MN Trauma System Performance Improvement

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MN PI Plan

- Best Practices of other systems
- National recommendations
- Data Driven → MTR with linkages
- Scalable to system implementation
- “Living” document

PI Plan Sections

- Overview
- Sections represent phase of system care
  - EMS
  - Hospital
  - Rehabilitation
  - Regional
  - Statewide

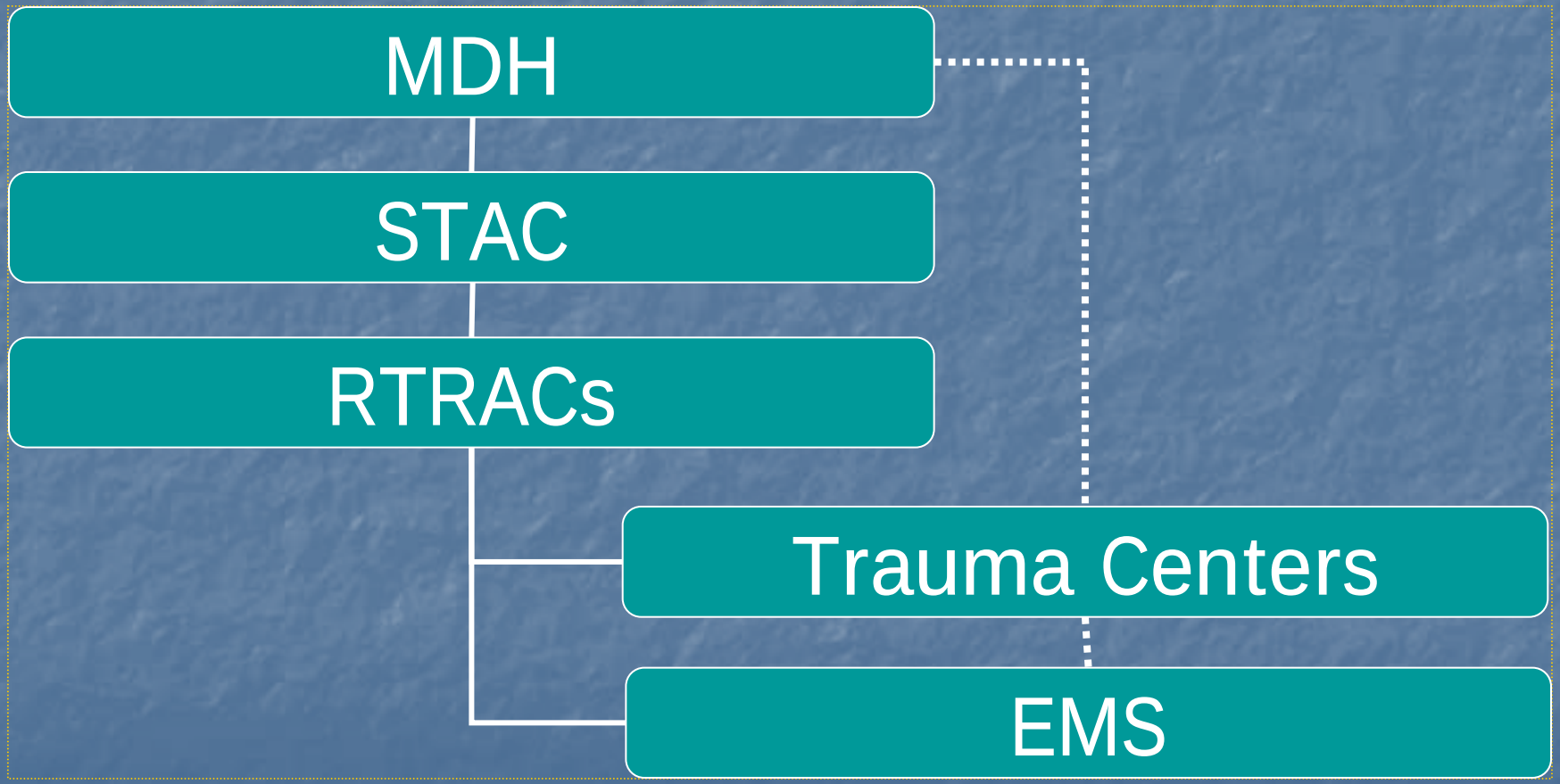
PI Plan Components

- Purpose and goals
- Structure and responsibilities
- Patient population
- Data collection and validation
- Scope of review and key activities
- Evaluation
- Improvement actions
- Documentation and reporting

Purpose and Goals of PI

- Alleviate unnecessary death/disability
  - Reduce inappropriate variation in care
  - Target injury prevention
- Optimize trauma care and outcomes
- Promote efficient, cost effective care

Structure for PI



State/Regional PI Committee

- Multidisciplinary
- State/Region-wide representation
- Chaired by surgeon/physician
- Leadership and expertise from regional trauma centers
- MDH provides oversight and guidance

Responsibilities

- Establish expectations and system standards for optimal trauma care
- Evaluate trauma care processes and outcomes
- Identify injury causes and prevention needs
- Develop and implement system improvement initiatives
- Monitor effectiveness of corrective activities

Patient Population

- Injured patients who meet criteria for trauma system care – Triage Criteria
- Injured patients who are discharged from the hospital with an ICD-9-CM diagnosis 800.00-959.9, excluding 905-909.9, 910-924.9, and 930-939.9
- All trauma related hospital admissions
- Any trauma related death
- Any trauma transfer either into or out of the hospital

Patient Population → MTR Inclusion Criteria

- Current algorithm excludes patients who meet trauma IDC-9 criteria but did not have:
  - Trauma team activated - Monitor compliance?
  - LOS >48 hours – Evaluate triage criteria?
  - ICU admit
  - Transfer
  - Death

Data Sources for PI

- MTR with data linkages - EMS, TBI, HDI
- Hospital medical records
- Prehospital care records
- Public safety reports - FARS
- 9-1-1 dispatch records
- Medical examiner reports
- Hospital PI findings

MN Trauma Registry

- Data elements that meet PI needs – Rehabilitation?
- Standardized data definitions and reporting
- Uniform coding (ICD-9, ISS, E-code)
- Data validation of at least 5% of cases
- Standardized reports and data requests

Scope of Review and Key Activities
Local EMS Agency

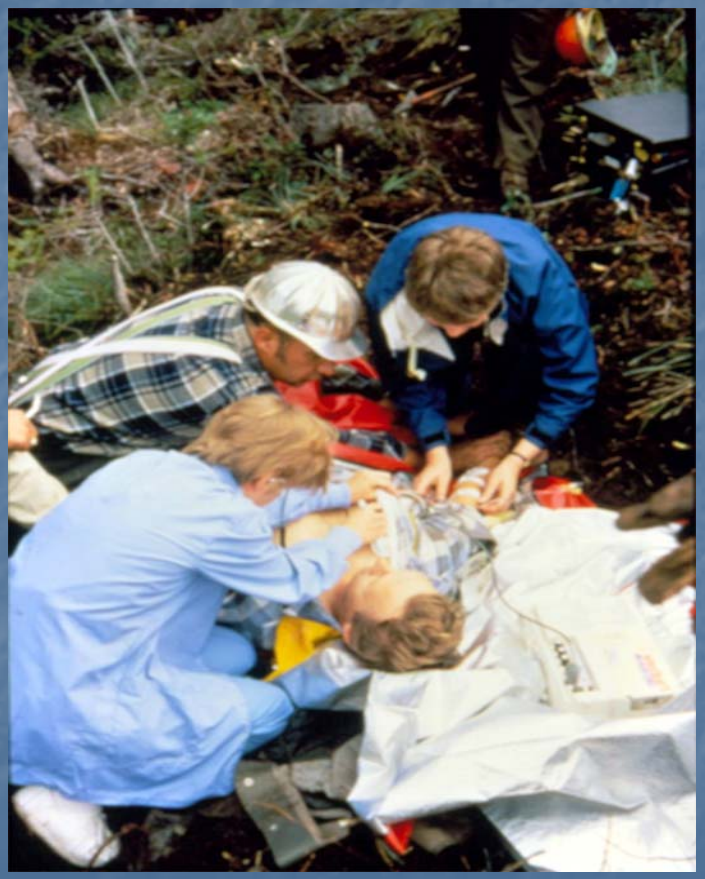
- Communications
- Medical control
- Triage and transport
- EMT training and certification
- Equipment & safety
- Documentation
- Case review

Case Review

- Led by physician director or advisor
- Review injured patients who:
  - Die or require CPR
  - Had prolonged extrication
  - Require online medical authorization
  - Meet physiologic or anatomic triage criteria
  - Mass-casualty or multiple patient scenes
  - Helicopter transport or requests
  - Met trauma triage criteria but transported to a non-trauma facility
  - Complaints and referrals from any source

EMS Evaluation

- Goal of EMS → Prevent further injury
- Focus on care processes and outcome
  - Timely assessment and extrication
  - Appropriate and timely resuscitation/stabilization
  - Safe and rapid transport to appropriate facility



Local Trauma Center PI

- Level I/II → ACS
- Level III/IV → MN requirements
- MN Trauma PI Plan serves as guide
- Purpose/goals are the same at every level
- Principles are the same at every level

Local Trauma Center PI

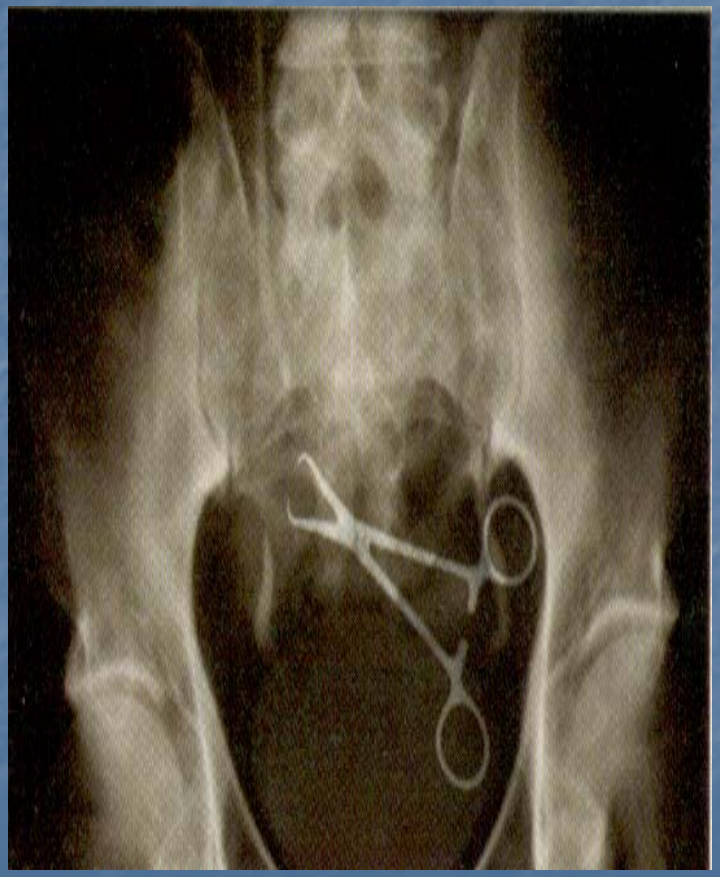
- Defined PI program and structure
- Multidisciplinary trauma PI committee chaired by TMD – includes EMS
- Peer review
- Driven by trauma registry data
- Case review

Trauma Committee

- Evaluates care processes and outcomes including EMS
- Reviews cases that “fall out” & deaths
- Evaluates trends → focused audits
- Implements corrective action with f/u
- Refers cases for further review
- Identifies cases for education

Trauma Peer Review

- Process/structure varies
- Chaired by TMD
- Attended by TNC
- Deaths, complications, and sentinel events
- Case determinations
- Outside peer review?



Injury Rehabilitation PI - Goals

- Mitigate injury related disability and secondary conditions by promoting optimal care practices →
  - Establish system-wide expectations of care
  - Monitor and evaluate care processes
  - Implement PI initiatives for variations

Structure

- Hospitals, Rehabilitation facilities, and State PI Committee
  - Evaluate process of rehabilitative care (therapies, timeliness, access, etc)
  - Evaluate outcomes → function, cognition, mobility, secondary conditions, etc.
  - Develop, implement, and monitor PI initiatives

Disability and Rehabilitation Data

- Develop data “core” within MTR →
  - Functional (physical, cognitive, etc.) status measures through care continuum
  - Rehabilitation therapies – timeliness, access, appropriateness, support services, etc
  - Development of secondary conditions
  - Hospital discharge disposition
  - Long-term follow-up – Quality of life

Regional PI

- Multidisciplinary PI Committee (RTAC)
- Lead regional hospital → leadership
- Meet in executive session
- Evaluate system care processes and outcomes
- Review deaths within region
- Develop, implement, and monitor PI initiatives
- Data from MTR, medical records

Evaluation – Process of Care Appendix A

Aspect of Care	Indicator
Triage	Under and over
Response	Timeliness of responders
Access	Hospital, specialists, OR, radiology, lab, blood, etc.
Care	ATLS and practice guidelines
Transfer	Timeliness, transport mode, personnel, communication, etc.

Evaluation – Outcome
Appendix B

Outcome Measure	Indicator
Complication	Any event that deviates from an anticipated uneventful recovery
Mortality	Any trauma death
Length of stay	ICU and total hospital days
Cost	Cost of care and services
Disability	FIM, DRS, Rancho, GOS, Quality of Life
Satisfaction	Patient perspective

Regional Mortality Review

- Mortality prediction – TRISS or alternate logistic model (ISS, age, BP, and Glasgow motor score)
- Review unexpected outcomes – preventability, trends, improvement opportunities, etc
- Preventability determination based on pre-defined definitions (Appendix D)
- Monitor rates and trends; implement improvement initiatives

Statewide PI

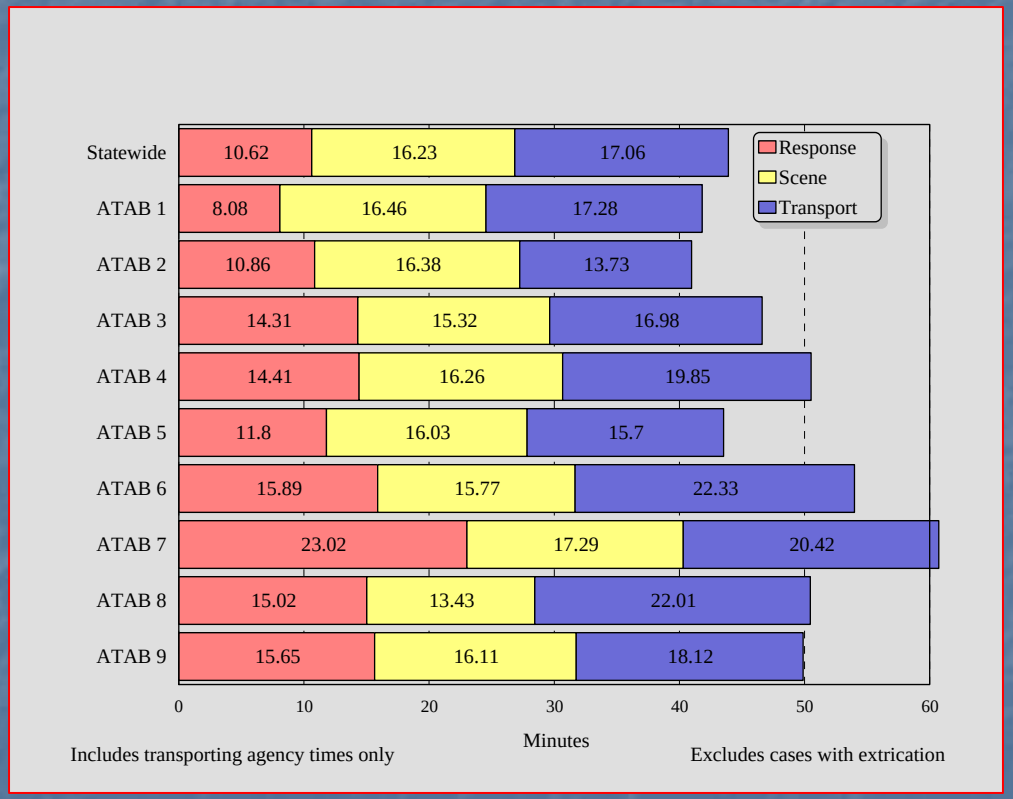
- Multidisciplinary committee (STAC)
- MDH → oversight and staff support
- MTR → reports and data
- Evaluates system processes and outcomes
- Develop, implement, and monitor PI initiatives

Scope of Review – Global Issues Appendix J

- Examples →
- EMS time – 911 to hospital arrival (dispatch, response, scene, transport)
- Air-medical usage
- Triage criteria
- Morbidity and mortality rates
- Disability
- Demographic and injury characteristics
- Data is stratified by county, region, hospital, injury severity, diagnoses, Ps, age, etc.

Process – EMS Response

- Standards established in plan
- Response monitored quarterly
- Benchmarks evaluated annually



PI Actions
Appendix I

- Revisions to protocols, policies, and practice guidelines
- Targeted Education – “M & M” Conferences
- Provider counseling - physician, TC, EMS, etc.
- Change in credentialing or designation
- Focused Reviews

Focused Reviews, Audits, Studies….

- State PI Examples →
- 3rd trimester pregnant trauma – M & M conference, practice guideline
- CHI – M & M Conference, practice guideline (Appendix I)
- Geriatric trauma – M & M, guideline, IP, published
- Triage Criteria – Protocol revision, published

Focused Reviews, Audits, Studies….

- Regional PI Examples →
- Air-medical utilization – protocol revision, education
- Trach/PEG placement – practice guideline
- Inter-hospital transfers – M & M conference, protocol, standard form
- EMS CPR – protocol, education
- Field ETT – protocol revision, training standards, equipment, and education

Documentation and Reporting

- Minutes with discussion, findings, actions
- Annual report (TC, regions, state) – mortality/morbidity rates, improvement initiatives, results, etc.
- Protect against discovery and disclosure

Confidentiality Protection

- Convene in executive session
- Confidentiality statement (Appendix F)
- Meeting materials - # documents, marked “confidential”, statutory citation
- Stored in locked file cabinet
- Legal sanctions for breaches

Recommendations

- Establish specific trauma system PI confidentiality statute (Appendix H)
- Revise MTR inclusion criteria to capture over-triage and measure compliance
- Evaluate MTR data points to assure PI questions can be answered
  - Establish data linkages – EMS, TBI, ME, Vital stats
  - Establish rehabilitation data core

Recommendations Cont.

- Implement data validation process (Appendix K) → surveys
- Provide trauma PI education and support to Level III and IV hospitals, and EMS
- Establish PI structure (RTACs, STAC)
- Adopt methods for evaluating care processes and outcomes
  - Appendix A-E