GEORGIA QUALITY IMPROVEMENT PROGRAM

AKI Workgroup

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TQIP AKI definition

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If patient meets any of the below criteria

- Serum Creatinine 3x baseline (based on age, race and gender)
- Serum Creatinine ≥ 4.0mg/dl
- Initiation of Renal Replacement Therapy
- Urine output < 0.3ml/kg/hr for ≥ 24hrs
- Anuric for ≥ 12hrs

Check if Present on Admission

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Using KDIGO guidelines, AKI definition = any of the following

- Increase SCr by ≥ 0.3 mg/dl within 48 hours
- **Increase SCr to ≥ 1.5 X baseline,** *known or presumed to have occurred within prior 7 days*

  Urine volume < 0.5 ml/kg/h for 6 hours

Age (years)	Black males (mg/dl [µmol/l])	Other males (mg/dl [µmol/l])	Black females (mg/dl [µmol/l])	Other females (mg/dl [µmol/l])
20–24	1.5 (133)	1.3 (115)	1.2 (106)	1.0 (88)
25–29	1.5 (133)	1.2 (106)	1.1 (97)	1.0 (88)
30–39	1.4 (124)	1.2 (106)	1.1 (97)	0.9 (80)
40–54	1.3 (115)	1.1 (97)	1.0 (88)	0.9 (80)
55–65	1.3 (115)	1.1 (97)	1.0 (88)	0.8 (71)
>65	1.2 (106)	1.0 (88)	0.9 (80)	0.8 (71)

Estimated glomerular filtration rate = 75 (ml/min per 1.73 m^2) = 186 × (serum creatinine [S_{Cr}]) - 1.154 × (age) - 0.203 × (0.742 if female) × (1.210 if black) = exp(5.228 - 1.154 × ln [S_{Cr}]) - 0.203 × ln(age) - (0.299 if female) + (0.192 if black).

Estimated baseline creatinine

https://kdigo.org/wp-content/uploads/2016/10/KDIGO-2012-AKI-Guideline-English.pdf

Ensure patients meet criteria

Urine Output documentation

- Improve accurate, up-to-date weight documentation
- Improve accurate **urine output** documentation
    - Amount and/or number occurrences

Now for the deep dive

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From Registry	Manual Chart Review	Calculated Data
• Admit Date • Age, Ethnicity • MOI • Activation level • LOS: ED & Hosp • Dispo: ED, OR & Hosp • ISS • Comorbidities • AKI Diagnosis Date • Hospital Events: VAP, CLABSI, DVT, Sepsis, … etc.	• Which AKI Criteria Met • Number IV contrast exams → 1st 48hrs (inc IR) • 1st four lab values: SCr & CPK • Dates: SCr 3x base *(if applies)*, SCr & CPK peak values • Vasopressor Use: 1st & 2nd 24 hrs • Total Time in OR • Insulin Use (by type): 1st & 2nd 24 hrs	• # days: admit → SCr 3x base SCr peak CPK peak

Lessons Learned

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Bimodal distribution of time to AKI (early and late)

EARLY

1. Under-identifying patients with early signs of AKI
   - All ICU patients labs checked q6hrs in 1st 24hrs of admit (BMP, CBC, lactate, CPK)
2. Under-resuscitating patients with rhabdomyolysis
   - Implementation of rhabdomyolysis guideline,
     - including continued/frequency CPK checks and UO target
3. Increased awareness AKI (ICU providers and nursing)
   - UO documentation, accuracy and real-time
   - Intervening on oliguria
   - Increased use of SVV measurements and POCUS to determine adequate resuscitation

Lessons Learned

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Bimodal distribution of time to AKI (early and late)

LATE *(future work)*

1. Implementation of renal protective bundle

   KDIGO Clinical Practice Guideline for Acute Kidney Injury, March 2012, section 3 *(Prevention and Treatment of AKI)*

2. Choice of target patient cohort

   Clinical setting/level of care

   Mechanism of injury

Grady AKI data

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	Q3 2020	Q4 2020	Q1 2021	Q2 2021	Q3 2021	Q4 2021	Q1 2022	Q2 2022
No of Cases	13	14	15	13	20	12	11	6
No. of Registry Cases			1544	1903	1786	1725	1525	1831
Median Age				41.6	59.5	47.5	67	75
Median ISS	26	25	14	30	22	16.5	17	17
No of pts with ≥ 2 IV contrast w/i 1st 24hrs	8 (62%)	6 (43%)	5 (33.3%)	7 (53.8%)	11 (55%)	6 (50%)	8 (72.7%)	
No of cases MTC to OR	8 (6 ≥ 4hrs)	12 (4 ≥ 4hrs)	6	7	9	5	3	1 (16.7%)
No of pts with rhabdo (CPK > 5000)	8 (62%)	6 (43%)	4 (26.7%)	3 (23.1%)	6 (30%)	4 (33.3%)	1 (9.1%)	1 (16.7%)
No of CRRT/HD	10 (77%)	9 (64%)	7 (46.7%)	9 (69.2%)	11 (55%)	6 (50%)	8 (72.7%)	5 (83.3%)
No of deaths	8 (62%)	8 (57%)	6 (40%)	5 (38.5%)	7 (35%)	7 (58.3%)	8 (72.7%)	5 (83.3%)
Median days to SCr 3x base/Peak SCr			4/10	5/7	7/9	3/5	9/12	12/13.5
Length of Stay, median (dys)			17	14	17.5	12	23	14
Sepsis							3	1
VAP							4	2
CAUTI							1	0
Readmission to ICU								3

Data Collection Sheet

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Opioid Workgroup

Dr. Katherine Kohler

Opioid Workgroup

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Goals

- Discussion on current state of opioid use/prescribing models in trauma patients
- Gather existing multimodal guidelines from trauma centers
- Develop a state level guideline to share with all trauma centers

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- Multimodal pain management guideline completed
- Received feedback from larger group
- Key Sections:
  - Multimodal Medication Options
  - Regional Anesthesia
  - Discharge Planning
  - Patient Education
  - Alternative Pain Management

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Multimodal Options: Recommend use of a combination of ***two or more*** medication classes that are prescribed on a ***scheduled*** basis.

- **Tylenol**
- 1000mg IV q6hrs for 24hrs - with pharmacy approval *Then*
- 1000mg PO q6hrs
- *Max 4g in 24hrs*

- **NSAID**
- Toradol (15mg/30mg) IV q6hrs 24hrs vs 5 days (dose specific based on GFR)

Or

- Toradol 10mg PO q6hrs for 5 days

Or

- Ibuprofen 600 q6hrs

Or

- Naproxen 500mg q12hrs (250mg for Geriatric)

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- **Antispasmodic** *(Caution for sedating effects and cross reactions in conjunction with other medications)*
- Methocarbamol 1000mg IV x 24-48hrs

Then/Or

- Methocarbamol 750mg PO q8hr - Adjust dosing for over 65 years to 500 mg four times daily (least sedating of antispasmodics)

Or

- Metaxalone 800mg PO q8hr
- Flexeril 5mg PO q8hr
- **Consider for refractory spasms:**
- Baclofen 5mg PO q8hr* requires taper if it has been given regularly

- **Gabapentinoid** *(Caution sedating effects in certain individuals and rare depression)*
- Pregabalin 75mg PO q8hr x 48hrs

Then

- Gabapentin 300mg PO q8hr *(max 3600mg/24hrs)*

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Other

•Lidocaine patches 5% up to 3 patches – Must have 12 hours off in each 24-hour period PRN

•PRN Opioid Breakthrough Options

•Oxycodone 5mg PO q4hr PRN

•Tramadol 100mg PO q6hr (renal/geriatric 50mg q12hr)

•Dilaudid 0.25 to 0.5 mg IV Q 2 to 4 hours

•Morphine 2 to 4 mg IV Q 2 to 4 hours * not for patients with renal dysfunction

- **Regional Anesthesia**
  - Discussion as an adjunct to a multimodal regimen
  - Includes a list of injuries and potential block options
  - Recommendations for work in conjunction with an anesthesia team

- **Discharge Planning**
  - recommendations for clear instructions on titration and how to take medications after discharge.
  - prescriptions given based on inpatient regimen.

- **Patient Education**
  - Goals of pain management
  - Types of pain and medications specifically targeted to those types
  - Side effects of opioids
  - Suggested discharge patient education information

- **Alternative Pain Management**
  - Life Care Specialist
    - CwC.ngo
  - Other non medication adjuncts - examples
    - cryotherapy
    - mindful meditation
    - breathing techniques
    - quality sleep
    - acupressure

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Next Steps

- Final Draft for review and approval

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TBI Workgroup Collaborative

Winter GQIP Conference

Chateau Elan, February 2023

Collaborative Report Spring 2022

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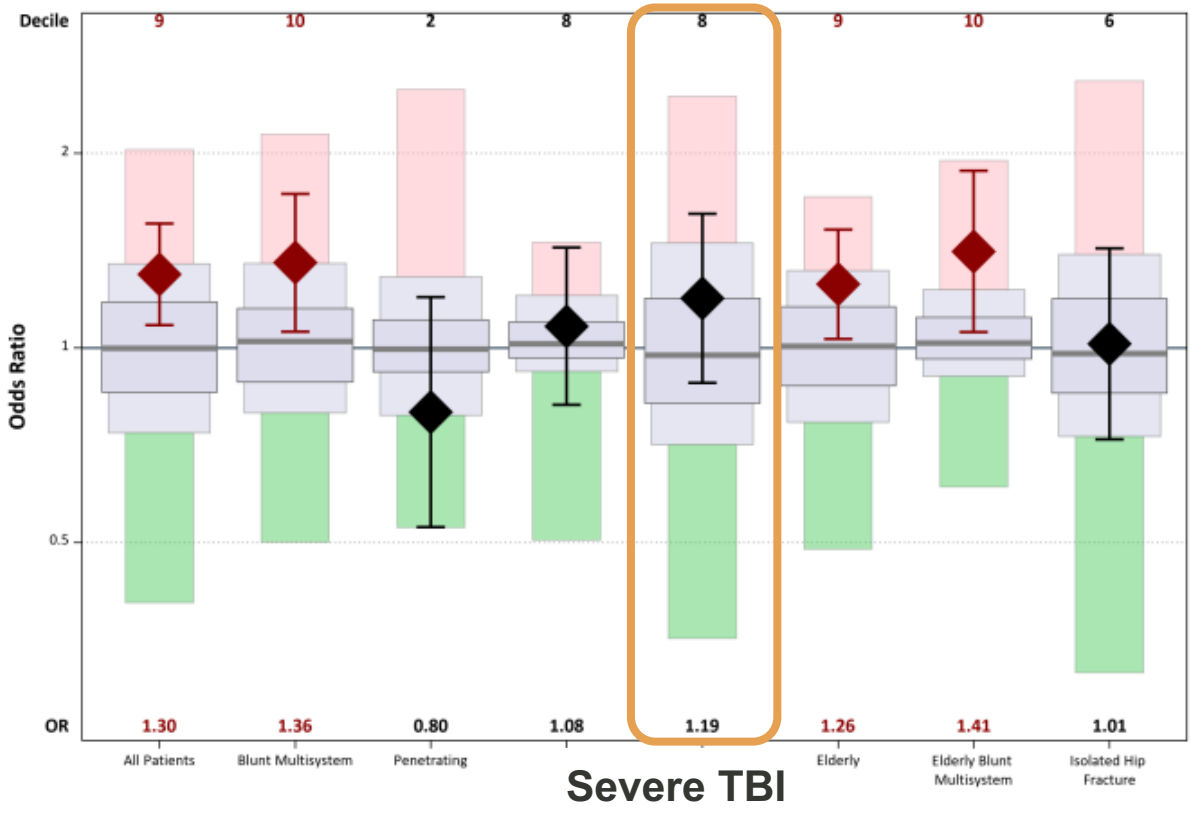
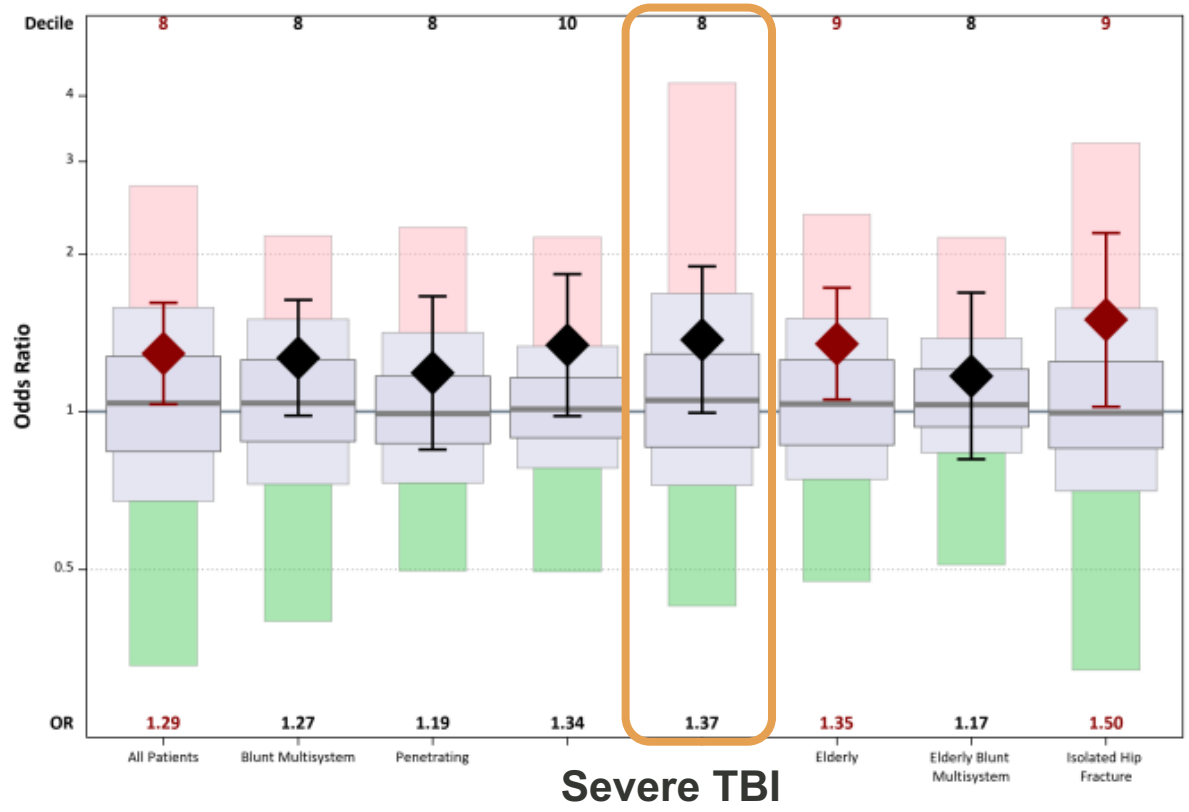
Mortality by Cohort



Morbidity by Cohort



TBI Workgroup

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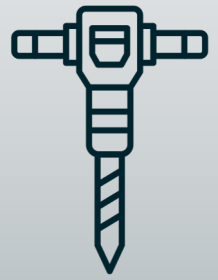
- TBI identified as a cohort with opportunity for improvement
- Developed a workgroup to address TBI care in GA
- Contribution from 94% Level I, Level II, adult and pediatric centers in the state
- Multidisciplinary group

Stage 1

Stage 2



Stage 3

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Target Identification (GQIP and Center Drilldowns)

- **MORTALITY**
  - –Early
  - –Withdrawal of care
- **MORBIDITY**
  - –VAP & pressure ulcers
- **DISPOSITION**
  - –High HLOS
  - –Low outpatient resources

Stage 1

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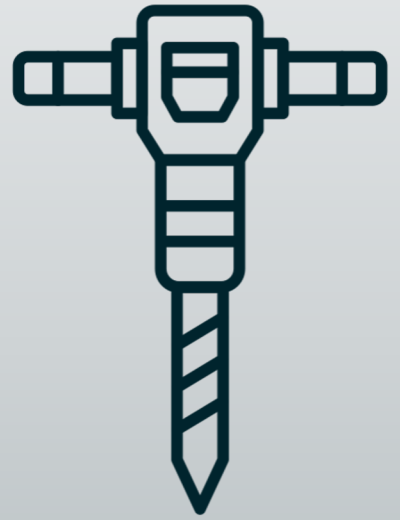
Deeper Dive: Eli Mlaver MD

- Population analysis
- Outcome drivers
- Vulnerable populations
- Patient progression
- Disposition after TBI in Georgia

Stage 2



TBI Workgroup

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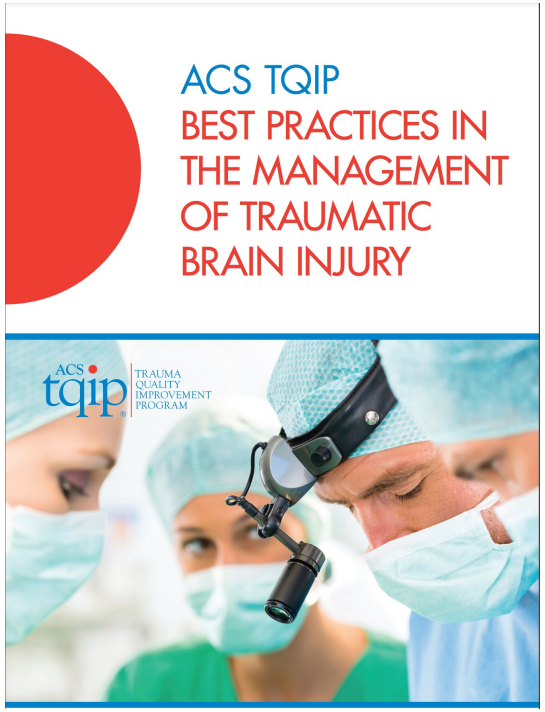
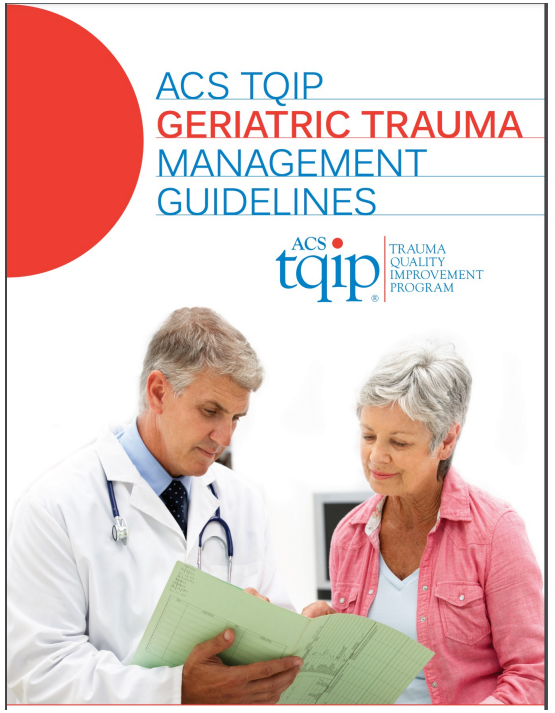
Future: Guideline Development





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