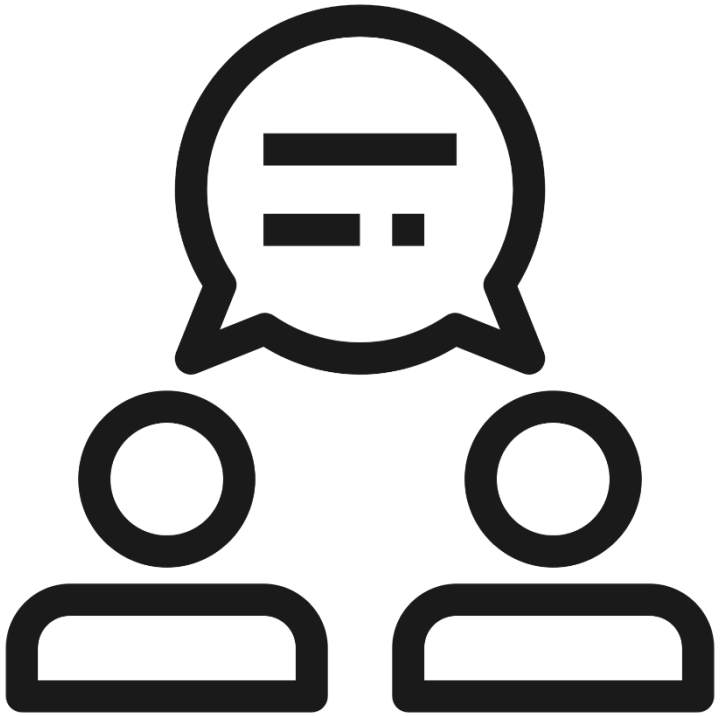
Research in Progress

Center	PI	Topic	Phase
Detroit Receiving	Oliphant	The accuracy of orthopaedic data in a trauma registry. Traumatic injury and associated costs.	Analysis
Henry Ford	Johnson	EMS vs. private car effect on outcomes	Analysis
Michigan Medicine	Hemmila	Pedestrian protection	Analysis
Michigan Medicine	Wang	Injury prevention in vunerable populations	Analysis
Michigan Medicine	Ward	Clinical decision support tools	Analysis
Providence Hospital, Spectrum Health, St. Joseph Mercy, Michigan Medicine	Iskander, Lopez, Jakubus, Wahl	Optimal timing head CT for geriatric falls	Analysis
Spectrum Health	Chapman	Outcomes in operative fixation of rib fractures	Analysis
St. Joseph Mercy Ann Arbor	Hoesel	Rib fractures in the elderly	Agreement execution
University of Minnesota	Tignanelli	Redefining the Trauma Triage Matrix: the Role of Emergent Interventions	Published *Journal of Surgical Research* 3/10/20

Topics

- ✓ Welcome
- ✓ Announcements
- ✓ New analytics
- ✓ Research in Progress

Discussion Opportunity



Reminder

- **Please sign the electronic confidentiality agreement to receive attendance points**

MTQIP Journey

Mark Hemmila, MD

Objectives

- Where we have been
- Where we are
- Where we are going

It is a marathon, not a sprint

- Small wins
- Long game

Background

- Prospective randomized clinical trials are very effective and important to assessing the effects of a **specific** treatment.
  - Exclusion criteria
  - Extrapolation to other populations or disease situations?
- Most of what is known about actual clinical care comes from observational studies.
  - Mechanical ventilator
  - Renal replacement therapy
  - Trauma (Damage control laparotomy, Intravascular shunts, PRBC to Plasma ratio)

Parachute use to prevent death and major trauma related to gravitational challenge: systematic review of randomised controlled trials

Gordon C S Smith, Jill P Pell

HULTON/GETTY

Parachutes reduce the risk of injury after gravitational challenge, but their effectiveness has not been proved with randomised controlled trials

Abstract

Objectives To determine whether parachutes are effective in preventing major trauma related to gravitational challenge.

Design Systematic review of randomised controlled trials.

Data sources: Medline, Web of Science, Embase, and the Cochrane Library databases; appropriate internet sites and citation lists.

Study selection: Studies showing the effects of using a parachute during free fall.

Main outcome measure Death or major trauma, defined as an injury severity score >15.

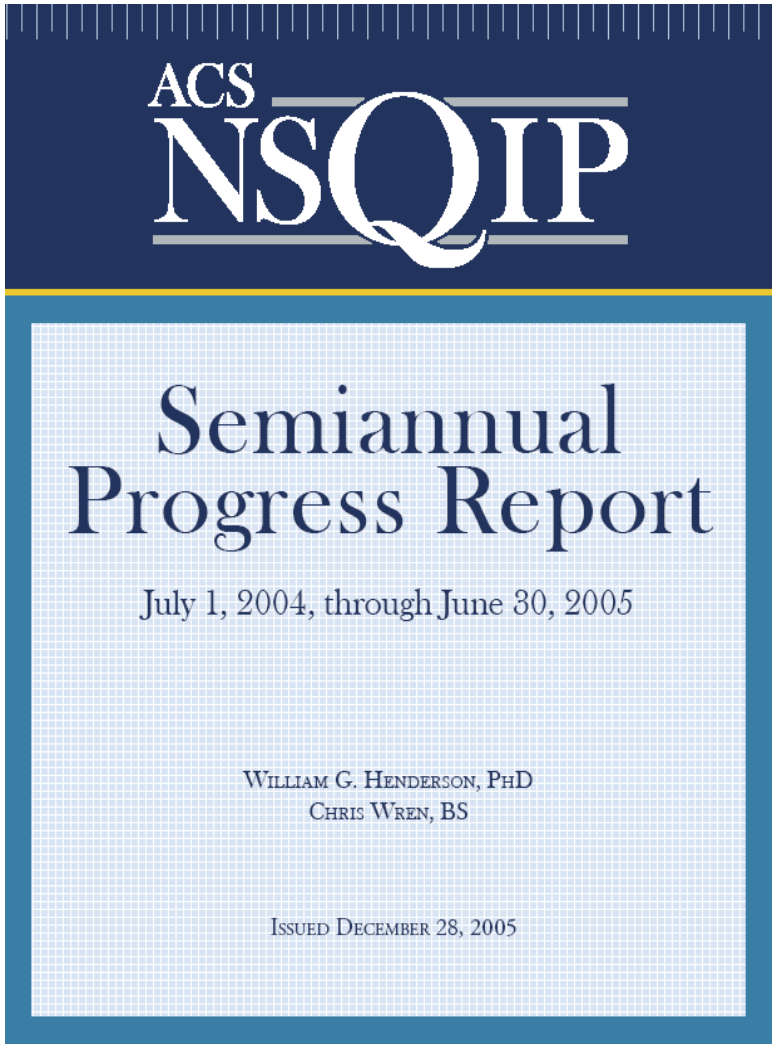
Results We were unable to identify any randomised controlled trials of parachute intervention.

Conclusions As with many interventions intended to prevent ill health, the effectiveness of parachutes has not been subjected to rigorous evaluation by using randomised controlled trials. Advocates of evidence based medicine have criticised the adoption of interventions evaluated by using only observational data. We think that everyone might benefit if the most radical protagonists of evidence based medicine organised and participated in a double blind, randomised, placebo controlled, crossover trial of the parachute.

Variability

- Look for it
  - Must be real
  - Sign of differences in care
- Use it
  - Stimulus for quality improvement
  - Identify contributing variables
  - Best practices
  - Interventions
  - Answer the important questions

- University of Michigan Surgery Grand Rounds
- 1st Private Sector NSQIP report (Fall 2003)



The Story

2004	2007	2008	2011	2015
	Data opportunities	**Cost and quality opportunities**		**Cost and quality evidence**
Data quality pilot  	*Surgery*: NSQIP methodology as a means of tracking and reducing adverse outcomes	*Surgery*: Potential for cost reductions with improved quality of care MTQIP created as a pilot with 6 centers	MTQIP becomes a formal Blue Cross Blue Shield of Michigan Collaborative Quality Initiative	*J Trauma ACS*: Regional CQI improves outcomes and reduces cost

University of Michigan Health System

The Data

Outcomes	UM Trauma N=525		UM NSQIP General Surgery N=1,327			NTDB (2003) N=45,655		
	%	N	%	N	*p* -value	%	N	*p* -value
Deaths within 30 Days	8.2	43	1.5	20	<0.001	6.0	2731	0.03
Wound Occurrences								
Superficial Incisional SSI	1.9	10	4.5	60	0.01	0.4	194	<0.0001
Wound Disruption	0.6	3	0.8	10	0.9	0.08	37	0.0001
Respiratory Occurrences								
Pneumonia	14.1	74	1.6	21	<0.001	3.0	1383	<0.0001
Pulmonary Embolism	1.0	5	0.5	6	0.4	0.3	120	0.003
Empyema	0.6	3				0.09	40	0.004
Urinary Tract Occurrences								
Acute Renal Failure	1.0	5	0.4	5	0.2	0.4	187	0.05
Urinary Tract Infection	12.6	66	3.5	47	<0.001	1.2	559	<0.0001
Cardiac Occurrences								
Cardiac Arrest Requiring CPR	1.1	6	0.4	5	0.1	0.5	241	0.05
Myocardial Infarction	0.6	3	0.2	2	0.3	0.9	421	0.4
Other Surgical Occurrences								
Bleeding/Transfusions	5.0	26	0.2	2	<0.001			
DVT/Thrombophlebitis	6.5	34	0.8	11	<0.001	0.7	299	<0.0001
Sepsis	4.8	25	3.1	41	0.1	0.2	89	<0.0001
Extremity Compartment Syndrom	2.3	12				0.5	212	<0.001

The Story

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Detecting the blind spot: Complications in the trauma registry and trauma quality improvement

Mark R. Hemmila, MD,[a] Jill L. Jakubus, PA-C,[a] Wendy L. Wahl, MD,[a] Saman Arbabi, MD, MPH,[b] William G. Henderson, PhD,[d] Shukri F. Khuri, MD,[c] Paul A. Taheri, MD, MBA,[a] *and* Darrell A. Campbell, Jr., MD,[a] *Ann Arbor, Mich, Seattle, Wash, Boston, Mass, and Aurora, Col*

Background. *The National Surgical Quality Improvement Program (NSQIP) has reduced complications for surgery patients in the Department of Veterans Affairs Healthcare System. The American College of Surgeons Committee on Trauma maintains the National Trauma Data Bank (NTDB) to track injured patient comorbidities, complications, and mortality. We sought to apply the NSQIP methodology to collect comorbidity and outcome data for trauma patients. Data were compared to the NTDB to determine the benefit and validity of using the NSQIP methodology for trauma.*

Study Design. *Utilizing the NSQIP methodology, data were collected from August 1, 2004 to July 31, 2005 on all adult patients admitted to the trauma service at a level 1 trauma center. NSQIP data were collected for general surgery patients during the same time period from the same institution. Data were also extracted from v5.0 of the NTDB for patients ≥18 years old admitted to level 1 trauma centers. Comparisons between University of Michigan (UM) NSQIP Trauma and UM NSQIP General Surgery patients and between UM NSQIP Trauma and NTDB (2004) patients were performed using univariate and multivariate analysis.*

Results. *Before risk adjustment, there was a difference in mortality between the UM NSQIP Trauma and NTDB (2004) groups with univariate analysis (8.4% vs 5.7%; odds ratio [OR], 0.7; 95% confidence interval [CI] 0.5-0.9;* $P = .01$*). This survival advantage reversed to favor the UM NSQIP Trauma patient group when risk adjustment was performed (OR, 2.3; 95% CI, 1.6-3.4;* $P < .001$*). The UM NSQIP Trauma group had more complications than the UM NSQIP general surgery patients. Despite having a lower risk-adjusted rate of mortality, the UM NSQIP Trauma patients had significantly higher rates of complications (wound infection, wound disruption, pneumonia, urinary tract infection, deep vein thrombosis, and sepsis) than the NTDB (2004) patients in both univariate and multivariate analyses.*

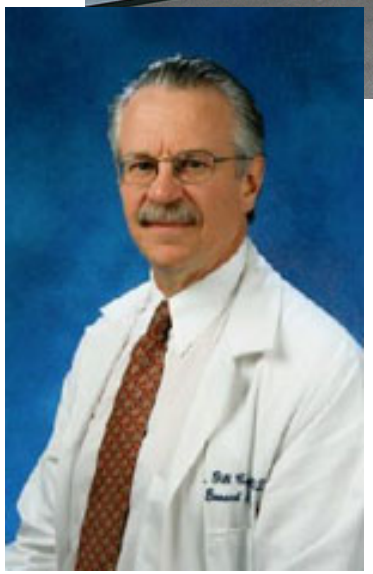
Conclusion. *Complications occurred more frequently in trauma patients than general surgery patients. The UM NSQIP Trauma patients had higher rates of complications than reported in the NTDB. The NTDB data potentially underreport important comorbidity and outcome data. Application of the NSQIP methodology to trauma may present an improved means of effectively tracking and reducing adverse outcomes in a risk-adjusted manner. (Surgery 2007;142:439-49.)*

- December 2005
  - ACS - COT
  - ACS - NSQIP
- O’Hare Hilton
- The Players
  - David Hoyt
  - Everyone else

- December 2005
  - ACS - COT
  - ACS - NSQIP
- The Players
  - David Hoyt
  - Everyone else
- Ouch!
- Every defeat is an opportunity
  - John Fildes

- COT Outcomes Committee
  - Michael Pasquale
  - March 2006
  - Avery Nathens, David Clark, Gil Cryer
- ACS-COT
  - John Fildes, Chair ACS Committee on Trauma
  - October 2006
  - Ad hoc Committee
  - TQIP

- Chair – Gil Cryer
- Members
  - Forrest Calland
  - David Clark
  - John Fildes
  - Sandra Goble
  - Mark Hemmila
  - Wayne Meredith
  - Avery Nathens
  - Melanie Neal
  - Michael Pasquale
  - Michelle Pomphrey
  - Shahid Shafi



ACS tqip TRAUMA QUALITY IMPROVEMENT PROGRAM

ACS TQIP Mandate

Design, test, and implement a quality improvement program for trauma that is:

- Validated
- Risk-adjusted
- Outcomes based

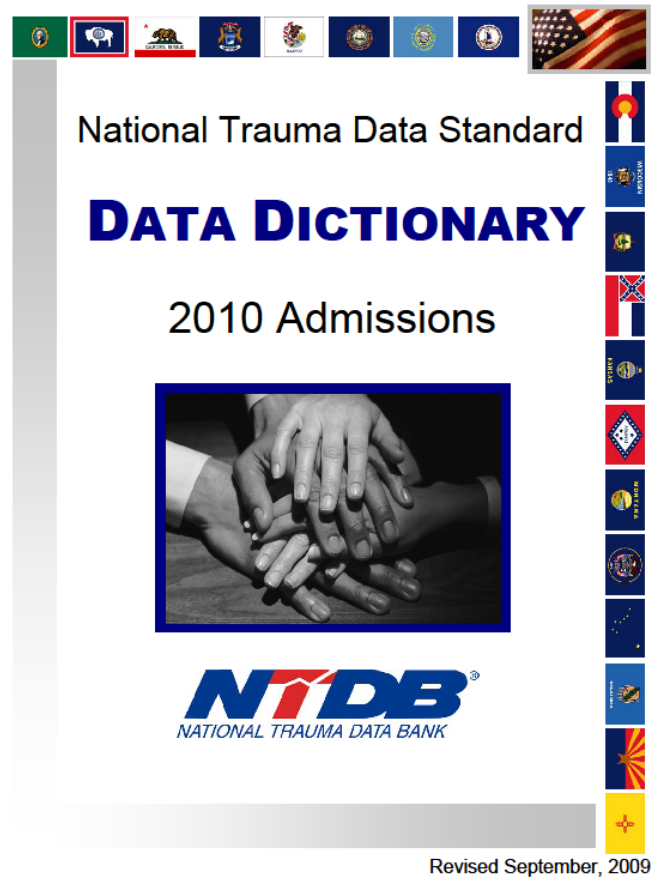
To measure and continually improve the quality of trauma care.

ACS TQIP Task Force Questions

- Have we already picked the low hanging fruit?
  - Is there variation in trauma center outcomes?
- Is the NSQIP methodology workable in trauma?
- Is the NTDB data accurate enough?
- What modifications may be required?
  - Data standardization
  - Training
  - Validation

ACS TQIP Framework

- Draw on existing mechanisms
  - Trauma registry infrastructure
  - NTDB
  - National Trauma Data Standard
- Trauma registrar training
- Pilot study of feasibility
  - 3 years (2007, 2008, 2009)
  - 1st year of data prior to registrar training



Participating Trauma Centers

Name	Level
Cedars-Sinai Medical Center, Los Angeles, California	I
Christiana Hospital, Newark, Delaware	I
Genesys Regional Medical Center, Grand Blanc, Michigan	II
John Muir Medical Center, Walnut Creek, California	II
Lahey Clinic, Burlington, Massachusetts	II
Lehigh Valley Hospital, Allentown, Pennsylvania	I
Maine Medical Center, Portland, Maine	I
Massachusetts General Hospital, Boston, Massachusetts	I
Oklahoma University Medical Center, Oklahoma City, Oklahoma	I
Parkland Health and Hospital System, Dallas, Texas	I
Regional Medical Center at Memphis, Memphis, Tennessee	I
Ronald Reagan UCLA Medical Center, Los Angeles, California	I

Participating Trauma Centers

Name	Level
Saint Mary's Health Care, Grand Rapids, Michigan	II
Sharp Memorial Hospital, San Diego, California	II
St. John Medical Center, Tulsa, Oklahoma	II
St. Michael's Hospital, Toronto, Ontario, Canada	I
St. Vincent Mercy Medical Center, Toledo, Ohio	I
Truman Medical Center, Kansas City, Missouri	I
University Medical Center, Las Vegas, Nevada	I
University of California, San Diego Medical Center, San Diego, California	I
University of Michigan, Ann Arbor, Michigan	I
University of Virginia, Charlottesville, Virginia	I
Wake Forest University Baptist Medical Center, Winston-Salem, North Carolina	I

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Real money: Complications and hospital costs in trauma patients

Mark R. Hemmila, MD,[a] Jill L. Jakubus, PA-C,[a] Paul M. Maggio, MD, MBA,[b] Wendy L. Wahl, MD,[a] Justin B. Dimick, MD, MPH,[a] Darrell A. Campbell Jr, MD,[a] *and* **Paul A. Taheri, MD, MBA,[c]** *Ann Arbor, Mich, Stanford, Calif, and Burlington, Vt*

Background. *Major postoperative complications are associated with a substantial increase in hospital costs. Trauma patients are known to have a higher rate of complications than the general surgery population. We used the National Surgical Quality Improvement Program (NSQIP) methodology to evaluate hospital costs, duration of stay, and payment associated with complications in trauma patients.*
Methods. *Using NSQIP principles, patient data were collected for 512 adult patients admitted to the trauma service for > 24 hours at a Level 1 trauma center (2004–2005). Patients were placed in 1 of 3 groups: no complications (none), ≥1 minor complication (minor, eg, urinary tract infection), or ≥1 major complication (major, eg, pneumonia). Total hospital charges, costs, payment, and duration of stay associated with each complication group were determined from a cost-accounting database. Multiple regression was used to determine the costs of each type of complication after adjusting for differences in age, sex, new injury severity score, Glasgow coma scale score, maximum head abbreviated injury scale, and first emergency department systolic blood pressure.*
Results. *A total of 330 (64%) patients had no complications, 53 (10%) had ≥ 1 minor complication, and 129 (25%) had ≥ 1 major complication. Median hospital charges increased from $33,833 (none) to $81,936 (minor) and $150,885 (major). The mean contribution to margin per day was similar for the no complication and minor complication groups ($994 vs $1,115, P = .7). Despite higher costs, the patients in the major complication group generated a higher mean contribution to margin per day compared to the no complication group ($2,168, P < .001). The attributable increase in median total hospital costs when adjusted for confounding variables was $19,915 for the minor complication group (P < .001), and $40,555 for the major complication group (P < .001).*
Conclusion. *Understanding the costs associated with traumatic injury provides a window for assessing the potential cost reductions associated with improved quality care. To optimize system benefits, payers and providers should develop integrated reimbursement methodologies that align incentives to provide quality care. (Surgery 2008;144:307-16.)*

Blue Cross Blue Shield of Michigan – Value Partnerships

- Cardiovascular Consortium (BMC^2)
- Michigan Surgical Quality Collaborative (MSQC)
- Michigan Bariatric Surgery Collaborative (MBSC)
- Michigan Society of Thoracic and Cardiovascular Surgeons (MSTCVS)
- Advanced Cardiac Imaging Consortium
- Michigan Breast Oncology Quality Initiative

Blue Cross Blue Shield Blue Care Network of Michigan

Simultaneous - MTQIP

- American Association for the Surgery of Trauma
  - 2006-2009
  - 6 trauma centers
- Blue Cross Blue Shield Foundation
  - 2008-2011
  - 12 trauma centers
- Blue Cross Blue Shield of Michigan
  - 2011-Present
  - Formalized program
  - 23 trauma centers
  - All in MTQIP and ACS TQIP

MTQIP Caveats

- There is no “perfect” model.
- We will strive to be credible and reliable.
- Collect only essential data.
- Feedback does not always correlate with performance.
  - Warning light.
  - Delve into data.

The Story

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Data quality pilot	*Surgery*: NSQIP methodology as a means of tracking and reducing adverse outcomes	*Surgery*: Potential for cost reductions with improved quality of care MTQIP created as a pilot with 6 centers	MTQIP becomes a formal Blue Cross Blue Shield of Michigan Collaborative Quality Initiative	*J Trauma ACS*: Regional CQI improves outcomes and reduces cost

The Trauma Quality Improvement Program: Pilot Study and Initial Demonstration of Feasibility

Mark R. Hemmila, MD, Avery B. Nathens, MD, PhD, Shahid Shafi, MD, MPH, J. Forrest Calland, MD, David E. Clark, MD, MPH, H. Gill Cryer, MD, PhD, Sandra Goble, MS, Christopher J. Hoeft, BS, J. Wayne Meredith, MD, Melanie L. Neal, MS, Michael D. Pasquale, MD, Michelle D. Pomphrey, RN, and John J. Fildes, MD

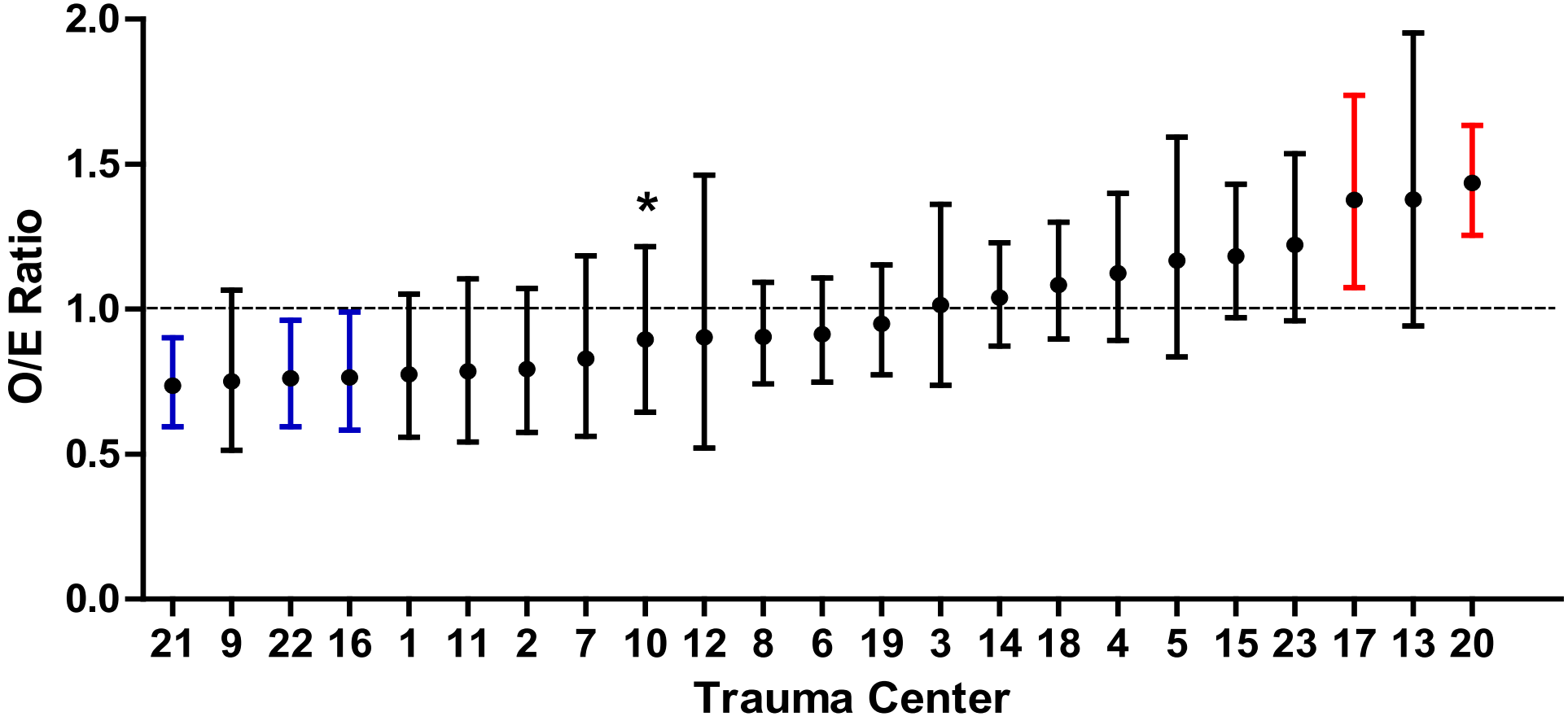
Objective: The American College of Surgeons Committee on Trauma has created a "Trauma Quality Improvement Program" (TQIP) that uses the existing infrastructure of Committee on Trauma programs. As the first step toward full implementation of TQIP, a pilot study was conducted in 23 American College of Surgeons verified or state designated Level I and II trauma centers. This study details the feasibility and acceptance of TQIP among the participating centers.

Methods: Data from the National Trauma Data Bank for patients admitted to pilot study hospitals during 2007 were used (15,801 patients). A multivariable logistic regression model was developed to estimate risk-adjusted mortality in aggregate and on three prespecified subgroups (1: blunt multisystem, 2: penetrating truncal, and 3: blunt single-system injury). Benchmark mortality after penetrating injury due to small sample size and in the limited capture of complications. Ninety-two percent of survey respondents found the report clear and understandable, and 90% thought that the report was useful. Sixty-three percent of respondents will be taking action based on the report.

Conclusions: Using the National Trauma Data Bank infrastructure to provide risk-adjusted benchmarking of trauma center mortality is feasible and perceived as useful. There are differences in O/E ratios across similarly verified or designated centers. Substantial work is required to allow for morbidity benchmarking.

Key Words: Trauma outcomes, NTDB, TQIP, Quality improvement.

(*J Trauma.* 2010;68: 253–262)


2.0
1.5
1.0
0.5
0.0
O/E Ratio
*
21 9 22 16 1 11 2 7 10 12 8 6 19 3 14 18 4 5 15 23 17 13 20
Trauma Center

Regional collaborative quality improvement for trauma reduces complications and costs

Mark R. Hemmila, MD, Anne H. Cain-Nielsen, MS, Wendy L. Wahl, MD, Wayne E. Vander Kolk, MD, Jill L. Jakubus, PA-C, Judy N. Mikhail, MSN, MBA, *and* **Nancy J. Birkmeyer, PhD,** *Ann Arbor, Michigan*

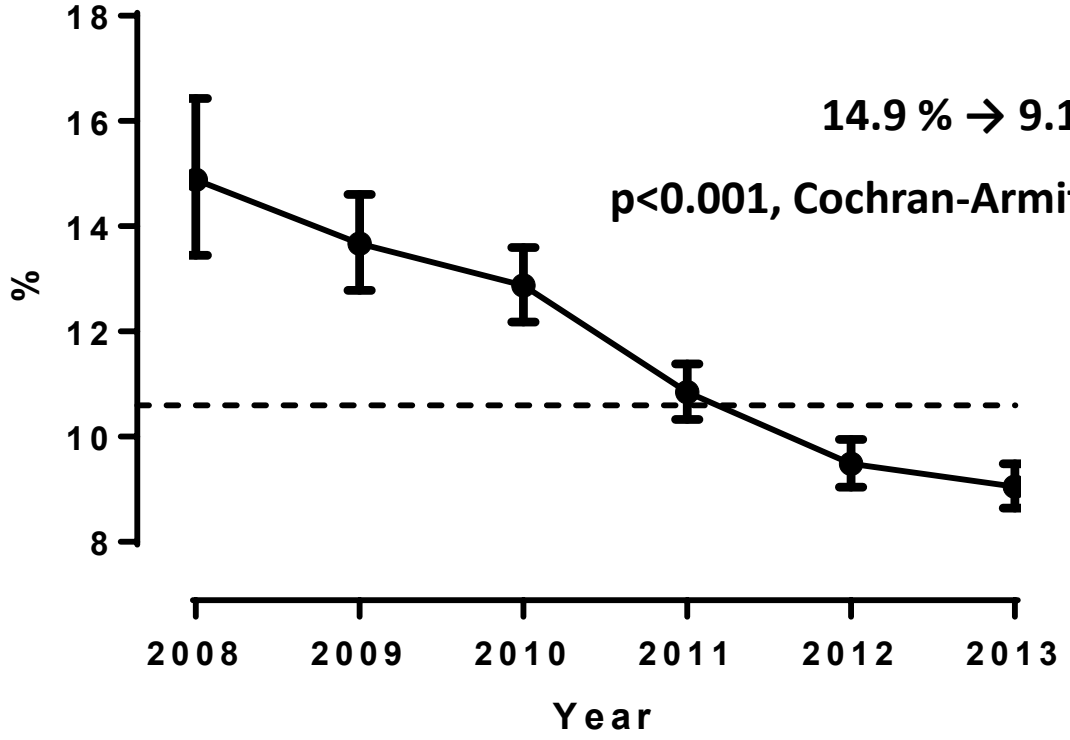
BACKGROUND: Although evidence suggests that quality improvement to reduce complications for trauma patients should decrease costs, studies have not addressed this question directly. In Michigan, trauma centers and a private payer have created a regional collaborative quality initiative (CQI). This CQI program began as a pilot in 2008 and expanded to a formal statewide program in 2010. We examined the relationship between outcomes and expenditures for trauma patients treated in collaborative participant and nonparticipant hospitals.

METHODS: Payer claims and collaborative registry data were analyzed for 30-day episode payments and serious complications in patients admitted with trauma diagnoses. Patients were categorized as treated in hospitals that had different CQI status: (1) never participated (Never-CQI); (2) collaborative participant, but patient treated before CQI initiation (Pre-CQI); or (3) active collaborative participant (Post-CQI). DRG International Classification of Diseases—9th Rev. codes were crosswalked to Abbreviated Injury Scale (AIS) 2005 codes. Episode payment data were risk adjusted (age, sex, comorbidities, type/severity of injury, and year of treatment), and price was standardized. Outcome data were risk adjusted. A serious complication consisted of one or more of the following occurrences: acute lung injury/adult respiratory distress syndrome, acute kidney injury, cardiac arrest with cardiopulmonary resuscitation, decubitus ulcer, deep vein thrombosis, enterocutaneous fistula, extremity compartment syndrome, mortality, myocardial infarction, pneumonia, pulmonary embolism, severe sepsis, stroke/cerebral vascular accident, unplanned intubation, or unplanned return to operating room.

RESULTS: The risk-adjusted rate of serious complications declined from 14.9% to 9.1% ($p < 0.001$) in participating hospitals (Post-CQI, n = 26). Average episode payments decreased by $2,720 (from $36,043 to $33,323, $p = 0.08$) among patients treated in Post-CQI centers, whereas patients treated at Never-CQI institutions had a significant year-to-year increase in payments (from $23,547 to $28,446, $p < 0.001$). A savings of $6.5 million in total episode payments from 2010 to 2011 was achieved for payer-covered Post-CQI treated patients.

CONCLUSION: This study confirms our hypothesis that participation in a regional CQI program improves outcomes and reduces costs for trauma patients. Support of a regional CQI for trauma represents an effective investment to achieve health care value. (*J Trauma Acute Care Surg*. 2015;78: 78–87.

Serious Complication Rate (Adjusted)

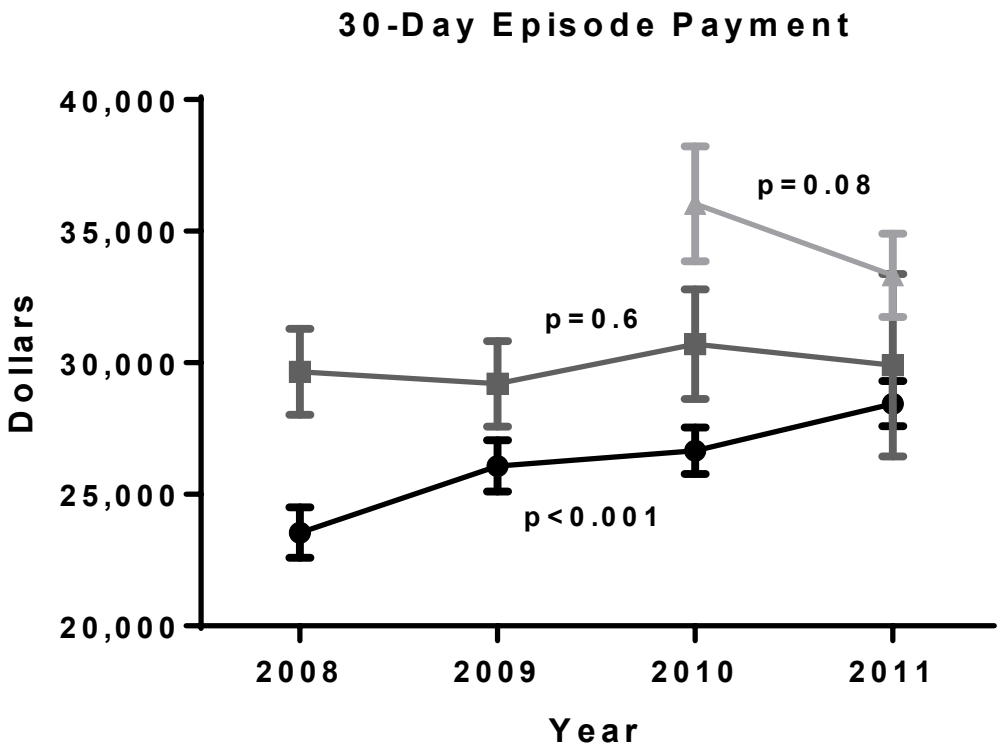


14.9 % → 9.1%

p<0.001, Cochran-Armitage Trend Test

Mortality 5.2 % → 4.2 %

p<0.001, Cochran-Armitage Trend Test



Cohort	2008	2009	2010	2011
Never CQI, N	6,639	6,226	7,567	8,241
Pre - CQI, N	2,247	2,280	1,381	526
Post - CQI, N	0	0	1,246	2,384
Total, N	8,886	8,506	10,194	11,151

Never - CQI

$23,500 → $28,400

+ $4,900

Post - CQI

$36,000 → $33,300

- $2,700

The Impact

2015	2015	2016	2017	2017
Decreased resource utilization	**Improved outcomes**	**Improved outcomes & decreased resource utilization**	**Identification of best practice**	**Identification of variability**
Ann Surg: Prophylactic IVC filter placement had no effect on mortality and increased DVT events	*J Am Coll Surg*: Collaborative structure allowed for center-identification and improvement of VTE events	*J Trauma ACS*: CQI participation improves outcomes, decreases resource use	*J Trauma ACS*: LMWH superior to UHF in reducing mortality and VTE events	*J Trauma ACS*: Level II trauma centers with increased hospital mortality and less likely to use angio or ICU admission in liver injury

The Impact

Results

JAMA Surg: Collaborative quality improvement program participation improves patient outcomes

Identification of variability

J Trauma ACS: Level I trauma centers decreased mortality - increased angio, ORIF, and ICU admission in partially stable and unstable pelvic fracture

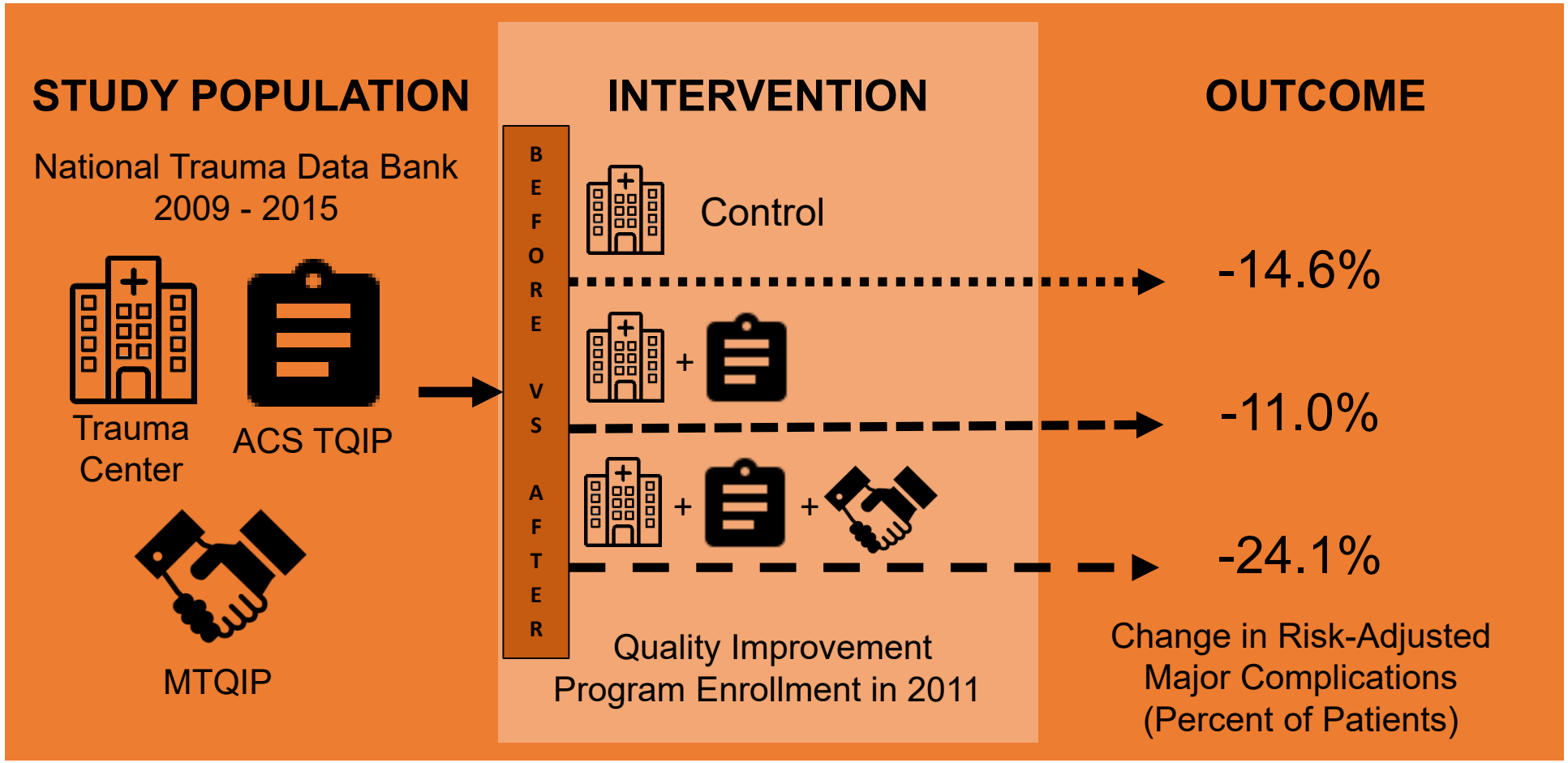
Identification of variability

Surgery: Association of mortality among trauma patients taking pre-injury direct oral anticoagulants vs. vitamin K antagonists

Identification of variability

J Trauma ACS: External data validation is an essential element of quality improvement benchmark reporting

Collaborative Quality Improvement Program Participation Improves Patient Outcomes



Hemmila et al. *JAMA Surg.* May 2018.

JAMA Surgery

You need access to the raw data

- Trouble shooting
- Insights
- Interesting
- Fun

- You will pull your hair out and waste everyone's time without it

Trust, but verify

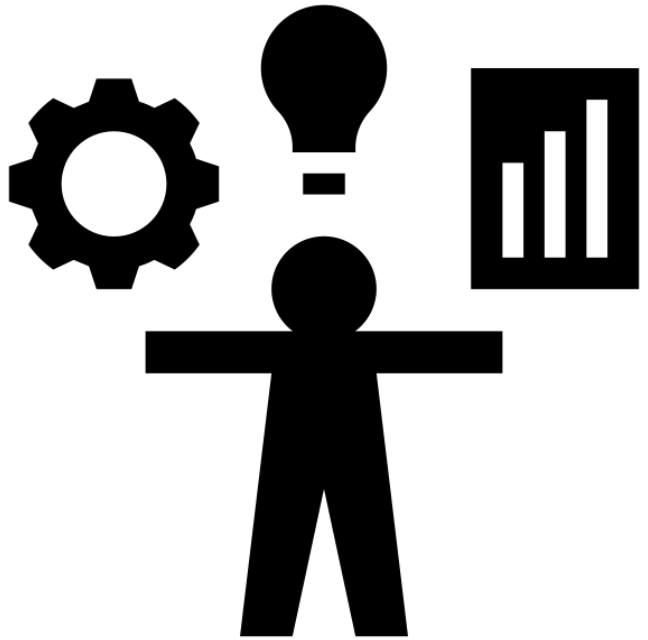
- Data validation
- Time consuming
- Painful
- Essential
  - Evens the playing field
  - Educates data abstractors
  - Transparent
  - Credibility

People are giving up their time, return the value

- Convenience
- Be cordial
- Give participants something to take home

Choosing projects

- Impact, impact, impact
- Anticipate data needs
- 80/20 sweet spot
- Failure is okay
- Need information on what you do
- Relate information to what others do
- Talk to peers



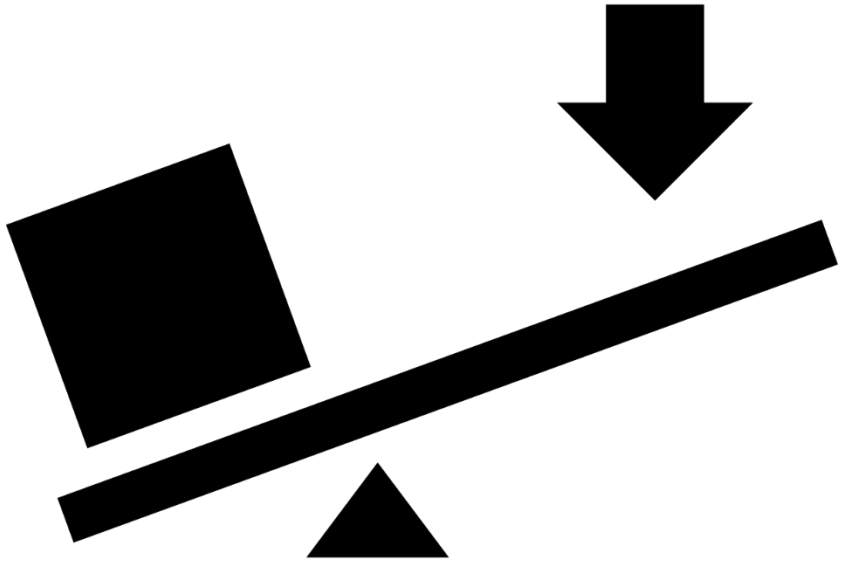
Measure and record what you do, Not what you wish you had done

- Meaningful
- Real
- When in doubt record and study what actually happens

- VAP

Psychological levers

- Motivate
- Try not to discourage
- Type A’s
- Unblinding
- Report cards



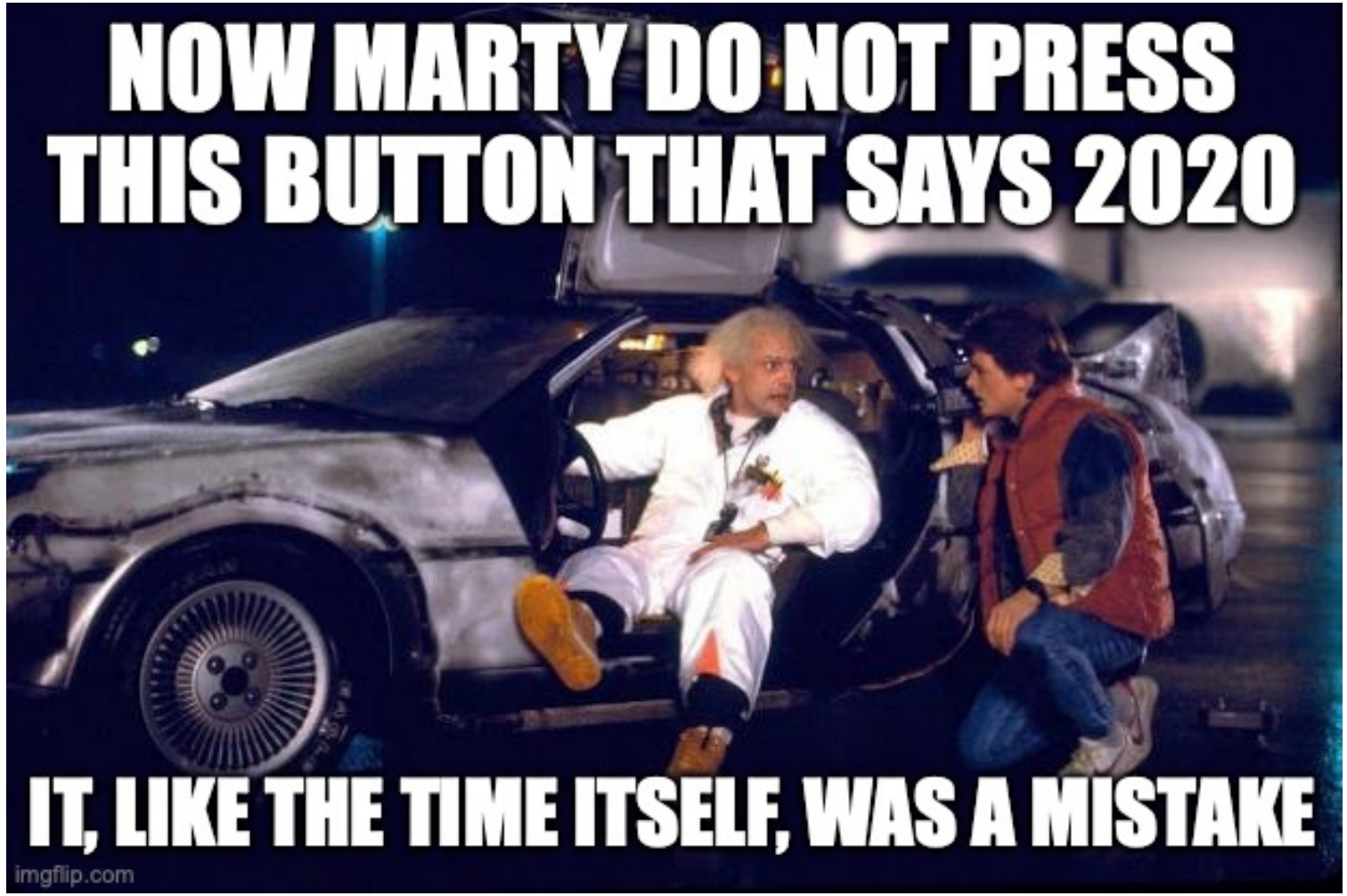
Competition is good

Share willingly and borrow shamelessly

- Why not?
- We all own quality
- It is for ….. Patients

None of us were trained to do this, but we can all learn how

The Future


NOW MARTY DO NOT PRESS
THIS BUTTON THAT SAYS 2020
IT, LIKE THE TIME ITSELF, WAS A MISTAKE
imgflip.com

MTQIP - Participants

- 2018, 250 Surgeons
- 2012 Survey, 153 Surgeons
- Trauma and EGS call
  - 18/23 centers 100% combined
  - 4 centers 25-75% combined
  - 1 center not combined
- Critical Care
  - 58 Surgeons boarded in critical care
  - Likely increased since then

Acute Care Surgery – Economic Footprint

The Economic Footprint of Acute Care Surgery in the United States

Implications for Systems Development

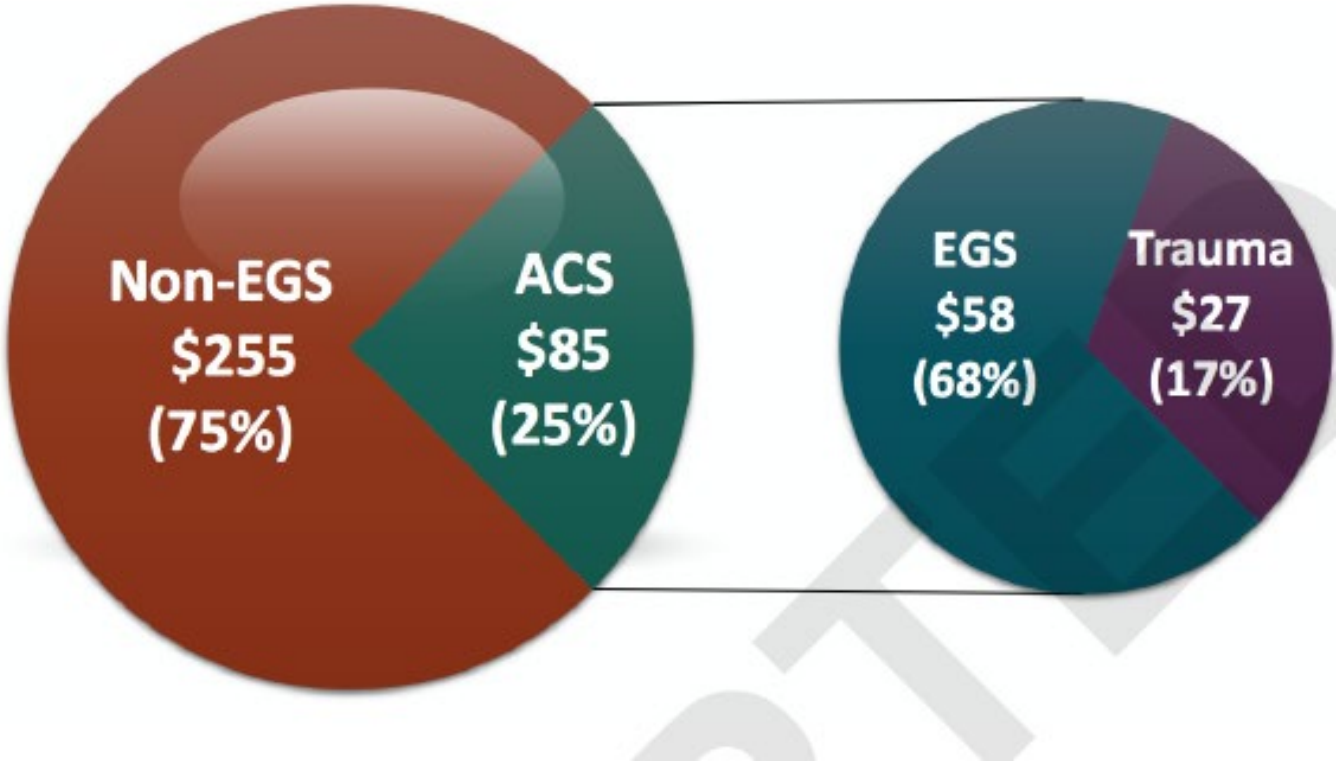
Knowlton, Lisa Marie, M.D., M.P.H.[1]; Minei, Joseph, M.D., M.B.A[2]; Tennakoon, Lakshika, M.D.[1]; Davis, Kimberly A., M.D., M.B.A.[3]; Doucet, Jay, M.D.[4]; Bernard, Andrew, M.D.[5]; Haider, Adil, M.D., M.P.H.[6]; Tres Scherer, L.R. III, M.D., M.B.A.[7]; Spain, David A., M.D.[1]; Staudenmayer, Kristan L., M.D., M.S.[1]

Journal of Trauma and Acute Care Surgery: December 26, 2018 - Volume Publish Ahead of Print - Issue - p
doi: 10.1097/TA.0000000000002181
AAST 2018 Podium: PDF Only

Acute Care Surgery – Economic Footprint

- National Inpatient Sample
- ICD-9
  - Trauma
  - 16 Emergent General Surgery Conditions
- 29 million patients
  - 20% ACS diagnosis
  - 25% of US inpatient costs
  - $86 Billion
- Inpatient operative procedure
  - 27% have an ACS diagnosis

Acute Care Surgery – Economic Footprint



Takeaway

- Prevalence - high
- Expense - high
- Problems - many

- Small iterative savings/improvements have potential for large impact overall

MACS - Michigan Acute Care Surgery

- 2019
  - 7/1/2019
  - 4 Hospitals
- 2020
  - Approval for 2 additional hospitals
  - All Qualtrics data entry
  - Acute Care Surgery Model
- Support
  - Abstractor

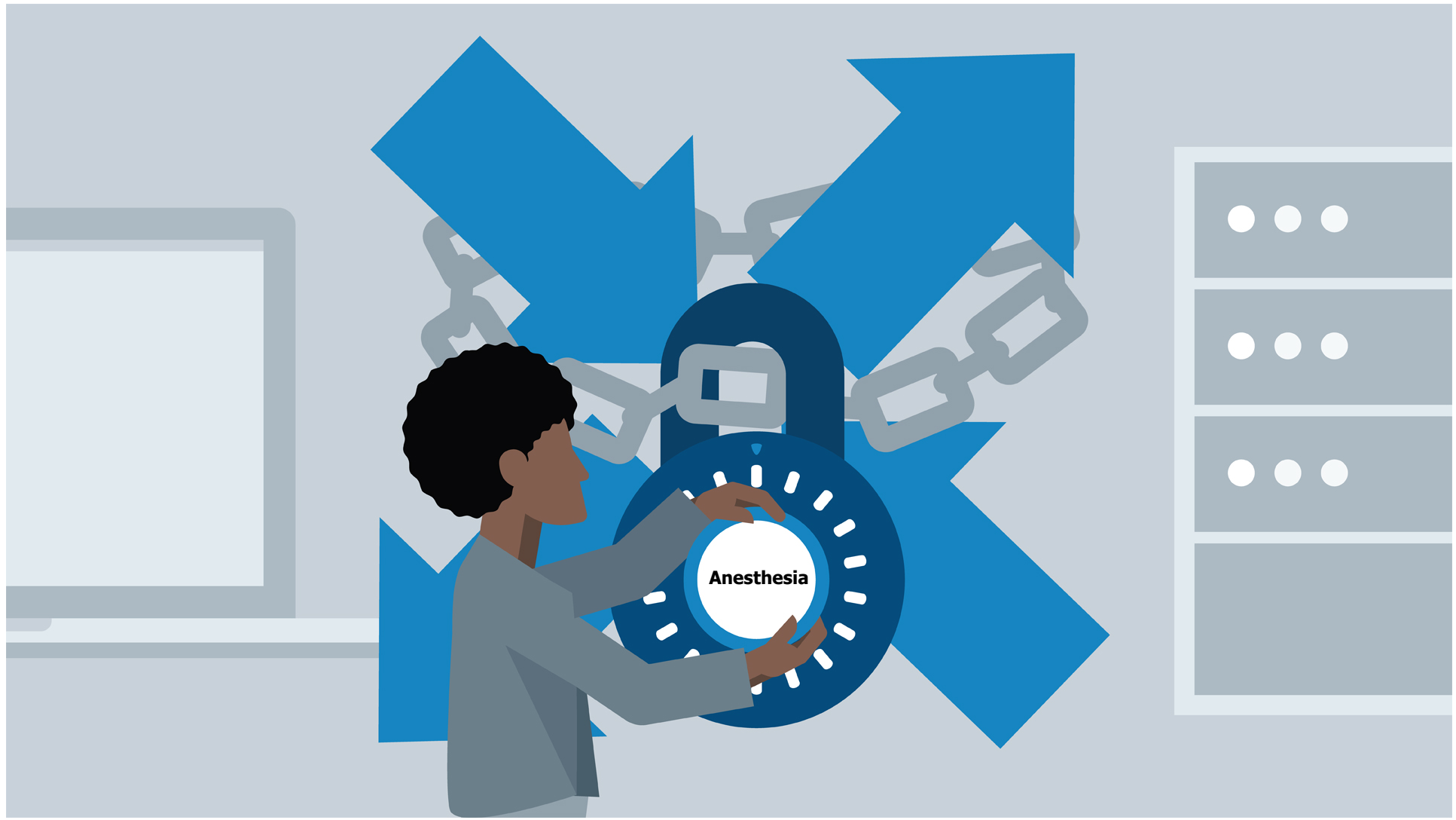
Projects

- MACS
  - Funded
  - 6 Hospitals
  - 2 Meetings
- Sharing Data Across CQI's
  - ASPIRE
  - MSQC
  - MVC
- Patient Reported Outcomes
  - M-Open
  - Phone surveys
  - Web App
- Collaboration
  - Orthopedics
  - Neurosurgery
  - Minnesota, Ohio

Sharing of CQI Data Project (ASPIRE)

Greater Returns, Less Burden

Capture Missing Variables



Guidelines – ACS Geriatric Hip Fractures

ACS TQIP BEST PRACTICES IN THE MANAGEMENT OF ORTHOPAEDIC TRAUMA

- Peri-operative regional anesthesia reduces pain and might reduce delirium and cardiac events in the postoperative period (pg. 21).

AAOS Recommendations
Geriatric Hip Fractures

PREOPERATIVE REGIONAL ANALGESIA

Strong evidence supports regional analgesia to improve preoperative pain control in patients with hip fracture.

Strength of Recommendation: Strong

RATIONALE

Six high strength studies (Fletcher et al [10], Foss et al [11], Haddad et al [12], Monzon et al [13], Mouzopoulos et al [14], and Yun et al [15]) and one moderate strength study (Matot, 2003 [16])

Peri-Operative Care

ACS

- The best evidence currently available suggestions similar clinical outcomes for patients undergoing general or spinal anesthesia for hip fracture surgery. As a results one modality is not recommended over the other and patient-specific factors and preferences should be considered. It may be beneficial for individual hospitals to standardize the approach to anesthesia for geriatric hip fractures in order to streamline care (pg. 23).

AAOS

- The work group recognizes that anesthetic techniques described in several of these articles which were published decades ago may have changed when compared with modern methods. In addition, there was significant heterogeneity in the patient populations studied, including multiple studies in which patients were not randomized.

Solution

MTQIP & ASPIRE Centers

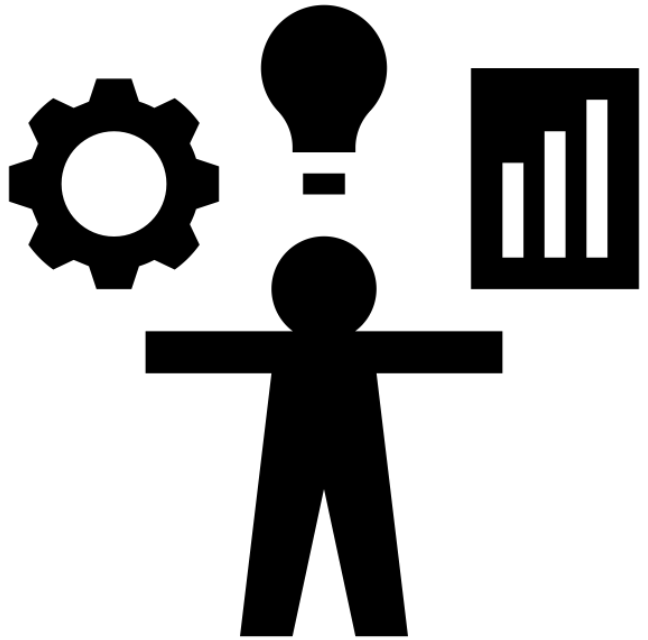
1. Beaumont Health System – Dearborn
2. Beaumont Health System – Farmington Hills
3. Beaumont Health System – Royal Oak
4. Beaumont Health System – Trenton
5. Beaumont Health System – Troy
6. Bronson Healthcare – Kalamazoo
7. Henry Ford Health System – Detroit
8. Mercy Muskegon
9. Michigan Medicine
10. St. Joseph Mercy – Ann Arbor
11. St. Joseph Mercy – Oakland
12. St. Mary Mercy – Livonia
13. Sparrow Hospital

Status

- Isolated Hip Fracture
- Matching
  - Age
  - Gender
  - Procedure
  - Institution
  - Date of Service
  - Date of Admission/Discharge
- 2017-2019
    - 6,301 patients
    - 6,101 potential patients with a match (97%)

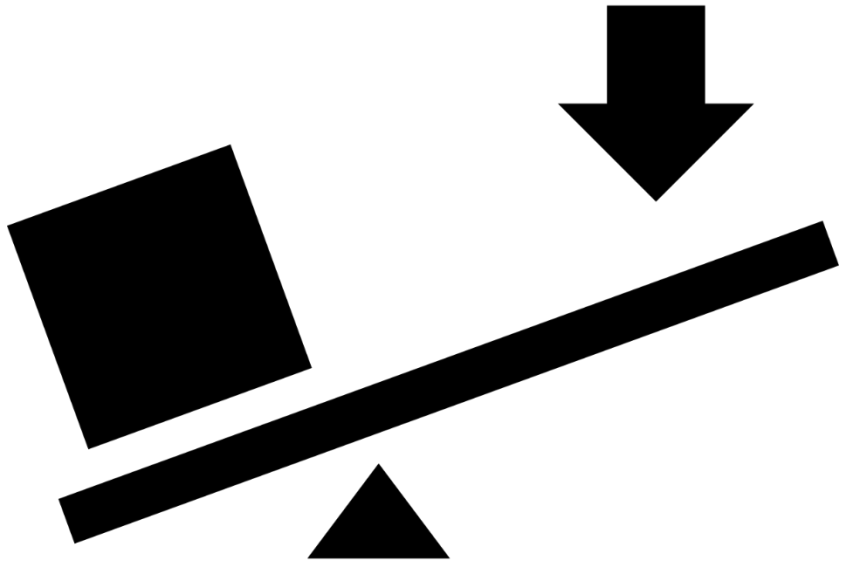
Future

- Impact, impact, impact
- Anticipate data needs
- 80/20 sweet spot
- Share across CQI’s
  - Data
  - Projects
- Broaden beyond inpatient

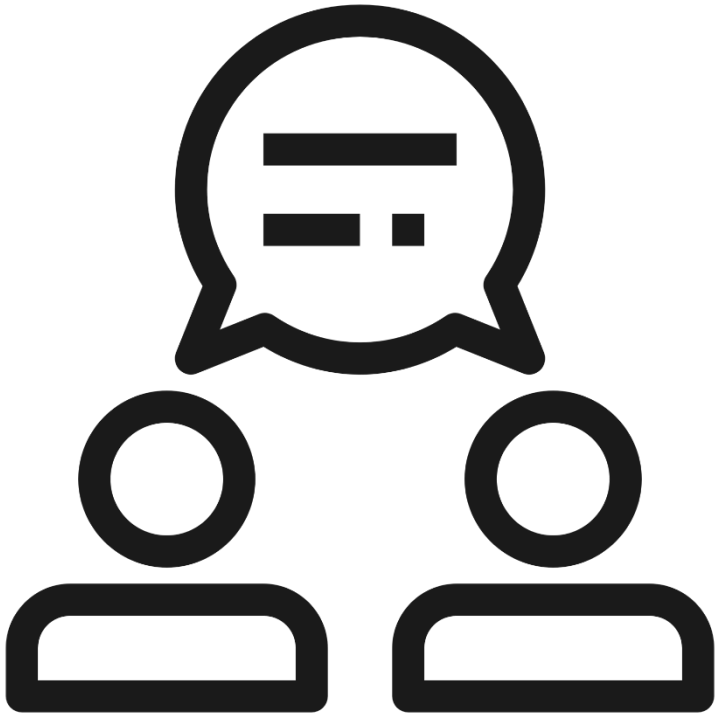


Summarize

- Emergent General Surgery
  - 4 centers
  - Select conditions (4-5)
  - Operative and non-op
- PROM’s
  - Pilot
  - Expand
- Share data
- ICU Data



Discussion Opportunity



Reminder

- **Please sign the electronic confidentiality agreement to receive attendance points**

Data Fest

Jill Jakubus, PA-C

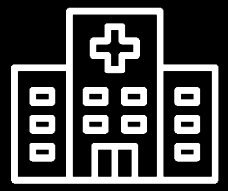
Topics

- **Data Validation Results**
  Challenging Questions
  2021 Updates & Poll

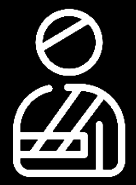
PULL BACK THE CURTAIN: EXTERNAL DATA VALIDATION IS AN ESSENTIAL ELEMENT OF QUALITY IMPROVEMENT BENCHMARK REPORTING

Jill L. Jakubus, PA-C

Impact of external data validation on data validity and reliability for benchmarking variables



29 Centers
166 Center Visits



1,243 Cases
127,238 Variables

↑ Data Accuracy

↑ Data Reliability

6.2% Error Rate: Visit 1

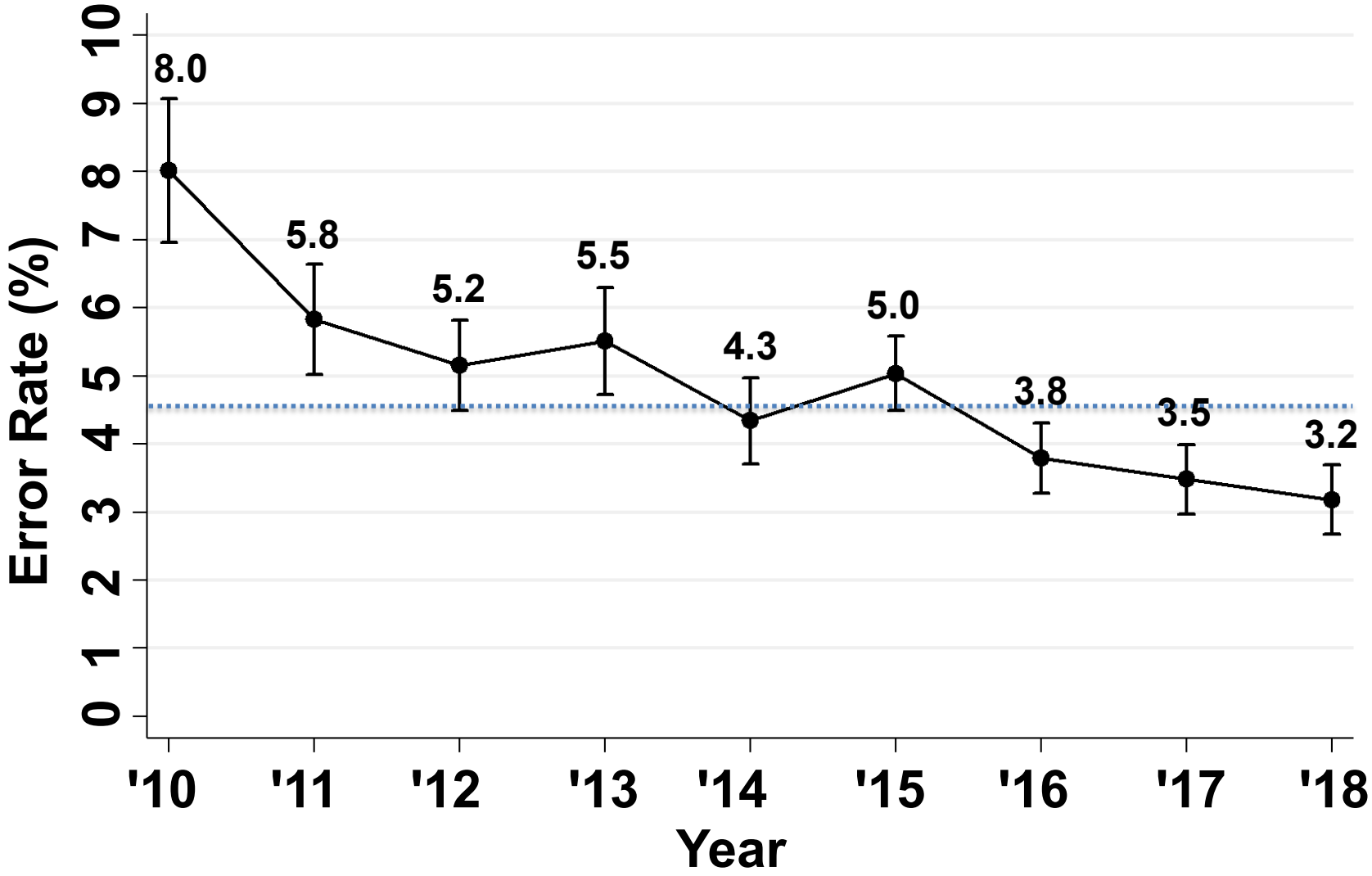
↓ Error Rate : Visits 2-8

90% Kappa > 0.61
Comorbids (n=20)

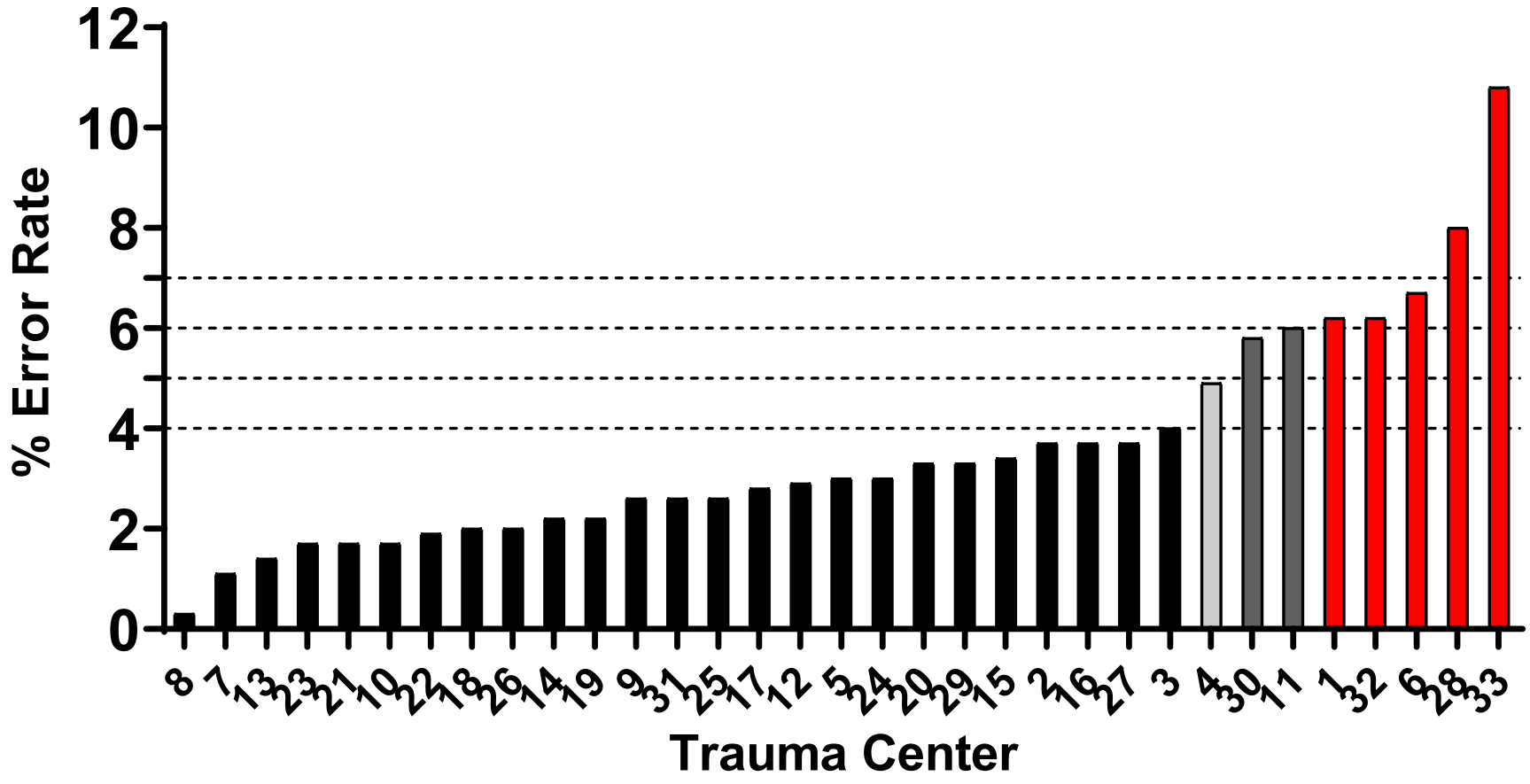
39% Error rate ↓
Comorbids (n=18)

Data Validation Error Rate by Year

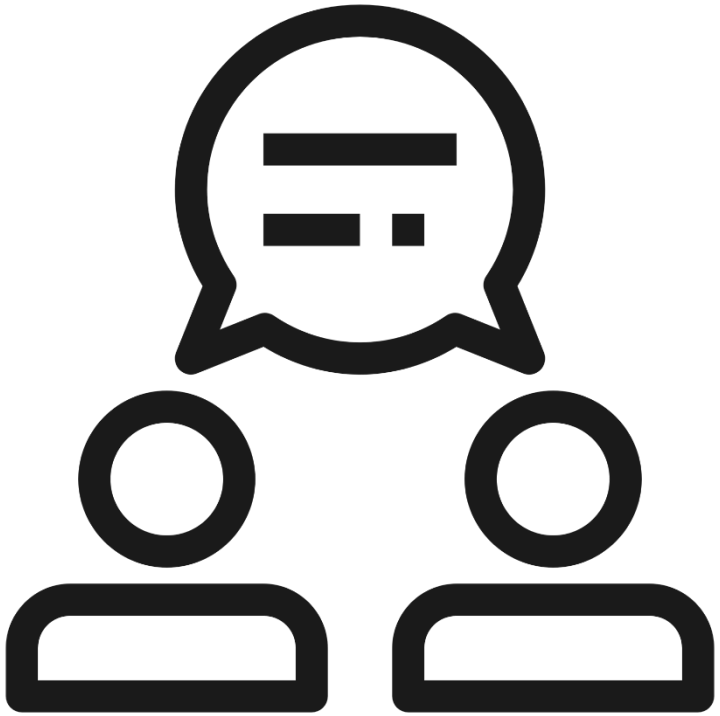
Linear Adjusted Prediction (95% CI)



Metric #3 - Data Validation Accuracy
Last Processed Report



Discussion Opportunity

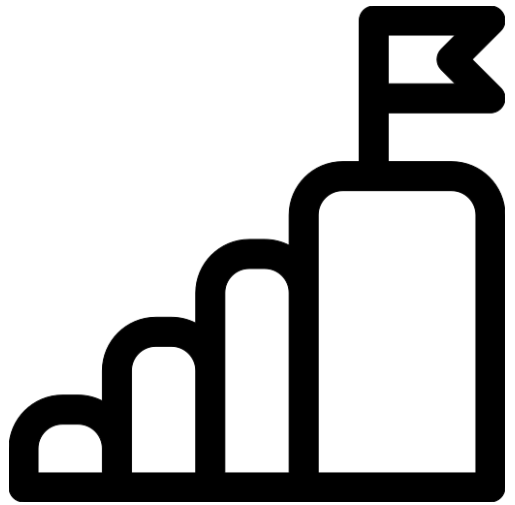


Topics

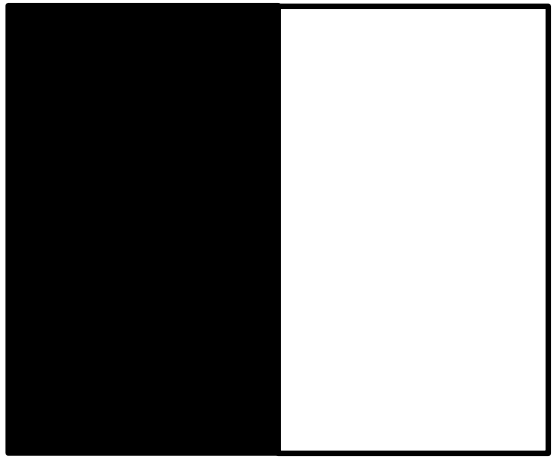
- ✓ **Data Validation Results**
- • **Challenging Questions**
  2021 Updates & Poll

Instructions

- Show questions submitted to MTQIP
- Definition
- Your response via poll
- Provided response
- Commentary



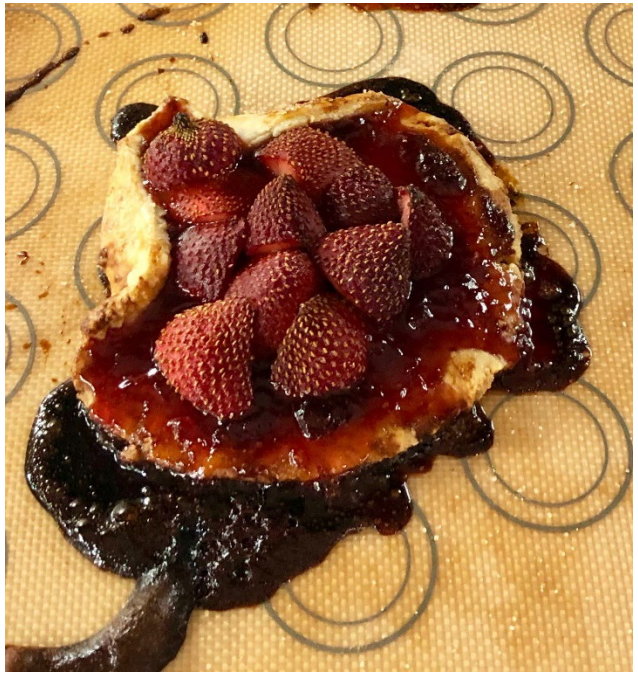
Challenges



Alignment & Perspective

Build for Success

Goal

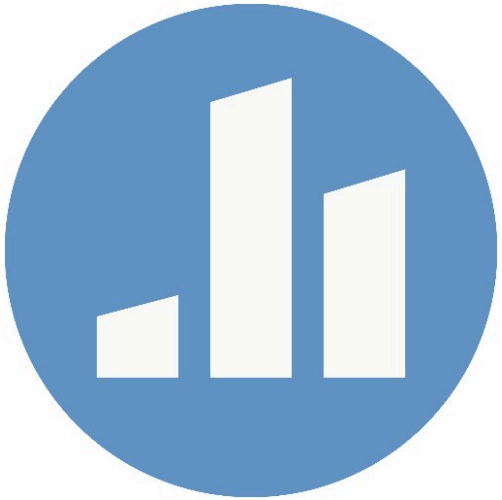


Reality

Resolve

Test Poll

- **Browser**
  - **PollEv.com/mtqip910**
  - **Enter your full name**
- **App**
  - **Enter username mtqip910**
  - **Enter your full name**
- **Text**
  - **Text MTQIP910 to 22333**



Poll Everywhere

Question 1

For the variable ADD/ADHD, what should be reported? Patient is on Adderall prior to arrival, but there is no documentation of ADHD.

- **Yes**
- **No**

Definition

ATTENTION DEFICIT DISORDER/ATTENTION DEFICIT HYPERACTIVITY DISORDER (ADD/ADHD)
A disorder involving inattention, hyperactivity, or impulsivity requiring medication for treatment, present prior to ED/Hospital arrival.

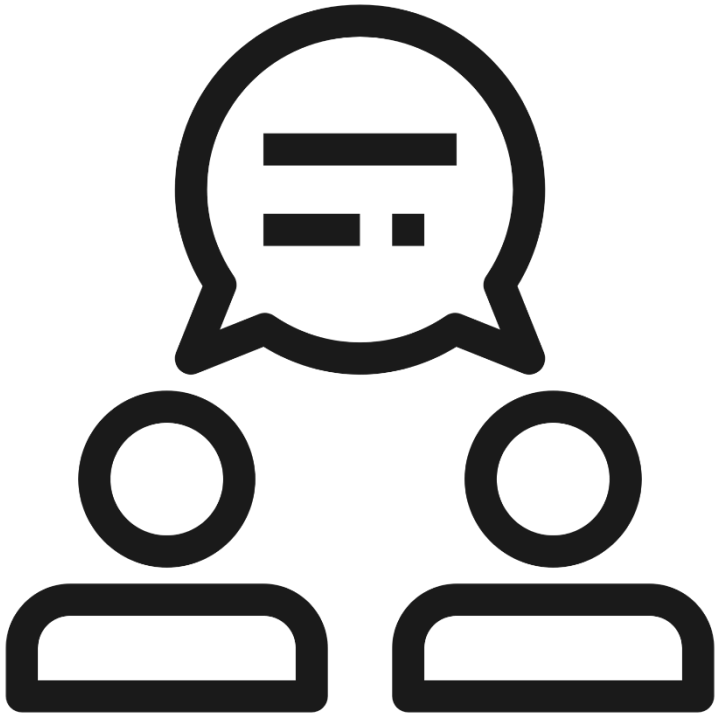
Attention deficit disorder/attention deficit hyperactivity disorder (NTDS 30)
Def. Source NTDS

MTQIP Response

Answer: No

Response: The EMR needs to document a medication use for inattention, hyperactivity, or impulsivity since this medication can also be used for narcolepsy.

Discussion Opportunity



Question 2

For the variable DVT, should this event be reported? Patient had no s/sx present on arrival. DVT scan demonstrated acute DVT – R popliteal and posterior tibial veins. No treatment administered or contraindication documented because patient arrested.

- **Yes**
- **No**

Definition

DEEP VEIN THROMBOSIS (DVT)
The formation, development, or existence of a blood clot or thrombus within the vascular system, which may be coupled with inflammation. This diagnosis may be confirmed by venogram, ultrasound, or CT scan.

INCLUDE:

- Patients with DVT treated with anticoagulation therapy and/or placement of a vena cava filter or clipping of the vena cava.
- Patients with DVT where the attending physician documents therapeutic anticoagulation contraindication due to bleeding risk.
- Patients with gastrocnemius or soleus vein thromboses if the patient receives treatment or contraindication is documented.
- Patients with non-extremity deep vein thromboses such as portal or internal jugular vein if the patient receives treatment or contraindication is documented.

EXCLUDE:

- Thrombosis of superficial veins of the upper or lower extremities, such as the cephalic or greater saphenous vein.
- Patients with no documented contraindication who only receive aspirin for treatment.

Def. Source: NSQIP, NTDS
Deep Vein Thrombosis (NTDS 14)

MTQIP Response

Answer: No

Response: The event does not meet reporting criteria. No DVT treatment provided or contraindication documented.

Question 3

For the variable DVT, should this event be reported? Patient had no s/sx present on arrival. Later on day of arrival, patient reported R calf pain w/o swelling or Homan's. DVT scan demonstrated acute DVT – R CFV. Treatment with heparin was administered.

- **Yes**
- **No**

Definition

GENERAL

Any medical complication that occurred during the patient's stay at your hospital.

- The patient's stay begins on arrival to the emergency department.
- Do not include reported complications that are present prior to arrival. For example, a patient arrives with a urinary tract infection as indicated by symptoms present in documentation obtained on arrival and a culture obtained on arrival.
- Do not report contaminants that did not require treatment for infectious events. For example, a patient has a BAL or blood culture that demonstrates contaminant and therapy is not provided. If a provider documents a contaminant, but treatment is provided the event is reported.
- The null value "Not Applicable" should be used for patients with no complications.
- Check all that apply.

Definition

DEEP VEIN THROMBOSIS (DVT)
The formation, development, or existence of a blood clot or thrombus within the vascular system, which may be coupled with inflammation. This diagnosis may be confirmed by venogram, ultrasound, or CT scan.

INCLUDE:

- Patients with DVT treated with anticoagulation therapy and/or placement of a vena cava filter or clipping of the vena cava.
- Patients with DVT where the attending physician documents therapeutic anticoagulation contraindication due to bleeding risk.
- Patients with gastrocnemius or soleus vein thromboses if the patient receives treatment or contraindication is documented.
- Patients with non-extremity deep vein thromboses such as portal or internal jugular vein if the patient receives treatment or contraindication is documented.

EXCLUDE:

- Thrombosis of superficial veins of the upper or lower extremities, such as the cephalic or greater saphenous vein.
- Patients with no documented contraindication who only receive aspirin for treatment.

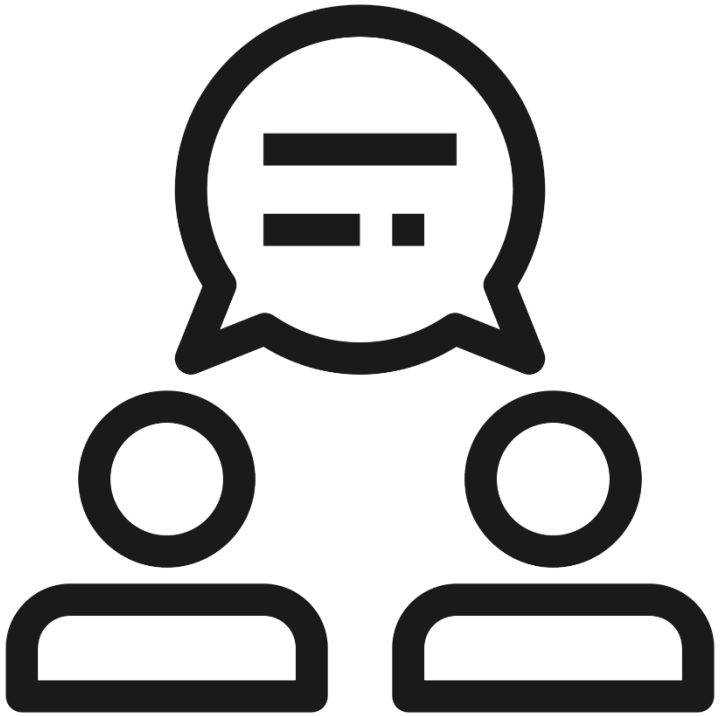
Def. Source: NSQIP, NTDS
Deep Vein Thrombosis (NTDS 14)

MTQIP Response

Answer: Yes

Response: The event meets reporting criteria. No documentation of s/sx present on arrival. Acute DVT during stay requiring treatment.

Discussion Opportunity



Question 4

For the variable Injury Incident Date, what should be reported? Provider documentation states "approximately 2 weeks ago" upon arrival.

- **Calculate 2 weeks from date of arrival**
- **Not Known/Not Recorded**

Definition

INJURY INCIDENT DATE
The date the injury occurred.

- Collected as YYYY-MM-DD.
- Estimates of date of injury should be based upon report by patient, witness, family, or health care provider.
- Other proxy measures (e.g., 911 call times) should not be reported.

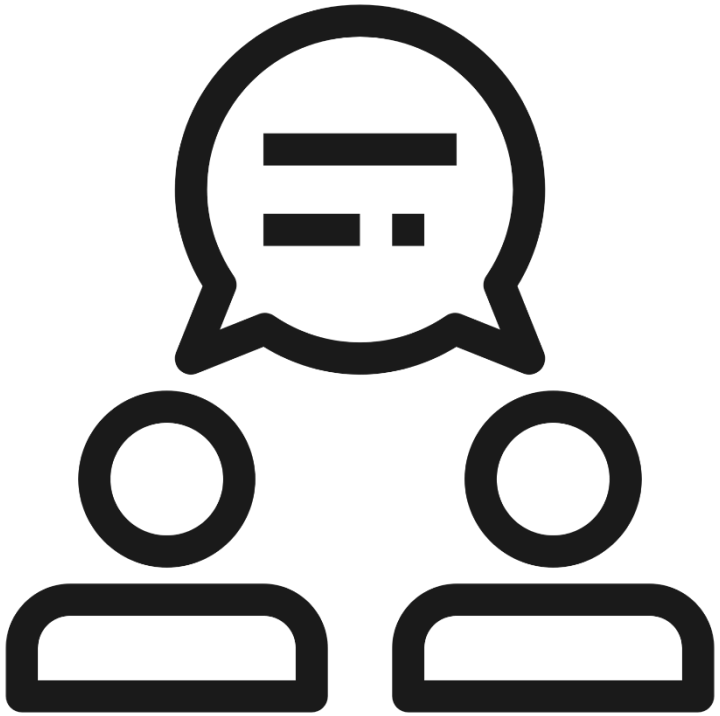
Def. Source: NTDS
Data Base Column Name: INJ_DT
Type of Element: Date (MM/DD/YYYY Format)
Length: 8
Report: #1

TQIP Response

Answer: Calculate 2 weeks from date of arrival

Response: Since the providers documented the date of injury as "approximately 2 weeks ago", you may use that documentation to report the Injury Incident Date from two weeks before the patient arrived at your center.

Discussion Opportunity



Question 5

For the variable ICD-10 Hospital Procedures, what should be reported? If a patient is transferred in/arriving with own outside films can we report the re-read by our Radiologist as our procedure? The bullet in the definition states "performed", but is that limited to the actual scan or does it apply to the read of the scan?

- **Yes**
- **No**

Definition

ICD-10 HOSPITAL PROCEDURES

Operative and selected non-operative procedures conducted during hospital stay. Operative and selected non-operative procedures are those that were essential to the diagnosis, stabilization, or treatment of the patient's specific injuries or complications. The list of procedures below should be used as a guide to desired non-operative procedures that should be provided to NTDB.

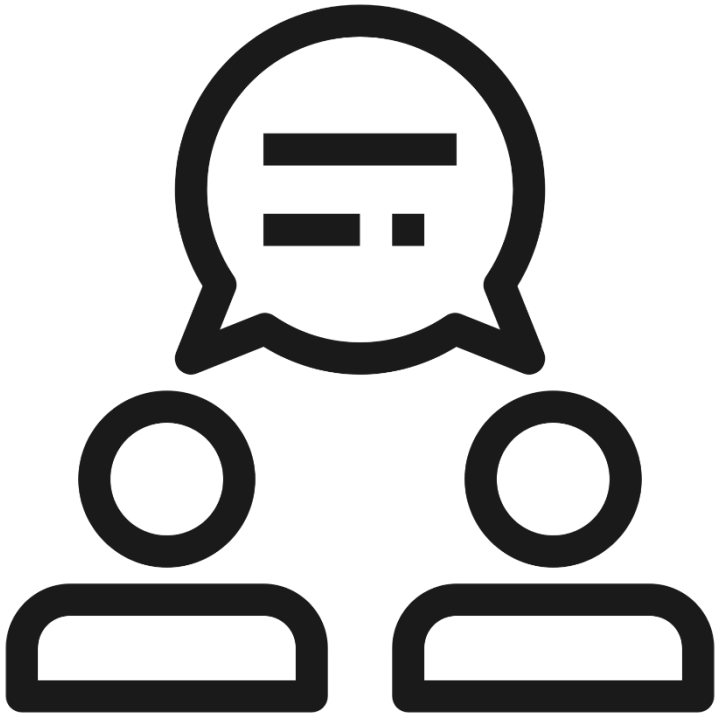
- Major and minor procedure ICD-10 PCS procedure codes.
- The maximum number of procedures that may be reported for a patient is 200.
- The null value "Not Applicable" is used if the patient did not have procedures.
- The null value "Not Applicable" reported if not coding ICD-10.
- Include only procedures performed at your institution.
- Report all procedures performed in the operating room.
- Report all procedures in the ED, ICU, ward, or radiology department that were essential to the diagnosis, stabilization, or treatment of the patient's specific injuries or their complications.
- Procedures with an asterisk have the potential to be performed multiple times during one episode of hospitalization. In this case, report only the first event.
- If there is no asterisk, report each event even if there is more than one.
- Procedures with a double asterisk are required reporting.
- Note that the hospital may report additional procedures.

TQIP Response

Answer: No

Response: Only procedures performed at the index hospital should be reported to TQIP.

Discussion Opportunity



Question 6

For the variable Bleeding Disorder, what should be reported? Patient has myelodysplastic syndrome with chronic thrombocytopenia.

- **Yes**
- **No**

Definition

BLEEDING DISORDER
A group of conditions that result when the blood cannot clot properly, present prior to injury (e.g. Hemophilia, von Willebrand Disease, Factor V Leiden).

- Do not include sickle cell disease.

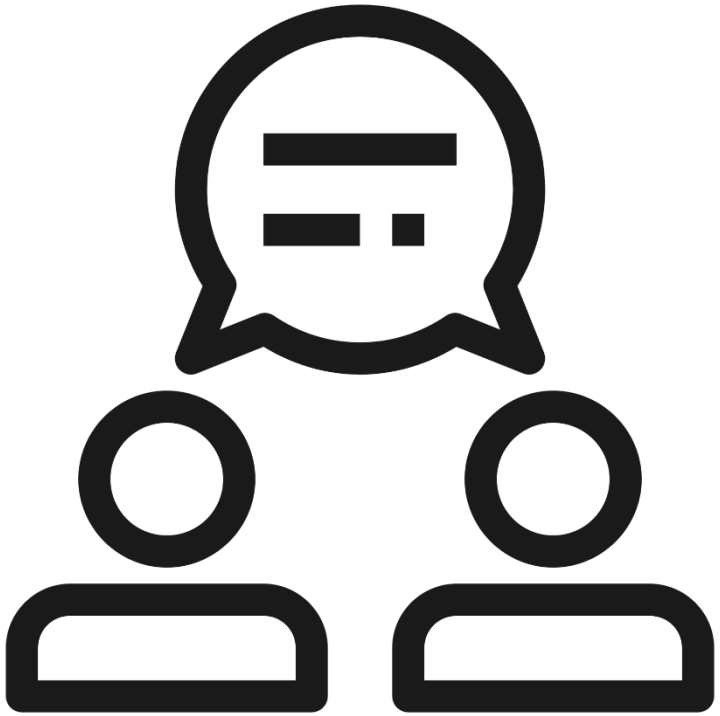
Bleeding Disorder (NTDS 4)
Def. Source: NTDS, American Society of Hematology 2015

MTQIP Response

Answer: Yes

Response: It would depend on the cell line impacted by the myelodysplastic syndrome. In the scenario presented, the chronic thrombocytopenia would impact the ability of the blood to clot properly. Please report bleeding disorder due to chronic thrombocytopenia.

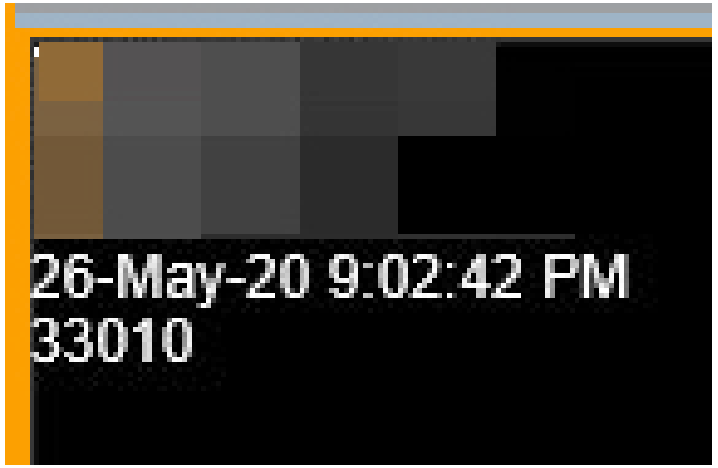
Discussion Opportunity

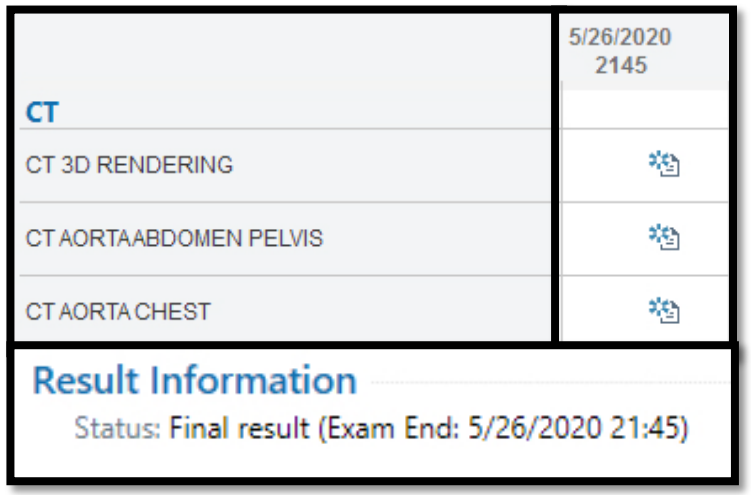


Question 7

For the variable Procedure Start Date, what should be reported for Head CT?

- **CT begin time = time stamp pt in room**
- **CT image time = time stamp on 1st image / scan start**
- **CT end time = time stamp in EMR**





Definition

HOSPITAL PROCEDURE START TIME
The time operative and selected non-operative procedures were performed.

- Collected as HH:MM military time.
- Procedure start time is defined as the time the incision was made (or the procedure started).
- If distinct procedures with the same procedure code are performed, their start times must be different.

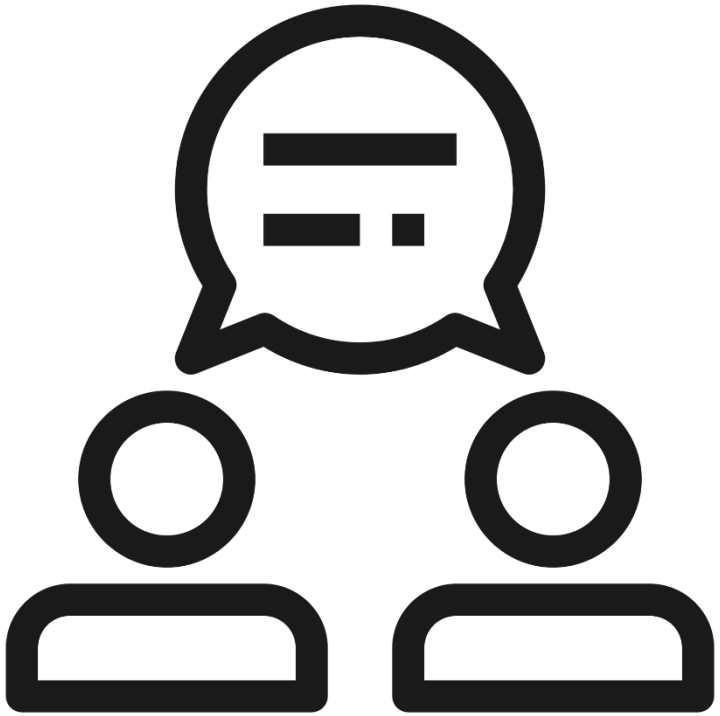
Def. Source: NTDS
Data Base Column Name: A_OPTM
Type of Element: Character (Time Format)
Length: 5
Report: #5 (Include RECORDNO, OPNUMBER, OPDATE, OPTIME, OPCODE, OPSDESCR)

MTQIP Response

Answer: _____

Response: Please clarify the meanings of the different time stamps seen in the EMR. Let's confirm at the June meeting and clarify for July 1, 2020.

Discussion Opportunity



Question 8

For the VAP infection window period, what element(s) can be used?

- **Laboratory specimen**
- **Imaging test**
- **Procedure**
- **Exam**
- **Only laboratory specimen and imaging test**
- **All the above**

Definition

Infection Window Period:

The Infection Window Period (IWP) is defined as the 7-days during which all site-specific infection criteria must be met. It includes the collection date of the **first positive diagnostic test that is used as an element** to meet the site-specific infection criterion, the 3 calendar days before and the 3 calendar days after (Table 2). For purposes of defining the Infection Window Period the following examples are considered diagnostic tests:

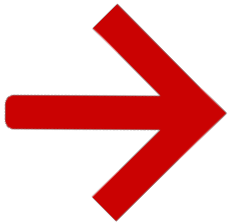
MTQIP Response

Answer: All the above

Response: Let's look at the CDC Reference > Chapter 2.

Infection Window Period:

The Infection Window Period (IWP) is defined as the 7-days during which all site-specific infection criteria must be met. It includes the collection date of the **first positive diagnostic test that is used as an element** to meet the site-specific infection criterion, the 3 calendar days before and the 3 calendar days after (Table 2). For purposes of defining the Infection Window Period the following examples are considered diagnostic tests:



- laboratory specimen collection
- imaging test
- procedure or exam

Table 2: Infection Window Period

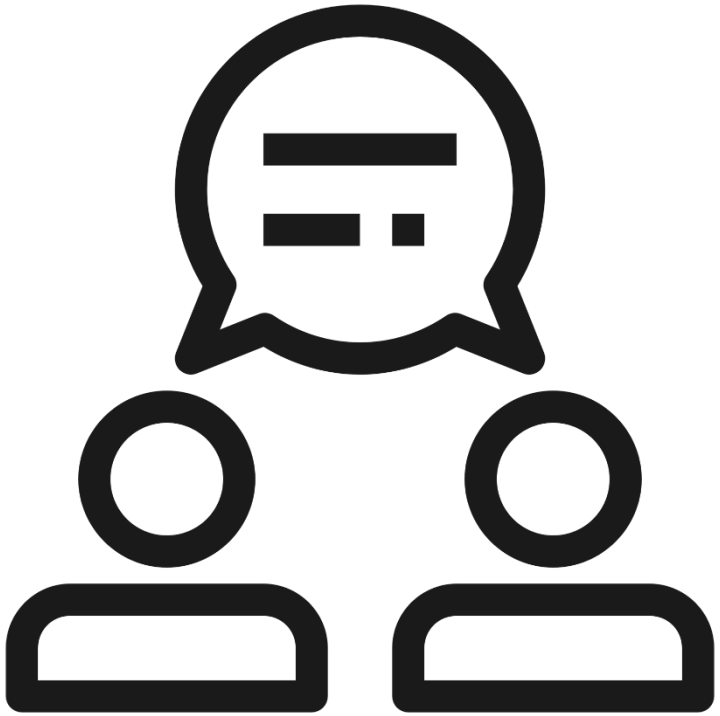
Infection Window Period		**3 days before**
	Date of first positive diagnostic test that is used as an element of the site-specific criterion **OR** **In the absence of a diagnostic test, use the date of the first documented localized sign or symptom that is used as an element of the site-specific criterion**	
		3 days after

Chapter 6
Page 2

Guidance for Determination of Eligible Imaging Test Evidence

- If only one imaging test is available it is acceptable for this to satisfy the imaging requirement for PNEU/VAP-POA determinations regardless of whether the patient has underlying pulmonary or cardiac disease.
- When multiple imaging test results are available, persistence of imaging test evidence of pneumonia is a requirement for all patients not just those with underlying cardiac or pulmonary disease.
- When identifying persistence of imaging test evidence of pneumonia, the second imaging test must occur within seven days of the first but is not required to occur within the Infection Window Period. The date of the first eligible imaging test will be utilized when determining if the PNEU/VAP criteria are met within the infection window period. All other elements of PNEU/VAP definition must be present within the infection window period.

Discussion Opportunity



Question 9

For the variable VAP, should this event be reported? Note: the actual dates of service provided to the patient have been changed for confidentiality.

- **Yes**
- **No**

Date	Vent	Imaging	Signs	Symptoms	Laboratory
1/1/2020					
1/2/2020					
1/3/2020	Intubated				
1/4/2020	Extubated				
1/5/2020					
1/6/2020	Intubated				
1/7/2020	Intubated				
1/8/2020	Intubated				
1/9/2020	Intubated				
1/10/2020	Intubated				
1/11/2020	Intubated				
1/12/2020	Extubated				
1/13/2020					
1/14/2020					
1/15/2020					
1/16/2020					
1/17/2020					
1/18/2020	Intubated				
1/19/2020	Intubated				
1/20/2020	Intubated				
1/21/2020	Intubated				
1/22/2020	Intubated				
1/23/2020	Intubated				
1/24/2020	Intubated				
1/25/2020	Intubated				
1/26/2020	Intubated				
1/27/2020	Intubated				
1/28/2020	Intubated				
1/29/2020	Intubated				
1/30/2020	Intubated				
1/31/2020	Intubated				
2/1/2020	Intubated				
2/2/2020	Intubated				
2/3/2020	Intubated				
2/4/2020	Intubated				
2/5/2020	Intubated				
2/6/2020	Intubated				
2/7/2020	Extubated				
2/8/2020					

Definition

VENTILATOR-ASSOCIATED PNEUMONIA
(Consistent with the CDC defined VAP. Definition provided by the CDC.)

A pneumonia where the patient is on mechanical ventilation for > 2 calendar days on the date of event, with day of ventilator placement being Day 1,

AND

The ventilator was in place on the date of event or the day before. If the patient is admitted or transferred into a facility on a ventilator, the day of admission is considered Day 1.

- Note: For patients with Candida species, please see CDC hyperlink on page 6-4 for additional reporting commentary.

Table 2: Specific Site Algorithms for Pneumonia with Common Bacterial or Filamentous Fungal Pathogens and Specific Laboratory Findings (PNU2)

Imaging Test Evidence	**Signs/Symptoms**	**Laboratory**

Two or more serial chest imaging test results with at least ***one*** of the following[1,2,14]:
 	
New and persistent
or
Progressive and persistent
 	
• Infiltrate
• Consolidation
• Cavitation
• Pneumatoceles, in infants ≤1 year old
 	
Note: In patients ***without*** underlying pulmonary or cardiac disease (for example: respiratory distress syndrome, bronchopulmonary dysplasia, pulmonary edema, or chronic obstructive pulmonary disease), one definitive chest imaging test result is acceptable.[1]
	At least ***one*** of the following:
	
	• Fever (>38.0°C or >100.4°F)
	• Leukopenia (≤4000 WBC/mm^3) or leukocytosis (≥12,000 WBC/mm^3)
	• For adults ≥70 years old, altered mental status with no other recognized cause
	
	And at least ***one*** of the following:
	
	• New onset of purulent sputum[3] or change in character of sputum[4], or increased respiratory secretions, or increased suctioning requirements
	• New onset or worsening cough, or dyspnea or tachypnea[5]
	• Rales[6] or bronchial breath sounds
	• Worsening gas exchange (for example: O_2 desaturations [for example: PaO_2/FiO_2 ≤240][7], increased oxygen requirements, or increased ventilator demand)
		At least ***one*** of the following:
		
		• Organism identified from blood[8,13]
		• Organism identified from pleural fluid[9,13]
		• Positive quantitative culture or corresponding semi-quantitative culture result[9] from minimally-contaminated LRT specimen (specifically, BAL, protected specimen brushing or endotracheal aspirate) If no quantitative component is performed, capture if culture is positive.
		• ≥5% BAL-obtained cells contain intracellular bacteria on direct microscopic exam (for example: Gram's stain)
		• Positive quantitative culture or corresponding semi-quantitative culture result [9]of lung tissue
		• Histopathologic exam shows at least ***one*** of the following evidences of pneumonia:
		  ○ Abscess formation or foci of consolidation with intense PMN accumulation in bronchioles and alveoli
		  ○ Evidence of lung parenchyma invasion by fungal hyphae or pseudohyphae

MTQIP Response

Answer: No

Response: VAP criteria was not met. Let's walk through the case together.

Note: Patient did meet criteria 2, a, c for Pneumonia. Date of event: 1/6/20.

Date	Vent	Vent Day	Vent > 2 Days or Day Before	First Diagnostic Test	Infection Window Period	RIT	Imaging	Signs	Symptoms	Laboratory	Notes
1/1/2020											
1/2/2020											
1/3/2020	Intubated	1									
1/4/2020	Extubated	2									
1/5/2020											
1/6/2020	Intubated	1		X							
1/7/2020	Intubated	2									
1/8/2020	Intubated	3									
1/9/2020	Intubated	4									
1/10/2020	Intubated	5									
1/11/2020	Intubated	6									
1/12/2020	Extubated	7									
1/13/2020											
1/14/2020											
1/15/2020											
1/16/2020											
1/17/2020											
1/18/2020	Intubated	1									
1/19/2020	Intubated	2									
1/20/2020	Intubated	3									
1/21/2020	Intubated	4									
1/22/2020	Intubated	5									
1/23/2020	Intubated	6									
1/24/2020	Intubated	7									
1/25/2020	Intubated	8									
1/26/2020	Intubated	9									
1/27/2020	Intubated	10									
1/28/2020	Intubated	11									
1/29/2020	Intubated	12									
1/30/2020	Intubated	13									
1/31/2020	Intubated	14									
2/1/2020	Intubated	15									
2/2/2020	Intubated	16									
2/3/2020	Intubated	17									
2/4/2020	Intubated	18									
2/5/2020	Intubated	19									
2/6/2020	Intubated	20									
2/7/2020	Extubated	21									
2/8/2020											

Date	Vent	Vent Day	Vent > 2 Days or Day Before	First Diagnostic Test	Infection Window Period	RIT	Imaging	Signs	Symptoms	Laboratory	Notes
1/1/2020											
1/2/2020											
1/3/2020	Intubated	1									
1/4/2020	Extubated	2									
1/5/2020											
1/6/2020	Intubated	1		X		1					
1/7/2020	Intubated	2				2					
1/8/2020	Intubated	3				3					
1/9/2020	Intubated	4				4					
1/10/2020	Intubated	5				5					
1/11/2020	Intubated	6				6					
1/12/2020	Extubated	7				7					
1/13/2020						8					
1/14/2020						9					
1/15/2020						10					
1/16/2020						11					
1/17/2020						12					
1/18/2020	Intubated	1				13					
1/19/2020	Intubated	2				14					
1/20/2020	Intubated	3									
1/21/2020	Intubated	4									
1/22/2020	Intubated	5									
1/23/2020	Intubated	6									
1/24/2020	Intubated	7									
1/25/2020	Intubated	8									
1/26/2020	Intubated	9									
1/27/2020	Intubated	10									
1/28/2020	Intubated	11									
1/29/2020	Intubated	12									
1/30/2020	Intubated	13									
1/31/2020	Intubated	14									
2/1/2020	Intubated	15									
2/2/2020	Intubated	16									
2/3/2020	Intubated	17									
2/4/2020	Intubated	18									
2/5/2020	Intubated	19									
2/6/2020	Intubated	20									
2/7/2020	Extubated	21									
2/8/2020											

Date	Vent	Vent Day	Vent > 2 Days or Day Before	First Diagnostic Test	Infection Window Period	RIT	Imaging	Signs	Symptoms	Laboratory	Notes
1/1/2020											
1/2/2020											
1/3/2020	Intubated	1									
1/4/2020	Extubated	2									
1/5/2020											
1/6/2020	Intubated	1		X		1					
1/7/2020	Intubated	2				2					
1/8/2020	Intubated	3				3					
1/9/2020	Intubated	4				4					
1/10/2020	Intubated	5				5					
1/11/2020	Intubated	6				6					
1/12/2020	Extubated	7				7					
1/13/2020						8					
1/14/2020						9					
1/15/2020						10					
1/16/2020						11					
1/17/2020						12					
1/18/2020	Intubated	1				13					
1/19/2020	Intubated	2				14					
1/20/2020	Intubated	3									
1/21/2020	Intubated	4									
1/22/2020	Intubated	5									
1/23/2020	Intubated	6									
1/24/2020	Intubated	7									
1/25/2020	Intubated	8									
1/26/2020	Intubated	9									
1/27/2020	Intubated	10									
1/28/2020	Intubated	11									
1/29/2020	Intubated	12									
1/30/2020	Intubated	13									
1/31/2020	Intubated	14									
2/1/2020	Intubated	15									
2/2/2020	Intubated	16									
2/3/2020	Intubated	17									
2/4/2020	Intubated	18									
2/5/2020	Intubated	19									
2/6/2020	Intubated	20									
2/7/2020	Extubated	21									
2/8/2020											

4. Multiple episodes of healthcare-associated pneumonia may occur in critically ill patients with lengthy hospital stays. When determining whether to report multiple episodes of healthcare-associated pneumonia in a single patient, follow the Repeat Infection Timeframe (RIT) guidance found in Chapter 2.

Date	Vent	Vent Day	Vent > 2 Days or Day Before	First Diagnostic Test	Infection Window Period	RIT	Imaging	Signs	Symptoms	Laboratory	Notes
1/1/2020											
1/2/2020											
1/3/2020	Intubated	1									
1/4/2020	Extubated	2									
1/5/2020											
1/6/2020	Intubated	1		X		1					
1/7/2020	Intubated	2				2					
1/8/2020	Intubated	3				3					
1/9/2020	Intubated	4				4					
1/10/2020	Intubated	5				5					
1/11/2020	Intubated	6				6					
1/12/2020	Extubated	7				7					
1/13/2020						8					
1/14/2020						9					
1/15/2020						10					
1/16/2020						11					
1/17/2020						12					
1/18/2020	Intubated	1				13					
1/19/2020	Intubated	2				14					
1/20/2020	Intubated	3									
1/21/2020	Intubated	4									
1/22/2020	Intubated	5									
1/23/2020	Intubated	6									
1/24/2020	Intubated	7									
1/25/2020	Intubated	8									
1/26/2020	Intubated	9									
1/27/2020	Intubated	10									
1/28/2020	Intubated	11									
1/29/2020	Intubated	12									
1/30/2020	Intubated	13									
1/31/2020	Intubated	14									
2/1/2020	Intubated	15									
2/2/2020	Intubated	16									
2/3/2020	Intubated	17									
2/4/2020	Intubated	18									
2/5/2020	Intubated	19									
2/6/2020	Intubated	20									
2/7/2020	Extubated	21									
2/8/2020											

Repeat Infection Timeframe:

The Repeat Infection Timeframe (RIT) is a 14-day timeframe during which no new infections of the same type are reported.

- **The RIT applies to both POA and HAI determinations.**
- The date of event is Day 1 of the 14-day RIT.
- If criteria for the same type of infection are met and the date of event is within the 14-day RIT, a new event is not identified or reported.
- Additional pathogens recovered during the RIT from the **same type of infection** are added to the event.
- Note the original date of event is maintained as is the original 14-day RIT.
- Device association determination and location of attribution are not to be amended.

See examples in Table 5 and Table 6 below.

VAP Resources

VENTILATOR-ASSOCIATED PNEUMONIA
(Consistent with the CDC defined VAP. Definition provided by the CDC.)

A pneumonia where the patient is on mechanical ventilation for > 2 calendar days on the date of event, with day of ventilator placement being Day 1,

AND

Definitions:

Present on Admission (POA): Infections that are POA, as defined in Chapter 2, are not considered HAIs and therefore are never reported to NHSN.

Healthcare-associated infections (HAI): All NHSN site-specific infections must first meet the HAI definition as defined in Chapter 2 before a site-specific infection can be reported to NHSN.

VAP Resources

Surveillance for pedVAP and PNEU Events

Ventilator-associated* and non-ventilator-associated Pneumonia (PNEU)

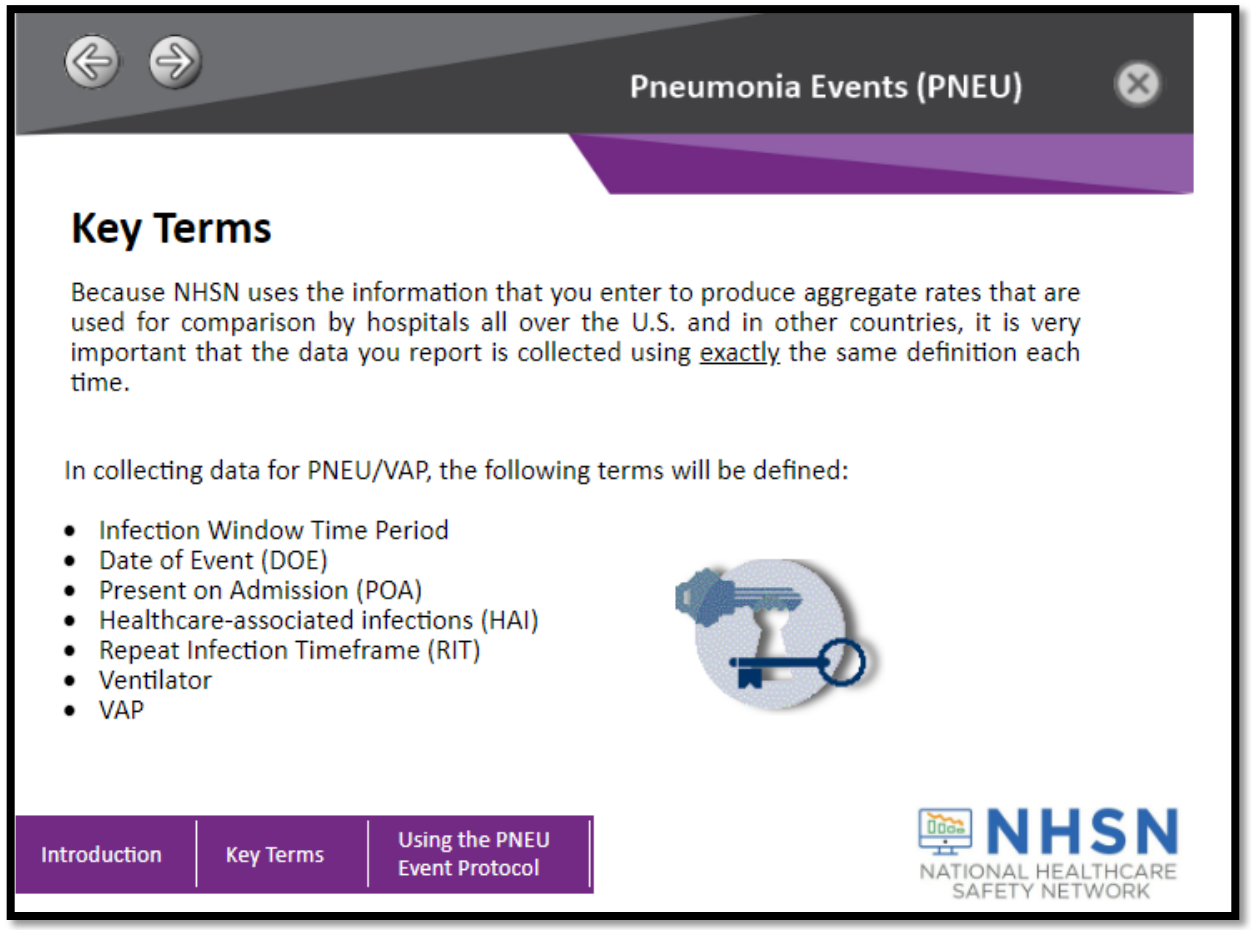
Resources for NHSN Users Already Enrolled

Training –

- Pneumonia (PNEU) Event Training [CBT – 60 min]
- Pneumonia Events – May 2019
  - **Review updated PNEU slides for 2020** **[PDF – 1 MB]**
  - YouTube Link [Video – 38 min]
  - Slideset [PDF – 6 MB]
- VAE, VAP and PNEU Definition Changes for January 2015
  - YouTube link [Video – 11 min]

https://www.cdc.gov/nhsn/acute-care-hospital/vap/index.html

VAP Resources



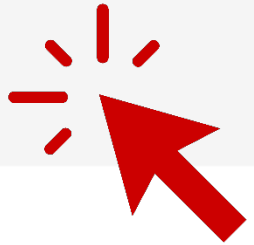
https://nhsn.cdc.gov/nhsntraining/courses/pneu/

VAP Resources

Healthcare–associated Infection (HAI) and Present on Admission Infection (POA) Worksheet Generator

Healthcare-associated Infection (HAI) and Present on Admission Infection (POA) Worksheet Generator

Version 1.0 (must have javascript enabled)



https://www.cdc.gov/nhsn/poa/index.html

VAP Resources

NHSN Healthcare-associated Infection (HAI) and Present on Admission Infection (POA) Worksheet Generator

INTRODUCTION:

Welcome to the NHSN Healthcare-associated Infection (HAI) and Present on Admission Infection (POA) Worksheet Generator Version 1.0. The Worksheet Generator operates based upon the currently posted guidance found in the Patient Safety Component Manual, Chapter 2, Identifying Healthcare-associated Infections (HAI) for NHSN Surveillance. It is strongly encouraged that you read and study this guidance found in the Identifying Healthcare-associated Infections (HAI) for NHSN Surveillance [PDF - 365KB] document.

The Worksheet Generator will provide an electronically generated worksheet that identifies:

- 7-day Infection Window Period
- Date of Event and POA or HAI determination
- 14-day Repeat Infection Timeframe (RIT)
- Secondary Bloodstream Infection Attribution Period

It *DOES NOT* determine that all NHSN infection criteria have been met. *It is incumbent upon the user* to determine that an infection criterion was met as reflected in the dates and information supplied.

This Worksheet Generator is developed for use with multiple site-specific infection types (e.g., BSI, UTI, PNEU, IAB etc.). The Worksheet Generator requires the user to enter the date of admission, the date of the first diagnostic test used to meet the NHSN site-specific infection criterion and any other date(s) of required infection elements needed to satisfy an NHSN site-specific infection criterion.

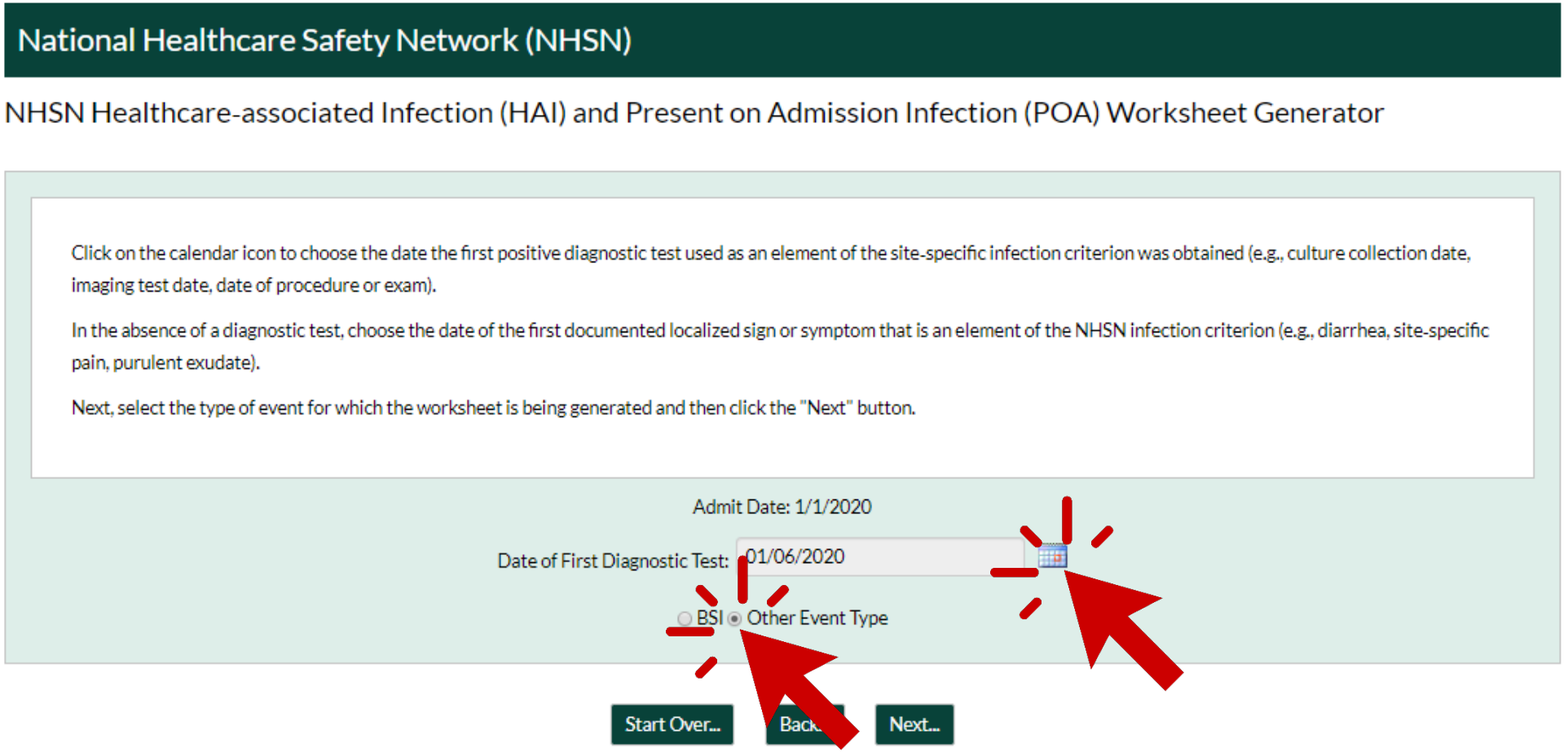
Note: Please use the VAE calculator and MDRO & CDI LabID Event calculator when conducting VAE or MDRO/LabID event surveillance. Also note, the Worksheet Generator is not for use when conducting SSI surveillance or when making determinations for meeting the ENDO definition.

Click on the calendar icon below to choose the admission date for this patient and then click the "Next" button.

Admit Date: 01/01/2020

Start Over... Next...

VAP Resources



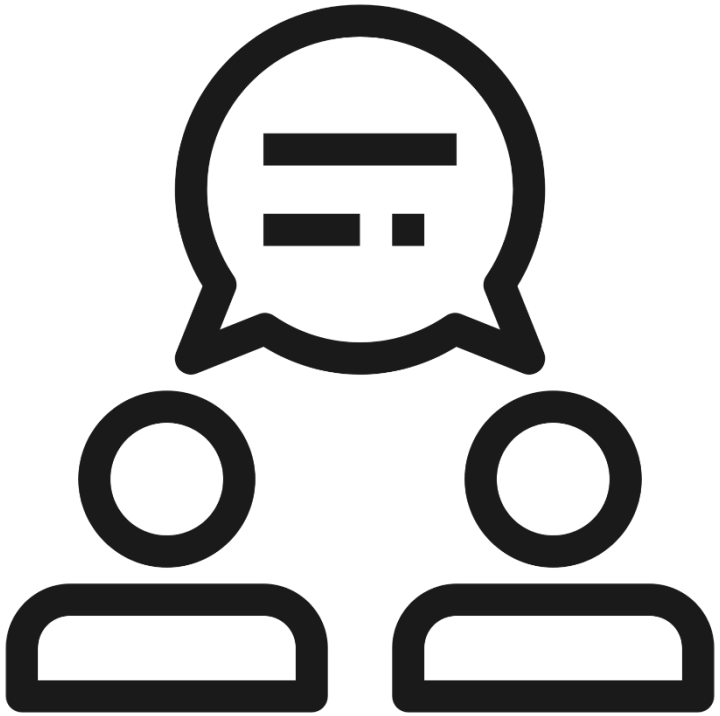
VAP Resources

Admit date: 1/1/2020

Hospital Day/Date	First Diagnostic Test	Infection Window Period (*)	Date of Event	Repeat Infection Timeframe (*)	Secondary BSI Attribution Period (*)
3. - 1/3/2020		☐	-		
4. - 1/4/2020		☐	-		
5. - 1/5/2020		☐	-		
6. - 1/6/2020	✓	☑	-		
7. - 1/7/2020		☐	-		
8. - 1/8/2020		☐	-		
9. - 1/9/2020		☐	-		
10. - 1/10/2020			-		
11. - 1/11/2020			-		
12. - 1/12/2020			-		
13. - 1/13/2020			-		
14. - 1/14/2020			-		
15. - 1/15/2020			-		
16. - 1/16/2020			-		
17. - 1/17/2020			-		
18. - 1/18/2020			-		

Start Over... Back... Generate Table...

Discussion Opportunity



Topics

- ✓ Data Validation Results
- ✓ Challenging Questions
- • 2021 Updates & Poll

Clarification – Provider Evaluation Time

21:51:59	ED Provider First Contact	Initial ED Provider contact time

- **Variables with time limiters**
- **Email inquiries**
- **Validation variability**
- **Dialogue ACS-TQIP**
- **Concerns: provider variability, provider roles, missing model critical variables**
- **Opportunity for improvement**
- **Membership sounding board**

July 1, 2020

Clarification – Provider Evaluation Time

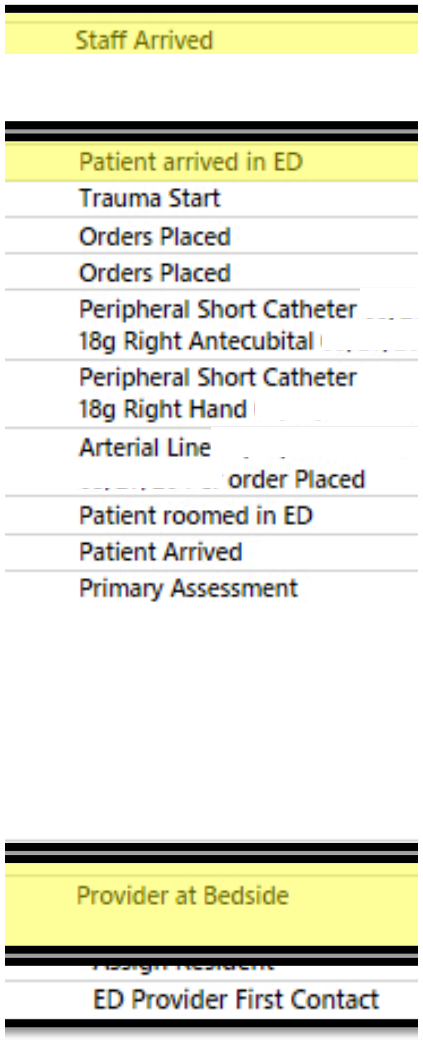
Vital Signs

GCS – All Components
TBI GCS – All Components
TBI Pupillary Response

July 1, 2020

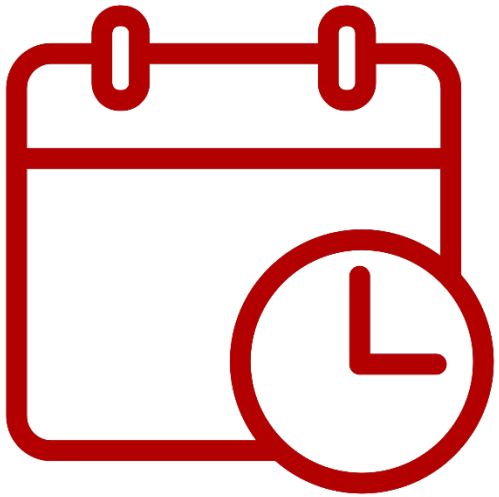
1. **Timeline**
2. **First GCS vs. Provider Evaluation**
3. **Provider Numeric GCS**

Example – Provider Evaluation Time



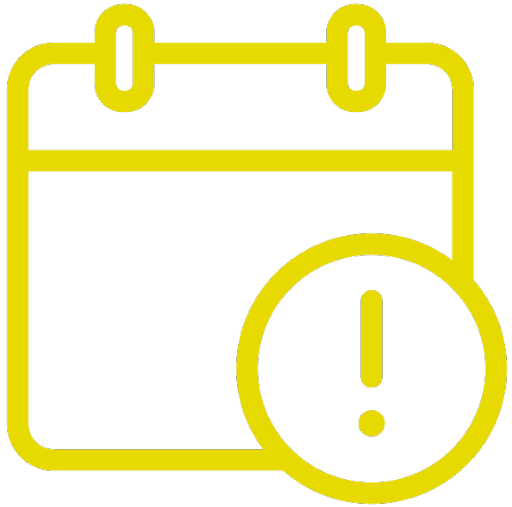
Updated Validation Variables

Review



Jan - May

Collaborate



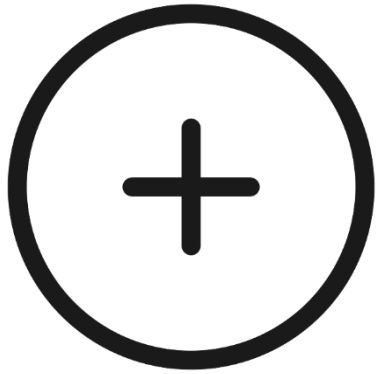
June

Implement

Jan 2021

Updated Validation Variables

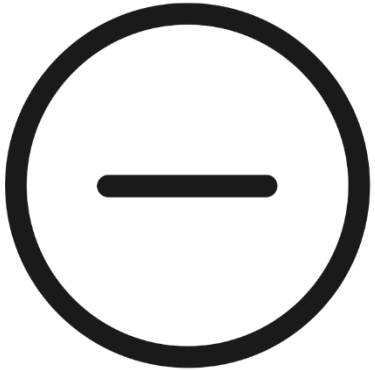
- Hospital Discharge Date/Time
- Pregnancy
- Delirium
- Whole Blood Units
- Patient Name
- Patient MRN
- Head CT Date/Time
- IHF Date/Time



Preliminary Additions

Updated Validation Variables

- Not used in modeling
- Not used in performance index
- Error rate < 1%



Preliminary Deletions

Topics

- ✓ **Data Validation Results**
- ✓ **Challenging Questions**
- ✓ **2021 Updates & Poll**

Reminder

- **Please sign the electronic confidentiality agreement to receive attendance points**

Level 3 Update

Sara Samborn, RN

SOM/MTQIP Project

Level III Participation

- 22 centers
- 19 with data submitted

SOM/MTQIP Project

Reports

- 16 centers have received site specific reports
- 19 centers to receive summer 2020 reports
- 22 centers to receive winter 2021 reports

- **Save the date: July 16, 2020 1:00pm**
  - Report webinar

SOM/MTQIP Project

Data Validation

- 4 centers completed
- 7 centers to be validated in 2020

- **Validation dates available for fall 2020**

SOM/MTQIP Project

Data submission

- Due this Friday 6/5

SOM/MTQIP Project

Questions?

smohar@med.umich.edu

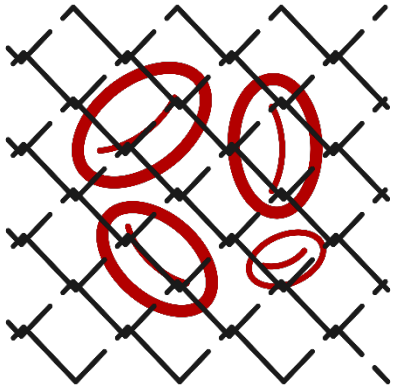
TXA Analytics

Anne Cain-Nielsen, MS

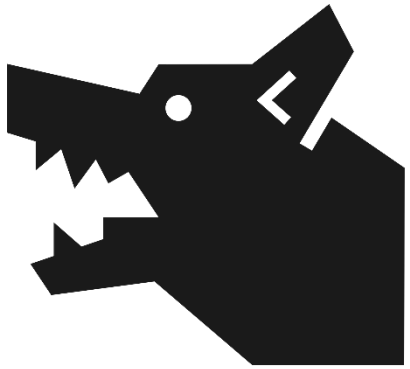
What is TXA?

- **Synthetic derivative of lysine (amino acid)**
- **Antifibrinolytic**

Anti-
Against



Fibrin-
Fibrous mesh

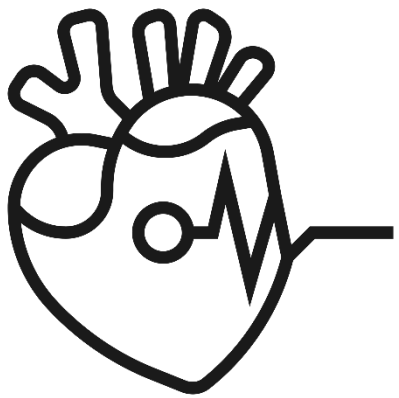


Lytic
Disintegration

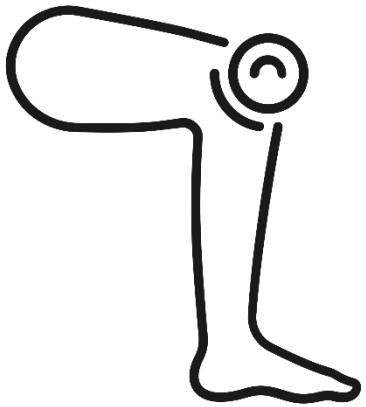
What are the TXA indications?

Prophylaxis

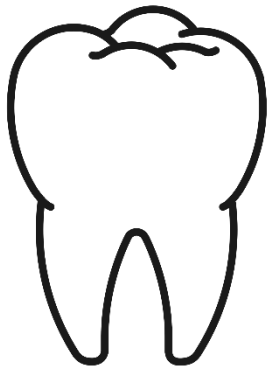
Treatment



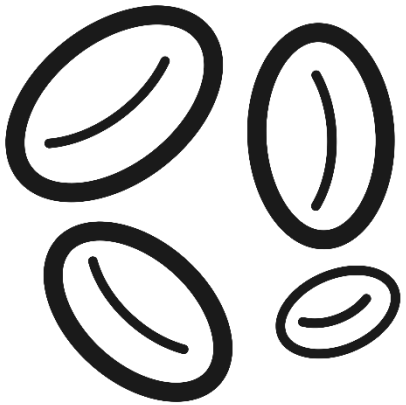
Cardiac Surgery



Knee/Hip Replacement



Dental Bleeding (Hemophilia)



Hemorrhage

All-cause mortality was significantly reduced with tranexamic acid (1463 [14.5%] tranexamic acid group vs 1613 [16.0%] placebo group; relative risk 0.91, 95% CI 0.85-0.97; p=0.0035). The risk of death due to bleeding was significantly reduced (489 [4.9%] vs 574 [5.7%]; relative risk 0.85, 95% CI 0.76-0.96; p=0.0077).

Randomized Controlled Trial > Lancet. 2010 Jul 3;376(9734):23-32.
doi: 10.1016/S0140-6736(10)60835-5. Epub 2010 Jun 14.

Effects of Tranexamic Acid on Death, Vascular Occlusive Events, and Blood Transfusion in Trauma Patients With Significant Haemorrhage (CRASH-2): A Randomised, Placebo-Controlled Trial

CRASH-2 trial collaborators; Haleema Shakur, Ian Roberts, Raúl Bautista, José Caballero, Tim Coats, Yashbir Dewan, Hesham El-Sayed, Tamar Gogichaishvili, Sanjay Gupta, Jorge Herrera, Beverley Hunt, Pius Iribhogbe, Mario Izurieta, Hussein Khamis, Edward Komolafe, María-Acelia Marrero, Jorge Mejía-Mantilla, Jaime Miranda, Carlos Morales, Oluwole Olaomi, Fatos Olldashi, Pablo Perel, Richard Peto, P V Ramana, R R Ravi, Surakrant Yutthakasemsunt

Collaborators + expand

PMID: 20554319 DOI: 10.1016/S0140-6736(10)60835-5

Abstract

Background: Tranexamic acid can reduce bleeding in patients undergoing elective surgery. We assessed the effects of early administration of a short course of tranexamic acid on death, vascular occlusive events, and the receipt of blood transfusion in trauma patients.

Methods: This randomised controlled trial was undertaken in 274 hospitals in 40 countries. 20 211 adult trauma patients with, or at risk of, significant bleeding were randomly assigned within 8 h of injury to either tranexamic acid (loading dose 1 g over 10 min then infusion of 1 g over 8 h) or matching placebo. Randomisation was balanced by centre, with an allocation sequence based on a block size of eight, generated with a computer random number generator. Both participants and study staff (site investigators and trial coordinating centre staff) were masked to treatment allocation. The primary outcome was death in hospital within 4 weeks of injury, and was described with the following categories: bleeding, vascular occlusion (myocardial infarction, stroke and pulmonary embolism), multiorgan failure, head injury, and other. All analyses were by intention to treat. This study is registered as ISRCTN86750102, Clinicaltrials.govNCT00375258, and South African Clinical Trial RegisterDOH-27-0607-1919.

The risk of head injury-related death reduced with tranexamic acid in patients with mild-to-moderate head injury (RR 0·78 [95% CI 0·64–0·95]) but not in patients with severe head injury (0·99 [95% CI 0·91–1·07]; p value for heterogeneity 0·030). Early treatment was more effective than was later treatment in patients with mild and moderate head injury (p=0·005) but time to treatment had no obvious effect in patients with severe head injury (p=0·73).

Randomized Controlled Trial > Lancet. 2019 Nov 9;394(10210):1713-1723.
doi: 10.1016/S0140-6736(19)32233-0. Epub 2019 Oct 14.

Effects of Tranexamic Acid on Death, Disability, Vascular Occlusive Events and Other Morbidities in Patients With Acute Traumatic Brain Injury (CRASH-3): A Randomised, Placebo-Controlled Trial

CRASH-3 trial collaborators

PMID: 31623894 PMCID: PMC6853170 DOI: 10.1016/S0140-6736(19)32233-0
Free PMC article

Erratum in

Department of Error.
Lancet. 2019 Nov 9;394(10210):1712. doi: 10.1016/S0140-6736(19)32641-8.
PMID: 31709997 No abstract available.

Abstract

Background: Tranexamic acid reduces surgical bleeding and decreases mortality in patients with traumatic extracranial bleeding. Intracranial bleeding is common after traumatic brain injury (TBI) and can cause brain herniation and death. We aimed to assess the effects of tranexamic acid in patients with TBI.

Methods: This randomised, placebo-controlled trial was done in 175 hospitals in 29 countries. Adults with TBI who were within 3 h of injury, had a Glasgow Coma Scale (GCS) score of 12 or lower or any intracranial bleeding on CT scan, and no major extracranial bleeding were eligible. The time window for eligibility was originally 8 h but in 2016 the protocol was changed to limit recruitment to patients within 3 h of injury. This change was made blind to the trial data, in response to external evidence suggesting that delayed treatment is unlikely to be effective. We randomly assigned (1:1) patients to receive tranexamic acid (loading dose 1 g over 10 min then infusion of 1 g over 8 h) or matching placebo. Patients were assigned by selecting a numbered treatment pack from a box

In intertrochanteric fracture surgery performed using PFNA, intravenous administration of TXA significantly reduced the risk of intraoperative, total and hidden blood loss, in addition to the need for allogeneic transfusion, without increasing the rate of complications.

Randomized Controlled Trial > Orthop Surg. 2019 Aug;11(4):635-642. doi: 10.1111/os.12511. Epub 2019 Aug 16.

Efficacy and Safety of Tranexamic Acid in Intertrochanteric Fractures: A Single-Blind Randomized Controlled Trial

Xin-Die Zhou [1], Yi Zhang [1], Li-Feng Jiang [2], Jun-Jie Zhang [1], Dong Zhou [1], Li-Dong Wu [2], Yong Huang [1], Nan-Wei Xu [1]

Affiliations + expand

PMID: 31419080 PMCID: PMC6712408 DOI: 10.1111/os.12511

Free PMC article

Abstract

Objective: To investigate the efficacy and safety of tranexamic acid (TXA) in the reduction of bleeding and the need for transfusion in elderly intertrochanteric fracture patients.

Methods: A total of 100 patients with intertrochanteric fractures undergoing surgery were enrolled and randomly allocated to the TXA group in which patients (75.10 ± 8.27 years old) were treated with 1 g of TXA, or the control group (77.82 ± 6.42 years old) treated with a placebo. Surgery was performed by two senior orthopaedic surgeons from two institutions. The proximal femoral nail antirotation (PFNA) was conducted using the standard procedure. Three outcome measures, including blood loss, transfusion, and complications, were recorded. Blood loss and transfusion were investigated to assess TXA's effectiveness, while complications were investigated to assess TXA's safety. Statistical indicators for blood loss included total, intraoperative, postoperative, and hidden blood loss volumes, calculated by hemoglobin levels, hematocrit levels, and drainage volume. The number and amount of blood transfusions were recorded. Complications associated with surgery, including deep vein thrombosis, pulmonary embolism, wound hematoma, wound infection, cardiovascular and cerebrovascular accidents, and respiratory infections, were also recorded.

TXA Data Elements

TRANEXAMIC ACID ADMINISTRATION (0-24 HOURS)

Tranexamic acid (Cyklokapron, Lysteda) and aminocaproic acid (Amicar) are drugs that prevent clot breakdown (antifibrinolytic). Enter “YES” if patient received tranexamic or aminocaproic acid administration within 0-24 hrs after arrival to index hospital, where index hospital is the hospital absctracting the data. Report if administered regardless of the indication for administration. Do not include topical route of administration.

Collection Criterion: All patients.

Def. Source: MTQIP

Data Base Column Name: MTQIP_TXA
Type of Field: Yes/No
Length:

TXA Data Elements

TRANEXAMIC ACID DATE (0-24 HOURS)

The date tranexamic acid was administered.

• Collected as MM/DD/YYYY.

Collection Criterion: All patients.

Def. Source: MTQIP

Data Base Column Name: MTQIP_TXA_DT
Type of Field: Date
Length:

TRANEXAMIC ACID TIME (0-24 HOURS)

The time tranexamic acid was administered.

• Collected as HH:MM.
• HH:MM should be collected as military time.

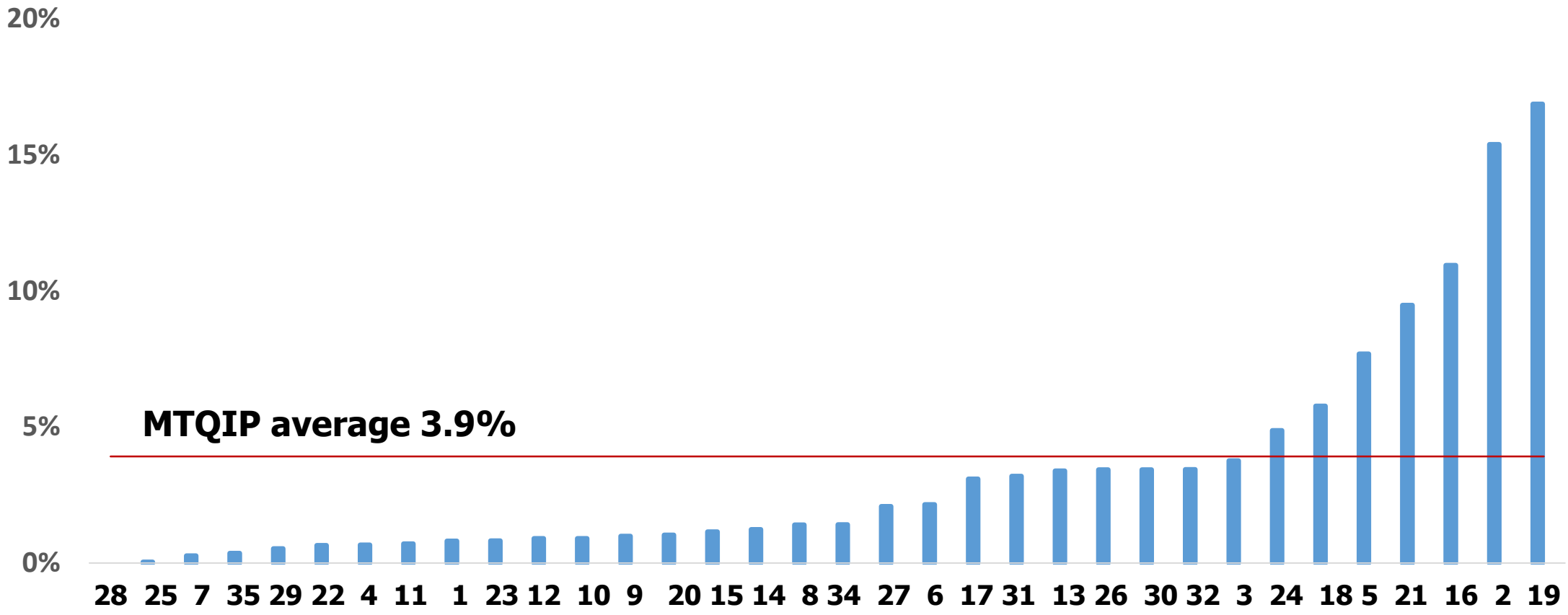
Collection Criterion: All patients.

Def. Source: MTQIP

Data Base Column Name: MTQIP_TXA_TM
Type of Field: Time
Length:

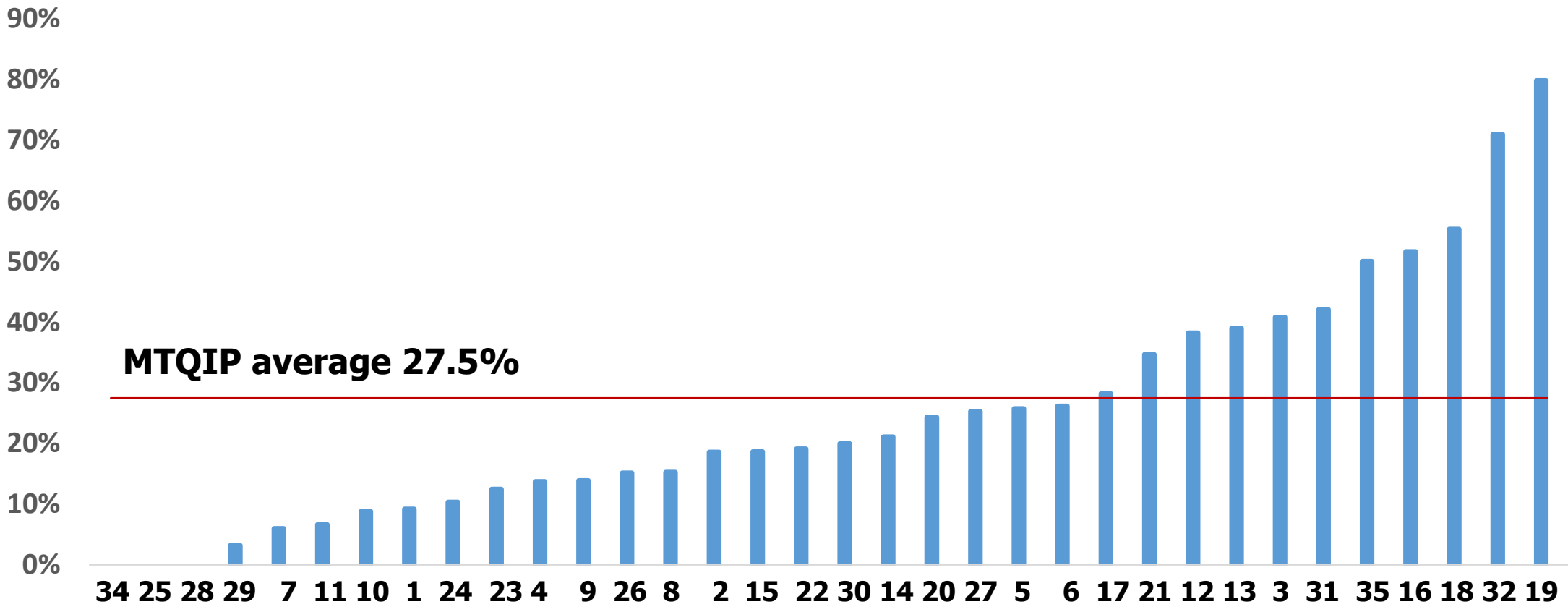
TXA Use

Overall



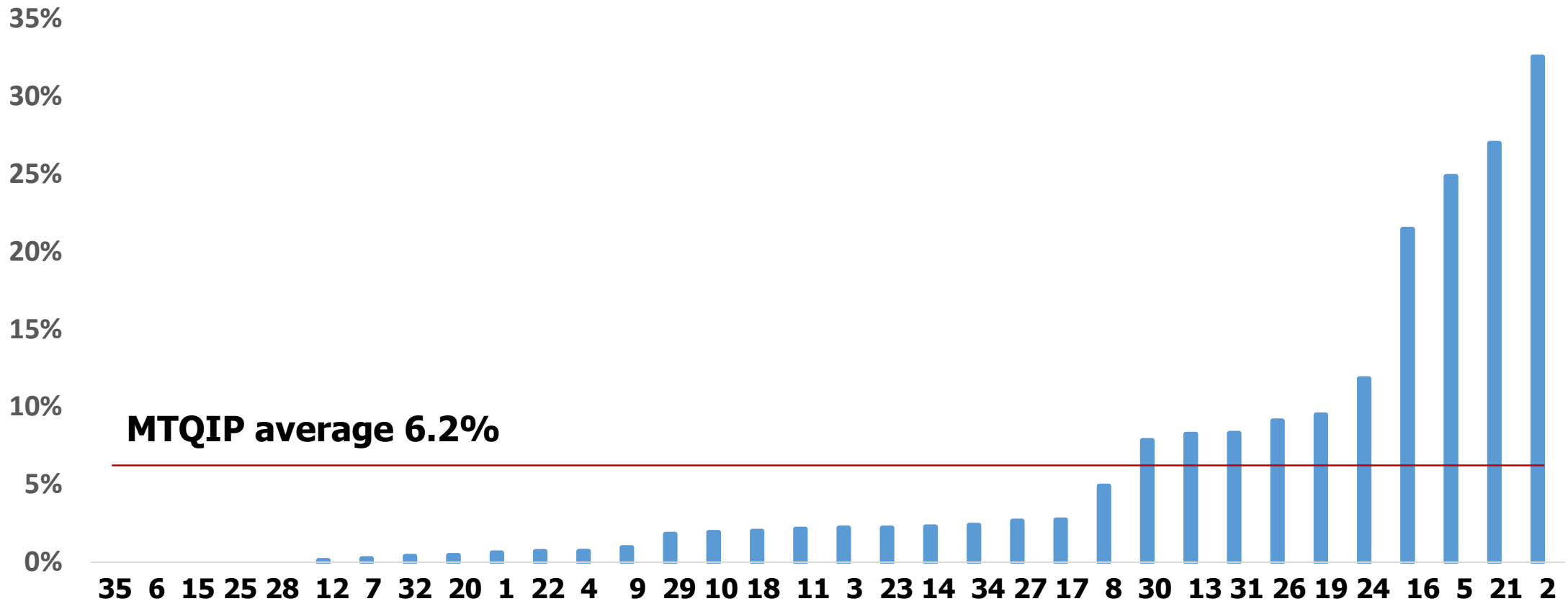
TXA Use

Lowest ED SBP <90



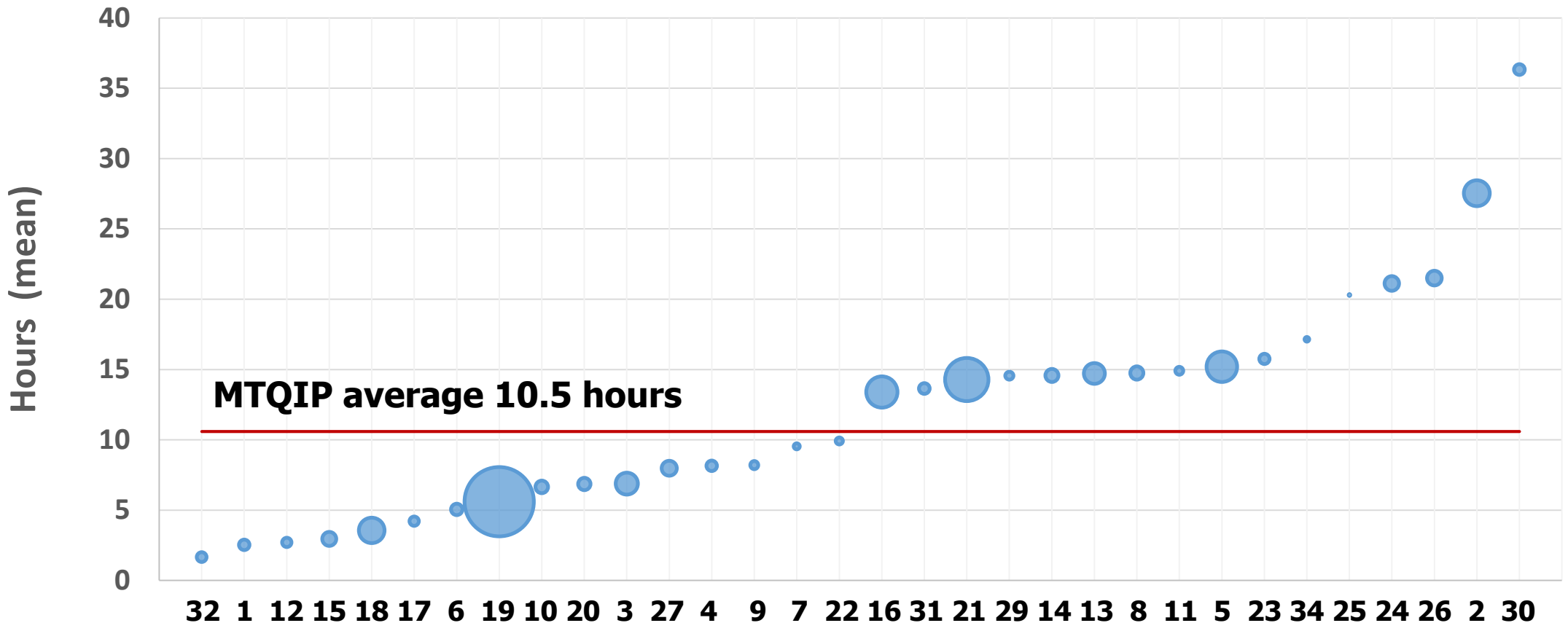
TXA Use

Isolated Hip Fracture



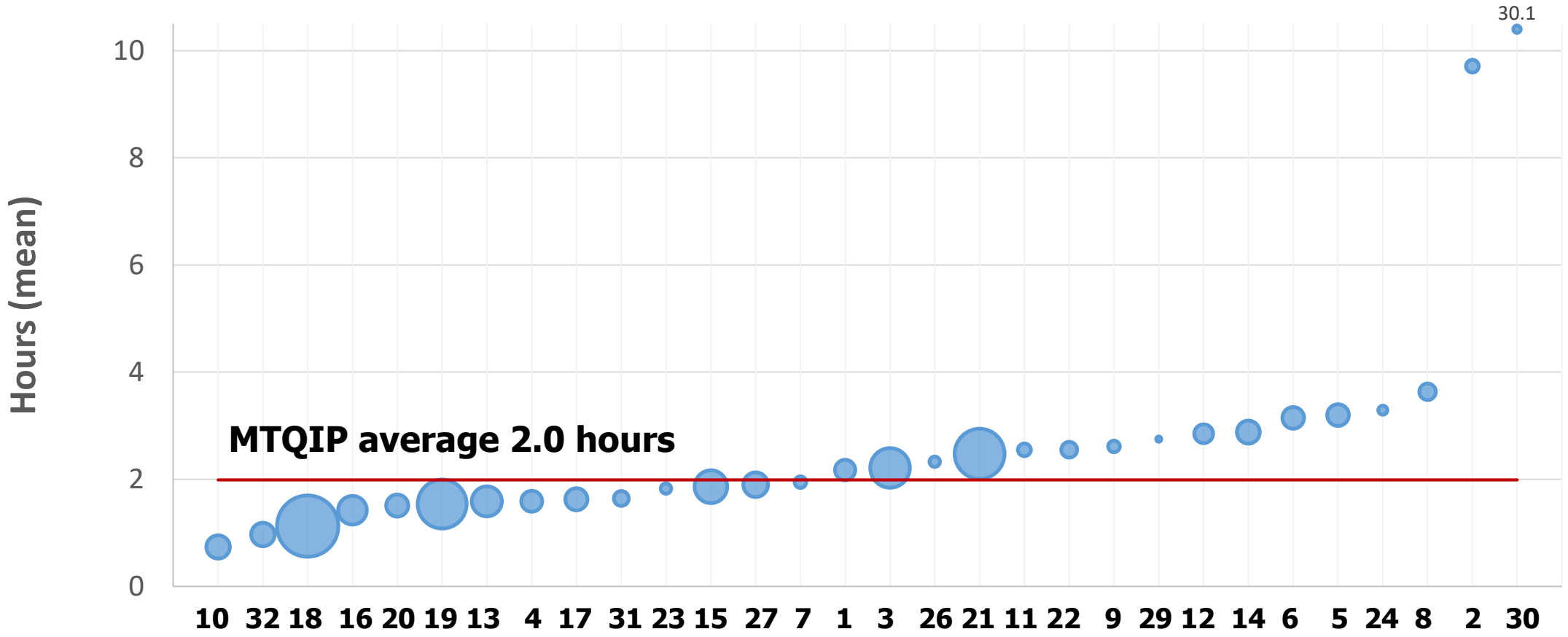
Time from ED to TXA

Overall



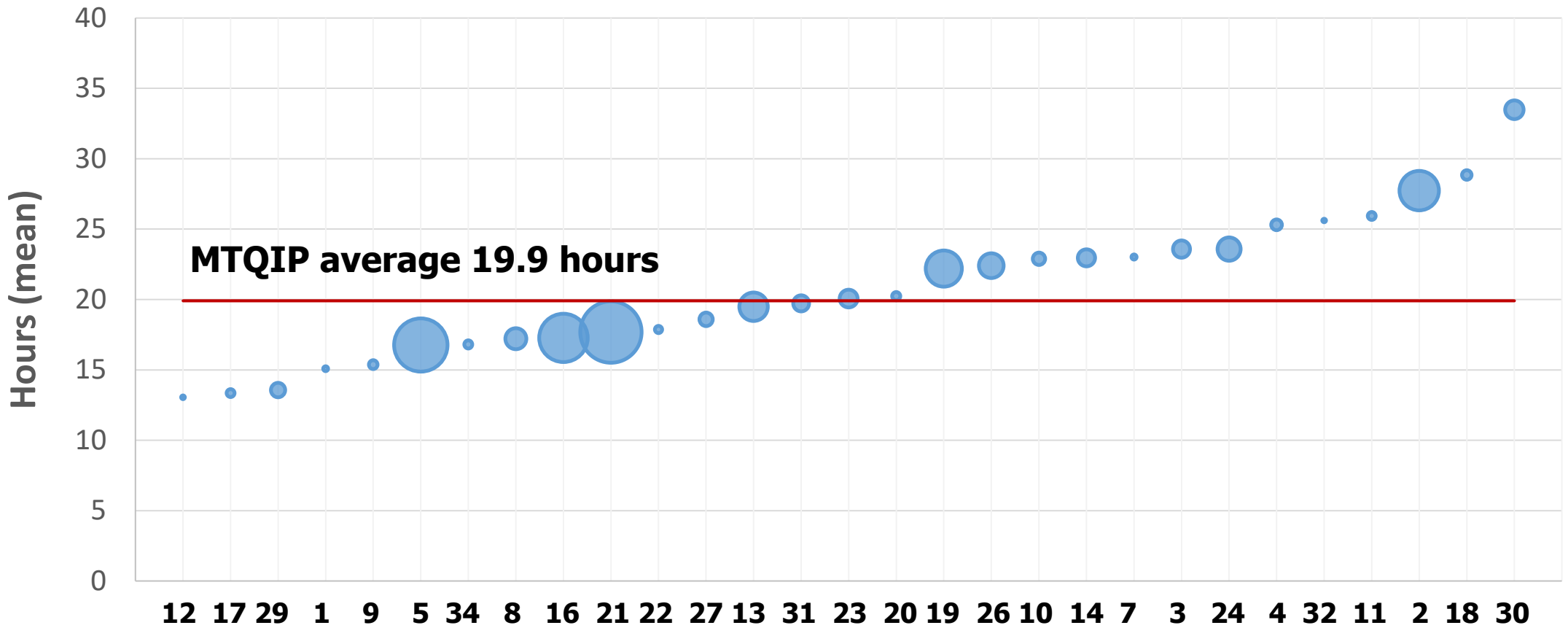
Time from ED to TXA

Lowest ED SBP <90



Time from ED to TXA

Isolated Hip Fracture



What would you like to see?

Reminder

- **Please sign the electronic confidentiality agreement to receive attendance points**

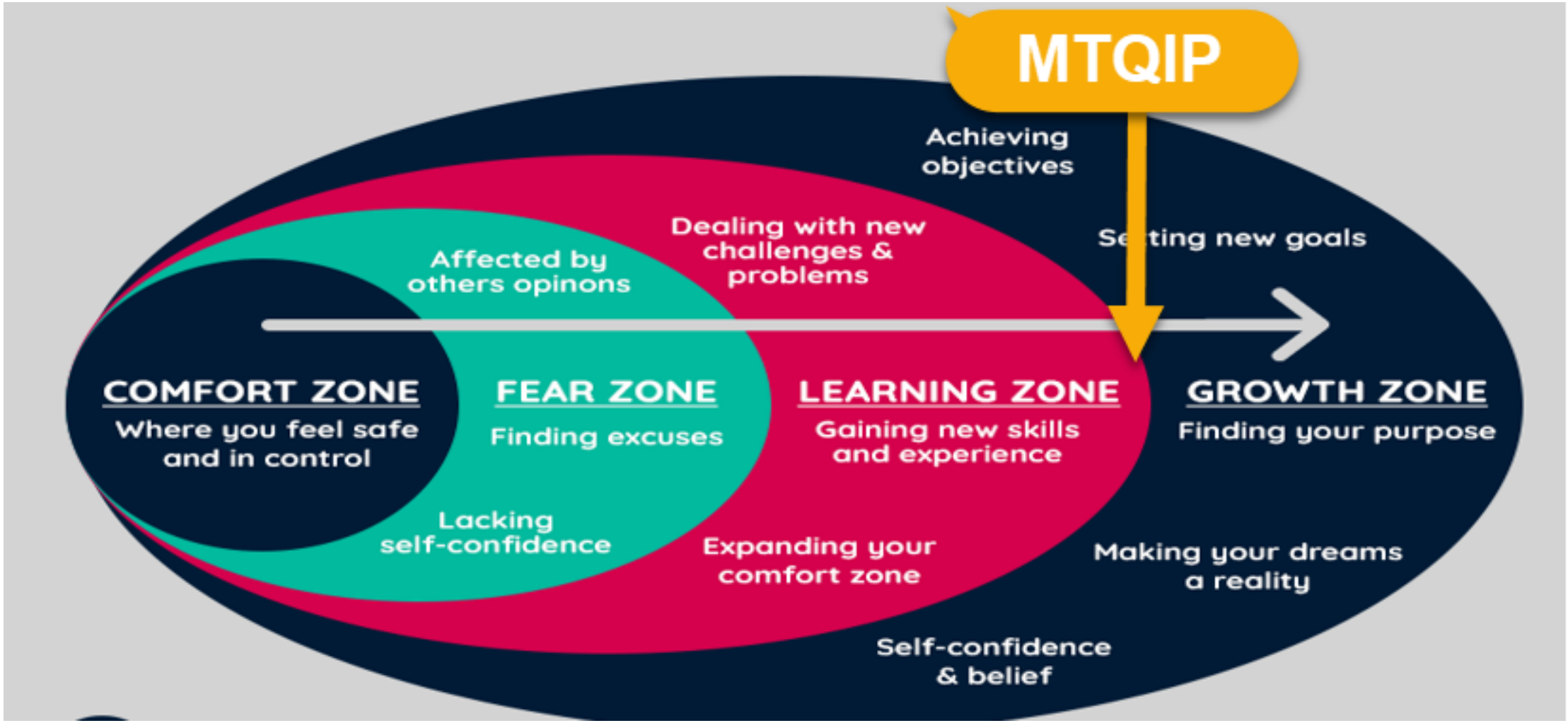
Evidence Based Registry

Judy Mikhail, PhD, RN

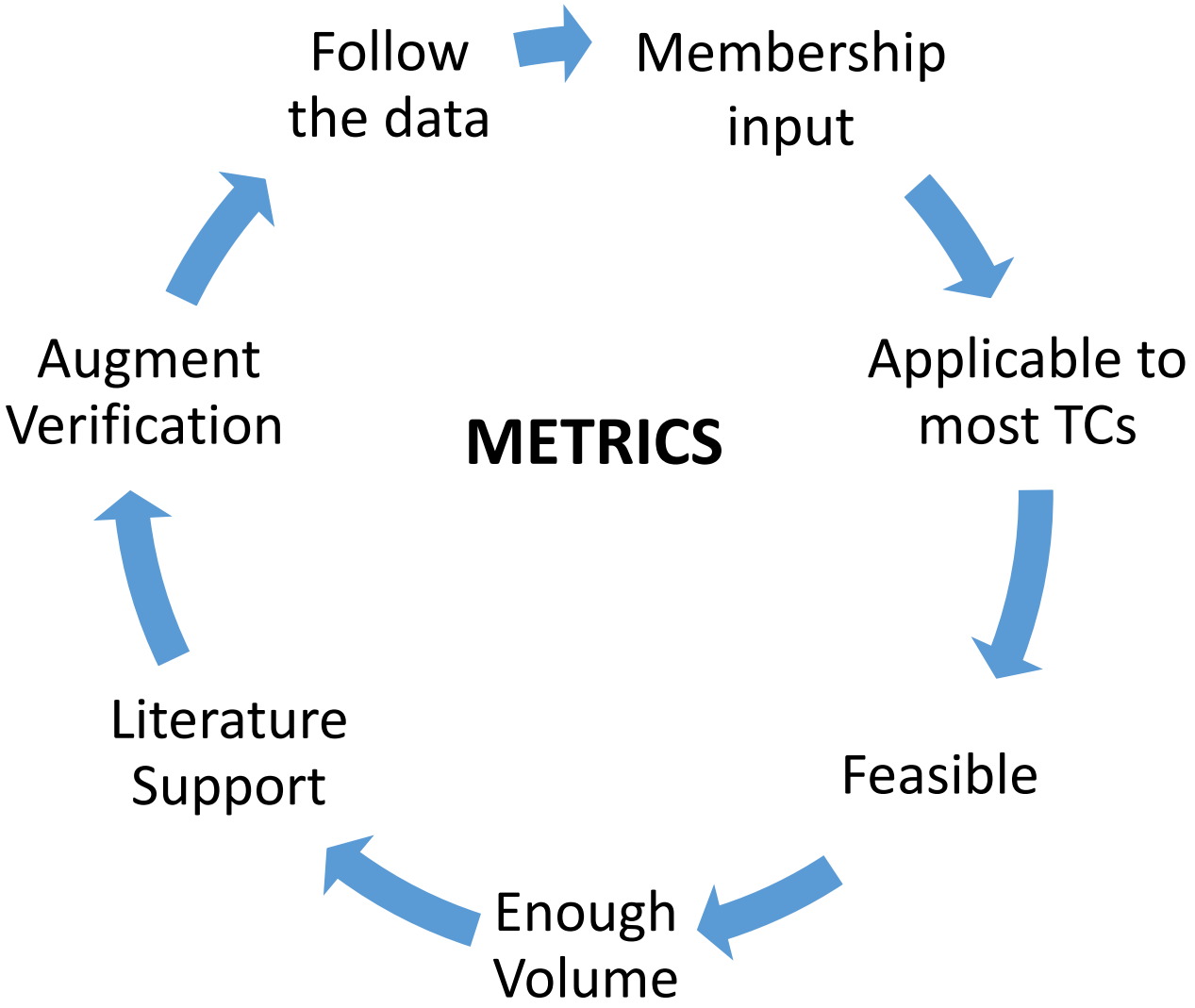
The MTQIP Journey….

- Thank you for 10 Years

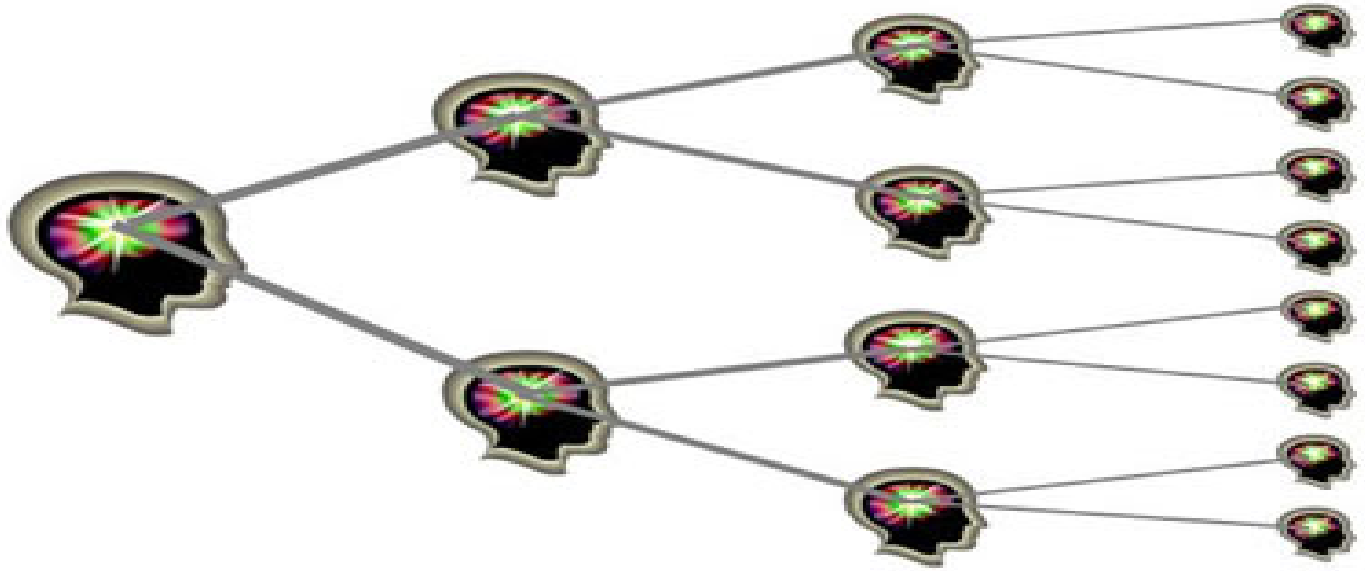
Trauma Registries


MTQIP
Achieving objectives
Setting new goals
Dealing with new challenges & problems
Affected by others opinons
COMFORT ZONE
Where you feel safe and in control
FEAR ZONE
Finding excuses
LEARNING ZONE
Gaining new skills and experience
GROWTH ZONE
Finding your purpose
Lacking self-confidence
Expanding your comfort zone
Making your dreams a reality
Self-confidence & belief

Evidence Based Metrics Development



The Spread of Knowledge Can Be Accelerated



Knowledge is contagious.

Increasing the contact rate means researchers "catch" an idea faster.

KEEP
CALM
AND
SHARE
KNOWLEDGE

Trauma Registries Worldwide Spread

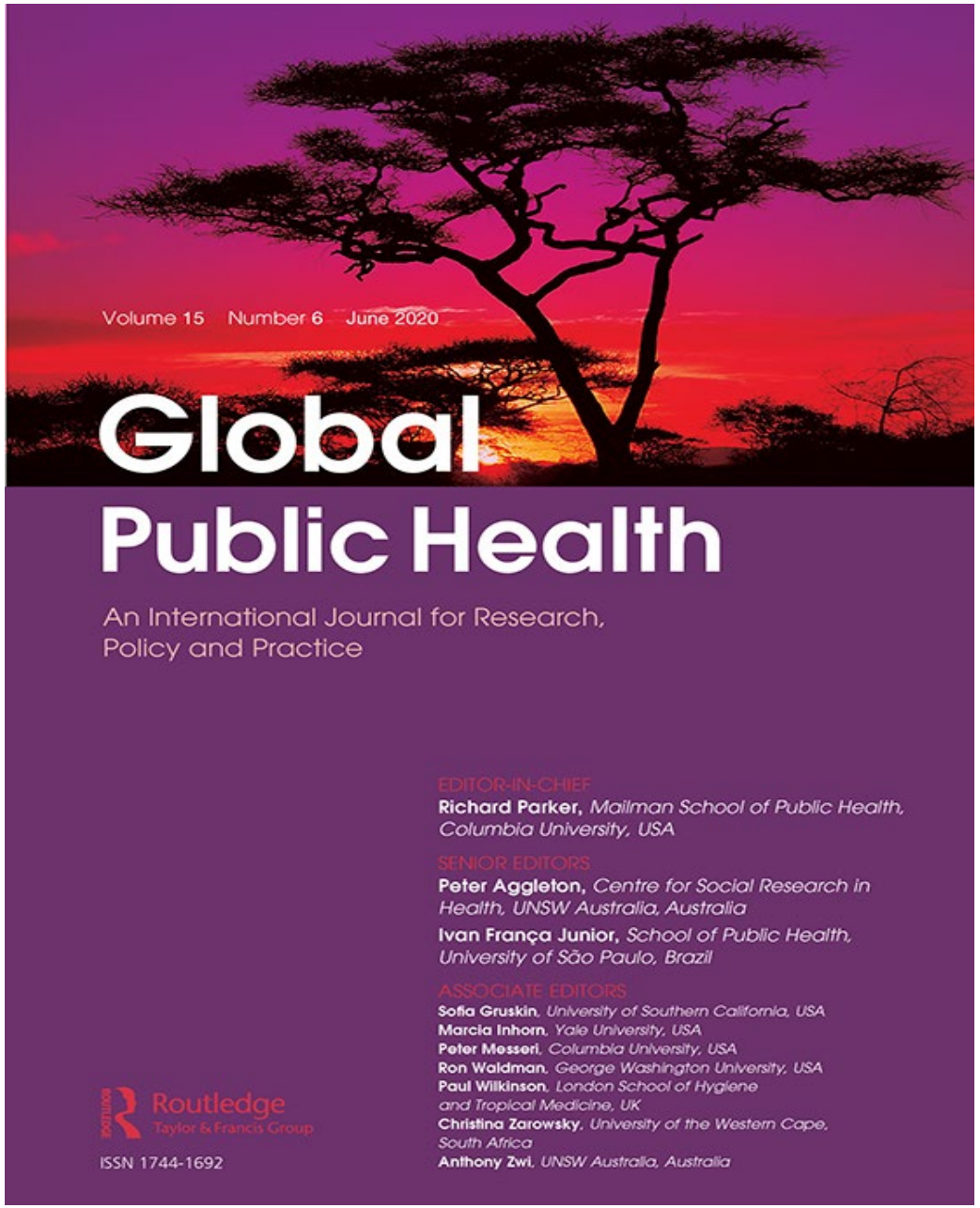
JPMA
Journal of the Pakistan Medical Association

Developing a Low Budget Trauma Registry

Muhammad Moosa, Ahmad Jawad, Iqra Jangda, Hasnain Zafar

Department of Surgery
Aga Khan University
Karachi; Pakistan

J Pak Med Assoc
2019 Feb;69(Suppl 1)(1):S112-S115.



Journal
Global Public Health ›
An International Journal for Research, Policy and Practice
Volume 14, 2019 - Issue 12

Articles

Trauma registry implementation and operation in low and middle income countries: A scoping review

Leah Rosenkrantz, Nadine Schuurman & Morad Hameed

Pages 1884-1897 | Received 11 Feb 2019, Accepted 18 Apr 2019, Published online: 23 Jun 2019

ABSTRACT

Injury is a major public health crisis contributing to more than 4.48 million deaths annually. Trauma registries have proven highly effective in reducing injury morbidity and mortality rates in high income countries. They are a critical source of information for injury prevention, benchmarking care, quality improvement, and

TSACO

Review

Maximizing the potential of trauma registries in low-income and middle-income countries

Leah Rosenkrantz,[1] Nadine Schuurman,[1] Claudia Arenas,[2,3] Andrew Nicol,[4,5] Morad S. Hameed[3,6]

ABSTRACT

Injury is a major global health issue, resulting in millions of deaths every year. For decades, trauma registries have been used in wealthier countries for injury surveillance and clinical governance, but their adoption has lagged in low-income and middle-income countries (LMICs). Paradoxically, LMICs face a disproportionately high burden of injury with few resources available to address this pandemic. Despite these resource constraints, several hospitals and regions in LMICs have managed to develop trauma registries to collect information related to the injury event, process of care, and outcome of the injured patient. While the implementation of these trauma registries is a positive step forward in addressing the injury burden in LMICs, numerous challenges still stand in the way of maximizing the potential of trauma registries to inform injury prevention, mitigation, and improve quality of trauma care. This paper outlines several of these challenges and identifies potential solutions that can be adopted to improve the functionality of trauma registries in resource-poor contexts. Increased recognition and support for trauma registry development and improvement in LMICs is critical to reducing the burden of injury in these settings.

BACKGROUND

Injuries kill approximately 4.8 million people a year and account for 10% of deaths worldwide—32% more than the number of deaths from tuberculosis

quality of care in either a defined medical setting or a program. The concept includes the assessment or evaluation of the quality of care; identification of problems or shortcomings in the delivery of care; designing activities to overcome these deficiencies; and follow-up monitoring to ensure effectiveness of corrective steps".[6]) have also played a critical role in this regard.[6–8]

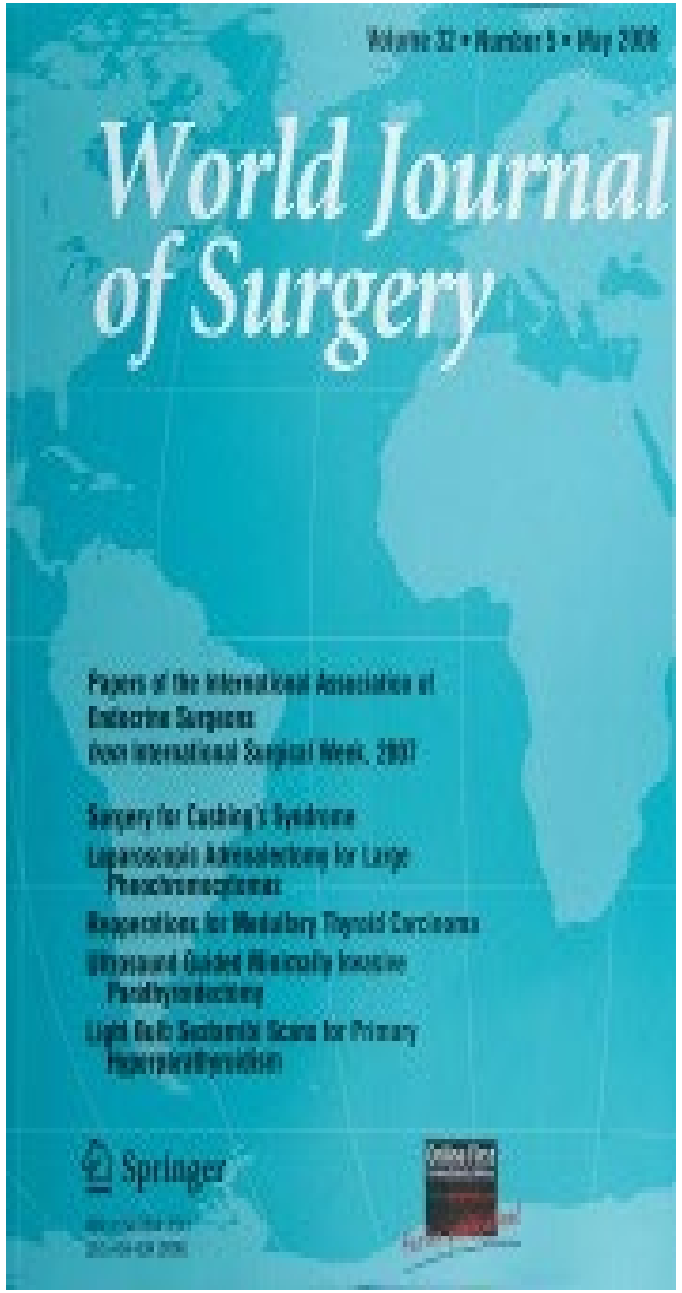
The establishment of trauma systems in high-income countries (HICs) tackles injury through both of these avenues. Trauma systems address the complex organizational problem of injury on the local, regional, and national scale through the coordination of numerous resources and services required for effective trauma management.[9] They represent a coordinated public health response to injury control through prevention and treatment and have proven highly effective in reducing rates of injury morbidity and mortality in HICs.[10–13]

A critical first step in the development of these trauma systems is the collection and analysis of injury data in the form of a trauma registry.[14] Trauma registries record information related to the injury event, process of care, and outcome of the injured patient.[9 15] These data are vital to informed decision-making across the *entire* continuum of trauma care from injury prevention and mitigation to pre-hospital and hospital care, and finally rehabilitation and community care.

While LICs have built their trauma systems on

2019

- **Trauma Registry Implementation in Low- And Middle-Income Countries: Challenges and Opportunities**
- Krishna Bommakanti [1], Isabelle Feldhaus [2], Girish Motwani [2], Rochelle A Dicker [2], Catherine Juillard



Surgery in Low and Middle Income Countries | Published: 20 June 2019

Establishing a Multicentre Trauma Registry in India: An Evaluation of Data Completeness

Gowri Shivasabesan, Gerard M. O'Reilly, Joseph Mathew, Mark C. Fitzgerald, Amit Gupta, Nobhojit Roy, Manjul Joshipura, Naveen Sharma, Peter Cameron, Madonna Fahey, Teresa Howard, Zoe Cheung, Vineet Kumar, Bhavesh Jarwani, Kapil Dev Soni, Pankaj Patel, Advait Thakor, Mahesh Misra, Russell L. Gruen, Biswadev Mitra the Australia-India Trauma Systems Collaboration (AITSC)

World Journal of Surgery **43**, 2426–2437(2019) | Cite this article

Abstract

Background

The completeness of a trauma registry's data is essential for its valid use. This study aimed to evaluate the extent

Trauma Registry: Focus, Funding and the Future

- 2019 Apr;89(4):276

- Kate L King, Zsolt J Balogh

- Department of Traumatology, John Hunter Hospital and The University of Newcastle, Newcastle, New South Wales, Australia.

Original Scientific Report | Published: 19 April 2019

Trauma Surveillance and Registry Development in Mozambique: Results of a 1-Year Study and the First Phase of National Implementation

Fadi Hamadani, Tarek Razek, Ezio Massinga, Shailvi Gupta, Monica Muataco, Paloma Muripiha, Catarina Maguni, Vania Muripa, Ivandra Percina, Aassis Costa, Prem Yohannan, David Bracco, Evan Wong, Sam Harper, Dan L. Deckelbaum & Otilia Neves

World Journal of Surgery **43**, 1628–1635(2019) | Cite this article

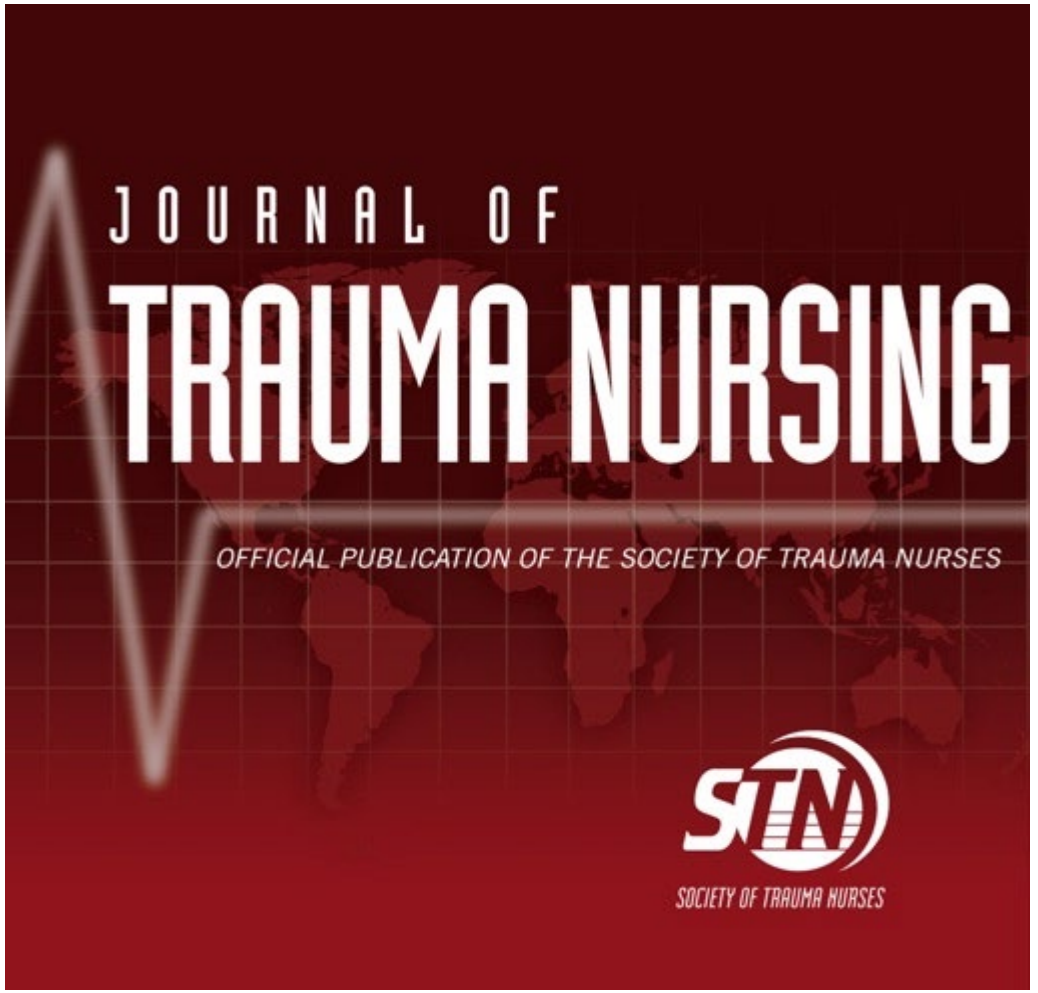
Abstract

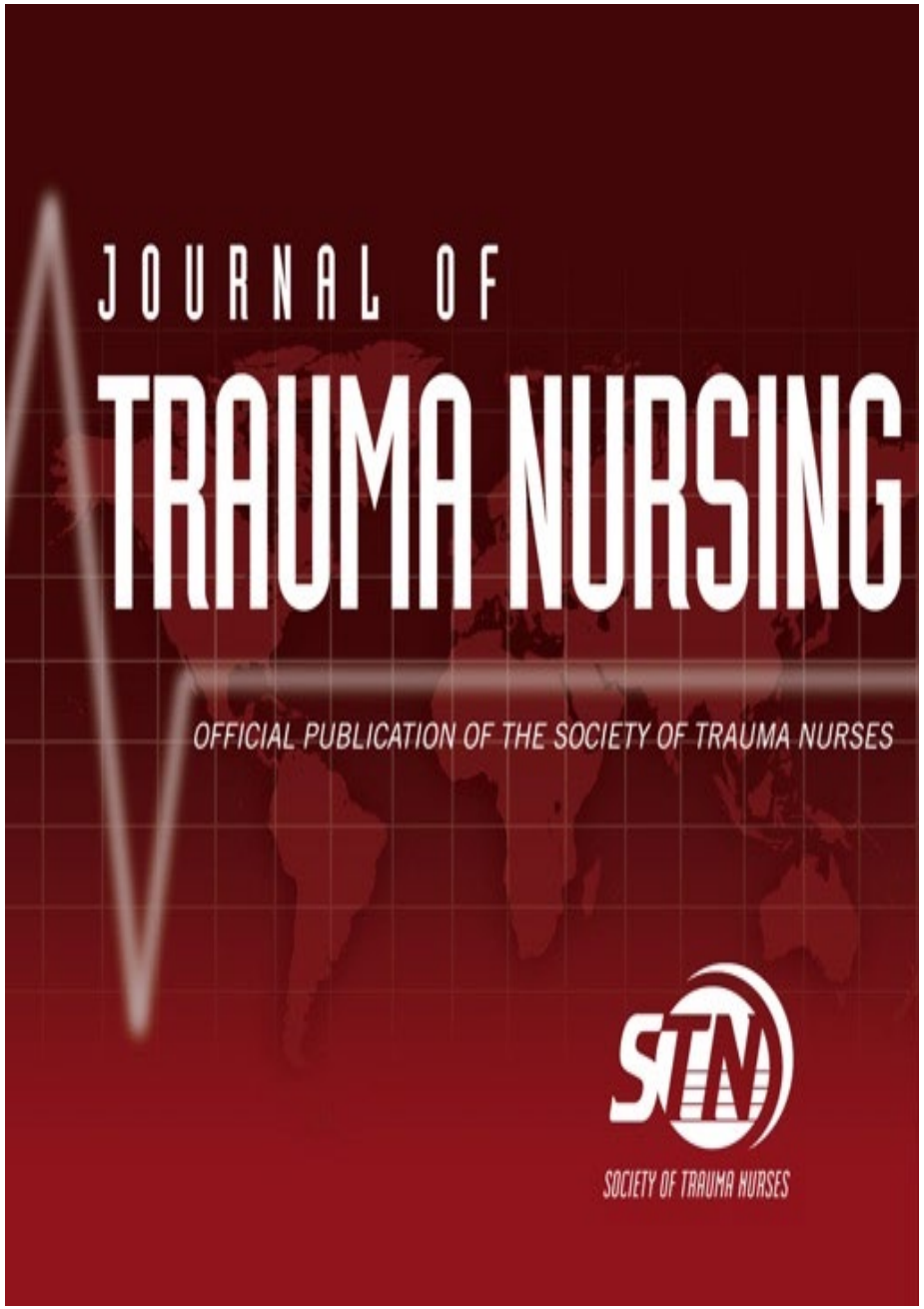
Background

Mozambique has had no policy-driven trauma system and no hospital-based trauma registries, and injury was

Moving closer to home…

Publishing is about improving patient care
Registrars and MCRs should publish





Pre COVID

QUALITY IMPROVEMENT

May/June 2020

Trauma Data Quality Improvement: One Center's Experience With Telecommuting and Paperless Data Management

Sara Seegert, MSN, RN ■ Bethany Chapman, BSN, RN ■ Kelly Bork, AAS, RHIT ■ Kimberly Runkle, AAS, RHIT ■ Chandra Eickhoff, AAS, RHIT

Toledo Ohio Hospital System

4 Trauma Data Analysts

- 1 Level I
- 1 Level II Peds
- 4 Referring Hospitals
- 2 year review after transition to remote data abstraction

QUALITY IMPROVEMENT

Trauma Data Quality Improvement: One Center's Experience With Telecommuting and Paperless Data Management

Sara Seegert, MSN, RN ■ Bethany Chapman, BSN, RN ■ Kelly Bork, AAS, RHIT ■ Kimberly Runkle, AAS, RHIT ■ Chandra Eickhoff, AAS, RHIT

ABSTRACT

The American College of Surgeons requires that trauma centers collect and enter data into the National Trauma Data Registry in compliance with the National Trauma

data were being entered within 30 days and 100% of cases were being validated, without sacrificing effective and efficient communication between in-hospital and home-based staff. The institution also benefitted from reduced expense for

- Data entered within 30 days of discharge and 100% were validated
- Maintained a goal of data entry for 5-6 patients per day
- Increased efficiency = increased time for training/data validation
- Total of 2 calls off in 2 years
- Positives: time savings, environment, job satisfaction
- Drawbacks: Isolation, wait time for answers, network connection

ProMedica Toledo Hospital campus. The trauma services department currently employs four trauma data analysts, all of whom are American Health Information

the two flagship centers, as well as four of the outlying hospitals. Until 2018, these analysts worked on-site at the hospital with access to medical records and the

JOURNAL OF TRAUMA NURSING

May/June 2020

QUALITY IMPROVEMENT

Shout out to Bronson!

Timely Venous Thromboembolism Prophylaxis in Trauma: A Team Approach to Process Improvement

Loretta Farrell, BSN, RN ■ Oreste Romeo, MD, FACS ■ Ruth Johnson, MSN, RN

ABSTRACT

Venous thromboembolism is a significant complication in trauma. Multisystem injury, advancing age, surgery, and blood transfusion all contribute to the risk of venous
bolism in trau
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center from a
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Key Words

Process improvement, Team approach, Trauma, Venous thromboembolism prophylaxis

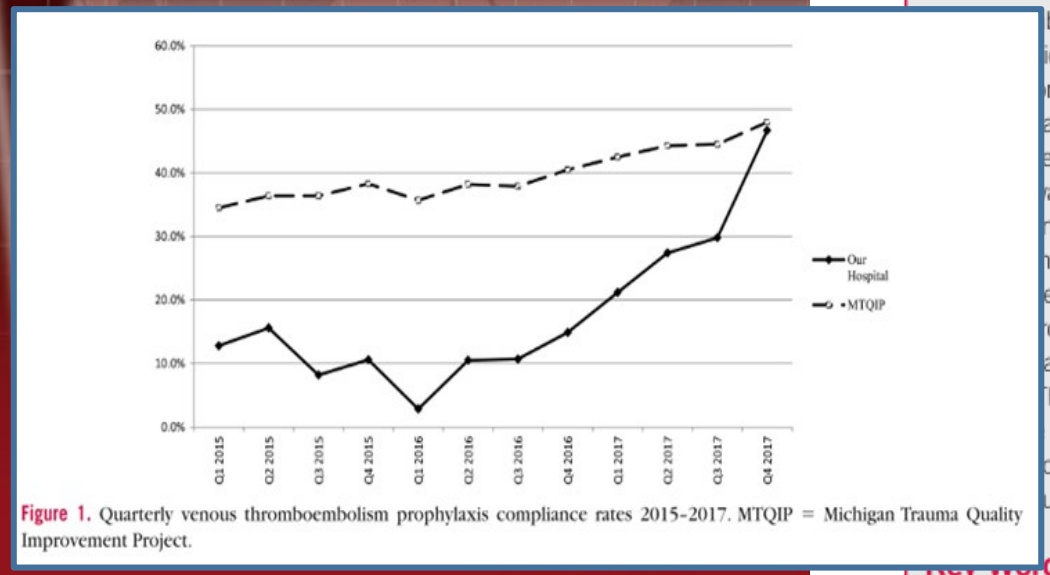


Figure 1. Quarterly venous thromboembolism prophylaxis compliance rates 2015-2017. MTQIP = Michigan Trauma Quality Improvement Project.

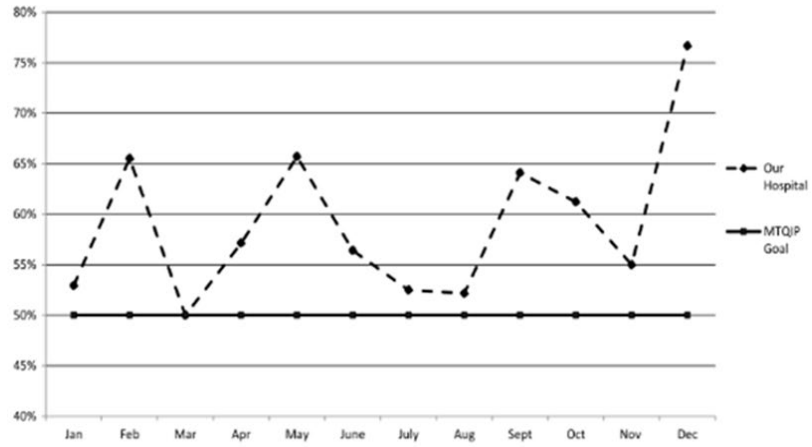
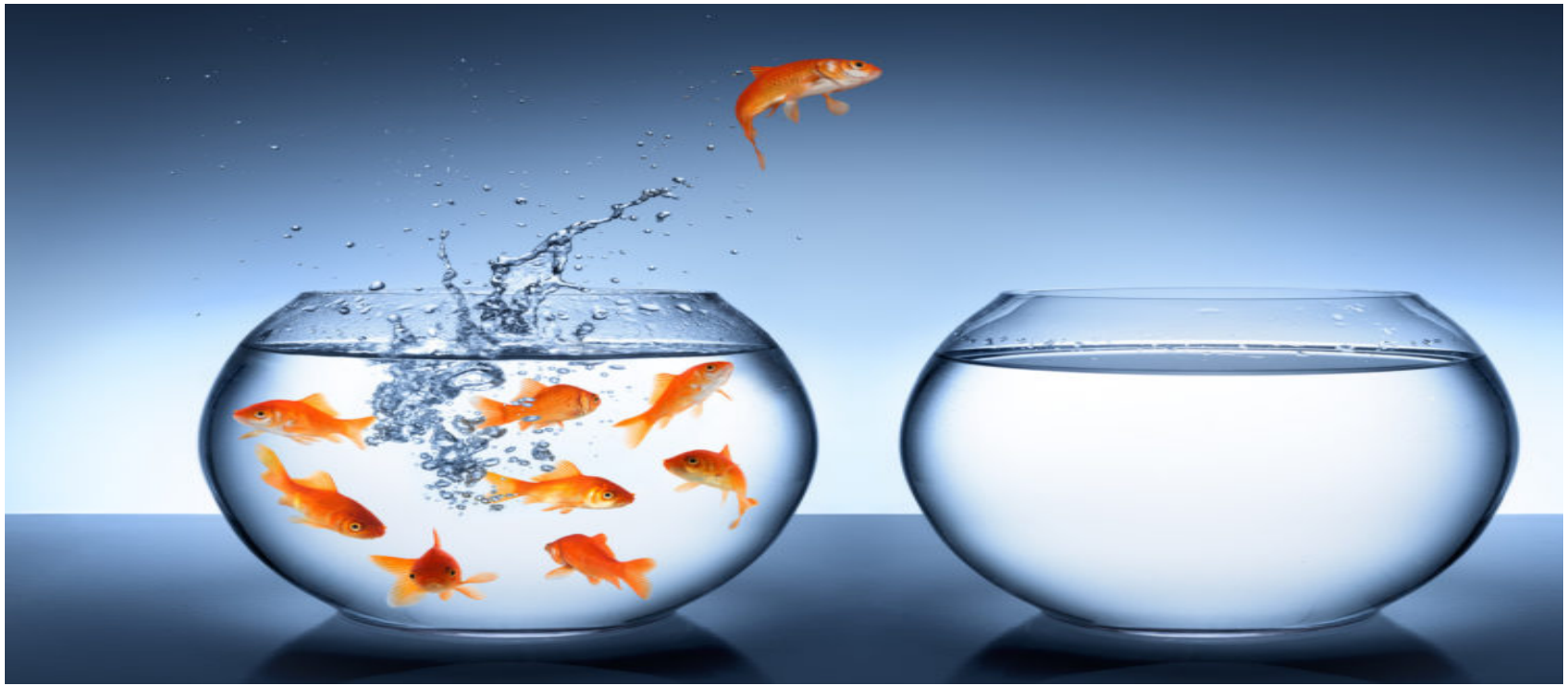


Figure 2. Monthly compliance rate for venous thromboembolism prophylaxis 2018. MTQIP = Michigan Trauma Quality Improvement Project.

trauma (Byrne et al., 2017; Geerts et al., 1996; Jacobs et al., 2017), as well as shortened time from injury to administration (Sumislawski, Kornblith, Conroy, Callcut, & Cohen, 2018).

As a Level I trauma center in the state of Michigan

variation, the MTQIP collaborative set the target that each trauma center was to achieve greater than 50% of its trauma admissions to receive VTE prophylaxis within 48 hr of



Opportunity

Reminder

- **Please sign the electronic confidentiality agreement to receive attendance points**

WELCOME

Please mute all microphones

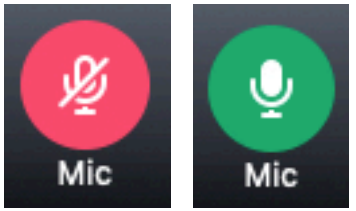
M·TQIP

Disclosures

Salary support for MTQIP from BCBSM/BCN and the State of Michigan

- **Anne Cain-Nielsen**
- **Mark Hemmila**
- **Kim Kramer**
- **Jill Jakubus**
- **Judy Mikhail**
- **Sara Samborn**

Meeting Logistics



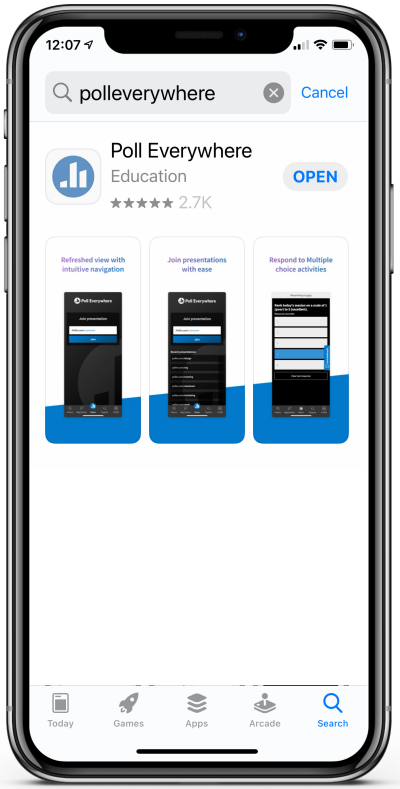
- **Join via computer and enter full name**
- **Mute all microphones**
- **Discussion opportunities at section ends**
- **Use chat to signal contribution**
- **You'll unmute your own microphone**

GoToMeeting

Meeting Polling

- **Mobile App**
  - **Go to your app store**
  - **Search Poll Everywhere**
  - **Download**
  - **Enter username mtqip910**
  - **Enter your full name**

- **Web Browser**
  - **Go to PollEv.com/mtqip910**
  - **Set a browser bookmark**
  - **Enter your full name**

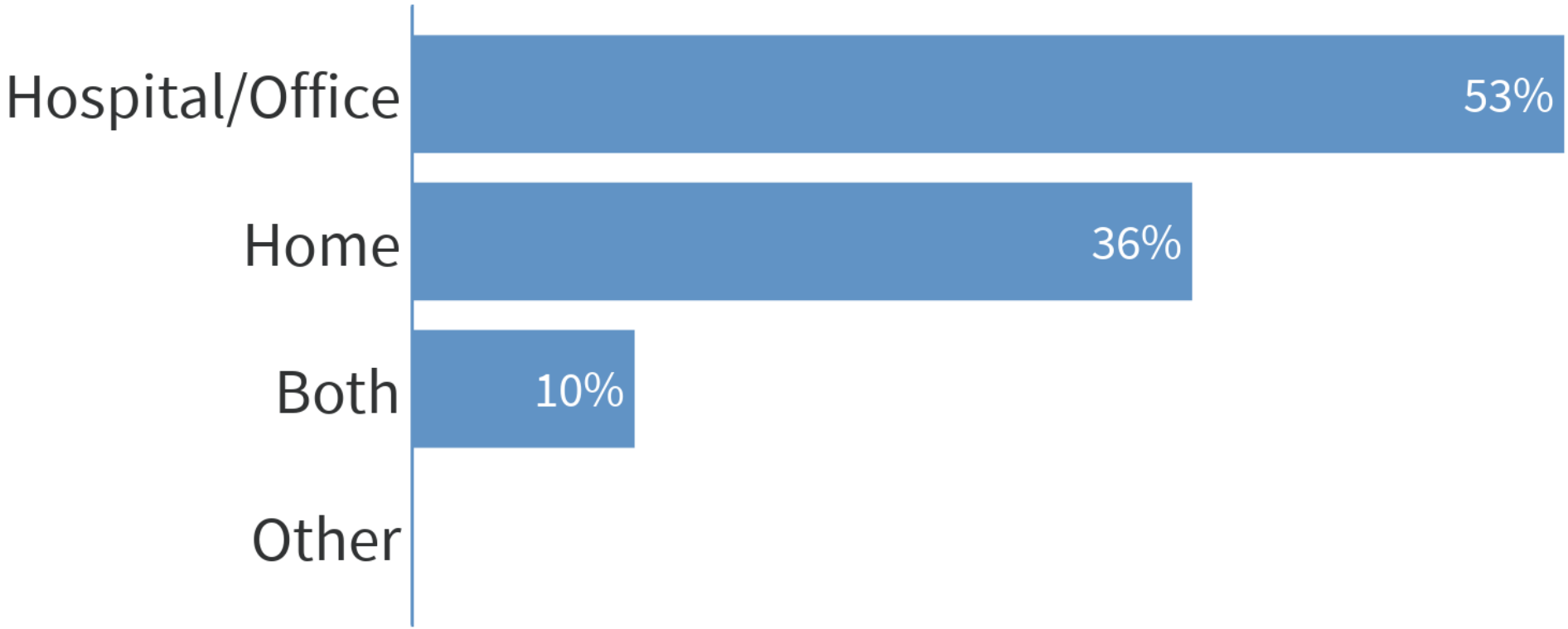


Poll Everywhere

When poll is active, respond at **PollEv.com/mtqip910**

Text **MTQIP910** to **22333** once to join

Where are you currently working?



When poll is active, respond at **PollEv.com/mtqip910**

What has been your biggest challenge working remotely?

Top

3	Network connections
2	Trying to teach the children
2	Engagement with team
2	IT issues
2	Distractions
1	Hauling books back and forth

When poll is active, respond at **PollEv.com/mtqip910**

How have you overcome your biggest challenge working remotely?

Top

2	Lots of prayer!
2	yes
1	went back to hospital
1	Hybrid of going to the office and working from home

Welcome
Announcements
New Analytics
Research in Progress

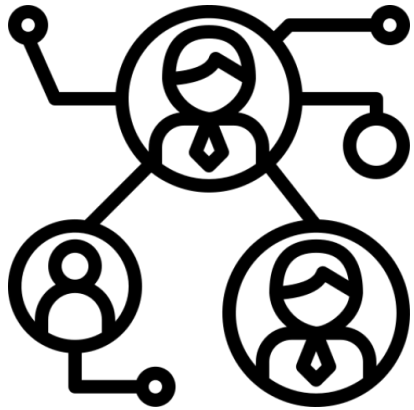
Jill Jakubus, PA-C

Topics

- **Welcome**
  Announcements
  New analytics
  Research in Progress

New Member

- **McLaren Northern Michigan (Jan 2021)**



Topics

- ✓ Welcome
- • Announcements
  New analytics
  Research in Progress

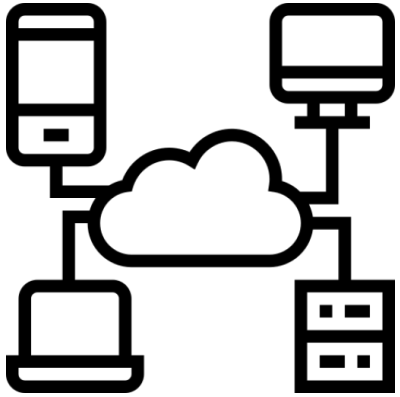
Acute Care Surgery

- **Presentation Oct meeting**
- **Opening to more centers**
- **Start Jan/July 2021**
- **Contact: Kim Kramer (kikramer@umich.edu)**

M·ACS

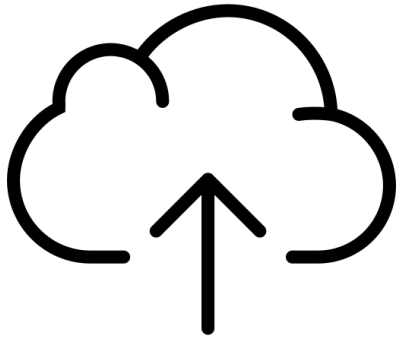
Data Submission

- **Due: Oct 2, 2020**
- **Minimum interval: 3/1/19 – 6/30/20**
- **First submission: 1/1/16**



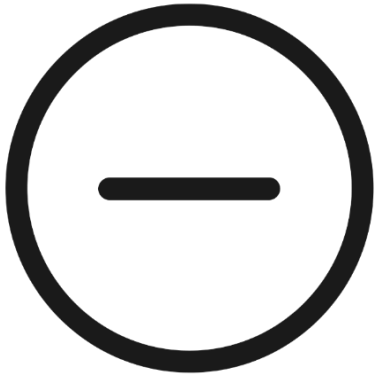
Performance Index Points

- **Final opportunity Dec submission**
- **Review: online analytics, case lists, push reports**
- **Only able to provide credit for data received**



Data Validation 2021

- **Cryoprecipitate 0-4 Hours**
- **Cryoprecipitate 0-24 Hours**
- **IV Fluid 0-4 Hours**
- **IV Fluid 0-24 Hours**
- **Death**
- **Hospital Days**



Retire

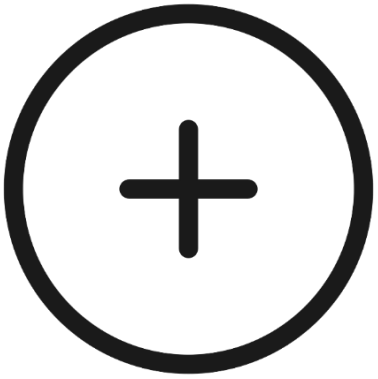
Data Validation 2021

- **Cardiac Arrest Requiring CPR**

Change

Data Validation 2021

- **Hospital Discharge Date**
- **Hospital Discharge Time**
- **Pregnancy**
- **Delirium**
- **Patient Name**
- **Patient MRN**
- **Head CT Date**
- **Head CT Time**
- **IHF Date**
- **IHF Time**



Additions

AIS Clarifications 2019

- **Resources/Education/AIS Clarification 2019**

ALL - AIS 2005/2008 Update Dictionary - Clarification Document - Most Current Clarification Date At the Top

10/9/2019 15:16

YEAR	CHAPTER	ITEM	DISCUSSION	REFERENCE/EXAMPLE
2019	HEAD	*24 Hour Statement*	Within the first 24 hours post injury, patients with transient signs and symptoms should be coded even if they are resolved within the 24 hour period.	(p.40)
2019	HEAD	*Blood Along Tentorium*	Supratentorial codes to Cerebrum; Interpeduncular fossa (cistern) basal cisterns code as injury involving hemorrhage in the brainstem; "Along" the tentorium, code to supratentorial = Cerebrum.	(p.41)
2019	HEAD	*Amnesia*	One symptom that can exist without a closed head injury, no AIS code.	
2019	HEAD	*Occipital Condyles*	Occipital condyles are coded to the skull base.	(p.49)
2019	HEAD	*Concussion*	***Concussion*** must be documented in the medical record by a physician or physician extender. Recorded in PI minutes is inadequate.	
2019	HEAD	*Coma Modifiers*	For codes with coma modifiers, "not associated with coma…" = means there was documentation of coma, but it was not greater than 6 hours in duration. "Associated with coma…." = means there was documentation of coma, and it was greater than 6 hours in duration. The NFS code should be used when there is no documentation of coma with an injury that has a coma modifier.	e.g. SAH with coma 8 hours = 140695.3 SAH associated with coma > 6 hours

AIS 2015

- **Vendors registry integration (pending confirmation)**
- **Licensing fees (next slide)**
- **Install fee ($300)**
- **Education (poll)**
- **MTQIP requests uniform collaborative adoption**
- **Present Oct 2020, feasibility 2022**

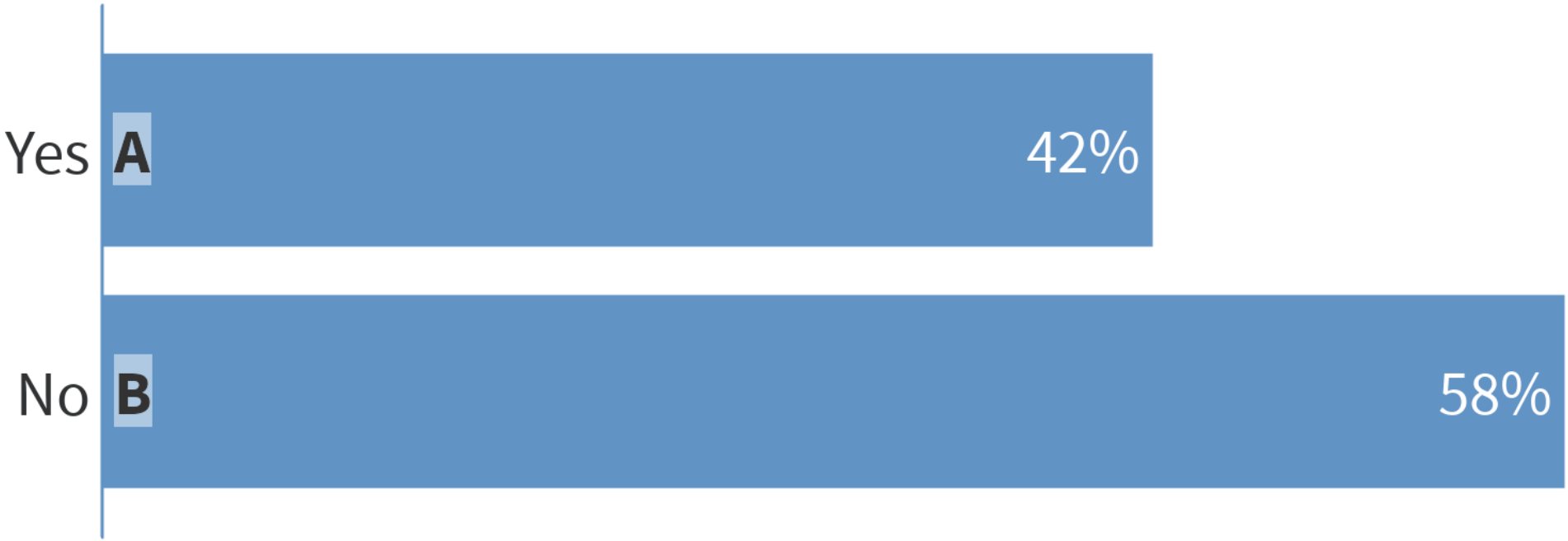
AIS 2015

License Type	Annual License Fee (SRP)
System License	
National	$3,000
State	$1,000
Regional	$500
Coding License	
Individual/Single Center:	
Level III, IV, V	$250
Level I, II	$500
Multi-Center:	
Level IV, V	
0-50 centers (per center)	$100
>51 centers (per center)	$80
Level I, II, III	
0-5 centers (per center)	$400
6-15 centers (per center)	$300
>16 centers (per center)	$200

Respond at **PollEv.com/mtqip910**

Text **MTQIP910** to **22333** once to join, then **A or B**

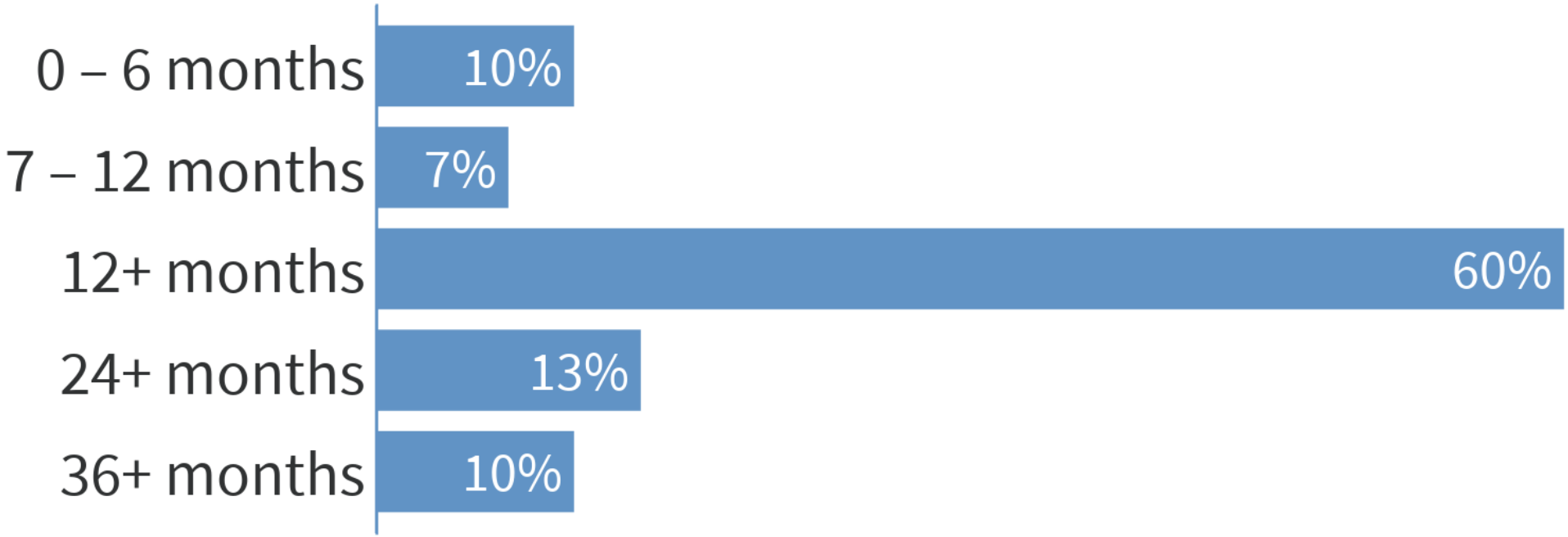
Q1 - For Level 1 and 2 trauma centers, have you completed AIS 2015 training?



When poll is active, respond at **PollEv.com/mtqip910**

Text **MTQIP910** to **22333** once to join

Q2 - For Level 1 and 2 trauma centers, how long ago was your AIS 2015 training?



When poll is active, respond at **PollEv.com/mtqip910**

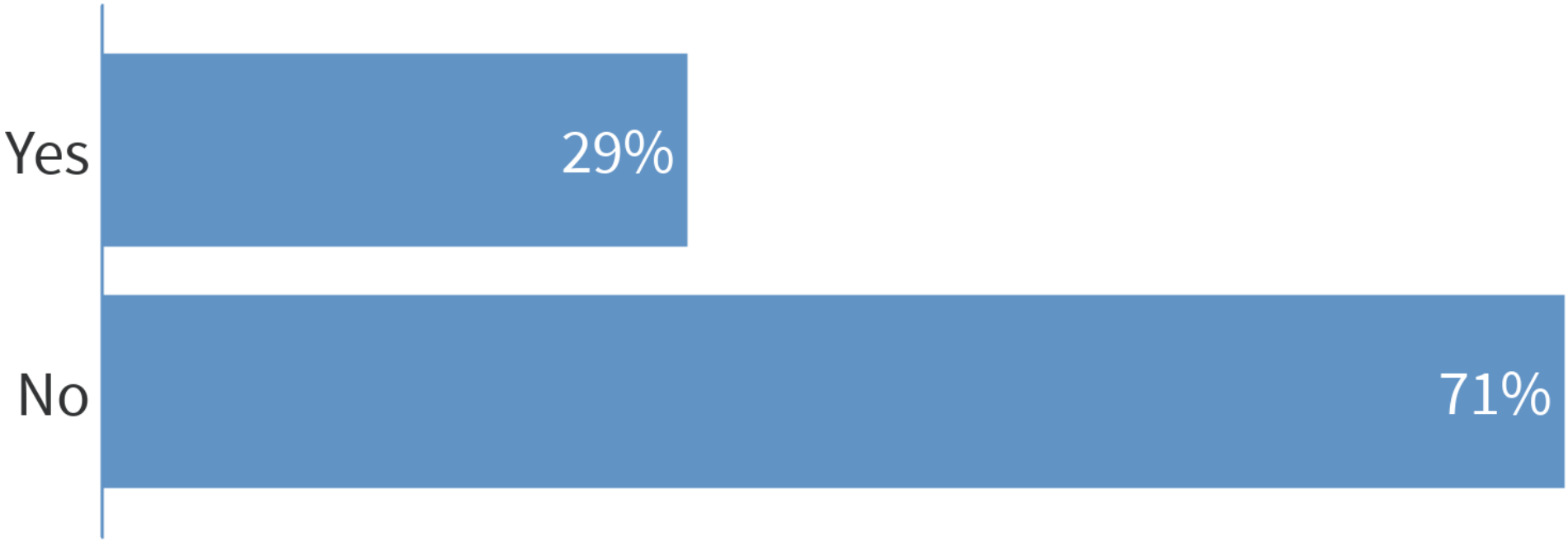
Text **MTQIP910** to **22333** once to join

Q3 - For Level 1 and 2 trauma centers, would migration in 2022 be reasonable?

When poll is active, respond at **PollEv.com/mtqip910**

Text **MTQIP910** to **22333** once to join

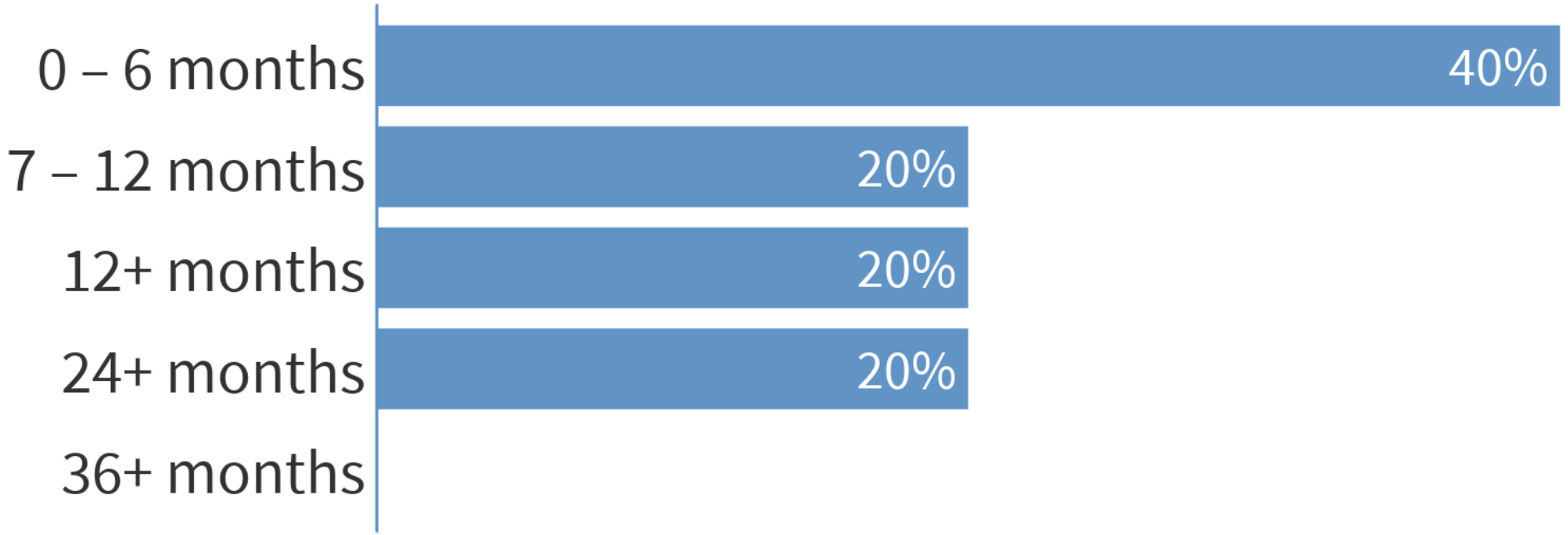
Q4 - For Level 3 trauma centers, have you completed AIS 2015 training?



When poll is active, respond at **PollEv.com/mtqip910**

Text **MTQIP910** to **22333** once to join

Q5 - For Level 3 trauma centers, how long ago was your AIS 2015 training?



When poll is active, respond at **PollEv.com/mtqip910**

Text **MTQIP910** to **22333** once to join

For Level 3 centers, would migration in 2022 be reasonable?

When poll is active, respond at **PollEv.com/mtqip910**

Q6 - For all trauma centers, is there a concern we haven't considered?

Top

9	No
0	Can we have a short refresher?
0	no
0	No

Topics

- ✓ Welcome
- ✓ Announcements
- • New analytics
  Research in Progress

ArborMetrix Online Analytics – Completed

- **IHF Surgical Repair Timing**

Metrics

Head CT Metric

Surgical Hip Repair

VTE Prophylaxis 2019

VTE Prophylaxis 2020

ArborMetrix Online Analytics – Completed

- **IHF Surgical Repair Timing**
- **PHI**

Patient List

Record #	MRN	First Name	Last Name	Age	ISS

ArborMetrix Online Analytics - Next

- **Triage**
- **PRQ**
- **Your suggestion**

> J Trauma Acute Care Surg. 2019 Sep;87(3):658-665. doi: 10.1097/TA.0000000000002402.

Rethinking the definition of major trauma: The need for trauma intervention outperforms Injury Severity Score and Revised Trauma Score in 38 adult and pediatric trauma centers

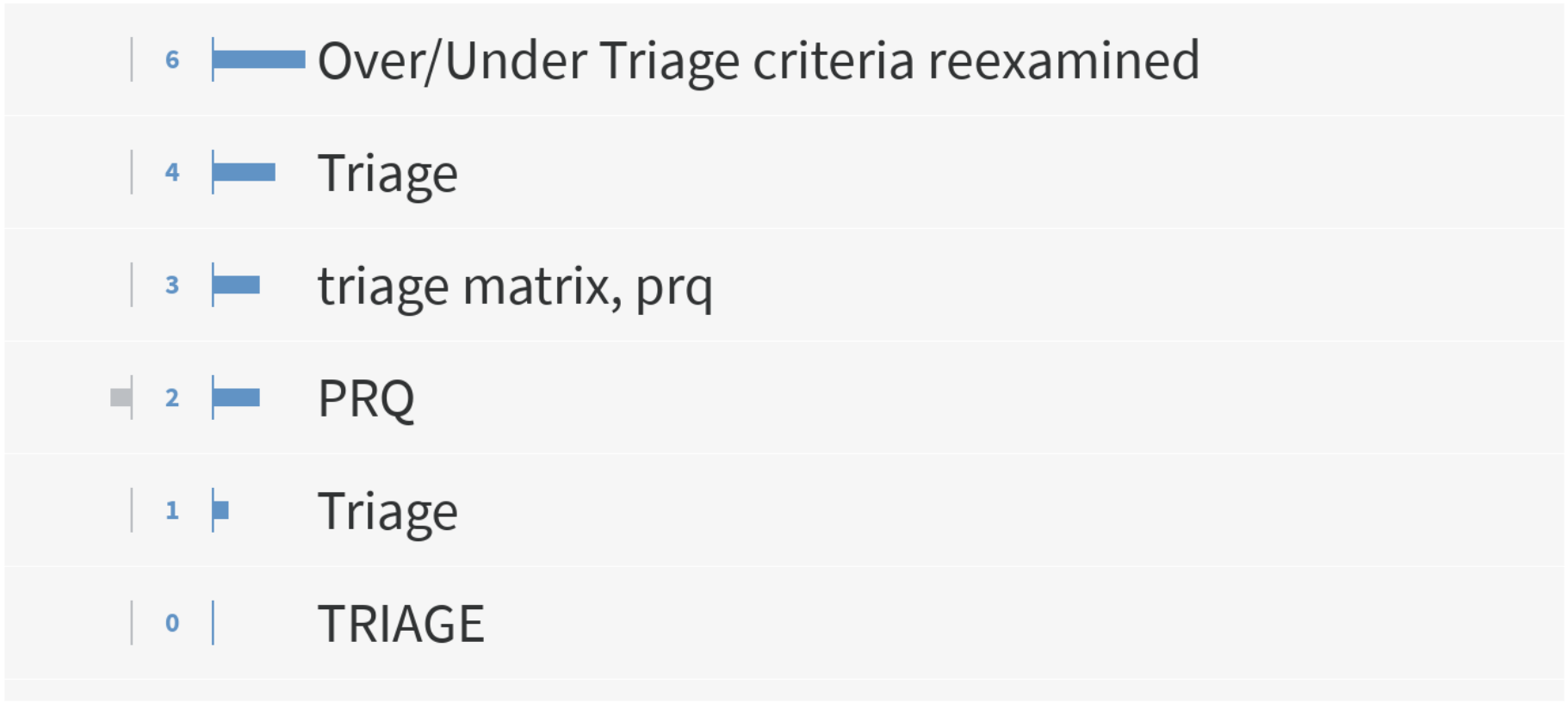
> J Surg Res. 2020 Jul;251:195-201. doi: 10.1016/j.jss.2019.11.011. Epub 2020 Mar 10.

Redefining the Trauma Triage Matrix: The Role of Emergent Interventions

When poll is active, respond at **PollEv.com/mtqip910**

Q7 - What online analytic would you find most valuable?

Top



Topics

- ✓ Welcome
- ✓ Announcements
- ✓ New analytics
- • Research in Progress

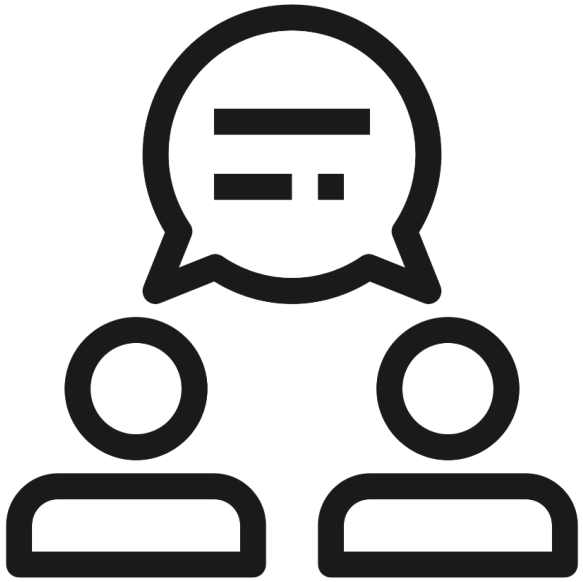
Research in Progress

Center	PI	Topic	Phase
Detroit Receiving	Oliphant	The accuracy of orthopaedic data in a trauma registry.	Data collection
Henry Ford	Johnson	EMS vs. private car effect on outcomes	Update pending
Michigan Medicine	Hemmila	Pedestrian protection	Analysis
Michigan Medicine	Wang	Injury prevention in vunerable populations	Analysis
Michigan Medicine	Ward	Clinical decision support tools	Analysis
Providence Hospital, Spectrum Health, St. Joseph Mercy, Michigan Medicine	Iskander, Lopez, Jakubus	Optimal timing head CT for geriatric falls	Analysis
Spectrum Health	Chapman	Outcomes in operative fixation of rib fractures	Submission
St. Joseph Mercy Ann Arbor	Hecht	Impact of time to anticoagulant reversal on mortality	Analysis
St Joseph Mercy Ann Arbor	Hecht	Early chemoprophylaxis in severely injured trauma patients reduces risk of VTE	Published *The American Surgeon*. July 2020.
St. Joseph Mercy Ann Arbor	Hoesel	Rib fractures in the elderly	Analysis
University of Minnesota	Tignanelli	NEI-6 modeling prospective validation	EAST multicenter trial application submitted

Topics

- ✓ Welcome
- ✓ Announcements
- ✓ New analytics
- ✓ Research in Progress

Discussion Opportunity



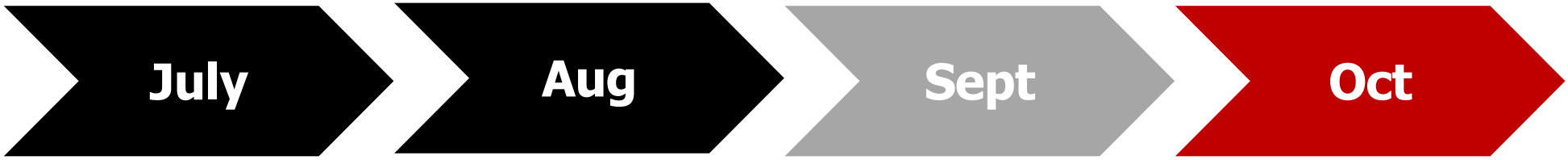
2021 MTQIP Data Dictionary Update Highlights

Jill Jakubus, PA-C

Topics

- **Timeline**
  Change history
  Formatting
  NTDS changes

Timeline



Member Feedback

NTDS Release

MTQIP Release

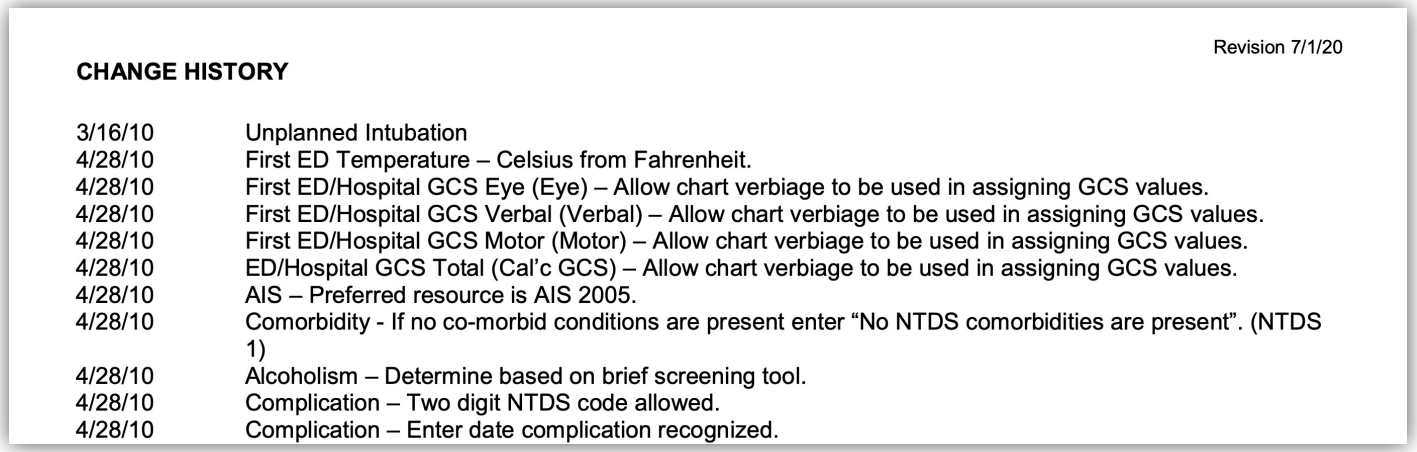
Vendor Meeting

Topics

- ✓ Timeline
- • Change log
- Formatting
- NTDS changes

Change History

- **Removed from end of dictionary**
- **Now separate, filterable document**



Revision 7/1/20

CHANGE HISTORY

3/16/10	Unplanned Intubation
4/28/10	First ED Temperature – Celsius from Fahrenheit.
4/28/10	First ED/Hospital GCS Eye (Eye) – Allow chart verbiage to be used in assigning GCS values.
4/28/10	First ED/Hospital GCS Verbal (Verbal) – Allow chart verbiage to be used in assigning GCS values.
4/28/10	First ED/Hospital GCS Motor (Motor) – Allow chart verbiage to be used in assigning GCS values.
4/28/10	ED/Hospital GCS Total (Cal'c GCS) – Allow chart verbiage to be used in assigning GCS values.
4/28/10	AIS – Preferred resource is AIS 2005.
4/28/10	Comorbidity - If no co-morbid conditions are present enter "No NTDS comorbidities are present". (NTDS 1)
4/28/10	Alcoholism – Determine based on brief screening tool.
4/28/10	Complication – Two digit NTDS code allowed.
4/28/10	Complication – Enter date complication recognized.

Change History

M·TQIP

Topics

- ✓ Timeline
- ✓ Change log
- • Formatting
  NTDS changes

Formatting

- **Easy to navigate**
- **Contents with numbered subsections**

CONTENTS

Formatting

- **Titles consistent with NTDS**

9.15 DEEP VEIN THROMBOSIS (DVT)

Definition

The formation, development, or existence of a blood clot or thrombus within the vascular system, which may be coupled with inflammation.

Element Values

- Deep Vein Thrombosis (NTDS 14)

Additional Information

- Patients with DVT treated with anticoagulation therapy and/or placement of a vena cava filter or clipping of the vena cava.
- The diagnosis may be confirmed by venogram, ultrasound, or CT scan.
- Patients with DVT where the attending physician documents therapeutic anticoagulation contraindication due to bleeding risk.
- Patients with gastrocnemius or soleus vein thromboses if the patient receives treatment or contraindication is documented.

Formatting

- **Red font variability signaling**

9.15 DEEP VEIN THROMBOSIS (DVT)

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The formation, development, or existence of a blood clot or thrombus within the vascular system, which may be coupled with inflammation.

Element Values

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Additional Information

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- The diagnosis may be confirmed by venogram, ultrasound, or CT scan.
- Patients with DVT where the attending physician documents therapeutic anticoagulation contraindication due to bleeding risk.
- Patients with gastrocnemius or soleus vein thromboses if the patient receives treatment or contraindication is documented.

Formatting

- **Helpful hyperlinks**

9.15 DEEP VEIN THROMBOSIS (DVT)

Definition

The formation, development, or existence of a blood clot or thrombus within the vascular system, which may be coupled with inflammation.

Element Values

- Deep Vein Thrombosis (NTDS 14)

Resources

- Veins of the Lower Extremity
- Veins of the Upper Extremity

Codebook

Definition Source: NTDS
Data Base Column Name: A_TCODE, A_TCODE_AS_TEXT

3d. The Veins of the Lower Extremity, Abdomen, and Pelvis

The Veins of the Abdomen and Pelvis (Figs. 585, 586, 587)

The veins of the lower extremity are subdivided, like those of the upper, into two sets, **superficial** and **deep;** the superficial veins are placed beneath the integument between the two layers of superficial fascia; the deep veins accompany the arteries. Both sets of veins are provided with valves, which are more numerous in the deep than in the superficial set. Valves are also more numerous in the veins of the lower than in those of the upper limb.

The Superficial Veins of the Lower Extremity

The **superficial veins** of the lower extremity are the **great** and **small saphenous veins** and their tributaries.

On the **dorsum of the foot** the **dorsal digital veins** receive, in the clefts between the toes, the **intercapitular veins** from the plantar cutaneous venous arch and join to form short **common digital veins** which unite across the distal ends of the metatarsal bones in a **dorsal venous arch.** Proximal to this arch is an irregular venous net-work which receives tributaries from the deep veins and is joined at the sides of the foot by a **medial** and a **lateral marginal vein,** formed mainly by the union of branches from the superficial parts of the sole of the foot.

On the **sole of the foot** the superficial veins form a **plantar cutaneous venous arch** which extends across the roots of the toes and opens at the sides of the foot into the medial and lateral marginal veins. Proximal to this arch is a **plantar cutaneous venous net-work** which is especially dense in the fat beneath the heel; this net-work communicates with the cutaneous venous arch and with the deep veins, but is chiefly drained into the medial and lateral marginal veins.

Formatting

- **Helpful hyperlinks**

7.33 STEROID USE

Definition

Patients that required the regular administration of oral or parenteral corticosteroid medications within 30 days prior to injury for a chronic medical condition.

Element Values

- Steroid Use (NTDS 24)

Resources

- Drug search

Codebook

Definition Source: NSQIP, NTDS
Data Base Column Name: A_COMORCODE

deflazacort - Drug Summary

CLASSES

Muscular Dystrophy Agents
Systemic Corticosteroids, Plain

DEA CLASS

Rx

DESCRIPTION

Oral corticosteroid
Used for the treatment of Duchenne muscular dystrophy (DMD) in patients 2 years and older
Most common adverse reactions are Cushingoid appearance, weight again, increased appetite, upper respiratory tract infections, cough, pollakiuria, hirsutism, and central obesity

Formatting

9.32 VENTILATOR-ASSOCIATED PNEUMONIA

Definition

A pneumonia where the patient is on mechanical ventilation for > 2 consecutive calendar days on the date of event, with day of ventilator placement being Day 1,

AND

The ventilator was in place on the date of event or the day before.

Bacterial or Filamentous Fungal Pathogens (VAP Algorithm PNU2)
Viral, Legionella, and other Bacterial Pneumonias (VAP Algorithm PNU2)
Immunocompromised Patients (VAP Algorithm PNU3)

Resources

- CDC NHSN Excluded Organisms, Chapter 6-2
- CDC NHSN Immunocompromised Patients, Chapter 6-13
- CDC NHSN Manual, Chapter 6

Table 2: Specific Site Algorithms for Pneumonia with Common Bacterial or Filamentous Fungal Pathogens and Specific Laboratory Findings (PNU2)

Imaging Test Evidence	**Signs/Symptoms**	**Laboratory**
Two or more serial chest imaging test results with at least ***one*** of the following[1,2,14]: New and persistent **or** Progressive and persistent • Infiltrate • Consolidation • Cavitation • Pneumatoceles, in infants ≤1 year old **Note**: In patients ***without*** underlying pulmonary or cardiac disease (for example: respiratory distress syndrome, bronchopulmonary dysplasia, pulmonary edema, or chronic obstructive pulmonary disease), one definitive chest imaging test result is acceptable.[1]	At least ***one*** of the following: • Fever (>38.0°C or >100.4°F) • Leukopenia (≤4000 WBC/mm^3) or leukocytosis (≥12,000 WBC/mm^3) • For adults ≥70 years old, altered mental status with no other recognized cause And at least ***one*** of the following: • New onset of purulent sputum[3] or change in character of sputum[4], or increased respiratory secretions, or increased suctioning requirements • New onset or worsening cough, or dyspnea or tachypnea[5] • Rales[6] or bronchial breath sounds • Worsening gas exchange (for example: O_2 desaturations [for example: PaO_2/FiO_2 ≤240][7], increased oxygen requirements, or increased ventilator demand)	At least ***one*** of the following: • Organism identified from blood[8,13] • Organism identified from pleural fluid[9,13] • Positive quantitative culture or corresponding semi-quantitative culture result[9] from minimally-contaminated LRT specimen (specifically, BAL, protected specimen brushing or endotracheal aspirate) • ≥5% BAL-obtained cells contain intracellular bacteria on direct microscopic exam (for example: Gram's stain) • Positive quantitative culture or corresponding semi-quantitative culture result[9] of lung tissue • Histopathologic exam shows at least ***one*** of the following evidences of pneumonia: o Abscess formation or foci of consolidation with intense PMN accumulation in bronchioles and alveoli o Evidence of lung parenchyma invasion by fungal hyphae or pseudohyphae

Formatting

9.32 VENTILATOR-ASSOCIATED PNEUMONIA

Definition

A pneumonia where the patient is on mechanical ventilation for > 2 consecutive calendar days on the date of event, with day of ventilator placement being Day 1,

AND

The ventilator was in place on the date of event or the day before.

Bacterial or Filamentous Fungal Pathogens (VAP Algorithm PNU2)
Viral, Legionella, and other Bacterial Pneumonias (VAP Algorithm PNU2)
Immunocompromised Patients (VAP Algorithm PNU3)

Resources

- CDC NHSN Excluded Organisms, Chapter 6-2
- CDC NHSN Immunocompromised Patients, Chapter 6-13
- CDC NHSN Manual, Chapter 6

National Healthcare Safety Network (NHSN)
Patient Safety Component Manual

Table of Contents

10. Immunocompromised patients include only

    - those with neutropenia defined as absolute neutrophil count or total white blood cell count (WBC) <500/mm^3
    - those with leukemia, lymphoma or who are HIV positive with CD4 count <200
    - those who have undergone splenectomy
    - those who have a history of solid organ or hematopoietic stem cell transplant
    - those on cytotoxic chemotherapy
    - those on enteral or parenteral administered steroids (excludes inhaled and topical steroids) daily for >2 weeks on the date of event

11. Blood specimen and sputum, endotracheal aspirate, BAL or protected specimen brushing specimens must have a collection date that occurs within the Infection Window Period.

12. Semi-quantitative or non-quantitative cultures of sputum obtained by deep cough, induction, aspiration, or lavage are acceptable.

13. Identification of organism by a culture or non-culture based microbiologic testing method which is performed for purposes of clinical diagnosis or treatment (for example: not Active Surveillance Culture/Testing (ASC/AST).

14. If the imaging test result is equivocal for pneumonia, check to see if subsequent imaging tests are definitive. For example, if a chest imaging test result states infiltrate vs. atelectasis and a subsequent imaging test result is definitive for infiltrate—the initial imaging test would be eligible for use. In the absence of finding a subsequent imaging result that clarifies the equivocal finding, if there is clinical correlation then the equivocal imaging test is eligible for use.

Formatting

- **Helpful hyperlinks**

5.34 INTUBATION STATUS

Definition

The location of first intubation.

Element Values

1. Never
2. Field/Scene/En route
3. ED
4. OR
5. ICU
6. Other (Floor, Radiology, etc.)

Additional Information

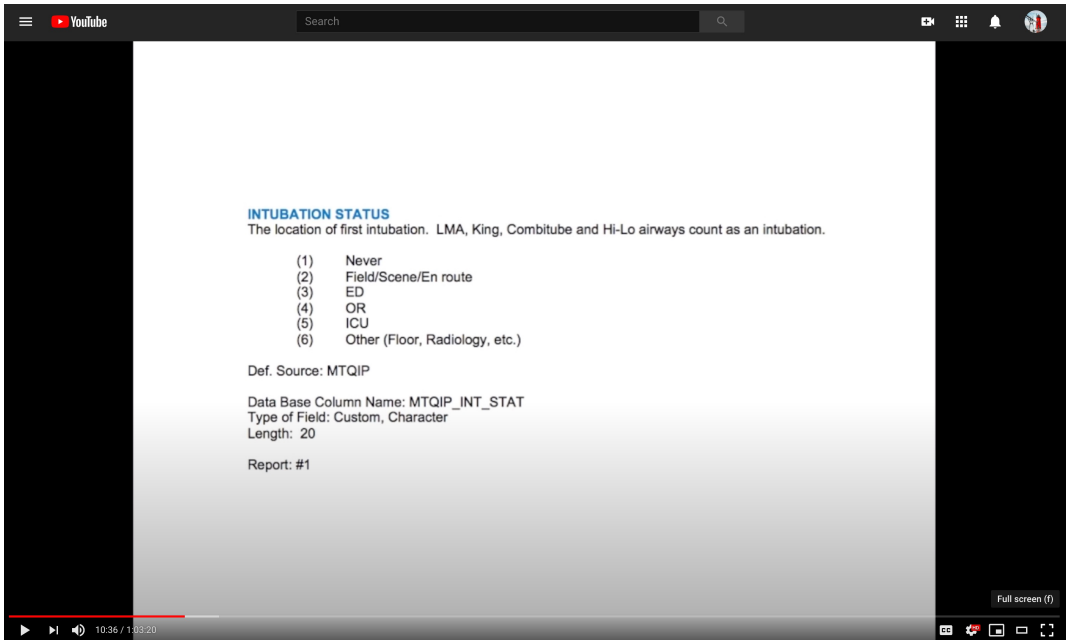
- LMA, King, Combitube and Hi-Lo airways, and tracheostomy count as an intubation.

Resources

- Video

Formatting

- **Helpful hyperlinks**



Feedback Needed

- **Hyperlinks auto update**
- **Hyperlinks break**
- **Additional resources**
- **Better resources**

Topics

- ✓ Timeline
- ✓ Change log
- ✓ Formatting
- • NTDS changes

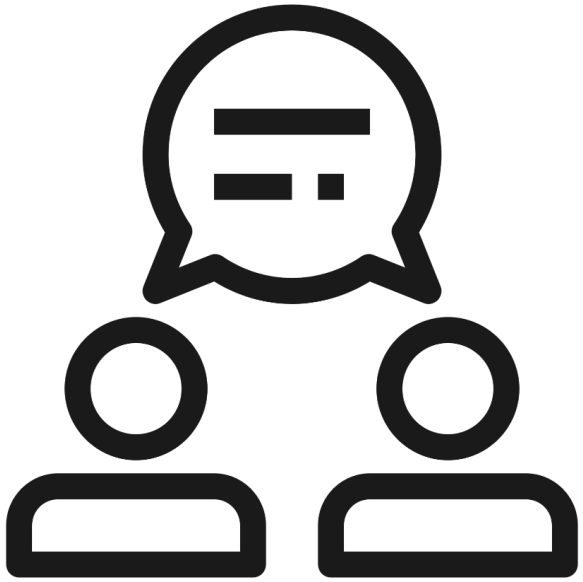
NTDS Additions

- **Highest Activation**
- **Trauma Surgeon Arrival Date/Time**
- **EMS Patient Care Report Unique Identifier**

NTDS Retired

- **EMS Dispatch Date/Time**
- **EMS Unit Arrival Date/Time at Scene or Transfr**
- **EMS Unit Departure Date/Time from Scene or Transfr**
- **Initial Field Systolic Blood Pressure**
- **Initial Field Pulse Rate**
- **Initial Field Respiratory Rate**
- **Initial Field Oxygen Saturation**
- **Initial Field GCS – Eye/Verbal/Motor/Total**
- **Initial Field GCS 40 Eye/Verbal/Motor**
- **ICD-10 Dx: T20-T28 and T30-T32 (Burns)**

Discussion Opportunity

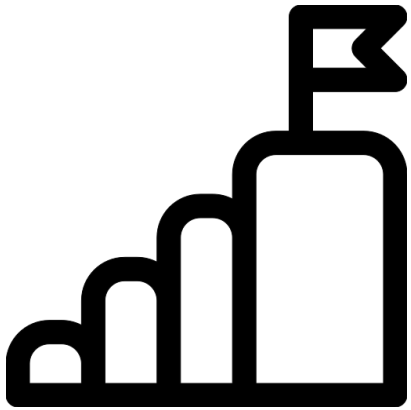


Challenging Questions

Jill Jakubus, PA-C

Instructions

- **Show questions submitted to MTQIP**
- **Definition**
- **Your response via poll**
- **Provided response**
- **Commentary**



Question 8

For VAP, is this BAL positive?

- **Yes**
- **No**

Component	
Special Requests	Culture with gram stain
Gram Stain	Many WBCs
	Moderate Epithelial cells (squamous)
	Many Gram positive cocci in pairs
	Many Gram positive bacilli
	Many Gram negative bacilli
Results	Many Pseudomonas aeruginosa
Susceptibility	
Pseudomonas aeruginosa	

Definition

Table 2: Specific Site Algorithms for Pneumonia with Common Bacterial or Filamentous Fungal Pathogens and Specific Laboratory Findings (PNU2)

Laboratory
At least ***one*** of the following: • Organism identified from blood[8,13] • Organism identified from pleural fluid[9,13] • Positive quantitative culture or corresponding semi-quantitative culture result[9] from minimally-contaminated LRT specimen (specifically, BAL, protected specimen brushing or endotracheal aspirate) If no quantitative component is performed, capture if culture is positive. • ≥5% BAL-obtained cells contain intracellular bacteria on direct microscopic exam (for example: Gram's stain)

Component	
Special Requests	Culture with gram stain
Gram Stain	Many WBCs
	Moderate Epithelial cells (squamous)
	Many Gram positive cocci in pairs
	Many Gram positive bacilli
	Many Gram negative bacilli
Results	Many Pseudomonas aeruginosa
Susceptibility	
Pseudomonas aeruginosa	

Table 5: Threshold values for cultured specimens used in the diagnosis of pneumonia

Specimen collection/technique	**Values***
Lung tissue†	$\geq 10^4$ CFU/g tissue
Bronchoscopically (B) obtained specimens	
Bronchoalveolar lavage (B-BAL)	$\geq 10^4$ CFU/ml
Protected BAL (B-PBAL)	$\geq 10^4$ CFU/ml
Protected specimen brushing (B-PSB)	$\geq 10^3$ CFU/ml
Nonbronchoscopically (NB) obtained (blind)specimens	
NB-BAL	$\geq 10^4$ CFU/ml
NB-PSB	$\geq 10^3$ CFU/ml
Endotracheal aspirate (ETA)	$\geq 10^5$ CFU/ml

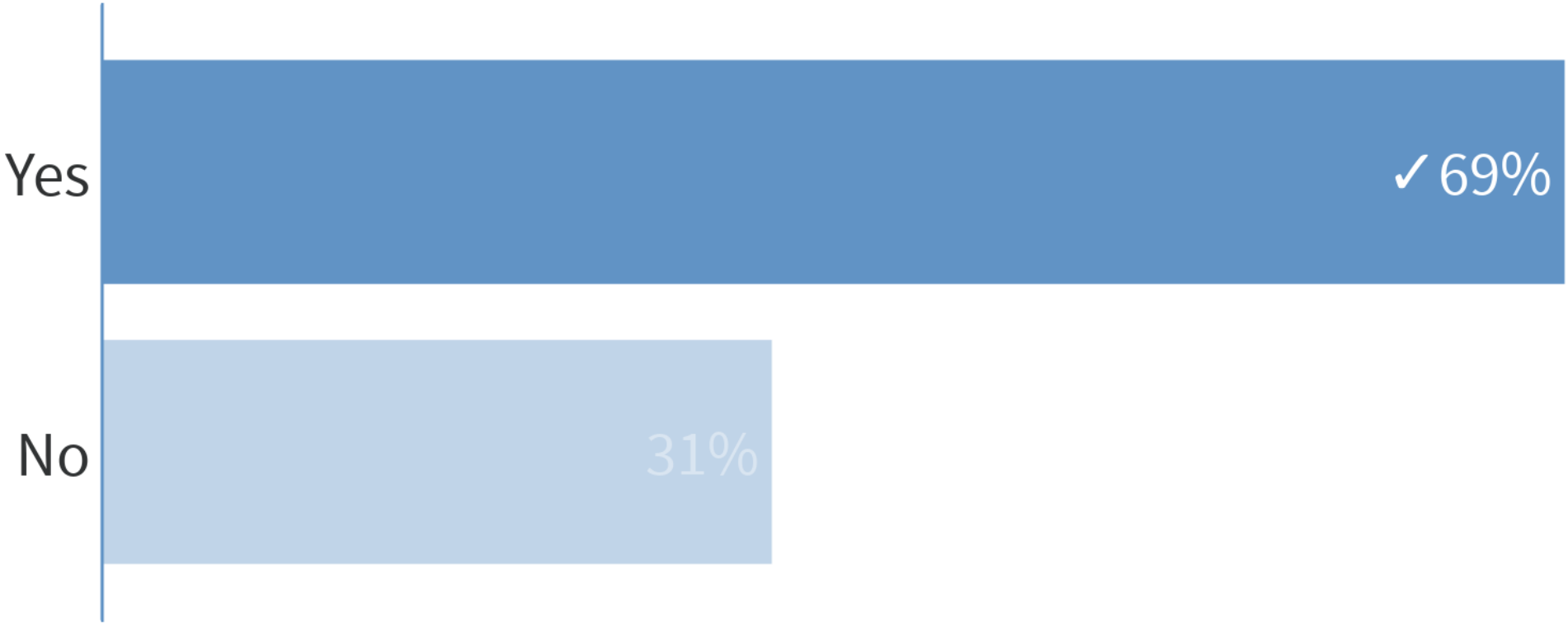
CFU = colony forming units
g = gram
ml = milliliter

*Consult with your laboratory to determine if reported semi-quantitative results match the quantitative thresholds. In the absence of additional information available from your laboratory, a semi-quantitative result of "moderate" or "heavy" or "many" or "numerous" growth, or 2+, 3+ or 4+ growth is considered to correspond.
†Open-lung biopsy specimens and immediate post-mortem specimens obtained by transthoracic or transbronchial biopsy

When poll is active, respond at **PollEv.com/mtqip910**

Text **MTQIP910** to **22333** once to join

Q8 - For VAP, is this BAL positive?



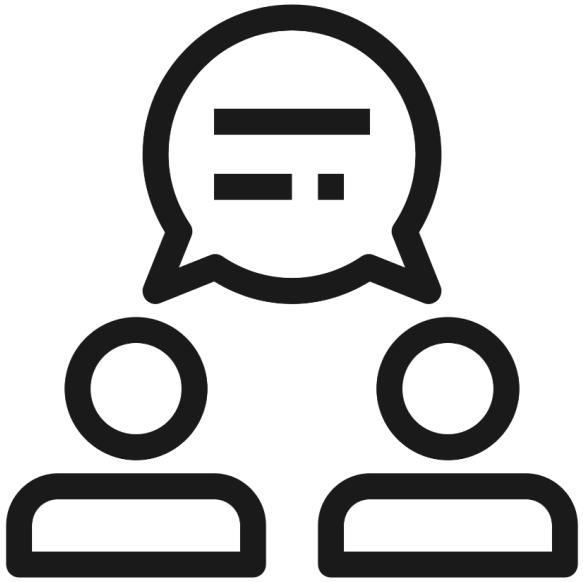
MTQIP Response

Answer: Yes

Response: Minimally contaminated specimen collection performed via BAL revealed Pseudomonas aeruginosa.

Component	
Special Requests	Culture with gram stain
Gram Stain	Many WBCs
	Moderate Epithelial cells (squamous)
	Many Gram positive cocci in pairs
	Many Gram positive bacilli
	Many Gram negative bacilli
Results	Many Pseudomonas aeruginosa
Susceptibility	
Pseudomonas aeruginosa	

Discussion Opportunity



Question 9

For VAP (PNU2), can I use a sputum culture collected and sent post-extubation to meet the laboratory criteria?

- **Yes**
- **No**

Definition

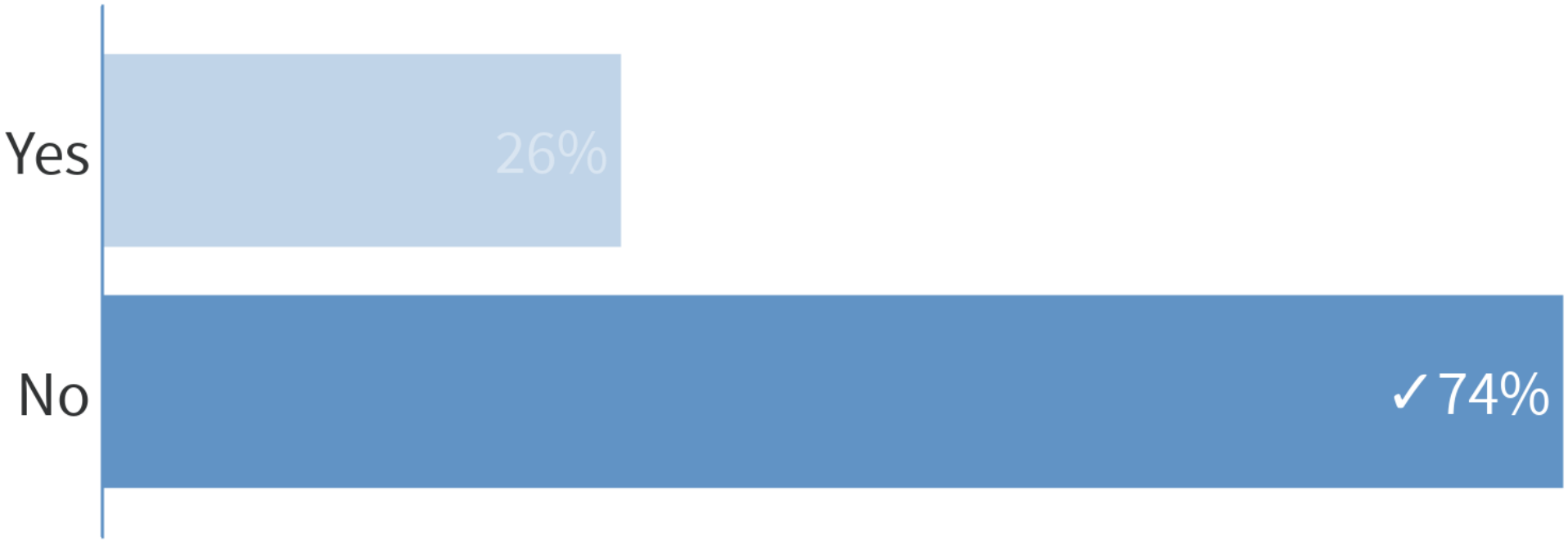
Table 2: Specific Site Algorithms for Pneumonia with Common Bacterial or Filamentous Fungal Pathogens and Specific Laboratory Findings (PNU2)

Laboratory
At least ***one*** of the following: • Organism identified from blood[8,13] • Organism identified from pleural fluid[9,13] • Positive quantitative culture or corresponding semi-quantitative culture result[9] from minimally-contaminated LRT specimen (specifically, BAL, protected specimen brushing or endotracheal aspirate) If no quantitative component is performed, capture if culture is positive.

When poll is active, respond at **PollEv.com/mtqip910**

Text **MTQIP910** to **22333** once to join

Q9 - For VAP (PNU2), can I use a sputum culture collected and sent post-extubation to meet the laboratory criteria?



MTQIP Response

Answer: No

Response:

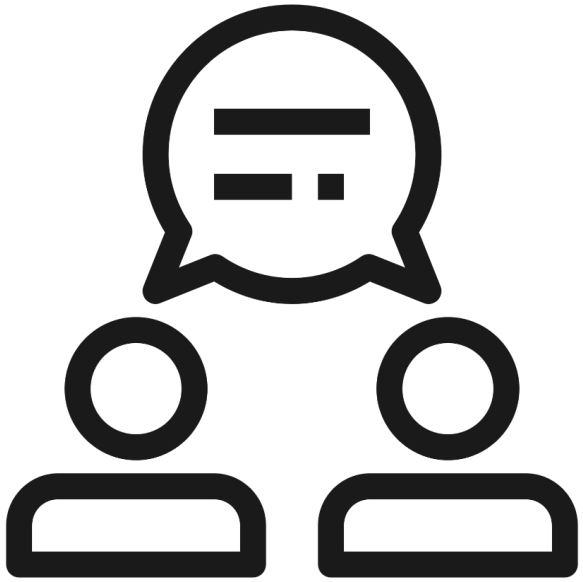
Use of Sputum and endotracheal aspirate specimen results

Q7: Can identification of an eligible organism from sputum or endotracheal aspirate be used to satisfy the PNU2 or PNU3 laboratory finding?

Please note that the respiratory tract specimens eligible for satisfying the PNU2 laboratory findings specify that the specimen be a **minimally contaminated lower respiratory tract specimen**. This includes BAL, protected specimen brushing and endotracheal aspirate. Note **endo**tracheal aspirate indicates the specimen is collected via an artificial airway. A sputum specimen that is not obtained through an artificial airway (specifically endotracheal tube or tracheostomy) from a ventilated patient is not considered minimally contaminated and is not eligible for use in meeting the laboratory criteria. Specimens labelled sputum or tracheal secretions *collected from a non-ventilated patient* are not minimally-contaminated specimens and therefore are only available for use when meeting PNU3 laboratory finding of a matching Candida species identified in both sputum and blood with both specimen collection dates found in the same infection window period.

https://www.cdc.gov/nhsn/faqs/faq-pneu.html

Discussion Opportunity



Question 10

For Organ Procured, we have a patient that both kidneys were procured, however the registry choice is "kidney", should we pick this choice twice to show both kidneys?

- **Kidney**
- **Kidney x 2**

Definition

ORGAN PROCURED

The organ that was procured.

Def. Source:
Data Base Column Name: ORG_DNRS_L, ORG_DNRS_L_AS_TEXT
Type of Element: Character
Length:
Null: Registry Default
Report: #8

When poll is active, respond at **PollEv.com/mtqip910**

Text **MTQIP910** to **22333** once to join

Q10 - For Organ Procured, we have a patient that both kidneys were procured, however the registry choice is "kidney", should we pick this choice twice to show both kidneys?

MTQIP Response

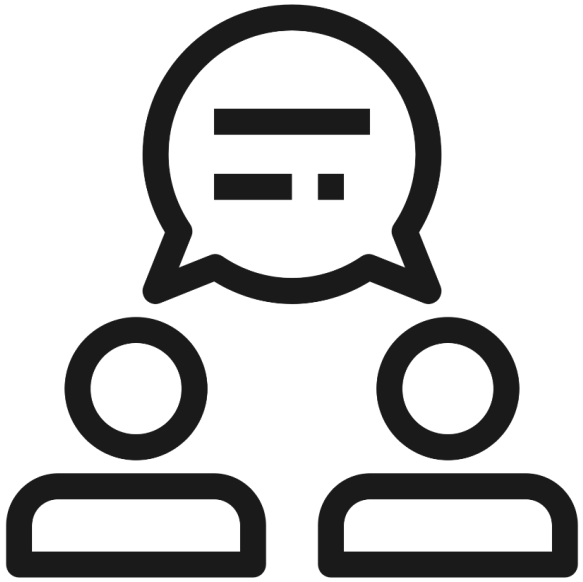
Answer: Kidney x 2

Response: We included organ procurement fields to help facilitate the on-going creation of the PRQ online analytics.

The goal is to align with the PRQ questions. I reviewed the current PRQ document (attached) and I don't see where it exactly specifies/uses this.

In which case, we try to report the data that reflects the truth happening to the patient which would be reporting kidney twice.

Discussion Opportunity



Question 11

For AIS injury coding, if a patient is transferred from Hospital A to Hospital B, can injuries discovered at the Hospital B be coded at the Hospital A?

- **Code all injuries known at time of treatment + ME findings**
- **Code all injuries with documentation + ME findings**

Definition

AIS SEVERITY

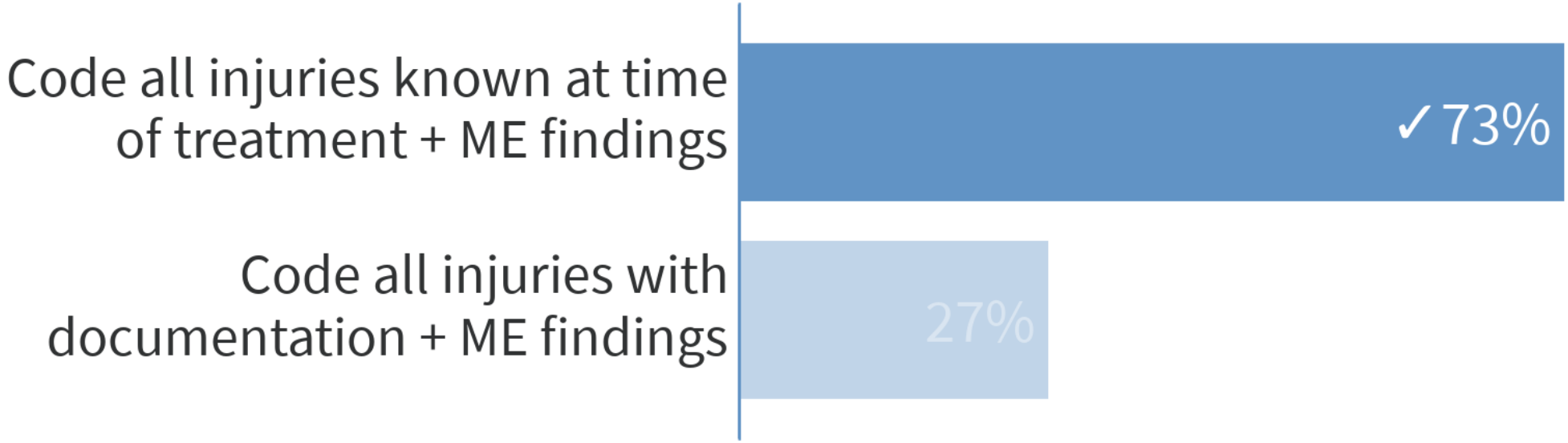
The Abbreviated Injury Scale (AIS) severity codes that reflect the patient's injuries. The required resource is AIS 2005. AIS code element output should be in the XXXXXX.X format with the predot and postdot codes in a single cell.

- The predot code is the 6 digits preceding the decimal point in an associated AIS code.
- The element value (9) "Not Possible to Assign" would be chosen if it is not possible to assign a severity to an injury.

When poll is active, respond at **PollEv.com/mtqip910**

Text **MTQIP910** to **22333** once to join

Q11 - For AIS injury coding, if a patient is transferred from Hospital A to Hospital B, can injuries discovered at the Hospital B be coded at the Hospital A?



MTQIP Response

Answer: . . .

Response: Defer to AAAM recommendation.

AAAM Response

From: Vickie Graymire [mailto:vgraymire@gmail.com]
Sent: Saturday, December 05, 2015 5:03 PM
To:
Subject: RE: Diagnosis from outside facilities

You have been taught correctly, and worded it very well, I just recopied your information as it's the same as I would tell you.

"I have been taught, and it seems logical to me, that we are documenting the care and diagnoses that are known at the time of treatment at from our facility (so if urgent care diagnosed a fracture and sent the report along with them we can include it, as well as additional injuries diagnosed at our facility). But not injuries diagnosed at the next facility (if there was a need for further transfer).

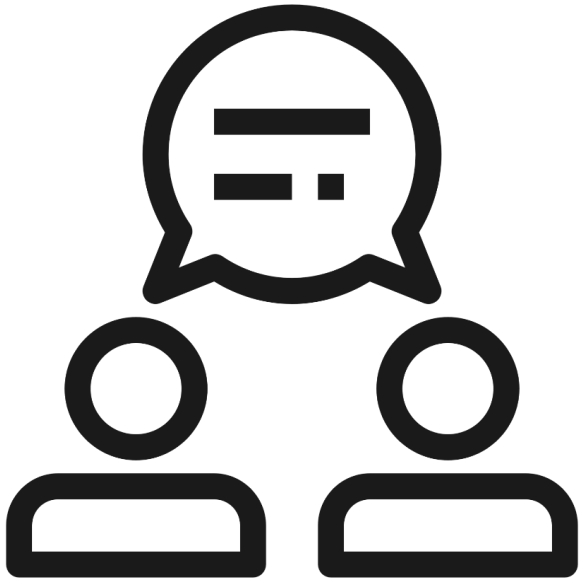
It has been my understanding that the data we report is to be based on the procedures that we do, the evaluations by our physicians, etc.

The one item that I do see that seems to be an acceptable "outside source" is ME reports"

In addition, the information you receive from your other hospital regarding your patient and their final diagnosis can be used in your PI process and can be tracked in your registry under findings from outside facilities, but should not be included or coded with your diagnosis to calculate an ISS.

Vickie Graymire RN, MS, CEN, CAISS
Course Director/Technical Coordinator
AAAM, AIS Injury Scaling Course
35 Wacker Drive, Suite 850
Chicago, Il 60601-2106, USA

Discussion Opportunity



Question 12

Pt admitted with suspected COVID (2020).
On HD 5, pt fell in their room and sustained a femur fx requiring operative intervention.

Pt sustained an injury that met NTDS Inclusion Criteria. Does this meet NTDS Inclusion Criteria or is this sentinel event is a complication of his initial admission since the injury date is after date of admission?

- **Yes**
- **No**

Definition

NATIONAL TRAUMA DATA BANK

2020 Data Dictionary Frequently Asked Questions

General

NTDS Patient Inclusion Criteria (pg. iv & v)

- Do in-house traumas meet the *NTDS Patient Inclusion Criteria*?

Patients who had a traumatic event that resulted in an injury while being treated at your hospital do not meet the *NTDS Patient Inclusion Criteria* and should not be reported.

https://www.facs.org/quality-programs/trauma/tqp/center-programs/ntdb/ntds/faq/2020#patincl

When poll is active, respond at **PollEv.com/mtqip910**

Text **MTQIP910** to **22333** once to join

Q12 - Does this meet NTDS Inclusion Criteria or is this sentinel event is a complication of his initial admission since the injury date is after date of admission?

MTQIP Response

Answer: . . .

Response: Defer to NTDB recommendation.

NTDB Response

Answer: No

Response: When I asked the NTDS workgroup about this several months ago they determined in-house falls should not be included. It was felt these types of patients should go through the in-house falls PI program.

NTDB Response

Answer: No

Response: When I asked the NTDS workgroup about this several months ago they determined in-house falls should not be included. It was felt these types of patients should go through the in-house falls PI program.

Sent: Tuesday, April 19, 2016 8:04 AM
To: TQIP
Subject: RE: Question re: inhouse injuries

Thanks Amy – I guess I'm just not sure why these pt's would not be submitted? They meet the inclusion criteria in the NTDB dictionary and some of the injuries sustained are significant (femur fxs, ICBs, etc.). The only difference is the location that their MOI occurred. We have one now that fell while admitted to our geropsych unit and sustained a hip fx. She was discharged from geropsych and admitted to the med/surg floor under trauma services (geropsych is considered a separate unit from the main hospital as is our inpatient rehab floor). Would this not be considered a direct admit? I can just check them off as non-submittable in the TQIP/NTDB tab in our registry but am wondering about the rationale behind not submitting them. Again, thanks for your input.

Sent: Tuesday, April 19, 2016 8:04 AM
To: TQIP
Subject: R

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From: TQIP [mailto:TraumaQuality@facs.org]
Sent: Tuesday, April 19, 2016 1:28 PM
To: [redacted]
Subject: RE: Question re: inhouse injuries

[redacted]

I do understand your concern about in-house falls; however, when I asked the NTDS workgroup about this several months ago they determined in-house falls should not be included. It was felt these types of patients should go through the in-house falls PI program.

Regarding the geropsych patient in your scenario below, this patient would be included in the trauma registry. This event happened in a separate unit (which I'm betting operates under a different license number than your hospital.) In other words, the patient had to be discharged from the geropsych center and then directly admitted to your main hospital.

I hope this makes sense,

Amy Svestka, BA, EMT, CSTR
Data Quality Specialist
American College of Surgeons
633 N. Saint Clair St.
Chicago, IL 60611-3211

312-202-5583

Sent: Tuesday, April 19, 2016 8:04 AM
To: TQIP
Subject: R

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From: TQIP [mailto:TraumaQuality@facs.org]
Sent: Tuesday, April 19, 2016 1:28 PM
To:
Subject: RE: Question re: inhouse injuries

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Amy Sv
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633 N.
Chicag

312-20

Sent: Tuesday, April 19, 2016 12:51 PM
To: TQIP
Subject: RE: Question re: inhouse injuries

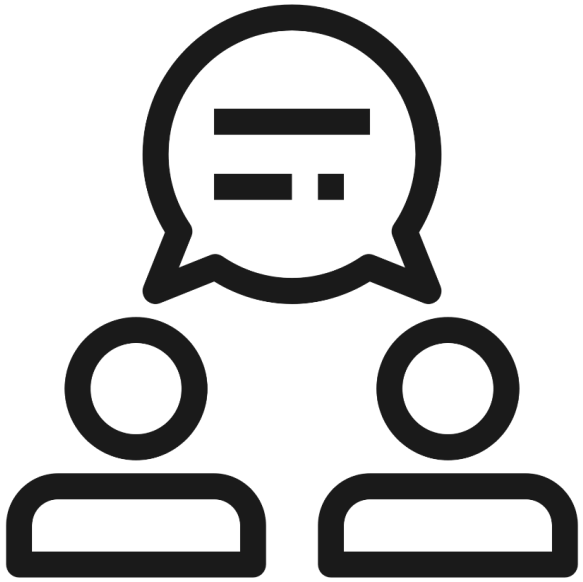
Hi Amy,

Yes, you are right, the geropsych pt had to be actually discharged and then readmitted after her fall, the other pt I had was already admitted to a medicine floor for cardiac issues when she fell so was transferred to the ICU but under the same admission # – thank you for the clarification.

So, for the geropsych pt, what would I use for the Pre-hospital Mode of Transport in order to prevent the inclusion errors (which was my original problem in the initial email below)?

Thanks for your help, I just want to make sure we do this right.

Discussion Opportunity

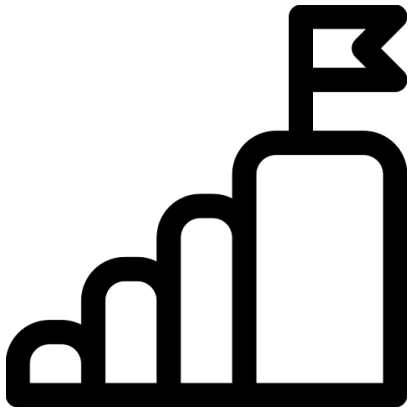


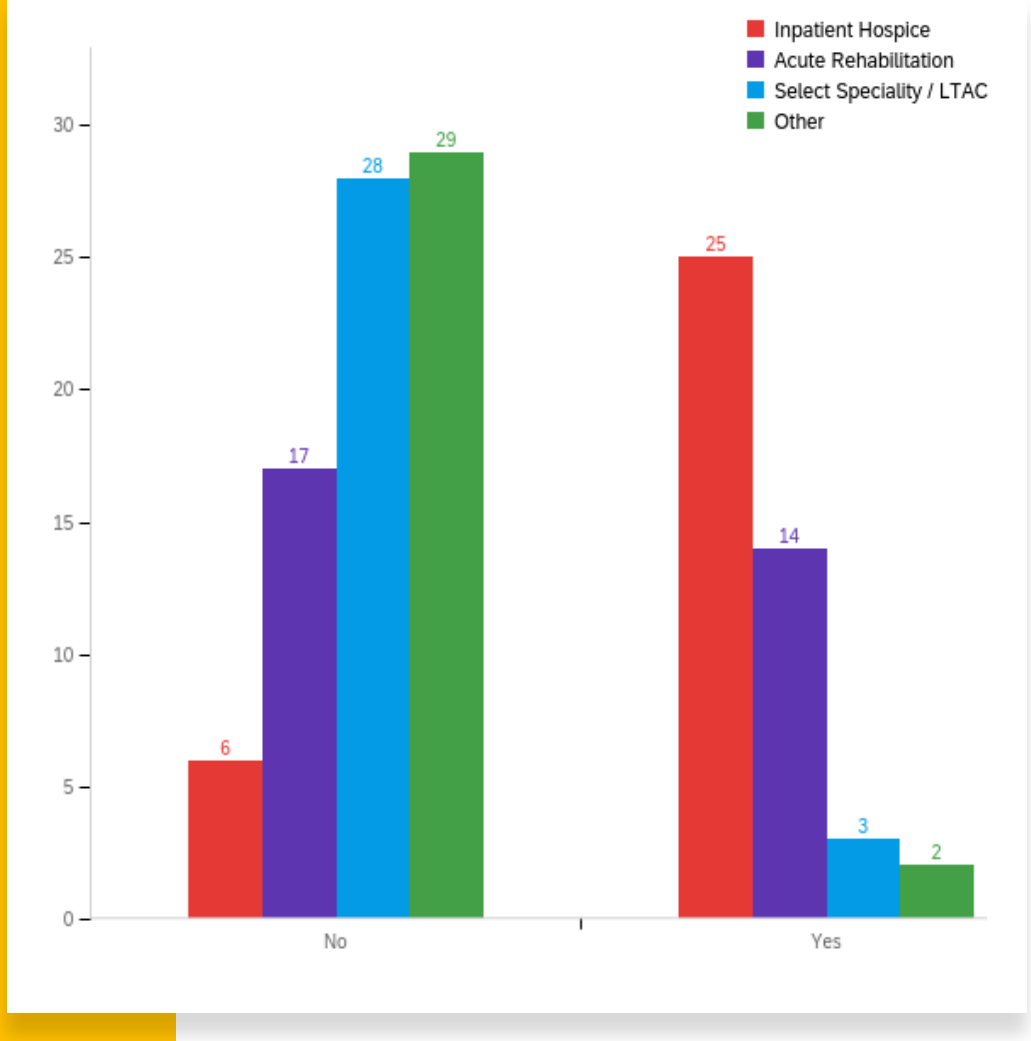
Phases of Care
When does the "stay" end?

Jill Jakubus, PA-C

Overview

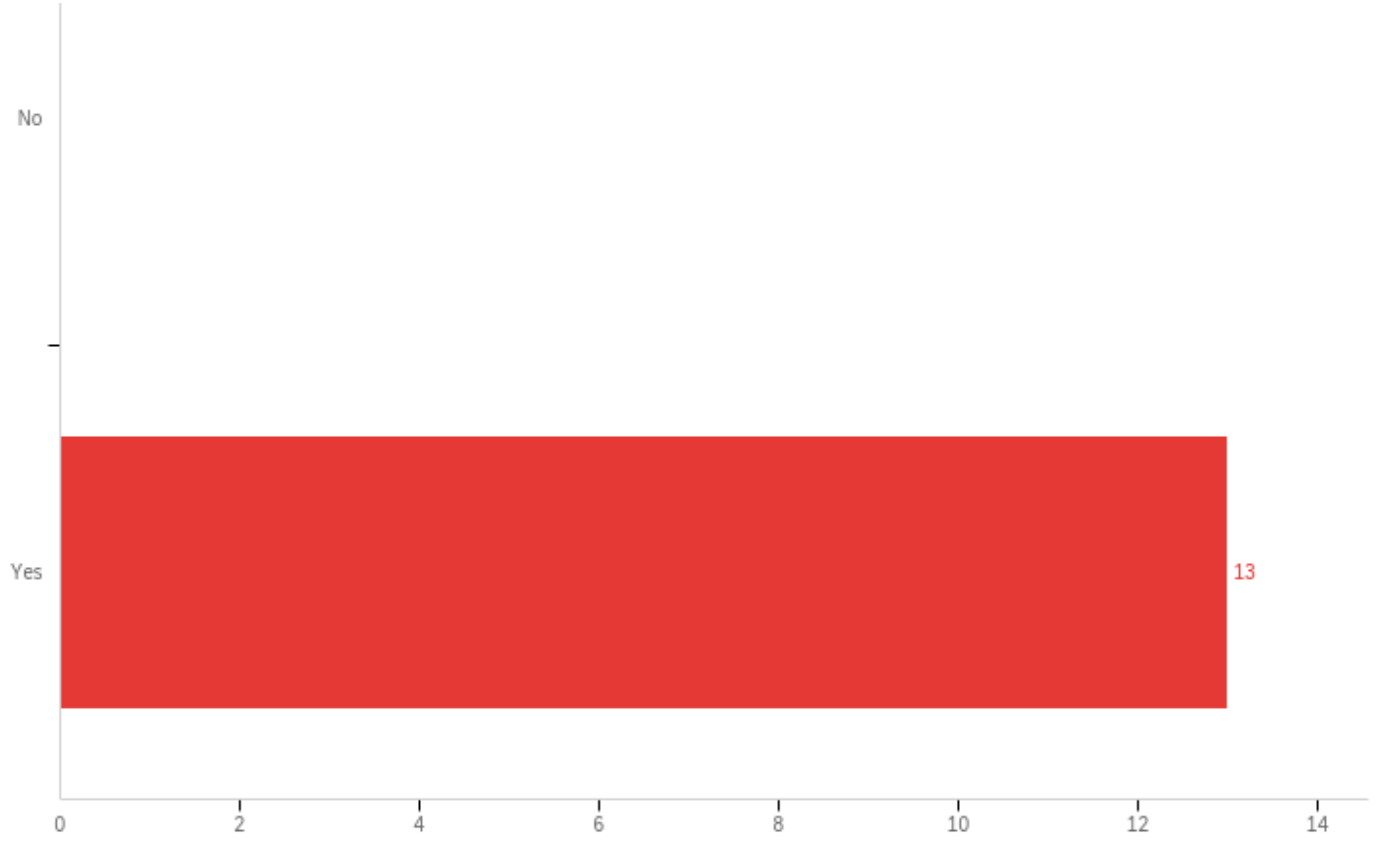
- **Share responses**
- **Highlight variability issue**
- **Propose solution**
- **Commentary**



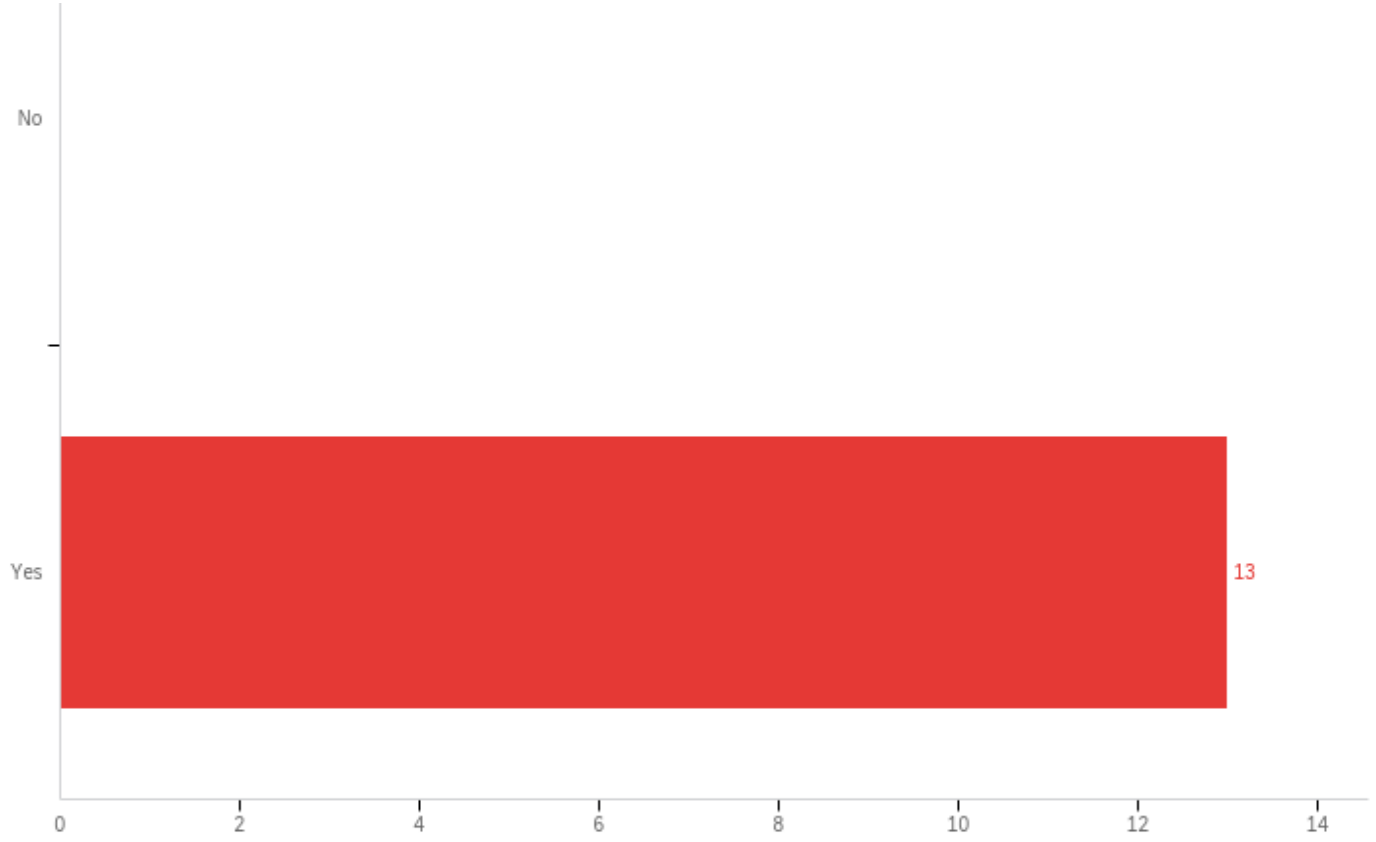


What additional phases of care are available at your hospital?

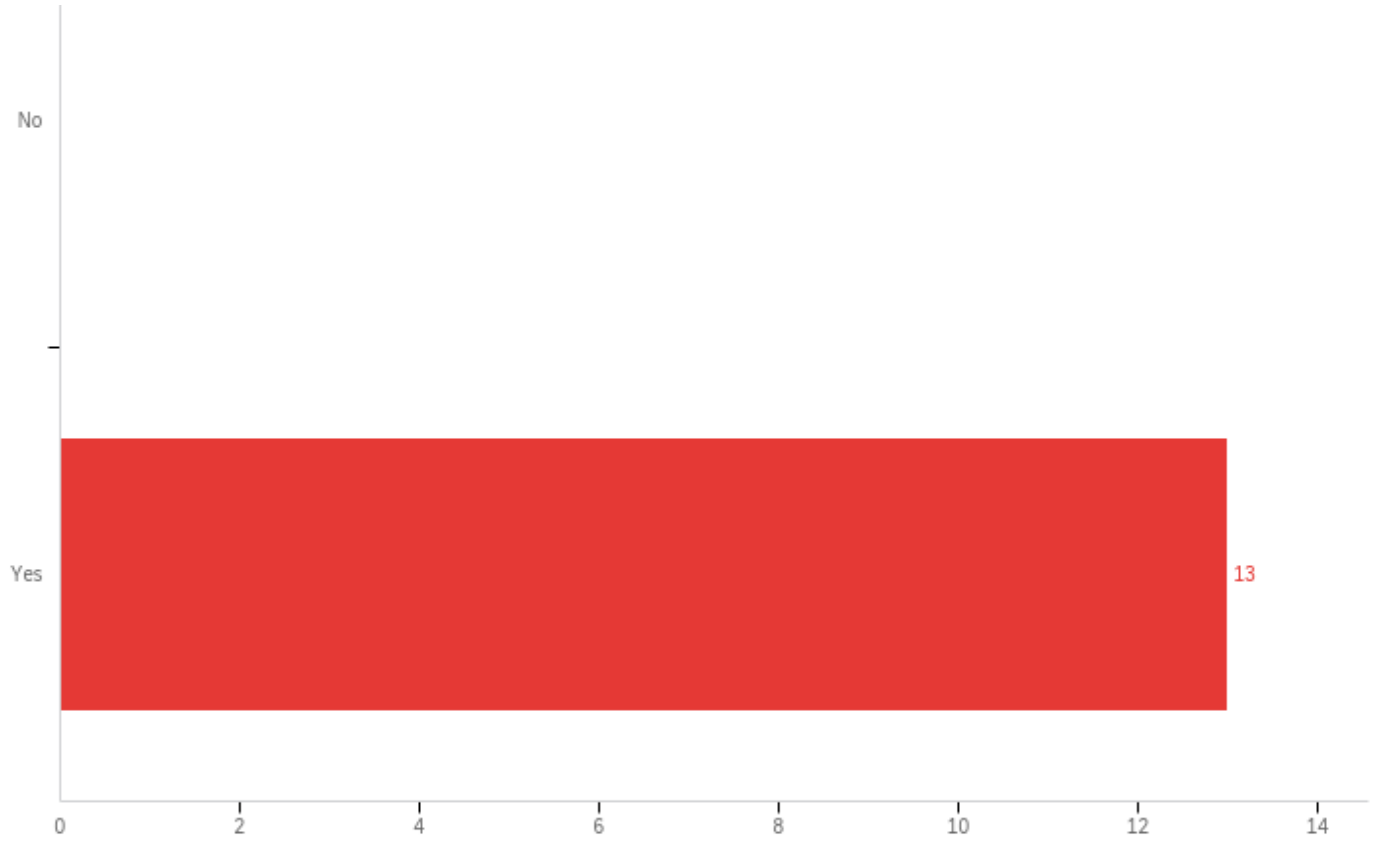
When transitioning to acute rehabilitation, is the encounter/visit number different from the trauma stay?



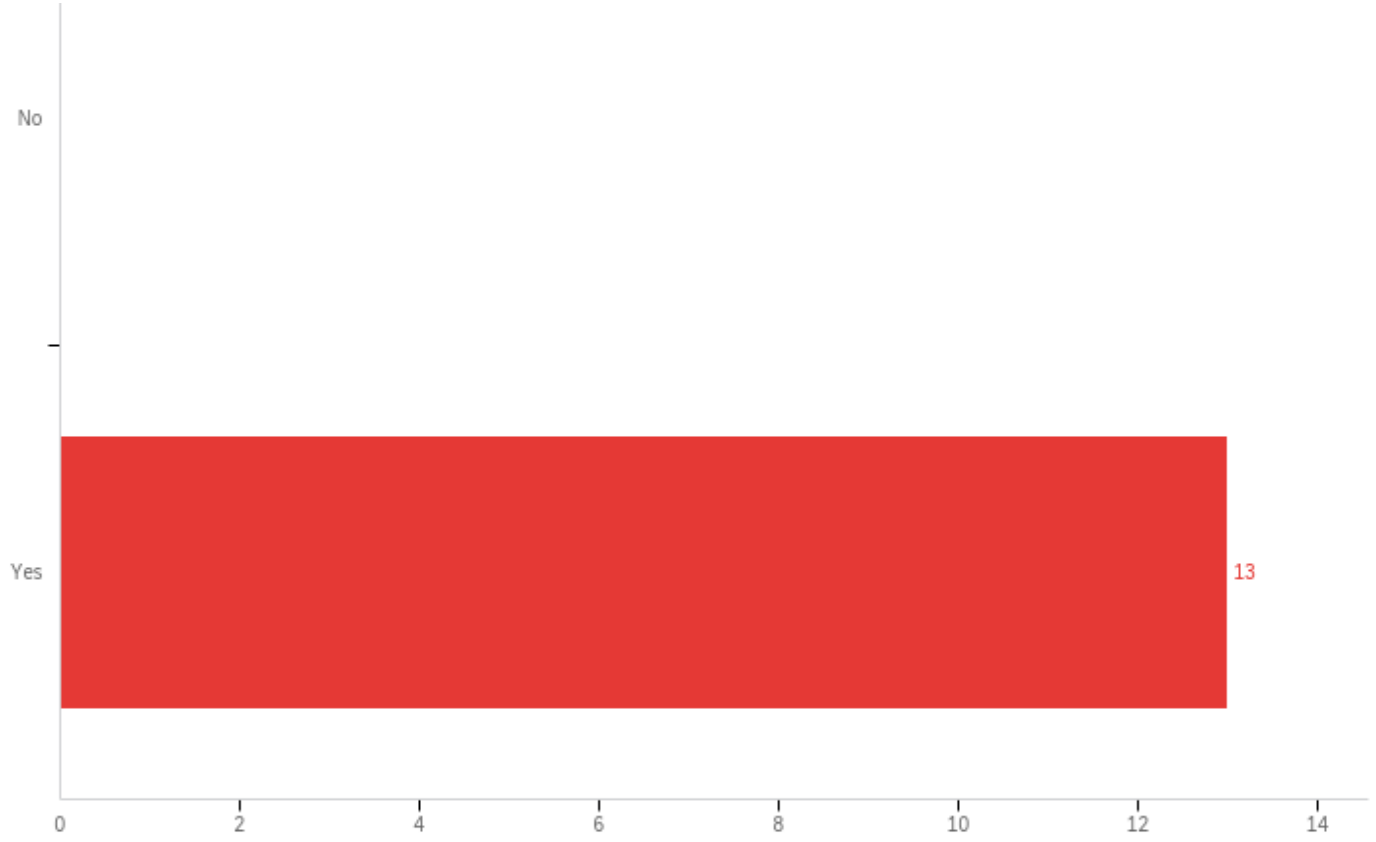
When transitioning to acute rehabilitation, is there a discharge order from the trauma stay?



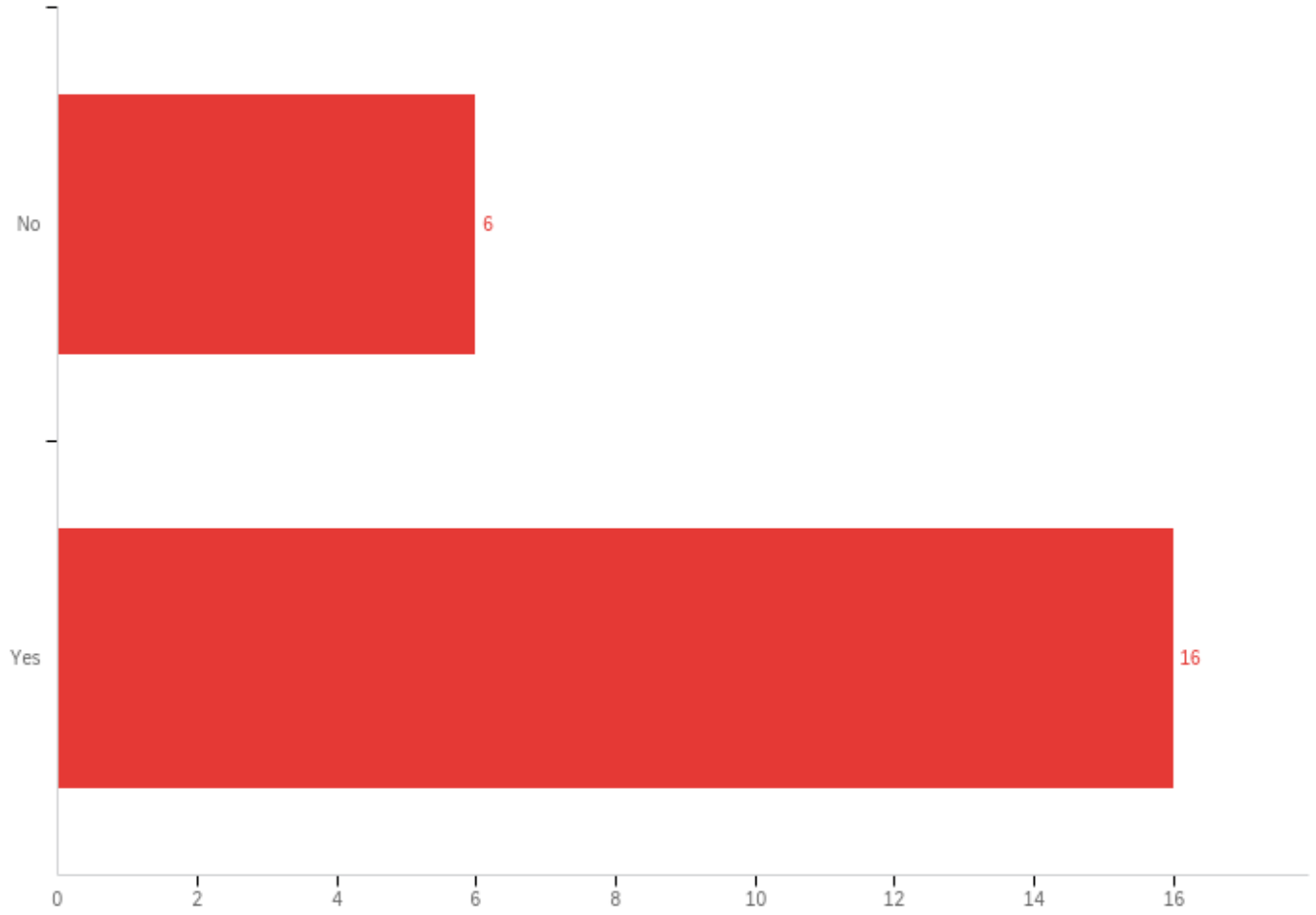
When transitioning to acute rehabilitation, is there a discharge summary from the trauma stay?



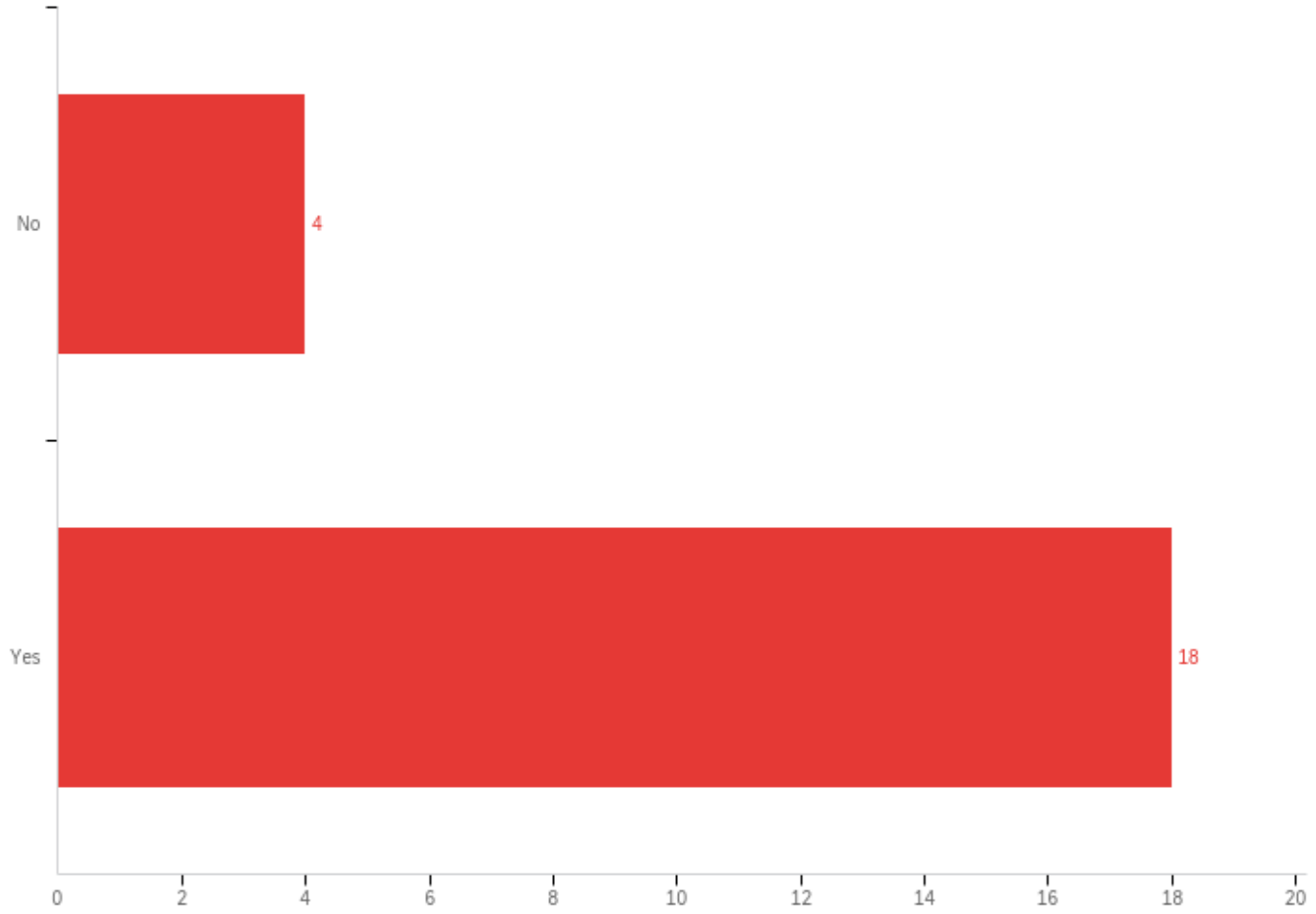
When transitioning to acute rehabilitation, is there an admit order for the rehab service?



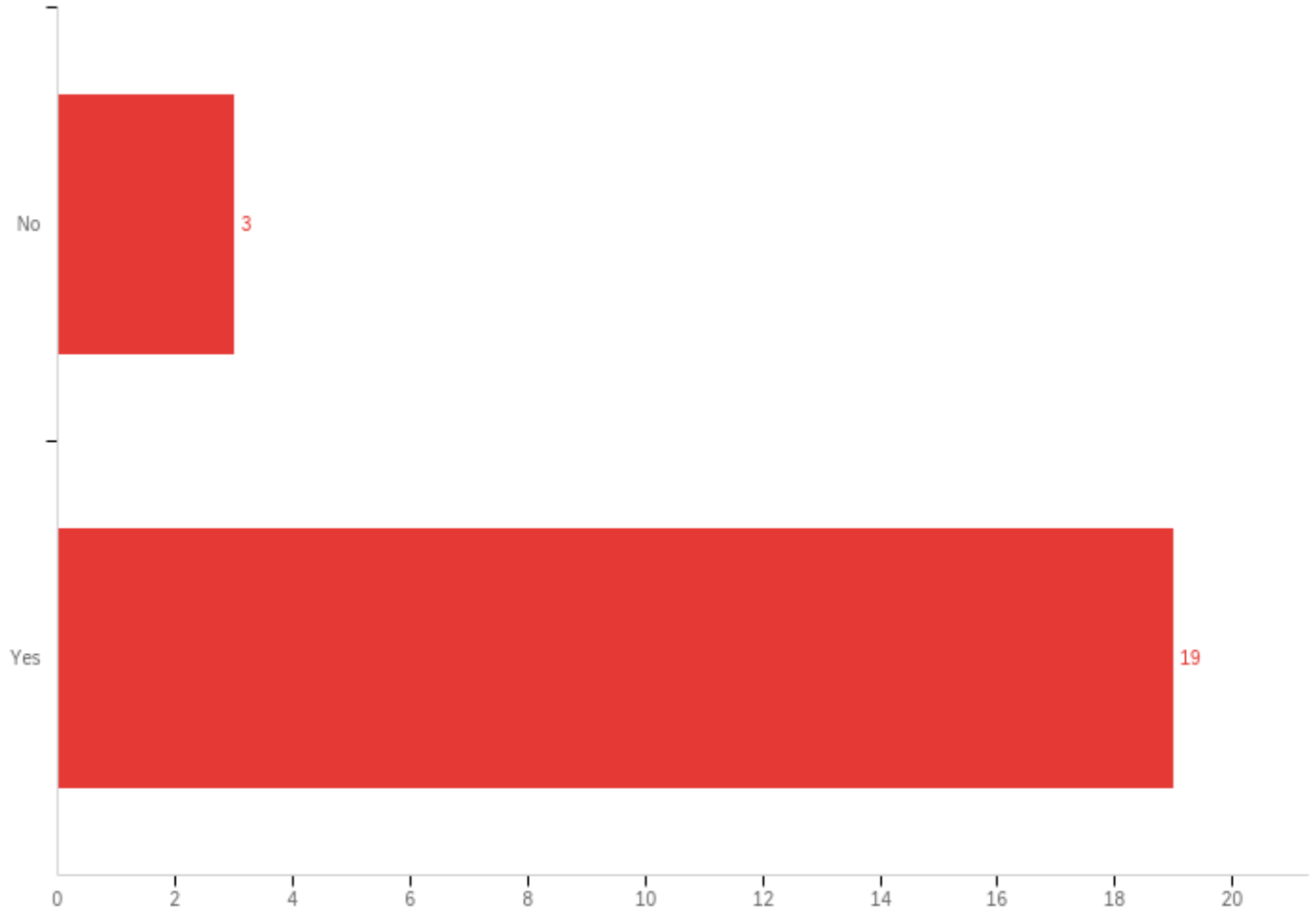
When transitioning to inpatient hospice, is the encounter/visit number different from the trauma stay?



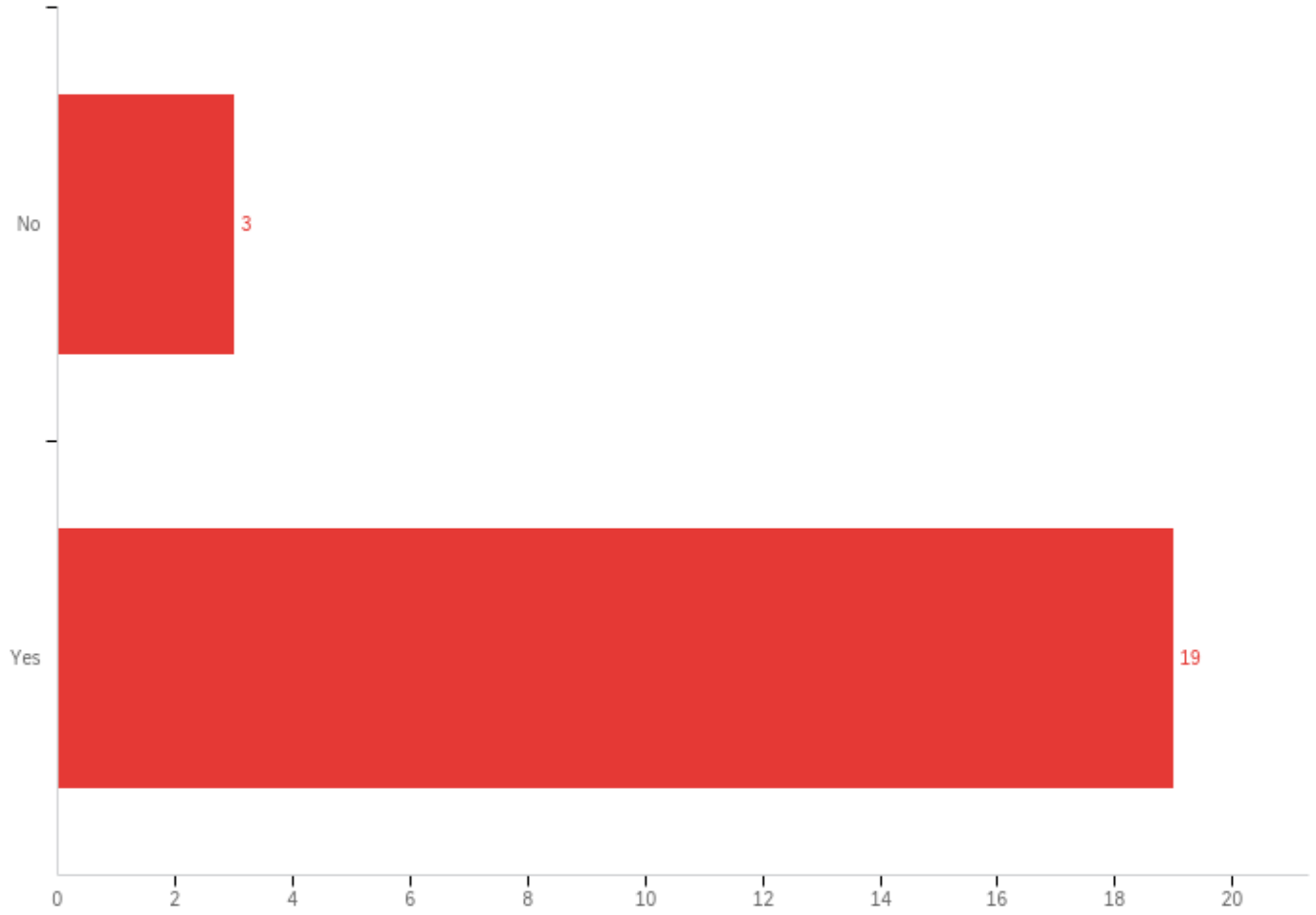
When transitioning to inpatient hospice, is there a discharge order from the trauma stay?



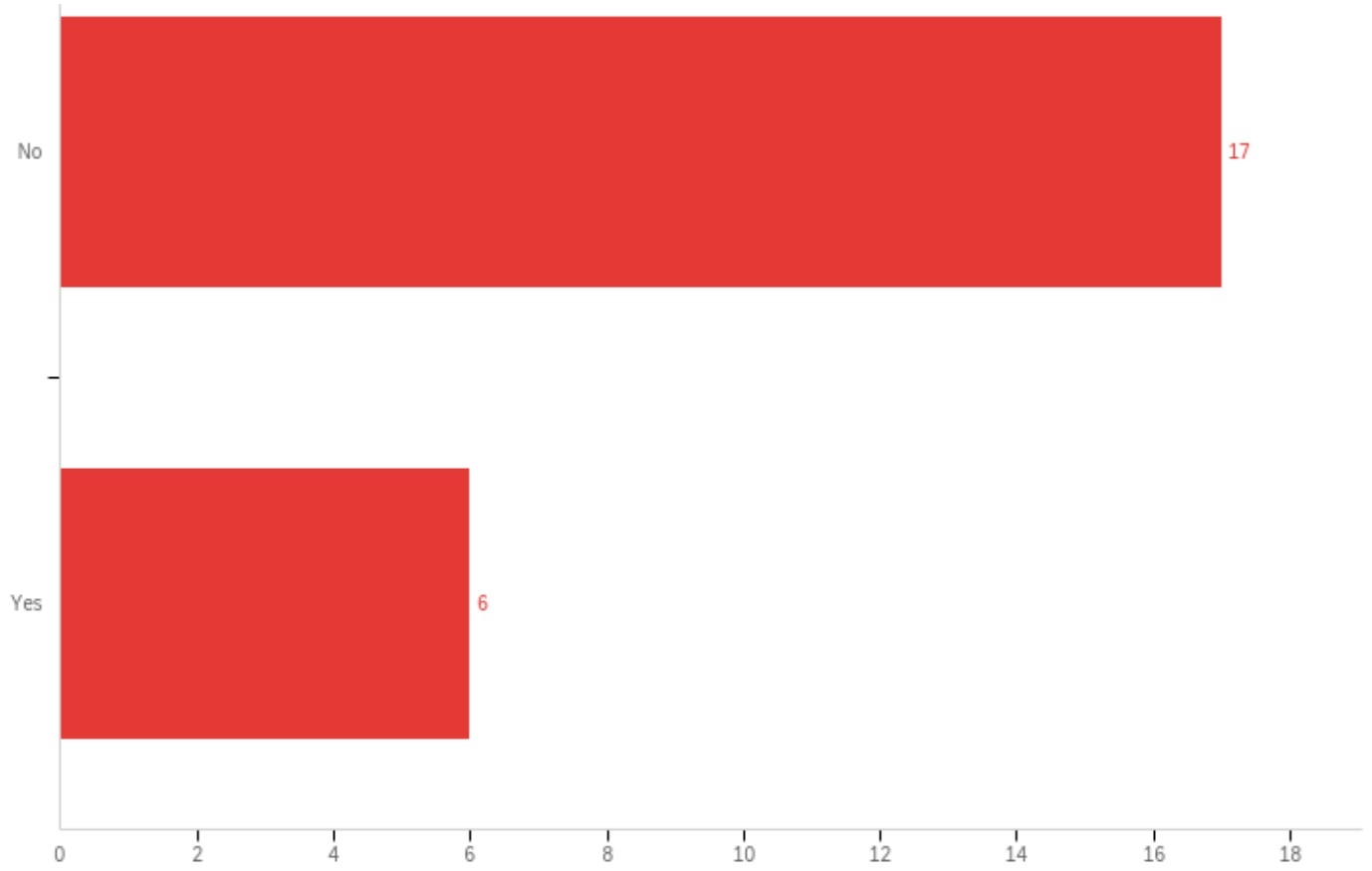
When transitioning to inpatient hospice, is there a discharge summary from the trauma stay?



When transitioning to inpatient hospice, is there an admit order for the hospice service?



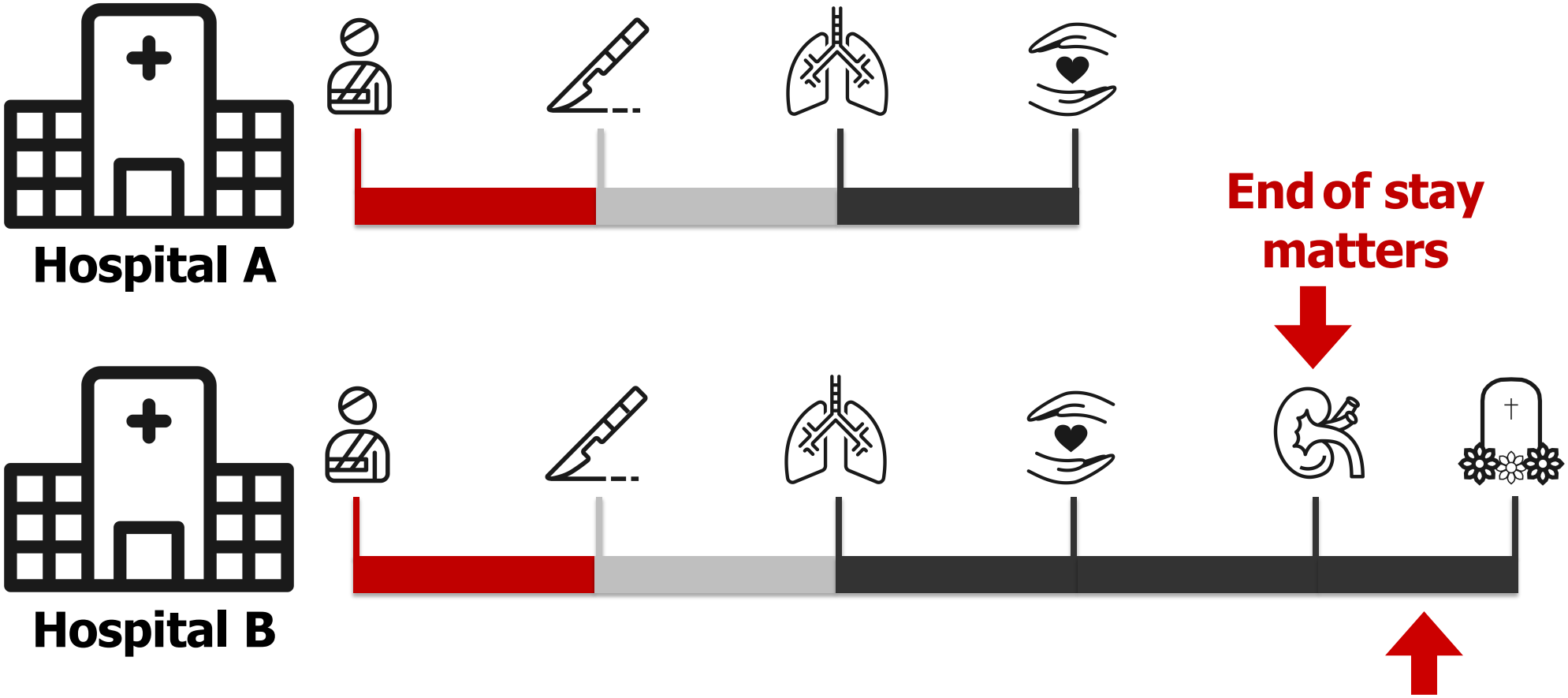
Are there other EMR administrative signals that you see that indicate the patient has completed their acute trauma phase of care?



Signals

- Reflected on the discharged date
- Transfer Order
- Hospice Consult - Evaluation for Inpatient Hospice, Admission appropriate, Discharge/Readmit to Hospice time/date
- Attending Physician changes
- Case manager progress notes
- Under our Encounter tab there is a new Admission which is colored red. On our ADT events the end date and time would indicate when the trauma phase ended.
- Separate encounter number is the first trigger and then progress note and discharge summary from nursing

Variability Issue



Proposed solution

- Most centers not impacted
- Impact to inpatient hospice centers
- Impact to end of stay non-defined centers
- Clarified 2021 definition
- End of stay = end of acute phase of care
- Not solely comfort care or hospice care

Question 13

Are there considerations we've missed by clarifying the "end of stay" as the end of the acute phase of care?

The clarification in the dictionary will include the hospice example.

When poll is active, respond at **PollEv.com/mtqip910**

Q13 - Are there considerations we've missed by clarifying the "end of stay" as the end of the acute phase of care?

Top