

# Implementation of Pediatric Cervical Spine Clearance Pathway – Initial Results

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## BACKGROUND

Pediatric cervical spine (c-spine) injuries are rare events with potentially devastating consequences. Injuries cannot be missed, but patients at low risk for injury should not be subject to unnecessary radiation exposure early in their lives. An established algorithm for c-spine evaluation can help balance these conflicting ideals in clinical decision-making.

## OBJECTIVE

- Determine c-spine imaging rates before and after implementation of a standardized c-spine clearance pathway.
- Identify the number of missed c-spine injuries, patients cleared clinically, and length of hospital stay.

## METHODS

- A multi-disciplinary physician group reviewed relevant current literature to develop an algorithm to guide c-spine clearance in the pediatric trauma population (age  $\leq 12$  years old).
- Patient charts 6 months before and 6 months after the implementation of our protocol to evaluate imaging rates, length of hospital stay, and to determine if there were any readmissions for missed injuries.

## RESULTS

- Total 83 patients, 53 pre-protocol and 30 post-protocol implementation
- Post-protocol implementation group
  - Fewer c-spine radiographs (6.7% vs 39.6%, p-value < 0.05)
  - More c-spines cleared clinically (53.3% vs 20.8%, p-value < 0.05)
  - Trend towards fewer computed tomography scans (45.3% vs. 43.3%, p-value = 0.86)
  - Shorter length of stay (1 vs. 2 days, p-value < 0.05)
  - No missed injuries identified despite higher injury severity scores (average ISS 9.5 vs 4.0, p-value < 0.05)

## Impact of Cervical Spine Clearance Pathway

Decreased number of  
c-spine x-rays



39.6% → 6.7%

(percent of patients)  
p-value < 0.05

Decreased number of  
c-spine CT scans



45.3% → 43.3%

(percent of patients)  
p-value = 0.86

More c-spines cleared  
clinically



20.8% → 53.5%

(percent of patients)  
p-value < 0.05

Shorter length of stay



2 → 1

(days)  
p-value < 0.05

## CONCLUSIONS

Use of a standardized c-spine clearance pathway decreases unnecessary radiation exposure and allows more patients' c-spines to be cleared clinically without compromising patient care. Thus far, our data suggests that a c-spine clearance pathway is paramount to ensuring that patients are evaluated appropriately and adequately with regard to c-spine injuries.

## REFERENCES

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