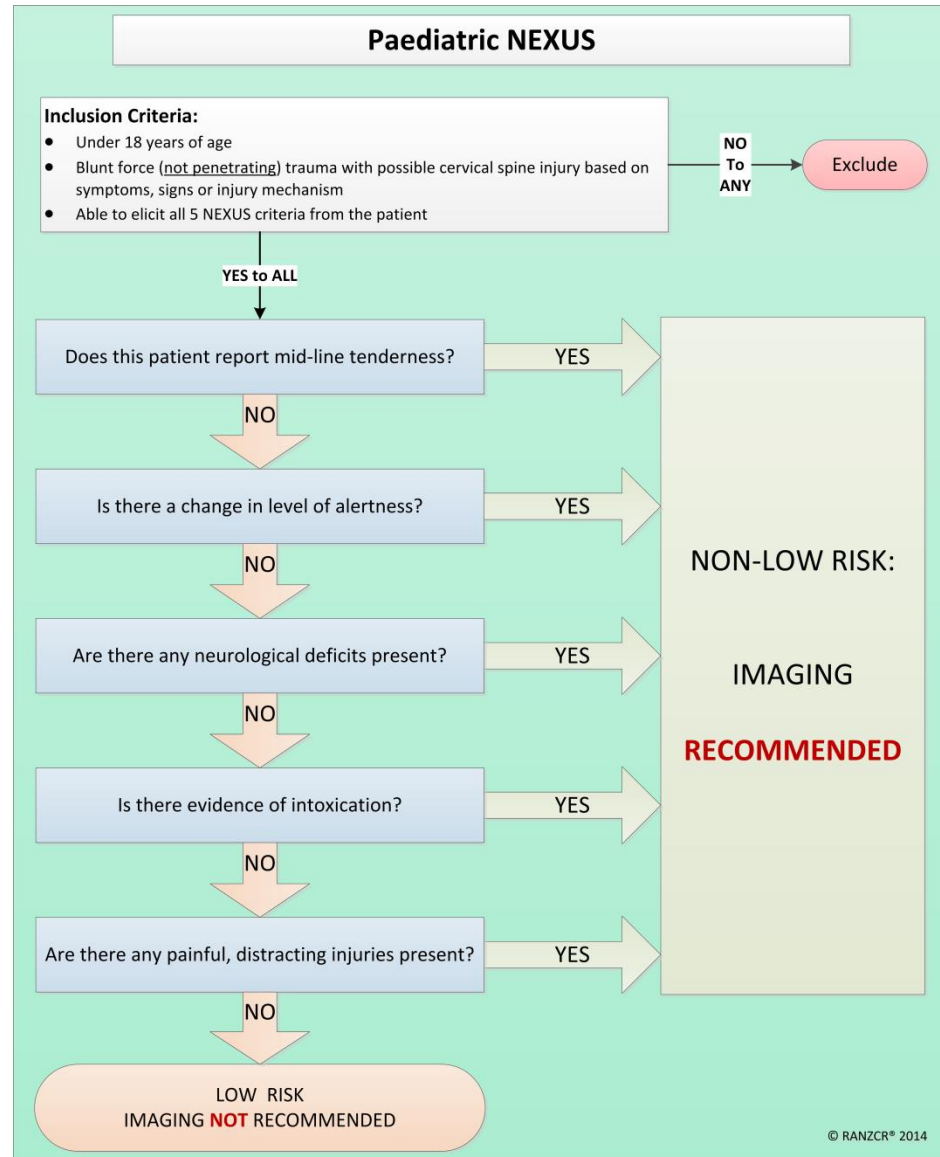


## NEXUS (Paediatric)

### Algorithm:



### Summary Statement:

In the past, there has been little research about the appropriateness of cervical spine imaging in the trauma setting with regard to the paediatric population. In this large, prospective multicentre study, Viccellio et al. (2001) have demonstrated promising results applying the five NEXUS criteria to patients under the age of 18 years who have sustained blunt force trauma. In their study, the decision instrument did not miss any cases of cervical spine injury (CSI) and would have resulted in 20% fewer radiologic examinations. However, it must be remembered that investigation of CDR use in children is complicated by several factors:

1. Small numbers of paediatric patients with actual cervical spine injury
2. Anatomical differences compared to adults with regard to the nature and location of clinically important CSI in children
3. The relatively small incidence of cervical spine injuries in the paediatric population
4. Developmental differences influencing assessment of the NEXUS criteria that were primarily developed for use in adults (e.g. posterior neck tenderness, painful distracting injuries or intoxication). Viccellio et al. point out that the youngest paediatric patients (aged 9 years or less) create most uncertainty about the performance of the NEXUS CDR, given that the number of study participants in this age group is small for both the original NEXUS study and the Viccellio et al. validation, and so too are the number of cervical spine injuries.

Ehrlich et al. (2009) applied the NEXUS criteria retrospectively in a group of 108 paediatric patients who had undergone cervical spine imaging and reported the sensitivity for predicting cervical spine injury as 43%. This is markedly different to the results of the Viccellio study.

Booth (2012) cautions that, “overall, there is conflicting information and limited agreement in the literature concerning the use of clinical screening tools in CSI involving the young child”. The use of CDRs in relation to potential cervical spine injury should be applied with caution in paediatric patients, and radiation dose should be minimised to reduce the risk of harmful long-term effects”.

### Reference:

Hoffman JR, Wolfson AB, Todd K, Mower WR. Selective cervical spine radiography in blunt trauma: methodology of the National Emergency X-Radiography Utilization Study (NEXUS). *Ann Emerg Med.* 1998; 32(4): 461-9.

Viccellio P, Simon H, Pressman BD, Shah MN, Mower WR, Hoffman JR. A prospective multicenter study of cervical spine injury in children. *Pediatrics.* 2001; 108(2): E20.