Nicklaus Children's Health System

Nicklaus Children's Hospital

MIGUEL "MIKE" B. FERNANDEZ FAMILY PEDIATRIC TRAUMA CENTER

Inpatient Cervical Spine Trauma Clearance

Inclusion Criteria

All trauma patients presenting to Nicklaus Children's Health System

Quality Metrics

1. Compliance rate with pathway recommendations
2. Identification of risks for, or occurrences of, cervical Iatrogenic spinal injury

Pathway Goals

1. Establish best practices regarding the management of patients with potential or confirmed cervical trauma

Patients presents to ER/ Trauma Bay

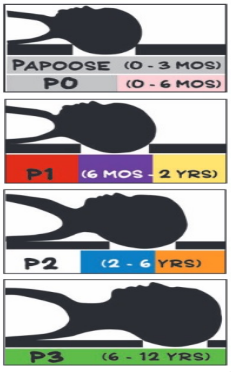
Penetrating Neck Trauma? — Yes → Stabilize neck without C-Spine Collar → Neurosurgical Consultation → Off Pathway

No → Place Miami J Collar on the patient

Specialty Sizes (40% of population) — Standard Sizes (60%)

Kyphotic (10%)	XSmall (5%)	Stout (15%)	Tall (10%)	Regular (30%)	Short (30%)
• kyphotic • chin-on-chest • geriatric • osteoporitic and/or ankylosing spondylitic	• Very short, thin neck • Principally female • More prevalent in the Asian population	• Very large neck circumference • Obese • "No neck" • Massive shoulders	• Long, tall neck • "Swan neck" • Young Women • Adolescents	• Female • Standard size for mature women • Thin, mature male	• Standard size for mature men • Short-necked women

*For individuals with neck circumference > 25", the Bariatric collar is recommended.



Was the Mechanism of Injury "High Risk"? — Yes → Obtain CT Scan of Cervical Spine

No

High Risk Conditions Cervical Spine Injury

1. Water diving related injuries
2. Falls from a height greater than 8 feet
3. Hanging injury
4. Automobile vx. Pedestrian/bicycle related trauma
5. "Head on" MVC
6. Rollover MVC
7. MVC with ejection from the vehicle
8. Axial load to any region of the head
9. Non-accidental injury (child abuse)

Does the patient have a "Communication Barrier"? — Yes → Obtain CT Scan of Cervical Spine

No

Communication Barrier

1. Less than 3-years-old
2. Developmental delay that impairs ability to understand and communicate
3. Speaks language different than the provider in the absence of an interpreter

Does the patient have findings that prevent clinical spine clearance? — Yes → Obtain CT Scan of Cervical Spine

1. Midline tenderness
2. Intoxication or decreased consciousness
3. Focal neurological deficit
4. Painful distracting injury
5. Torticollis
6. Agittion

No

CT Scan Normal? — Yes → Is the GCS 15? — Yes → Can C-Spine be "Clinically Cleared"? — Yes → Is there "Neck Tenderness"? — Yes → Keep C-Spine Collar in place for 2 weeks

No → Remove Collar

Can C-Spine be "Clinically Cleared"? — No → Is there "Neck Tenderness" after clinical clearance? — Yes → Keep C-Spine Collar in place for 2 weeks

No → Remove Collar

Is the GCS 15? — No → Consult Neurosurgery → Maintain the collar on patient until clinically cleared with a GCS of 15 → Obtain C-Spine MRI within 72 hours to evaluate for ligament injury in not clinically cleared

CT Scan Normal? — No → Neurosurgical Consultation → Off Pathway

Can the C-spine be clinically cleared? — No → Obtain X-Ray imaging of C-spine → Are X-Rays studies normal? — No → Neurosurgical Consultation → Off Pathway

Eye Opening Response	Verbal Response	Motor Response
4 = Spontaneous 3 = To verbal stimuli 2 = To pain 1 = None	5 = Oriented 4 = Confused 3 = Inappropriate words 2 = Incoherent 1 = None	6 = Obeys commands 5 = Localizes pain 4 = Withdraws from pain 3 = Flexion to pain or decorticate 2 = Extension to pain or decerebrate 1 = None

PROVIDERS ABLE TO CLEAR C SPINE

- ED, Trauma & Neurosurgery Attending, Neurosurgery Fellow, Neurosurgery Senior Resident, Ped General Surgery Attending, Ped General Surgery Fellow
- Neurosurgery ARNP