The Canadian C-Spine Rule

For alert (GCS score = 15) and stable trauma patients when cervical spine injury is a concern.

1. ANY HIGH RISK FACTOR THAT MANDATES RADIOGRAPHY?
   - Age ≥65yr or
   - Dangerous mechanism* or
   - Paresthesias in extremities

   NO

2. ANY LOW RISK FACTOR THAT ALLOWS SAFE ASSESSMENT OF RANGE OF MOTION?
   - Simple rear-end MVC** or
   - Sitting position in ED or
   - Ambulatory at any time or
   - Delayed onset of neck pain*** or
   - Absence of midline cervical spine tenderness

   NO

3. ABLE TO ACTIVELY ROTATE NECK?
   - 45 degrees left and right

   YES
   - ABLE
   - NO RADIOGRAPHY
   - NO

   KEY
   - Dangerous mechanism
     - Fall from elevation ≥91.5cm/5 stairs
     - Axial load to head, e.g. diving
     - MVC high speed (>100km/h), rollover, ejection
     - Motorised recreational vehicles
     - Bicycle crash

   ** Simple rear-end MVC excludes
   - Hit by bus/large truck
   - Rollover
   - Hit by high speed vehicle

   *** Delayed
   - Not immediate onset of neck pain

Instructions for using the Canadian C-Spine Rule

1. Define whether any high risk factors are present such as age (≥65 years) or dangerous mechanism (includes high speed or roll over or ejection, motorised recreation vehicle or bicycle crash). If this is the case, an X-ray of the cervical spine should be performed.

2. Define low risk factors that allow safe assessment of neck ROM. If the low risk factors shown in the flow chart are not present, an X-ray of the neck should be performed.

3. Assess rotation of the neck to 45 degrees in people who have low risk factors shown in the QTF Classification of Grades of WAD. If people are able to rotate their neck to 45 degrees, they do not require an X-ray of the neck.

This rule has been validated across several different populations and has been shown to have a sensitivity of 99.4 per cent and a specificity of 42.5 per cent. Essentially, physicians who follow this rule can be assured that a fracture will not be missed (95% CI 98–100%). Further a systematic review investigated the diagnostic accuracy of the Canadian C-Spine Rule and the National Emergency, X-Radiography Utilization Study (NEXUS) criteria and found that the Canadian C-Spine Rule had better accuracy.